University of Zagreb

FACULTY OF KINESIOLOGY

Mario Oršolić

QUALITATIVE ANALYSIS OF EXPERIENCES OF TENNIS PLAYERS WITH VARYING LEVELS OF SUCCESS

DOCTORAL DISSERTATION

Zagreb, 2026

Sveučilište u Zagrebu

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KVALITATIVNA ANALIZA ISKUSTAVA TENISAČA RAZLIČITIH KATEGORIJA USPJEŠNOSTI

DOKTORSKI RAD

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Supervisors:

Professor Petar Barbaros, PhD

Assistant Professor Dario Novak, PhD

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Mentori:

prof. dr. sc. Petar Barbaros

doc. dr. sc. Dario Novak

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INFORMATION ON MENTORS

Prof. Petar Barbaros, PhD was born on May 2, 1977, in Zagreb. He completed his primary and secondary education in Zagreb and graduated from the Faculty of Physical Culture University of Zagreb in 2000. In 2001, he graduated from the Polytechnic of Social Sciences, Department of Coach Education, majoring in Tennis, and obtained the Croatian A coaching license. He enrolled in the doctoral study program at the Faculty of Kinesiology University of Zagreb, and defended his doctoral dissertation titled "Physiological Load of Tennis Players Induced by Playing on Different Court Surfaces" in 2008.

Since 2001, he has been teaching elective courses in Tennis and Skiing at the Faculty of Physical Culture as a junior researcher. In 2002, he participated in a project of the Ministry of Science and Technology titled "Applied Physiology of Tennis". He has attended numerous courses and workshops on NLP, the Alexander Technique, mind control, mental dynamics, life coaching, and others. In 2004, he was appointed as a junior researcher-assistant, and in 2008 as a junior researcher in the associate title of senior assistant at the Faculty of Kinesiology University of Zagreb. In 2013, he was elected to the scientific-teaching title and position of Assistant Professor for the subject Racket Sports, and in 2018 to the scientific-teaching title and position of Associate Professor at the Faculty of Kinesiology University of Zagreb.

Since 2004 until today he has been the President of the Expert Committee of the Zagreb Tennis Association and a member of the Expert Committee of the Croatian Tennis Association. From 2007 to 2011, he was an expert associate at the "Tenis" magazine, writing a column titled "Mental Preparation of Tennis Players". From 2009 to 2011, he was appointed as the Vice President of the Croatian Tennis Coaches Association. From 2012 to 2016, he was the President of the Expert Committee of the Croatian Tennis Association. Since 2018, he has been the Director of the Croatian Institute of Kinesiology, professional editor at the "Tenis" magazine, and a member of the International Sports Mental Coach Association (ISMCA), having completed all mental coach training courses. Since 2019, he has been a member of the Sport Science and Medicine Committee of the International Tennis Federation (ITF), and since 2021, a member of the Tennis Europe Development Committee.

As a tennis player, he was ranked among the top ten junior tennis players on the Croatian national ranking list. From 1998 to 2003, he was a player and coach at the Millennium

Zagreb Tennis Club, which became the Croatian team senior vice champion three times. As a tennis coach at the Millennium Zagreb Tennis Club, he worked with promising junior players and ATP list players. From 2006 to 2009, he was the tennis and mental coach of Fed Cup team member Nika Ožegović, and since 2012, the mental coach of Magda Linette, who achieved a career-high singles ranking as 41st on the WTA list. He continuously pursues professional development at domestic and international scientific and professional conferences, and has published 38 scientific and 47 professional papers. He has received numerous awards and recognitions, including the Rector's Award in 1998, a commendation from the University of Zagreb as one of the top 5% lecturers based on student surveys in 2010, and a special recognition from the Rector of University of Zagreb for sports achievements as the head coach of the men's and women's tennis teams at the European University Tennis Championship held in Portugal in 2010. He was also the mentor for the scientific paper of student Sara Šanjug which received the Rector's Award in 2022.

Asst. Prof. Dario Novak is an assistant professor at the Faculty of Kinesiology University of Zagreb, Croatia. He received his PhD in sports science at the Faculty of Kinesiology University of Zagreb in 2010. He was a postdoctoral fellow of Columbia University, New York and Harvard University, Boston, USA. Professor Novak's research interests lie in integrated and holistic approaches in the field of human health and performance. Aa an editor of one book and author of over 200 publications in scientific and sports journals, Professor Novak has offered several keynote and invited presentations, and over 100 conference paper presentations. He has received both the FIEP Europe Thulin Award 2011 from the International Federation of Physical Education (FIEP Europe) and International FIEP Cross of Honor Award from the International Federation of Physical Education (FIEP World). In 2017, he was recognized by the FIEP Mexico at Mexico City where he has received the Medalla Prof. Adolfo Pérez Acosta as an outstanding scholar for his contributions to educational research. In addition, he was the recipient of the Best Young Scientists Award at the Faculty of Kinesiology University of Zagreb in 2015, 2016 and 2017. In 2018, the National Science Awards Committee, formed by the Croatian Parliament, selected Professor Novak for the prestigious Annual Award for Junior Researcher, which is granted to outstanding young scientists in recognition of their scientific and research activities. In 2019, he received the Ambassador of Physical Education Award for human health and performance promotion. In 2020, he received the National PE Award from the

Croatian Kinesiology Federation. He was part of Donna Vekić's coaching team for almost 10 years (best ranking as 21st in the world WTA), Christina McHale's coaching team (best ranking as 24th in the world WTA), as well as part of Marta Kostyuk's coaching team (2nd in the world in ITF Juniors and 2017 Girls Australian Open Singles Championship) and Elena Rybakina's coaching team (Wimbledon Champion in 2022). Currently, he is part of Stan Wawrinka's coaching team (3 times Grand Slam Champion). In the past, Professor Novak also worked with Borna Ćorić (1st in the world in ITF Juniors) and Ivana Jorović (1st in the world in ITF Juniors) among many others. In addition, he also worked as a consultant with a number of teams and organizations, including Bosnia and Herzegovina national basketball team.

ACKNOWLEDGMENTS

This doctoral dissertation would not have been possible without the assistance of dear and exceptional individuals, especially my professors who selflessly helped, guided, and encouraged me when it was most needed. Therefore, I would like to offer special thanks to my mentors, Petar Barbaros and Dario Novak, for dedicating their time and effort as mentors of this project, and for advising and guiding me throughout my research. I am grateful to them for their friendly approach, patience, kindness, and expertise, which helped me make my first steps in scientific research. In addition, I would also like to thank them for their assistance in the writing, analysis, and discussion on the research results that are now part of this doctoral dissertation.

In addition, I am grateful to all the tennis players who dedicated their time to participate in this research. By showing great willingness and enthusiasm, they significantly contributed to the quality of this dissertation.

Furthermore, I would like to thank my family and friends who were always by my side when I needed help, and whose support was a great source of motivation.

I hereby thank the members of the Expert Committee for the evaluation and defense of this doctoral dissertation for all their useful comments and suggestions which further improved it.

Finally, I owe the greatest thank you to my parents, Mate and Ana, without whom none of this would have been possible. They provided me with support in every sense of the word, and their sacrifice, assistance, and belief in my success have accompanied me throughout my entire educational journey. I hope that I have made them proud.

M a r i o

LIST OF ABBREVIATIONS

AAP - The American Academy of Pediatrics

ACSM - The American College of Sports Medicine

AMSSM - The American Medical Society for Sports Medicine

AOSSM - The American Orthopaedic Society for Sports Medicine

ATP - The Association of Tennis Professionals

DMSP - Developmental Model of Sport Participation

ITF - The International Tennis Federation

LTAD - Long-Term Athlete Development

NBA - The National Basketball Association

U-10 – national team of players aged under 10

U-15 - national team of players aged under 15

U-16 - national team of players aged under 16

U-17 - national team of players aged under 17

U-18 - national team of players aged under 18

U-19 - national team of players aged under 19

U-20 - national team of players aged under 20

U-21 - national team of players aged under 21

UEFA - The Union of European Football Associations

US OPEN - The United States Open Tennis Championships

USTA - The United States Tennis Association

WTA - The Women's Tennis Association

YPD - Youth Physical Development

Contents

ABSTRACT

Objective The main objective of this doctoral dissertation is to contribute to the conceptualization of athletic success and the sports career of tennis players. Upon using a biographical studies approach, life stories of tennis players will be collected, and, based on their personal experiences, differences will be identified among tennis players at different levels of success. Three specific objectives have been set for three studies (Study 1, Study 2, and Study 3). Study 1 aimed to research various negative life events/circumstances (injuries, lack of financial resources, failure to be selected for the national team) and the way in which such events, based on personal experience, influenced the tennis careers of players. Study 2 aimed to explore the developmental pathway of tennis players and how different developmental paths of early, optimal and late specialization affected their tennis careers and success. Study 3 aimed to research the perspectives of tennis players at different levels of success and the impact of social capital, especially in relation to their families, as well as how this affected their long-term athletic development and achieved success.

Study 1 methods Thirty players were interviewed by using purposive sampling. The study participants were composed of three categories of male tennis players, as follows: (1) Grand Slam winners (N = 10), i.e., tennis players who won at least one of the four major Grand Slam tournaments in tennis (Australian Open, Roland Garros, Wimbledon or US Open), (2) players ranked between position 150 and 300 on the professional men's tennis ranking list (N = 10) (according to the official website of the Association of Tennis Professionals (ATP)), and (3) senior players with national rank between 1st and 10th position on the national ranking list or on the ATP ranking list between position 500 and 1500 (N = 10). This study researched various negative life events/circumstances (injuries, lack of financial resources, failure to be selected for the national team) and the way in which such events, based on personal experience, influenced the tennis careers of players. Upon reflecting on the research problem, the following research question was posed: "According to the players' personal experience, did, and if so, how did various negative life events/circumstances (injuries, lack of financial resources, failure to be selected for the national team) influence their tennis careers"? Data collection was organized by using the semi-structured interview method (qualitative methodological approach), and data analysis was conducted by using reflexive thematic analysis.

Study 1 results Upon applying data analysis, three distinct, but inter-related topics were produced: injuries, lack of financial resources, failure to be selected for the national team. Participants at the third level of success experienced a peaceful and harmonious beginning of their career until the transition from junior to senior tennis. During this period, various problems started to occur, most often injuries. For participants at the third level of success, the onset of injuries during this phase was often a disruptive and unpleasant experience. Participants at the second level of success, especially players who were very talented, were more prone to injuries due to overtraining. Despite frequent injuries, Grand Slam winners managed to overcome the aforementioned situations by recovering and continuing, as well as at times even playing despite certain functional limitations. It can be said that they possessed greater resilience and determination in overcoming such situations, driven by a focused determination and a desire for achieving success. The logistical demands of competitive tennis posed problems for participants at the second and third level of success, whereas for Grand Slam winners, the lack of financial resources showed as a strong stimulus for achieving the greatest success. Talent identification became a key characteristic for national systems. Grand Slam winners, as gifted players, had support from their national tennis federations, which can be associated with their later success. A key finding of the study is that, regardless of the tennis players' level of success, negative life events/circumstances were particularly challenging for some of the participants.

Study 1 conclusion This research provided evidence regarding a range of challenges faced by tennis players during their development to a certain level of success. Tennis players of different success levels dealt with challenges differently, despite injuries, financial difficulties, and failure to be selected for the national team. Therefore, differences between various levels of success among tennis players relate more to overcoming various negative life events/ circumstances (injuries, lack of financial resources, failure to be selected for the national team) which athletes faced during their tennis careers. This study can contribute to expanding insight on the impact of negative life events/circumstances on an athlete's tennis career, and could teach young tennis players to accept various negative events/circumstances with the goal of achieving top level results.

Study 2 methods Thirty players were interviewed by using purposive sampling. The study participants were composed of three categories of male tennis players, as follows: (1) Grand Slam winners (N = 10), i.e., tennis players who won at least one of the four major Grand Slam tournaments in tennis (Australian Open, Roland Garros, Wimbledon or US Open), (2) players

ranked between position 150 and 300 on the professional men's tennis ranking list (N = 10) (according to the official website of the Association of Tennis Professionals (ATP)), and (3) senior players with national rank between 1st and 10th position on the national ranking list or on the ATP ranking list between position 500 and 1500 (N = 10). This study researched the developmental pathways of tennis players and how different developmental paths of early, optimal and late specialization affected their tennis careers and success. Upon reflecting on the research problem, the following research question was posed: „Which events do tennis players perceive as the start of their sport specialization in tennis, and when did it begin for them (early, optimal, or late)?" Data collection was organized by using the semi-structured interview method (qualitative methodological approach), and data analysis was conducted by using reflexive thematic analysis.

Study 2 results Data analysis resulted in seven sub-topics which were presented within three main topics: (I) engaging in tennis, (II) decisions, and (III) timing of specialization. An early start in playing tennis characterized almost all participants at the second and third level of success. They had a similar early start (at the age of six or seven), while Grand Slam winners started somewhat earlier (at the age of four or five). The beginnings of Grand Slam winners were marked by a small number of trainings per week, and they emphasized that tennis was not the only sport they engaged in. Participants at the second and third level of success stated that they were specialized too early and narrowly, frequently participated in competitions, and described joining world-renowned tennis academies as a bad decision. Grand Slam winners, as a positive example, highlighted joining an elite group of players with whom they trained, and considered the support they received from their teammates as significant for their later success. Data analysis showed that Grand Slam winners specialized later. Grand Slam winners believe that children at an early age should develop their motor skills by engaging in other sports and that targeted and intensive trainings (narrow specialization) in tennis should not be introduced too early.

Study 2 conclusion This research elaborated the difficulties tennis players face on their path to success, while enabling future tennis players, coaches and other sports personnel to plan the optimal timing for initiating sports specialization in tennis. Therefore, the mentioned standards should be introduced into future practice in order to assist sports communities and service providers to make all processes more efficient. It is important that first contact with tennis is arranged earlier in youth with the aim of triggering a love for the sport and creating a positive feeling towards playing tennis. Specialization (targeted and more intensive trainings) is

recommended in late adolescence, as early sports specialization includes significant risks of sports injuries, experiencing high psychological stress, and often resulting in dropping out of the sport. It is desirable for tennis players, in addition to tennis trainings, to also engage in other sports to develop various skills and abilities from which they will have long-term benefits in achieving greater success in tennis.

Study 3 methods Thirty players were interviewed by using purposive sampling. The study participants were composed of three categories of male tennis players, as follows: (1) Grand Slam winners (N = 10), i.e., tennis players who won at least one of the four major Grand Slam tournaments in tennis (Australian Open, Roland Garros, Wimbledon or US Open), (2) players ranked between position 150 and 300 on the professional men's tennis ranking list (N = 10) (according to the official website of the Association of Tennis Professionals (ATP)), and (3) senior players with national rank between 1st and 10th position on the national ranking list or on the ATP ranking list between position 500 and 1500 (N = 10). This study researched the perspectives of tennis players at different levels of success and the impact of social capital, especially in relation to their families, as well as how this affected their long-term athletic development and achieved success. Upon reflecting on the research problem, the following research question was posed: "Do tennis players at different levels of success consider social capital as a key factor for the development of their tennis careers, and how did family and their surroundings affect their development?" Data collection was organized by using the semi-structured interview method (qualitative methodological approach), and data analysis was conducted by using reflexive thematic analysis.

Study 3 results Data analysis showed that social capital in a sports environment has significant impact on the athletic development of tennis players, however that it differs according to the player's level of success. All family members involved in the athletic upbringing of participants at the third level of success were actively engaged in their sports development. In addition to emotional support from family members, financial and logistical support was also present. The financial challenges faced by parents of participants at the third level of success had significant impact on their tennis careers. Fathers had the greatest influence on the player's sports development, and consequently, they most frequently experienced conflicts with them. Parental conflicts, i.e., conflicts between the father and the mother, most often occurred due to a lack of financial resources. For participants at the second level of success, parents had a significant influence on their tennis development. The parental role was most noticeable in financial and

emotional support, as well as assistance during tennis tournaments. Research results showed that participants at the second level of success expressed a need for additional professional support, particularly in the coach selection process. Grand Slam winners also had family support and considered it as normal and very important, i.e. precisely as it should be - support without any pressure. Alongside the immediate family, other relatives also created a very supportive environment from an early age. Grand Slam winners believe that, in addition to family support, genetics are also very important for success.

Study 3 conclusion Tennis players' perspectives revealed that in their long-term athletic development and achievements, especially in relation to their families, the influence of social capital played a crucial role in the process of their upbringing and support. Thus, in order to enhance the long-term athletic development of tennis players, families should ensure and provide a more significant role in accumulating social capital. However, this is neither a necessary, nor a sufficient condition for success. Furthermore, the research showed that overparenting in sports has become widespread and noticeable phenomenon at all levels of athletic development. Insights obtained from this research and other studies suggest that a less intensive parental influence can sometimes provide more beneficial results, which is an extremely important message.

Key words: tennis, success, interview, reflexive thematic analysis, developmental path, specialization, social capital

ABSTRACT IN CROATIAN LANGUAGE

Cilj Glavni je cilj ove doktorske disertacije doprinijeti konceptualizaciji sportskoga uspjeha i sportske karijere tenisača. Pristupom biografskim studijama prikupit će se životne priče tenisača, te će se temeljem njihovoga osobnog doživljaja, identificirati razlike među tenisačima različitih razina uspješnosti. Postavljena su tri specifična cilja za tri studije (Studija 1, Studija 2 i Studija 3). Studija 1 imala je za cilj istražiti različite negativne životne događaje/okolnosti (ozljede, nedostatak financija, neizbor u nacionalnu selekciju) te kako su one, na temelju osobnoga doživljaja, utjecale na tenisku karijeru tenisača. Studija 2 imala je za cilj istražiti razvojni put tenisača te kako su različiti razvojni putevi rane, optimalne i kasne specijalizacije utjecali na njihovu tenisku karijeru i uspjeh. Studija 3 imala je za cilj istražiti perspektive tenisača na različitim razinama uspjeha i utjecaj društvenoga kapitala, posebno u odnosu na njihovu obitelj, te kako je navedeno dugoročno utjecalo na njihov sportski razvoj i postignuti uspjeh.

Studija 1 metode Namjernim uzorkom intervjuirano je 30 igrača. Sudionici istraživanja jesu: tri kategorije muških tenisača, i to: (1) Grand Slam pobjednici (N = 10), tj. igrači koji su osvojili barem jedan od četiriju najvećih Grand Slam turnira u tenisu (Australian Open, Roland Garros, Wimbledon ili US Open), (2) igrači rangirani od 150. do 300. mjesta na profesionalnoj teniskoj ljestvici (N = 10) (prema službenoj stranici Association of Tennis Professionals (ATP)) i (3) seniorski igrači nacionalnoga ranga rangirani od 1. do 10. mjesta na nacionalnoj rang-listi ili na ATP-ovoj ljestvici od 500. do 1500. mjesta (N = 10). U ovoj studiji istraživani su različiti negativni životni događaji/okolnosti (ozljede, nedostatak financija, neizbor u nacionalnu selekciju) te kako su one, na temelju osobnoga doživljaja, utjecale na njihovu tenisku karijeru. Promišljajući o istraživačkome problemu, postavilo se sljedeće istraživačko pitanje: „Jesu li, i ako da, na koji način, različiti negativni životni događaji/okolnosti (ozljede, nedostatak financija, neizbor u nacionalnu selekciju) prema osobnom doživljaju tenisača utjecali na njihovu tenisku karijeru?“ Prikupljanje podataka organizirano je primjenom metode polustrukturiranoga intervjua (kvalitativni metodološki pristup), a analiza podataka provedena je korištenjem refleksivne tematske analize.

Studija 1 rezultati Analizom podataka došlo je do stvaranja triju (ozljede, nedostatak financija i neizbor u nacionalnu selekciju) različitih, ali međusobno povezanih tema. Sudionici treće razine uspješnosti imaju miran i skladan početak karijere sve do trenutka prijelaza iz

juniorskoga u seniorski tenis. U tome razdoblju počinju se javljati razni problemi, najčešće ozljede. Za sudionike treće razine uspješnosti početak ozljeda tijekom te faze često je ometajuće i neugodno iskustvo. Sudionici druge razine uspješnosti, posebno oni koji su vrlo talentirani, bili su skloniji ozljedama zbog pretreniranosti. Unatoč čestim ozljedama, Grand Slam pobjednici uspjeli su prevladati navedene situacije na način da su se oporavili i nastavili, a u pojedinim trenutcima čak i igrali usprkos određenim funkcionalnim ograničenjima. Može se reći da su imali veću otpornost i odlučnost u nadilaženju navedenih situacija s usmjerenom odlučnošću i željom da postignu uspjeh. Logistički zahtjevi natjecateljskoga tenisa predstavljali su probleme sudionicima druge i treće razine uspješnosti, dok je nedostatak financija Grand Slam pobjednicima bio snažan poticaj za postizanje najvećega uspjeha. Identifikacija talenata postala je ključna karakteristika nacionalnih sustava. Grand Slam pobjednici, kao daroviti igrači, imali su potporu nacionalnih teniskih saveza, što se može povezati s kasnijim uspjehom. Ključno otkriće studije jest da su, neovisno o uspješnosti tenisača, negativni životni događaji/okolnosti za neke sudionike bili posebno teški.

Studija 1 zaključak Ovo je istraživanje pružilo dokaze o nizu izazova s kojima su se suočavali tenisači tijekom svojega odrastanja do određene razine uspjeha. Tenisači različitih razina uspješnosti različito su se nosili s izazovima unatoč ozljedama, financijskim teškoćama i neizboru u nacionalnu selekciju. Stoga, razlike između različitih razina uspješnosti tenisača više se odnose na prevladavanje različitih negativnih životnih događaja/okolnosti (ozljede, financije, neizbor u nacionalnu selekciju) s kojima su se sportaši suočavali tijekom svoje teniske karijere. Ova studija može doprinijeti proširivanju znanja o utjecaju negativnih životnih događaja/okolnosti na tenisku karijeru sportaša, a mlade tenisače mogla bi naučiti prihvaćanju različitih negativnih događaja/okolnosti s ciljem postizanja vrhunskih rezultata.

Studija 2 metode Namjernim uzorkom intervjuirano je 30 igrača. Sudionici istraživanja jesu: tri kategorije muških tenisača, i to: (1) Grand Slam pobjednici (N = 10), tj. igrači koji su osvojili barem jedan od četiriju najvećih Grand Slam turnira u tenisu (Australian Open, Roland Garros, Wimbledon ili US Open), (2) igrači rangirani od 150. do 300. mjesta na profesionalnoj teniskoj ljestvici (N = 10) (prema službenoj stranici Association of Tennis Professionals (ATP)) i (3) seniorski igrači nacionalnog ranga rangirani od 1. do 10. mjesta na nacionalnoj rang-listi ili na ATP-ovoj ljestvici od 500. do 1500. mjesta (N = 10). U ovoj studiji istraživani su razvojni putevi tenisača te kako su različiti razvojni putevi rane, optimalne i kasne specijalizacije utjecali na tenisku karijeru i uspjeh tenisača. Promišljajući o istraživačkome problemu, postavilo se

sljedeće istraživačko pitanje: „Koje događaje tenisači doživljavaju kao početak sportske specijalizacije u tenisu i kada je ona kod njih započela (rano, optimalno ili kasno)?“ Prikupljanje podataka organizirano je primjenom metode polustrukturiranoga intervjua (kvalitativni metodološki pristup), a analiza podataka provedena je korištenjem refleksivne tematske analize.

Studija 2 rezultati Analiza podataka rezultirala je sa sedam podtema koje su predstavljene u sklopu triju glavnih tema: (I) bavljenje tenisom, (II) odluke i (III) vrijeme specijalizacije. Rani početak igranja tenisa obilježio je gotovo sve sudionike druge i treće razine uspješnosti. Oni su imali sličan rani početak (u dobi od šest ili sedam godina), dok su Grand Slam pobjednici imali nešto raniji početak (dob od četiri ili pet godina). Početci Grand Slam pobjednika obilježeni su malim brojem treninga tjedno te su oni naglašavali da im tenis nije bio jedini sport koji su igrali. Sudionici druge i treće razine uspješnosti kažu da su se prerano usko specijalizirali, često sudjelovali na natjecanjima, a odlazak u svjetski poznate akademije opisali su lošom odlukom. Grand Slam pobjednici, kao pozitivan primjer, istaknuli su pridruživanje elitnoj skupini igrača s kojom su trenirali, a podršku koju su dobivali od suigrača smatraju značajnom za svoj kasniji uspjeh. Analizom podataka utvrđeno da su se Grand Slam pobjednici kasnije specijalizirali. Grand Slam pobjednici smatraju da djeca u ranoj dobi moraju razvijati svoju motoriku uključivanjem u druge sportove i da ne treba rano krenuti u usmjerene i intenzivne treninge (uska specijalizacija) u tenisu.

Studija 2 zaključak Ovo je istraživanje razjasnilo poteškoće s kojima se tenisači suočavaju na putu do uspjeha, a budućim tenisačima, trenerima i ostalom sportskome osoblju omogućuje planiranje optimalnoga vremena za početak sportske specijalizacije u tenisu. Stoga, te standarde treba uključiti u buduću praksu kako bi se pomoglo sportskim zajednicama i pružateljima usluga da sve procese učine učinkovitijima. Važno je da prvi doticaj s tenisom bude organiziran ranije u mladosti s ciljem izazivanja ljubavi prema sportu i s ciljem stvaranja pozitivnog osjećaja bavljenjem tenisom. Specijalizacija (usmjereni i intenzivniji treninzi) se preporuča u kasnoj adolescenciji jer rana sportska specijalizacija sa sobom nosi velike rizike nastanka sportskih ozljeda, doživljavanja velikoga psihološkog stresa i za posljedicu često ima odustajanje od sporta. Poželjno je da se tenisači, osim treningom, bave i drugim sportovima kako bi razvili različite vještine i sposobnosti od kojih će dugoročno imati koristi u postizanju većega uspjeha u tenisu.

Studija 3 metode Namjernim uzorkom intervjuirano je 30 igrača. Sudionici istraživanja jesu: tri kategorije muških tenisača, i to: (1) Grand Slam pobjednici (N = 10), tj. igrači koji su osvojili

barem jedan od četiriju najvećih Grand Slam turnira u tenisu (Australian Open, Roland Garros, Wimbledon ili US Open), (2) igrači rangirani od 150. do 300. mjesta na profesionalnoj teniskoj ljestvici (N = 10) (prema službenoj stranici Association of Tennis Professionals (ATP)) i (3) seniorski igrači nacionalnoga ranga rangirani od 1. do 10. mjesta na nacionalnoj rang-listi ili na ATP-ovoj ljestvici od 500. do 1500. mjesta (N = 10). U ovoj studiji istraživane su perspektive tenisača na različitim razinama uspjeha i utjecaj društvenoga kapitala, posebno u odnosu na njihovu obitelj, te kako je navedeno dugoročno utjecalo na njihov sportski razvoj i postignuti uspjeh. Promišljajući o istraživačkome problemu, postavilo se sljedeće istraživačko pitanje: „Smatraju li tenisači različitih razina uspjeha društveni kapital ključnim za razvoj svoje teniske karijere i kako su obitelj i okolina utjecali na njihov razvoj?“ Prikupljanje podataka organizirano je primjenom metode polustrukturiranoga intervjua (kvalitativni metodološki pristup), a analiza podataka provedena je korištenjem refleksivne tematske analize.

Studija 3 rezultati Analiza podataka pokazala je da društveni kapital u sportskome okruženju ima važan utjecaj na sportski razvoj tenisača, ali razlikuje se prema razini uspješnosti igrača. Svi članovi obitelji u sportskome odrastanju sudionika treće razine uspješnosti bili su aktivno uključeni u sportski razvoj. Osim emocionalne podrške članova obitelji, tu je bila financijska i logistička podrška. Financijski izazovi s kojima su se suočavali roditelji sudionika treće razine uspješnosti imali su značajan utjecaj na njihovu tenisku karijeru. Najveći utjecaj na njihov sportski razvoj imali su očevi te su, stoga, s njima imali najčešće sukobe. Roditeljski sukobi, tj. sukobi između oca i majke, najčešće su se događali zbog nedostatka financijskih sredstava. Kod sudionika druge razine uspješnosti roditelji su imali značajan utjecaj u njihovome teniskom odrastanju. Uloga roditelja bila je najviše vidljiva u financijskoj i emocionalnoj podršci, kao i pomoći tijekom turnira. Rezultati su pokazali da su sudionici druge razine uspješnosti izrazili potrebu za dodatnom stručnom podrškom, posebice u procesu odabira trenera. Grand Slam pobjednici također su imali podršku obitelji te smatraju da je ona bila uobičajena i vrlo važna, odnosno onakva kakva bi trebala biti, podrška bez ikakvoga pritiska. Uz obitelj, rođaci su stvarali jako dobro okuženje od rane dobi. Grand Slam pobjednici smatraju da je za uspjeh, uz podršku članova obitelji, jako bitna i genetika.

Studija 3 zaključak Perspektive tenisača otkrile su da na dugoročni sportski razvoj i postignuća, posebno u odnosu na njihovu obitelj, ključnu ulogu u procesu odgoja i podrške tenisačima igra utjecaj društvenoga kapitala. Kako bi se poboljšao dugoročni sportski razvoj tenisača, obitelji moraju osigurati i dati značajniju ulogu u akumulaciji društvenoga kapitala, no to nije nužno i to nije dovoljan uvjet za uspjeh. Također, istraživanje je pokazalo da je fenomen pretjeranoga

roditeljstva u sportu postao raširen i vidljiv na svim razinama razvoja sportaša. Dobivene spoznaje i istraživanja sugeriraju da manje intenzivan utjecaj roditelja ponekad može dati korisnije rezultate, što je izuzetno važna poruka.

Ključne riječi: tenis, uspjeh, intervju, refleksivna tematska analiza, razvojni put, specijalizacija, društveni kapital

ABSTRACT OF THE DOCTORAL DISSERTATION

This doctoral dissertation consists of five chapters. The first chapter includes an introduction to the scientific problem, research objectives and questions, as well as a list of research studies. The second chapter provides an overview of literature that includes negative life events/ circumstances (injuries, lack of financial resources in tennis and failure to be selected for the national team), timing of specialization, and the impact of social capital (family) on success. The third chapter comprises the scientific papers included in this doctoral dissertation. The first study (Study 1) aims to research various negative life events/circumstances (injuries, lack of financial resources, failure to be selected for the national team) and how they, based on personal experience, influenced the tennis careers of players. The second study (Study 2) aims to explore the developmental pathways of tennis players and how different developmental paths of early, optimal and late specialization affected their tennis careers and success. The third study (Study 3) aims to research the perspectives of tennis players at different levels of success and the impact of social capital, especially in relation to their families, and how this affected their long-term athletic development and achieved success. The fourth chapter presents a discussion on the published studies, as well as two additional thematic units which were not covered by the published studies, which relate to the support of school and friends, as well as on the influence of coaches. The fifth chapter presents the general conclusion of all three presented studies, including the advantages and limitations of the research, and guidelines for future research.

1. INTRODUCTION

The aim of every athlete is to achieve success in their sport (Blume & Wolfarth, 2019). Athletes' goals are individual and varied (Bompa, 1995; Blume & Wolfarth, 2019). Identifying and describing the optimal pathway to success is a permanent challenge for researchers. Many researchers argue that athlete development is a complex and heterogeneous process that must be understood within its broader context (Storm et al., 2012; Storm, 2015; Gerdin et al., 2020). Long-term characteristics of development and success differ across various sports due to their unique characteristics and physiological demands (Burgess & Naughton, 2010; Rees et al., 2016; Chen et al., 2023). Thus, despite the natural ambition of most athletes, only few reach the highest levels in their sport (Levental, Yaffe & Lev Arey, 2023). Sport success is a complex phenomenon which attracted only limited attention from researchers. Several authors have defined success in sport and what it depends on. Success is a constantly evolving concept with various perceptions, notions, understandings and definitions (Banerjee et al., 2020). Iancheva and Kuleva (2017) believe that success is already the very pursuit of victory, achievement, improvement of athletic performance and physical perfection, which are essential characteristics of sports activity. Furthermore, they state that success is most often perceived as a positive outcome of pre-set tasks and is associated with achieving a goal, result, victory, social recognition, approval and fame. Other authors, such as Bar-Eli, Plessner and Raab (2011), emphasize that success depends on the athlete's continuous decisions between different courses of action during competition, as well as decisions between various methods of how to improve their performance. Levental, Yaffe and Lev Arey (2023) presented their observations on how athletes perceive success in sport. They suggest that success can take the form of winning a competition, improving one's performance or acquiring new skills, and that it can be related to achieving satisfaction, personal development or forming social connections. Generally, success in sport can be defined as achieving ones goals within the context of ones athletic activities (De Bosscher et al., 2013). That is, success is generally associated with achieving a tangible goal or event (Banerjee et al., 2020). In his book "A Game Plan for Life: The Power of Mentoring", Wooden stated: "You should never measure your success by what you accomplish, but rather by what you are capable of accomplishing with your abilities" (Wooden & Yaeger, 2011). Therefore, Farsides and Woodfield (2003) believe it has become self-evident that success is largely a very multiple and individualistic concept.

In order to provide adequate support to young athletes, it is necessary to understand the developmental pathway and factors that can positively or negatively affect their development, and to differentiate between athletes who achieve the greatest success from their less successful fellow athletes (Collins, MacNamara & McCarthy, 2016). There are numerous evidence and experiences from young athletes who, despite life's ups and downs, have dynamic sports career pathways (Abbott et al., 2005; Ollis, MacPherson & Collins, 2006; MacNamara, Button & Collins, 2010a,b; Bridge & Toms, 2012). Therefore, a comprehensive and systematic understanding of players' specific developmental characteristics is crucial for the development of elite athletes (Chen et al., 2023).

Nowadays, the desire for success has become very important (Ranis & Stewart, 2000). On this occasion, it is important to note that success in young age categories does not predict long-term success (Epstein, 2014; Myer et al., 2016). Youth participation in sport has evolved from free and enjoyable recreational play driven by children to a highly structured and deliberate practice driven by adults, and which is dedicated to developing sport-specific skills (Maffulli, 1992; Caine, Maffulli & Caine, 2008). Consequently, emphasis has been put on the development and achievement of high degrees of skill proficiency aimed at attaining success on many levels (Vaeyens et al., 2009; Malina, 2010). Therefore, many children and adolescents involved in sports now strive to achieve the best possible results, i.e., to reach the elite level (Wiersma, 2000; Vaeyens et al., 2009). Many professional sports clubs, sports agencies and national federations aim to identify talented young athletes as early as possible in the hope of laying the groundwork for top level senior results and long-term success (Vaeyens et al., 2009; Koopmann et al., 2020). This evolution in youth sports may have developed as a result of society's increasing respect for successful athletes who enjoy significant recognition and financial rewards for their achievements (Jayanthi et al., 2013). Thereby, Côté, Lidor and Hackfort (2009) believe that without the opportunity to experience different sports during childhood, young athletes are less likely to acquire the fundamental physical, psychosocial and cognitive skills that are important for long-term success in sport. Myer et al. (2016) also emphasize that children should participate in various sports with qualified youth coaches who possess the necessary knowledge and skills to organize and monitor training in order to increase the children’s likelihood for experiencing long-term success as competitive athletes.

Upon considering the characteristics of sport careers among tennis players at various levels of success, within the context of multiple perspectives, the most frequently researched and best known is the scientific-theoretical perspective, while little is known about the personal

experiences of tennis player in relation to their careers. Precisely as a result of its importance, the research in this doctoral dissertation is focused on what tennis players themselves emphasize as crucial in their successful careers, as this approach has not yet been applied in the creation of individual sports careers, nor has the personal experience of one's own sports career been appropriately evaluated. The aforementioned will include an in-depth understanding of the complexity of personal experience as a key factor in athletic success. On the terminological level, however also on the content level, this implies focusing on understanding what a particular life situation or problem means for an individual, as well as how this understanding can correct established scientific knowledge about key factors of success in tennis.

This doctoral dissertation is based on the Scandinavian model. It includes three different studies with related research questions and objectives.

Research objectives and questions

The purpose of this research was to increase knowledge about the characteristics of sports careers of tennis players at different levels of success by examining their personal experiences in order to achieve a better understanding of them and, accordingly, to improve the process of creating individual sports careers.

In accordance with the stated research purpose, the following general objectives were set:

1. to research different negative life events/circumstances (injury, lack of financial resources, failure to be selected for the national team) and how they, based on personal experience, affected the players' tennis career;
2. to research the developmental pathways of tennis players and how the different developmental paths of early, optimal and late specialisation affected the players' tennis career and success;
3. to research the perspectives of tennis players at different levels of success and the impact of social capital, particularly in relation to their family, and how it affected their long-term athletic development and achieved success.

Based on the defined research problem, the following research questions were posed:

1. According to the players' personal experience, have the various negative life events/circumstances (injuries, lack of financial resources, failure to be selected for the national team) affected their tennis careers, and if so, in what way?
2. Which events do tennis players perceive as the start of their sport specialization in tennis, and when did it begin for them (early, optimal, or late)?
3. Do tennis players at different levels of success consider social capital as a key factor for the development of their tennis careers, and how did family and their surroundings affect their development?"

List of research studies

In order to answer the above listed questions, this dissertation uses three studies. All studies were published in international peer-reviewed journals. The studies are listed in order of the date of submission:

1. **Oršolić, M.**, Barbaros, P., & Novak, D. (2023). Research on Negative Life Events Among Tennis Players of Differing Success Levels: The Participants' Perspectives. *Collegium antropologicum*, 47(1), 1-10.

2. **Oršolić, M.**, Barbaros, P., & Novak, D. (2023). What makes a Grand Slam champion? Early engagement, late specialization and timely transition from having fun to dedication. *Frontiers in sports and active living*, 5, 1213317.

3. Novak, D., **Oršolić, M.**, Barbaros, P., Suzuki, E., & Subramanian, S. V. (2025). Family ties and social capital among grand slam tennis champions. *International Review for the Sociology of Sport*, 10126902241298498.

2. LITERATURE REVIEW

This chapter presents the most relevant research in relation to the main objectives of this doctoral dissertation. The literature review is structured around three main topics: negative life events/circumstances, timing of specialization and the impact of social capital on success in sports. Upon examining the existing research in the mentioned areas, the review aims to provide a comprehensive understanding of the challenges and opportunities that form an athlete's career.

Negative life events/circumstances

Negative life events are usually unexpected, uncontrolled and personally meaningful events that involve a certain degree of life change (Haimson et al., 2021; Luhmann et al., 2021; Wilkinson et al., 2023). Armstrong, Galligan and Critchley (2011) described stressful or negative life events as sudden changes in events which are life-changing and difficult to cope with. Stressful life events can be very different and can include experiences such as grief or loss of a loved one, divorce or relationship break-up, financial difficulties or unemployment, family conflicts or caring responsibilities, serious illness or injury (Park & Folkman, 1997; Park, 2010; Park & George, 2013; Kring et al., 2024). The presence of stressors (e.g. injury) often leads to other problems (e.g. financial issues) and may affect how athletes respond to future stressors (Howells and Fletcher, 2015; McLoughlin et al., 2024). Hardy et al. (2017) state that problems in youth (non-athletic), as well as problems in later career (athletic or non-athletic) often operate as a developmental generator in Olympic and/or world champions. Experiencing a certain degree of challenging during athletic development is recognized as a significant characteristic of those athletes who reach the highest levels in their sport (Collins, MacNamara and McCarthy, 2016). Therefore, Moore et al. (2018) suggest that experiencing negative life events could have a beneficial effect on performance under pressure. Likewise, Fletcher and Sarkar (2012) report that experiencing challenging situations can be an important factor in the development of optimal athletic performance. Furthermore, Fletcher and Sarkar claim that exposure to stressors is an essential characteristic of Olympic winners, and in their study, most participants stated that they would not have won gold medals if they had not experienced certain types of stressors at certain moments, including extremely demanding predicaments.

Various negative life events/circumstances, both in the sport and the private environment, present significant challenges for tennis players. Among the most challenging experiences that tennis players are faced with include injuries, lack of financial resources and failure to be selected for the national team.

Injuries

Sports injuries are a common issue that most athletes come across while engaging in sports (Singh & Singh, 2021). Noyes, Lindenfeld and Marshall (1988) defined injuries as the inability of an athlete to return to the playing field on the same day or the days following the injury. Although there is no generally accepted theoretical definition of an injury due to its dependence on context (Langley & Brenner, 2004), definitions are based on the concept of "physical damage caused by transfer or absence of energy" (Fuller et al., 2006). Variations in definitions and methodologies create significant differences in results and conclusions obtained in studies on sports injuries studies (Van Mechelen, Hlobil & Kemper, 1992; Meeuwisse, 1994; Caine, Caine & Lindner, 1996; de Loës, 1997; Finch, 1997; Junge & Dvorak, 2000; Ekstrand & Karlsson, 2003; Fuller & Drawer, 2004; Junge et al., 2004; Hägglund et al., 2005; Brooks & Fuller, 2006; Fuller et al., 2006). However, despite various definitions, tennis injuries are defined as "any physical or psychological difficulty or manifestation suffered by a player as a result of a tennis match or tennis training, regardless of the need for medical attention or time loss from tennis activities" (Pluim et al., 2009; Néri-Fuchs et al., 2023).

Professional athletes are known for the stress and strain to which they expose their bodies and it is generally accepted that at some point they will encounter physical injuries (Souter, Lewis & Serrant, 2018). Similar to many other sports, playing tennis, whether at a recreational, university or professional level, exposes participants to the risk of injury (Pluim et al., 2006). Despite the fact that many injuries that occur in tennis are also common to other sports, tennis has a unique injury profile (Pluim & Safran, 2004). Unlike other sports, tennis matches are not pre-limited in their duration, thus matches can often last for several hours (Kovacs, 2006). Likewise, differences in equipment, biomechanics and physical demands result in an injury profile that differs from other racquet and throwing sports (Pluim & Safran, 2004). Tennis is one of the most physically demanding individual sports that

requires a high level of muscular strength, speed, agility, flexibility, aerobic endurance and anaerobic power output during competitive tennis matches (König et al., 2001). Tennis players must move efficiently around the tennis court, run, stop, and change directions in the shortest possible time (Llanes et al., 2023). Therefore, the forces required to execute strokes and movements create significant stress on the musculoskeletal system of tennis players (Abrams, Renstrom & Safran, 2012; Chevinsky et al., 2017). Due to the high loads on the body, tennis players are exposed to an increased risk of numerous injuries (both acute and chronic) (Messina et al., 2024). In order to successfully meet such demands and become world-class tennis players, technical and tactical skills must be maximized, and a complex profile of physical/physiological abilities and anthropometric characteristics is required as well (Kovacs, 2007; Fernandez-Fernandez, Sanz-Rivas & Mendez-Villanueva, 2009; Pluim et al., 2023; Parpa et al., 2022; Haugen et al., 2024).

Tennis injuries often originate as a result of repetitive movements, poor technique and inadequate physical conditioning. Understanding common injuries, their causes and prevention strategies can help players maintain their health with the aim of achieving the most successful possible performance. By adopting correct techniques, maintaining the level of physical conditioning and allowing optimal recovery time, tennis players can continue playing and minimizing the risk of injuries. Literature on tennis injuries provides useful insights on the most commonly affected areas of the body and their causes.

At the United States National Boys' Tennis Championship from 1986 to 1988 and from 1990 to 1992 (N = 1440, 240 tennis players per year), injuries were monitored (Hutchinson et al., 1995). All injuries requiring medical attention were registered. It was shown that 304 athletes (21.1%) sustained new or recurring injuries that required treatment by the medical team. Lower extremity injuries were more common than upper extremity injuries. Upon assessing in relation to anatomical regions, back injuries were the most frequent, followed by thigh, shoulder, and ankle injuries. Furthermore, according to type of injury, sprains and strains were the most common (71% of all injuries), while fractures and dislocations were rare (1.3% of all injuries). In the lower extremities, most injuries were sprains, with 87.5% of these being knee and ankle ligament sprains. In a research by Kibler and Safran (2005), it was shown that tennis injuries most often originate from microtrauma, developing over time and resulting in short periods of absence from play. Kibler and Safran claim that many internal and external factors can be associated with the frequency of injuries. Therefore, Maquirriain and Ghisi (2006) state that young players involved in intensive tennis trainings

are particularly at risk of sustaining stress fractures. As competitive tennis is a sport where stress fractures are common, the authors believe that attention should be paid to prevention strategies such as the identification of risk factors and appropriate training programs. Furthermore, Maquirriain and Ghisi claim that junior elite tennis players (20.3%) have a higher incidence of stress fractures than professional tennis players (7.5%). In a study by Kovacs et al. (2014), it was stated that among the 861 elite junior tennis players surveyed, 41% of respondents reported at least one injury in the previous year. Since a high incidence of overexertion injuries was observed among elite junior tennis players, Pluim et al. (2016) therefore suggested the need to focus on preventive measures as early as possible, with special emphasis on monitoring and managing workload. Humphrey et al. (2019) state that out of 485 players, 368 (75.9%) among them sustained at least one tennis-related musculoskeletal injury during their playing career, as well as that 662 musculoskeletal injuries were recorded with an average of 1.4 injuries per player. The authors state that the three main anatomical spots reported as injured were the elbow, the knee and the face, while the most frequently reported injured structures were muscles, tendons, ligaments, soft tissue contusions and the eye. Furthermore, Hjelm, Werner and Renstrom (2010) studied the injuries sustained by a group of junior players from a local Swedish tennis club over a period of two years. Data analysis showed that the lower extremities were most commonly affected (51%), followed by the upper extremities (24%) and the trunk (24%). Likewise, Reece, Fricker and Maguire (1986), also identified lower extremities as the most common injury spot in their research on junior tennis players of both sexes. With respect to the most frequently injured body parts, Hjelm, Werner and Renstrom report that the results showed similar distributions as the ones described by Kibler and Safran (2005), namely: ankle sprains, knee injuries and back pain. Furthermore, they state that more than 40% of injuries were considered as severe, while 30% was described as moderately severe. In another research by Hjelm, Werner and Renstrom (2012), the aim was to assess potential internal and external risk factors for injuries in junior tennis players. All tennis-related injuries that occurred over a two-year period were identified and registered. It was shown that 39 male and female tennis players sustained a total of 100 new and recurring injuries. Previous studies on other sports also presented strong evidence on the fact that previous injuries increase the risk of re-injury or new injuries (Van Mechelen, 1992; Van Mechelen et al., 1993; Murphy, Connolly & Beynnon, 2003). Hjelm, Werner and Renstrom thus concluded that, regardless of its location, a previous injury was identified as an injury risk factor, while a previous back injury was considered as a risk factor for back pain. Furthermore, playing

tennis for more than six hours per week was also identified as a risk factor for back pain. In a research conducted by Krueckel et al. (2024), the aim was to study the epidemiology of tennis injuries among players in the German league, with particular focus on the influence of racquet properties and court surface on the development of chronic conditions and the occurrence of acute injuries. Data analysis included 600 tennis players and a total of 1012 tennis-related injuries which were identified during the observation period. The collected data also showed that acute injuries predominantly affected the lower extremities (56%), with ankle injuries as the most common, and ligaments as the most frequently affected structure (36.4%), while chronic injuries were mainly found in the upper extremities (63.2%), primarily tendon injuries (56.8%). Krueckel et al. emphasize that they found no significant correlation between racquet material and chronic upper extremity injuries, as well as that they believe other factors, such as playing technique and level of physical conditioning, could have had a greater impact.

Several researchers conducted studies on Davis Cup matches and Grand Slam tournaments. For example, Maquirriain and Baglione (2016) collected data from the official Davis Cup website and analysed the withdrawal of tennis players due to health problems during Davis Cup matches in the period between 2006 and 2013. According to the official rules, a tennis match is recorded as "retired" when a player withdraws due to illness or injury after the match has started. Engebretsen et al. (2013) state that the impact of illness on a competitor's health can be equally considerable as an injury. The data analysis conducted by Maquirriain and Baglione showed that the overall incidence of withdrawals from tennis matches was 1.66% (12/719), while it was found that 75% of health-related withdrawals occurred in matches played on hard courts, as well as that 25% of total withdrawals took place in matches played on clay courts. Most common types of injuries were muscle and tendon injuries, whereas the incidence of lower extremity injuries was higher than that of upper extremity and trunk injuries. In addition, Sell et al. (2014) conducted a research on injuries among professional tennis players competing in a major professional tennis tournament (US Open) between 1994 and 2009. Each case of injury was incorporated into the data analysis and defined as an injury that required medical evaluation by the tournament doctor during the US Open. Data analysis showed that from 1994 to 2009, there were a total of 1219 documented injury reports involving male and female players from qualifiers and the main draw at the US Open Tennis Championships. Sell et al. stated that muscle or tendon injuries were the most common type of acute injuries, while lower extremity injuries were

significantly higher than upper extremity and trunk injuries. The ankle, followed by the wrist, knee, foot/toe, and shoulder/clavicle were the most common injury spots. Furthermore, in a retrospective research conducted by McCurdie et al. (2017), the primary objective was to report on injuries over the period of 10 years (2003-2012) at the Wimbledon Championships. It was shown that at Wimbledon 48% of injuries affected the lower extremities, as well as that muscle injuries were slightly more common among male players. Most of the injuries at this tennis Grand Slam competition were existing ones, meaning that they occurred prior to arriving at Wimbledon. McCurdie et al. further on state that injury incidence rates at the mentioned Grand Slam tennis tournament varied between male and female players and between the observed years. At another Grand Slam tournament (the Australian Open), Gescheit et al. (2017) conducted a study aimed at examining the epidemiology of injuries between 2011 and 2016. Out of 3120 players who competed in that tournament over the period of six years, there were a total of 1170 injuries in male and female qualifiers and the main singles draw. The obtained results indicated that female tennis players had more injuries than male tennis players. Upper and lower extremity injuries were most common in female tennis players, while lower extremity injuries were more common in male tennis players. The shoulder, foot, wrist, and knee were the most commonly injured regions in female tennis players. The knee, ankle, and thigh were the most common injuries in male tennis players. In line with previous reports on Grand Slam injuries, muscle injuries were the most prominent type of injury in both genders. Gescheit et al. concluded that at the Australian Open, female players were injured more frequently than male players, and that upper and lower extremity injuries also more often affected female players, while lower extremity injuries were more pronounced among male players. Therefore, Montalvan et al. (2024) studied the incidence, location, and type of musculoskeletal injuries in tennis players during tournaments between 2011 and 2022. A retrospective review was produced of all injuries during the French Open tennis tournaments from 2011 to 2022. Data analysis showed a total of 750 musculoskeletal injuries among 687 tennis players. The total number of injured players per tournament varied between 42 and 69, with an average of 62.5% injuries per tournament over the studied 12-year period. The number of injuries for female and male tennis players was similar (392 vs. 358). The most common injury regions were the thigh, hip, ankle and spine. When the injuries were grouped into three location categories, lower extremity injuries (n = 366) were found to be more frequent than upper extremity injuries (n = 218) and trunk injuries (n = 166). Montalvan et al. concluded that over the 12-year period, from 2011 to 2022, female and male tennis

players experienced a similar number of musculoskeletal injuries, with most injuries occurring in the lower extremities compared to the upper extremities and the trunk.

In a systematic review, Pluim et al. (2006) state the following: 1. there is a high variability in reported tennis injuries; 2. most injuries occur in the lower extremities, then in the upper extremities, and then in the trunk; 3. there have been very few longitudinal studies investigating the correlation between risk factors and the occurrence of tennis injuries; and 4. there have been no randomized controlled studies examining injury prevention measures in tennis. Pluim et al. believe that the variability in reported tennis injuries is most likely most influenced by variations in injury definition, study design, studied populations, data collection methods and the duration of follow-up or recall periods. Furthermore, in a literature review implemented by Ellenbecker et al. (2009), lower extremities are presented as the most commonly injured region in tennis players (39-65%), followed by upper extremities (24-46%) and the trunk (8-22%), while the most frequently injured parts of the lower body are the calf, the ankle and the thigh (upper leg). Ellenbecker et al. state that the most common injuries were ankle sprains and hamstring muscle strains (hamstrings, quadriceps, and adductors). Upper extremity injuries were identified in the elbow and shoulder area, and the most common injuries were shoulder tendon injuries and tennis elbow (humeral epicondylitis). Ellenbecker et al. suggest that specific strength and conditioning programs for tennis could play a crucial role in preventing frequent injuries among tennis players, and they propose specific exercises aimed at injury prevention and improvement of player performance. Dines et al. (2015) believe that changes in equipment (new racquets and strings) may also be associated with increased injury rates. The playing surface is another cause of injuries that Dines et al. mentioned. Unlike most sports, tennis is played on various surfaces, including clay, grass, and acrylic (or hard) courts. On hard courts, higher ball speed exposes the upper extremities to greater force. Although there is little evidence associating playing surface with injury type or frequency, Nigg and Yeadon (1987) demonstrated that muscles are sensitive to surface stiffness, and that frequent playing on different surfaces can be associated with injuries of the lower extremity. In addition, Halim and Putera (2023), in a literature review between 2017 and 2022, noted that racquet manufacturing technologies, player age and court surface composition can affect injury patterns.

The literature review results in finding that acute injuries are more common in the lower extremities, while chronic injuries and overexertion injuries are more common in the upper

extremities and trunk (Jayanthi, O'Boyle & Durazo-Arvizu, 2009; Abrams, Renstrom & Safran, 2012; Fu et al., 2018; Moreno-Pérez et al., 2018; Moreno-Pérez et al., 2021; Rice et al., 2022). Such findings are similar to previous tennis epidemiological studies showing that the lower limbs are the most frequent spot of injury (Hutchinson et al., 1995; Sell et al., 2014; Pluim et al., 2016). The ankle, knee, and wrist are the most common injury spots, while the most common types of injuries were ligament sprains and muscle strains (Lynall et al., 2016; Vasenina et al., 2022; Llanes et al., 2023). In addition, Perkins and Davis (2006) state that among all age groups of tennis players, the most common types of injuries are muscle and ligament strains due to excessive load, as well as that they most frequently affect adolescents due to a lower level of physical conditioning. Furthermore, Gescheit et al. (2019) claim that the incidence of injuries increases with physical growth, volume and intensity of trainings and matches, early specialization and more frequent competitions. Similarly, Myers et al. (2016) state that increased load is associated with an increase in injury risk. Therefore, Abrams, Renstrom and Safran (2012) propose standardizing future epidemiological research on tennis injuries in order to allow for easier comparison of results. Shannon et al. (2020) believe that some acute injuries may be the result of poor rehabilitation and/or premature return to play, particularly in cases of muscle strains. Furthermore, Shannon et al. state that this suggests players and coaches may not be managing load appropriately and are focused solely on top level performance.

Lack of financial resources in tennis

The path to a successful professional tennis career requires long-term development and a structured plan for trainings, competitions and appropriate financing from private academies, private investors, national tennis federations, sport governing bodies and commercial agencies that may have a personal interest in a tennis player's success (Kovacs et al., 2015). However, there are numerous reasons why athletes quit doing sports, and in addition to the lack of financial resources, there is also burnout, lack of interest, injuries, academic pressure and social factors, such as peer pressure or family obligations (Crane & Temple, 2015; Schlesinger et al., 2018). Lack of financial resources is one of the reasons why many young athletes quit and abandon a professional sports career (Crane & Temple, 2015; Saarinen et al., 2023). This phenomenon can occur at any age, however, it is most often observed among young athletes (Guzmán & Kingston, 2012; Crane & Temple, 2015; Back et al., 2022). Children's engagement

in sports represents a financial obligation for the parents (Murphy, 1999; Baxter-Jones & Maffuli, 2003). During the specialization phase, parents become increasingly interested in their child as an athlete, and therefore make an increased commitment in terms of finances and time (Côté, 1999; Durand-Bush, Salmela & Thompson, 2004; Harwood & Knight, 2009). Kirk et al. (1997) studied the economic impact of children's participation in junior sports on the family and found that the costs of such involvement can negatively affect the child's participation in sports, as well as have a broader impact, i.e., on family life as a whole. Baxter-Jones and Maffuli (2003) supported such conclusions by finding that approximately 12% of the family budget is spent on children playing tennis, while 16% of tennis players' parents reported serious financial difficulties as a result of supporting their child in the sport. From a developmental perspective, Baker et al. (2003) indicate that athletes who lack certain financial resources face tough challenges in achieving the best possible results.

Johnson (2024) provided data in his paper on costs such as coaching, courts and tournaments. He notes that individual and group tennis lessons are known for their high costs and creating financial pressure for families. Furthermore, Johnson states that seriously competitive junior tennis players gravitate towards elite tennis academies and require individual training sessions. Private lessons for tennis players outside of academies rarely include strength and conditioning trainings or video analysis aimed at improving other elements of training, which is in contrast to the comprehensive approach used in tennis academies. Johnson further states that outdoor courts are a free option for playing, however their availability varies by region, and in low-income areas outdoor courts are less accessible. Consequently, less wealthy junior tennis players must accept minimal playing time or pay membership fees in tennis clubs which offers indoor courts. Meanwhile, the numerous expenses of tennis club membership deter many players from joining. In order to maintain their ranking, Johnson emphasizes it as necessary to constantly play in junior tournaments, while competing in many tournaments requires covering entry fees and travel expenses, which can be expensive for competitors. Two most competitive junior tournaments are the Junior Grand Slam and the ITF Junior Tour. The mentioned tournaments allow the best junior players to experience international competition in order to prepare for their professional careers. Many families cannot pay such high costs for air travel or food and hotel expenses, so many junior players do not play in these tournaments. Johnson thus believes that in the low-income community the biggest limitation in tennis are financial resources, and not talent. For this reason, Johnson believes that many tennis players do not succeed in realizing their potential due to lack of financial resources. Furthermore, Zhai (2022)

states that the income and financial background of professional tennis players have changed in the modern era. In the past, playing tennis was considered a luxury, while nowadays most professional tennis players find themselves in difficult situations in which they can barely support themselves financially, yet they continue playing tennis despite this fact. For example, in 2014, Roger Federer earned 45 million dollars solely in sponsorship money, whereas Michael Russell, the world's 92nd -ranked player, earned only around 210,000 dollars (Morales, 2013; Zhai, 2022). Morales notes that this number might still seem substantial; however, the costs arising from playing professional tennis are not taken into account. Russell stated that he spent 35,000 dollars on travel, 75,000 dollars on taxes and 300 dollars per tournament merely for racquet stringing (6,000 dollars). In total, over 55% of his income was allocated to such expenses (Morales, 2013). With the rise of individualism and free market consumerism, tennis has become more accessible and has attracted the middle class (Zhai, 2022). In a research conducted by Shrom, Cumming and Fenton (2023), the aim was to provide a detailed understanding of the lifestyles professional tennis players face on the professional tour and the potential impact of these challenges on their mental health. The participants in that study were professional tennis players (33 male and 32 female tennis players) aged between 18 and 46 and coming from 28 different countries. Shrom, Cumming and Fenton claim that the majority of players competing on the professional tour face various financial challenges and are at risk of prematurely ending their professional tennis careers due to their inability to cover such high costs. They further add that it is not uncommon that significant financial resources are required to support a professional tennis career, and that this can result in stress and financial difficulties for the player's family. Furthermore, Shrom, Cumming and Fenton note that most players do not have stable finances and therefore leave professional tennis, having spent a large portion of their private financial resources as well as their family's financial resources. In the United Kingdom, 123 tennis players' parents completed a survey in relation to internal and external demands they encountered as parents of a child actively competing in sport (Harwood & Knight, 2009). Content analysis resulted in the development of seven core topics of parental stressors in tennis: competition, coaches, financial resources, time, siblings, organization-related issues, and developmental issues. Finances were cause of stress for 79% of parents, with fees and costs associated with coaching and tournaments being stated the most frequently. Harwood and Knight claim that a large number of parents who indicated financial problems highlighted the importance of support for lower-income families whose children have been identified as talented and gifted. Harwood and Knight (2009) conducted another research. The participants of the study were 22 parents of tennis players who with whom semi-structured

interviews were conducted. The results highlighted three general dimensions of parental stressors: organizational, competitive and developmental. Organizational stress factors included demands in relation with financial resources, time, training and coaching, and systems of management bodies. Furthermore, Harwood and Knight state that parents estimated spending between 15,000 and 20,000 pounds per year on their children who were progressing and moving towards specialization. As athletes progress, so do financial, time and emotional investments of both parents and the athletes themselves increase in parallel (Wolfenden & Holt, 2005; Gould et al., 2008). Finally, Harwood and Knight highlighted that organizational stressors were particularly important for parents in the phase of specialization as they demand considerable financial resources and time. Morley et al. (2018) conducted a research with participants from various sports. Morley et al. state that almost 40% of athletes identified participation costs as the biggest obstacle for their success. Although these effects vary within different sports and at different levels of performance, what presents a constant is that financial support still continues to play a significant role in the development and maintaining of athletes on their path to success (Morley et al., 2018). In addition, Morley et al. state that financial constraints were present at various levels of talent development, however also that they increased significantly as the athlete further progressed. Reports on rising costs for equipment, travel and accommodation across all sports, predominantly financed by parents, are consistent with previous findings from other individual sport studies (Côté, 1999; Gould et al., 2006; Harwood & Knight, 2009). Wolfenden and Holt (2005) carried out a study in which they examined the perceptions of players, parents and coaches regarding talent development in elite junior tennis. The analysis revealed six categories associated to the influence of adults on talent development in tennis (emotional support, tangible support, informational support, sacrifices, pressure and relationships with coaches). Cutrona and Russell (1990) clarified that tangible support refers to concrete assistance given to an individual in order for them to cope more easily with stressful events. From all of the above mentioned, Wolfenden and Holt state that parents played a crucial role in providing tangible support (providing financial support and transportation). Furthermore, Wolfenden and Holt claim that all parents commented on the financial impact of playing tennis and that monthly costs exceeded their financial income. Likewise, Wolfenden and Holt state that the results showed parental financial support as an important part of participating in tennis (with estimated costs between 800 and 1,000 pounds or 1,400 to 1,700 dollars per month). In a research conducted by Knight and Holt (2013), parents emphasized that they needed additional help. One of the areas of additional help was access to financial support. Knight and Holt state that parents indicated that competitive tennis is expensive, particularly if

children progress to the national and international level. Furthermore, they also said that the biggest problem with tennis is that it is too expensive, and they noted that the annual amount spent on attending tournaments amounted to between 20,000 and 25,000 dollars. Upon taking into account the costs of playing tennis, Knight and Holt say that some participants stated they had to limit the opportunities provided to their children, e.g., they did not attend all tournaments due to lack of financial resources. As a result of high expenses in sports, Hernandez et al. (2023) conducted a research aimed at exploring the experiences of families with low socioeconomic status whose children participate in organized sports and how the current youth sports culture, which promotes sports specialization, can influence that. The participants of the study were parents of 12 athletes. Based on data analysis, the following four interrelated topics came up. One of the topics was the negativities and/or obstacles to youth participation in sports. Hernandez et al. state that the study participants described financial expneses as an obstacle in their child's participation in club sports. Furthermore, they reported on financial burdens for sports participation for a child from a single-parent household. Thus, for example, Balliauw et al. (2017) state that only the top 250 ranked players in tennis can cover their expenses, while too many players who consider themselves as professional tennis players compete for too little money. Furthermore, Balliauw et al. claim that for a large group of other tennis players who cannot reach the mentioned level (to be among the top 250 ranked), tennis cannot be a sustainable and acceptable model for income and investment. Therefore, Balliauw et al. highlight that tennis is characterized as a sport with "early investments, but late results". Balliauw et al. believe that addressing financial problems of professional tennis players could be achieved through methodical communication and tournament organization, linking local events with tennis tournaments, and thereby increasing public and sponsor interest and readiness for financing. Likewise, Balliauw et al. suggest that players might attract several individual sponsors to cover their expenses, and one of the ways to achieve that would be by allowing advertising for individual player (e.g. on their tennis equipment), especially at junior tournaments. In research conducted by Yavuz, Arıcan and Türkmen (2024), financial resources also presented a challenge which athletes encountered while playing tennis. Yavuz, Arıcan and Türkmen state that, according to data obtained from tennis players, a large majority of athletes abandon tennis due to health problems, and besides that, they clearly pointed out that finances presented a major problem, and that this was another reason why they stopped actively playing tennis.

From all of the above, in his paper Van Dijk (2016) provides an overview of some basic concepts that tennis coaches, assistant team members, and players could use for successfully implementing sponsorship agreements. Besides technical, tactical, mental and physical abilities, athletes need access to certain resources in order to meet their full potential. Furthermore, Van Dijk states that the cost of developing a tennis player and playing on the professional tour is high, and covering these expenses solely from prize money is unattainable for many players on the professional tour. The author notes that the International Tennis Federation (ITF) concluded that in 2013 the average cost of playing professional tennis, including flights, accommodation, food, laundry, clothing and equipment purchases, airport transfers, but excluding support team costs, was 38,800 dollars for men and 40,180 dollars for women. Van Dijk thus states that a large number of players on the professional tour and at the amateur level must invest a lot of money in order to develop as players, without having adequate financial resources in so doing. Martin (2015) therefore wanted to examine if the socioeconomic status is a relevant factor contributing to success in tennis. In her paper, Martin says that a former professional tennis player claimed that most professional players play between 25 and 35 tournaments per year, with a minimum of 1,000 dollars of expenses for each tournament, including a five-night hotel stay, airfare and food. However, it is estimated that annual costs for a player ranked among the top 100 tennis players amount to approximately 183,000 dollars (coach and travel expenses 90,000 dollars, meals 6,000 dollars, racquet expenses 5,000 dollars, miscellaneous 3,000 dollars, taxes 54,000 dollars, player travel costs 25,000 dollars). Martin hence concludes that tennis is an expensive sport, and that part of the expenses include: purchasing racquets, paying for courts, indoor trainings, playing junior tournaments, and traveling to competitions from Challenger level to the Association of Tennis Professionals (ATP) and Women's Tennis Association (WTA) tours. From all of the above and the literature review, Martin states that it can be safely said that socioeconomic status definitely plays a role in the success of tennis players.

Failure to be selected for the national team

The instance of national sports federations occurred with the establishment of local sports clubs (Winand, 2009). The growing popularity of sports led to the need for creating "umbrella organizations" that would govern the sport, oversee its operations, ensure its promotion and development at all levels, as well as enable organizing competitions (Bayle, 2017). National

sports federations are responsible for managing all sport-related activities in a country, while the management board represents the fundamental governance mechanism which is responsible for approving main strategic and financial decisions (Salvador et al., 2023). Management of organizations involves delegating authority to certain individuals (Solanellas et al., 2023). Generally speaking, the role of national sports federations is to ensure adherence to the rules of the game in sports that are promoted within their country and to represent them, as well as the athletes who participate in them (Viollet, Scelles & Peng, 2023). At the national level, when it comes to sports policy Bayle (2007) highlights the significance of cooperation between the headquarters of national sports federations and local communities. The major importance of national sports federations lies in the close connection they have with national (public) sports policies and the need for including clubs in all aspects of their development (Viollet, Scelles & Peng, 2023). As key structures in the development of sports, national sports federations need to establish modern management structures and programs in order to perform their job more efficiently, as well as to meet the expectations of a complex environment which is dynamically evolving (Viollet, Scelles & Peng, 2023).

Various international and national bodies published various regulations as useful indicators of good management (Solanellas et al., 2023). All these regulations aim to assist sports organizations to identify and understand key factors and principles involved in good management (Geeraert, Groll & Alm, 2013). However, there are differences between countries on the basis of the geographical, historical, political, economic, social and cultural profile of each nation (Henry et al., 2005; Houlihan & Green, 2008; Houlihan, 2009). For example, in Anglo-Saxon countries (such as the United Kingdom, United States of America and New Zealand), sport is mixed and partly integrated into the educational system, while also following clubs at the same time (Houlihan & Chapman, 2015; Skille, Stenling & Fahlén, 2017). In countries such as Russia and China, there is a rather strict selection system in place regarding the number of athletes who are sacrificed with the aim to create a successful athlete (e.g. selection for technically demanding sports and endurance sports in Russia and China, or football in South America) (Skille, Stenling & Fahlén, 2017).

Talent identification and development are of primary interest to clubs and federations in their pursuit of developing elite level players and achieving sports success (Kalén et al., 2021). Programs for talent development can acquire various strategies aimed at achieving the ultimate goal (Kalén et al., 2021). Previous literature demonstrates the opposition of two different strategies (Güllich & Emrich, 2012; Barth, Güllich & Emrich, 2018). The first strategy presents

an individualistic approach characterized by early player selection, and followed by long-term development of the chosen group, resulting in low player turnover. The second one implies a collectivist approach, characterized by selecting and non-selecting players all the way through, and thus resulting in high player turnover (Güllich & Emrich, 2012; Barth, Güllich & Emrich, 2018). Both the individualistic and collectivist approach are constructed on different ideas on how talent identification and selection should be conducted, while both aim to increase and achieve international success (Kalén et al., 2021). Furthermore, the purpose of all talent development programs is producing success by promoting the best athletes to senior teams, either through long-term development of a small number of early-selected athletes (individualistic approach), or by selecting a larger number of athletes through continuous selection and non-selection (collectivist approach) (Barth, Güllich & Emrich, 2018).

Identifying young talents on the basis of results in youth tournaments and ranking junior players are considered as measurable and objective criteria (Unierzyski, 2005), and even fair, however, they conceal numerous less objective criteria such as for example the availability of travel to tournaments, previous investments of national tennis federations, or other types of support systems (Brouwers, De Bosscher & Sotiriadou, 2012). Talent identification based on results forces athletes to specialize in their sports at a younger age (De Bosscher, Schaillée & Truyens, 2009). Tennis experts suggest that on-court results should not be used as the sole predictor of later success, particularly before puberty (Unierzyski, 2003; MacCurdy, 2006; Unierzyski, 2006). Talent identification on the basis of results can be questionable as coaches may overestimate the potential of athletes who achieve good results at an early age, and for this reason they might fail to notice athletes who may not be the best at the time of identification, however who have the potential for good performance in the future (Elferink-Gemser et al., 2011). Meanwhile, Reid et al. (2007) highlighted a positive and significant correlation between success at International Tennis Federation (ITF) junior tournaments for boys and professional rankings as to suggest that access to such events can be important for aspiring tennis professionals. Furthermore, De Bosscher, De Knop and Heyndels (2003) indicate that in many countries, the level of development of national and regional tennis federations is strongly linked to economic development, while Filipcic et al. (2013) reveal that due to limited financial, human and infrastructural resources, certain national tennis federations do not even have their own player development programs.

The selection of athletes for the national team is not always transparent and fair. Despite the potential of young tennis players, some may not be at the same level as their peers who had

better opportunities (training facilities, coaches, financial resources), making it less likely for them to be selected. Addressing such challenges requires evaluating what the selection for the national team should entail. The true strength of national tennis federations lies in their ability to identify, monitor, and develop models and backing for all their tennis players, ensuring that talent and potential are the only relevant factors. Despite the fact that numerous research have been directed towards the dynamics of selection processes and their assumptions, the experience of failing to be selected for the national team remains insufficiently explored. Consequently, a brief literature review follows on the more comprehensive understanding of the dynamics of tennis player selection.

Brouwers, Sotiriadou and De Bosscher (2015) used qualitative research methods to explore the developmental pathways of elite tennis players and the roles of stakeholders in initiating their pathways. Data from 18 semi-structured in-depth interviews with international tennis experts were thematically analysed. It was shown that clubs, coaches and national tennis federations are involved in all athlete development processes. However, the results indicated that the roles, influence and involvement of stakeholders are specific to each developmental process. For example, during the process of attracting and maintaining elite athlete development, national tennis federations are responsible for initiating programs implemented by local clubs and coaches. Brouwers, Sotiriadou and De Bosscher state that during the process of talent development, tennis players progress from clubs to national training centres or private academies. Furthermore, during this process, national tennis federations support players in their transition from junior to senior level tennis, and once players become financially self-sufficient, the support from the national tennis federation decreases. Bozděch and Zháněl (2024) emphasize the complexity of the transition from junior to senior level, as well as the selection for national teams. They further state that in order to improve the prospects of selecting ambitious players, national tennis federations and academies should implement overall player development programs. Bozděch and Zháněl believe that coaches, scouts and tennis organizations should prioritize monitoring results in elite junior tournaments in order to identify emerging talents at an early stage. Likewise, they also believe that such measures would improve the selection process by managing critical phases (transition from junior to senior level) in the sports careers of junior tennis players. Horne (2023) states that young players feel immense pressure from competitive tennis. Furthermore, in a conducted research, coaches' complaints related to the fact that many young tennis players are leaving the sport at an increasingly younger age, e.g., today's children quit tennis at 10, 11, or 12 years old because

they think they are not good enough. Horne says that several coaches pointed to the problem within the national tennis federation as children are told they will never be good players. However, there are numerous examples of children aged 8 or 9 who were told by the national tennis federation that they were not good enough, but these children became national tennis players a few years later. In accordance with the above mentioned, in their paper, Popp, Miller and Hambrick (2013) explained the functioning of the United States Tennis Association. Popp, Miller and Hambrick state that the United States Tennis Association (USTA) presents the national governing body for tennis in the USA and consists of three major divisions: Professional Tennis, Player Development and Community Tennis. The Professional Tennis Division oversees not only the administration of the US Open tennis tournament and the National Tennis Centre, but also a series of other tournament events. Moreover, the Professional Tennis Division also selects American teams for international competitions, such as the Davis Cup, Fed Cup, Olympic Games and Paralympic Games. The Player Development Division of the USTA finds players and manages tennis centres for player development. Their mission of the Player Development Division is to identify and develop the next generation of American champions and to provide them with the best conditions which are required for reaching their maximum potential. This division of the USTA works on identifying top young talents, monitors the success of USA players in federation-approved tournaments, as well as in school (high school and university) competitions, and is also active in the latest developments in sports science that can improve the player training process. The Community Tennis Division is working on developing tennis at the regional level. This division of the United States Tennis Association divides the country into 17 regions or sections and is responsible for launching several programs (e.g. USTA School Tennis, USTA League Tennis, USTA Jr. Team Tennis, National Junior Tennis League, USTA Wheelchair Tennis, USTA Tennis on Campus and Tennis Welcome Centres), as well as assists the association develop players by organizing events such as tournaments and camps for junior players. Furthermore, Gerdin et al. (2020) conducted a study involving 13 Swedish tennis coaches. The results of their study highlighted the importance of increased cooperation and communication between clubs, coaches, regions and national federations in order to create shared and more articulate guidelines for the long-term development of athletes. Coaches mention in their statements certain problems that arise in the attempt to keep athletes in tennis during high school, as well as state that athletes who continue to play tennis should be provided with good conditions for training and competitions. Gerdin et al. believe that maintaining athletes in tennis is particularly problematic as the number of tennis dropouts before or during high school has increased. Hence, they point out that management

(boards at tennis club) has a major influence on club activities and on work activities of coaches, which in turn affects the daily practice of coaches and ultimately the potential of the environment for the development of top level athletes. Following the above mentioned, Cakravastia and Setiawan (2022) say that local clubs serve as entry points for children and their parents into the world of tennis, whereas that athletes, coaches and parents are the primary operators in the development of junior athletes and are considered an athletic triangle. Younger competitors can be selected to play and represent their city, municipality or province at a regional, provincial or national competition (Cakravastia and Setiawan, 2022). Kiraly and Gal (2011) describe that in Great Britain the number of sports participants is considered important for the improvement of sports culture and a key starting point for the development of a long-term plan for the development of national athletes. In a research conducted by Cakravastia and Setiawan (2022), national-level junior tennis players are said to have the opportunity to be selected for the junior national team and represent Indonesia in a junior international competition. In addition, they say that local clubs play a significant role in creating massiveness, developing from the lowest level to junior athletes, and in further preparation for the transition of junior athletes to senior athletes. Furthermore, Cakravastia and Setiawan believe that developing a strong collaboration between all stakeholders is important for creating top level national tennis players.

Team sports, such as football, basketball and handball, often require a balance between individual talent and team synergy. Below is a brief literature review in order to better understand the dynamics of selecting athletes in different sports, shedding light on common practices, challenges, and sport-specific considerations.

In order to identify the policy of the German Football Association, player transitions between age groups were monitored (Schroepf and Lames, 2018). Schroepf and Lames believe that when the goal is to win international championships in younger age categories, the current level of performance is often considered as the only criterion for the player selection process. In order to act in their own interest, coaches are tempted to choose the currently best players despite the fact that these players are not promising (Schroepf and Lames, 2018). During puberty, when there are large differences in maturity (Hefti, 2006), players are often selected for teams because of their physical advantages in relation to less developed players (Schroepf and Lames, 2018). Schroepf and Lames note that being chronologically older can result in major advantages in body size, strength, and body composition, which ultimately adds up to better performance in physically demanding sports. Data analysis in the research conducted by Schroepf and Lames

showed that the percentage of players moving to the next age group is about 60% for younger age groups (U-16 to U-19), and only about 30% for older age groups (U-20 and U-21). The dropout rate is also high, as at least one quarter per age group will not later on play in the youth national team. Furthermore, early and short careers of young national team players generally do not result with a professional career, while late and long careers most likely lead to a successful career in senior football. Schroepf and Lames believe that players who can stay in the youth national team program for three years or more have a good chance of becoming professional footballe players and the best chance of representing Germany at the senior level. A study by Helsen, Van Winckel and Williams (2005) showed an overrepresentation of players born in the first quarter of the selection year (from January to March) for all national youth selections (U-15, U-16, U-17 and U-18), as well as for UEFA U-16 tournaments and the Meridian Cup. Helsen, Van Winckel and Williams claim that players with a higher relative age are more likely to be identified as talented because of possible physical advantages they have when compared to their younger peers. Furthermore, Sæther (2015) conducted a study with the main goal to examine the relative age among a group of Norwegian national football team players (U-15, U-16, U-17, U-18 and U-19) who were selected to play one or more matches for the national team in the period between 2006 and 2010. 92 players were analysed in the study. Data analysis showed that more than 46% of players selected in that period were born in the first quarter. Sæther says that research results support the fact that the effect of relative age is an equally important factor in the selection of elite youth male soccer players in Norway as it is in other countries. In a research carried out by Swaab et al. (2014), the aim was to examine the correlation between talent and team performance. Swaab et al. state that the results reflect a disappointing fact that superstar teams often fall short of expectations, while current data suggests that selecting a fewer number of top level players can produce a better team. Swaab et al. present the example of Louis van Gaal, who, when he took over as head coach of the Dutch national football team after the 2012 European Championship, significantly reduced the number of highly talented players in the national team (i.e. the number of players with contracts with world elite clubs). The Dutch team qualified for the 2014 FIFA World Cup without losing a single game. His actions suggest that he understood the effect of too much talent. A similar example also occurs in basketball, where Miami Heat won the 2011-12 NBA championship with two of their All-Star players absent due to injuries. Swaab et al. believe that in many cases too much talent can be the beginning of failure. Furthermore, in a research conducted by Arede et al. (2022), 29 male basketball players aged 16 participated. In basketball, because of distinctions in maturity, there are pronounced differences in anthropometric and physical

variables (Arede et al., 2019) and variables related to game performance (Torres-Unda et al., 2013; Torres-Unda et al., 2016), which can lead to favouring and giving advantage to selected players who mature early (Torres-Unda et al., 2013). Young athletes who mature early tend to be taller and heavier, as well as possess greater absolute and relative lean mass than their less mature peers, thus achieving better results in tests of strength, speed and power (Malina et al., 2007; Figueiredo et al., 2009; Meylan et al., 2010;). Hence, this early maturation has been linked to selection biases in team sports, where advantage during selection is given to individuals who mature early in relation to less mature peers (Torres-Unda et al., 2013; Johnson, Farooq & Whiteley, 2017; Arede et al., 2019; Hill et al., 2021;). However, such advantages are transitory (Moran et al., 2020), and in some cases have proven to be weaker in early adulthood (Ostojic et al., 2014). In addition, Arede et al. state that the probability of selection increases with higher training load, which implies that players in the U-16 national team who could tolerate higher loads, have a higher probability of being selected for the U-18 team. Players who are exposed to higher workloads at the U-16 level may ultimately find themselves in a better position to meet and adapt to training demands in more advanced stages of development, thereby increasing their likelihood of being selected for the national team. For example, it was shown that the youth national team was important among young handball players and had a strong impact on their lives, making their development easier and preparing them for a successful transition to the elite level (Bjørndal, Andersen and Ronglan, 2018).

Timing of specialization

Youth participation in sport has evolved from free recreational play for the enjoyment of children to a variety of intended exercises initiated by adults and aimed at developing sport-specific skills (Maffulli, 1992; Caine, Maffulli and Caine 2008). Numerous authors attempted to explore the role of specialisation in improving results and advancement to the elite level in order to determine whether there is a specific benefits from specialisation (Buckley et al., 2017). It is interesting that several authors studied elite level athletes, such as for example in the research on Swedish tennis players and German Olympians, which reported that elite level athletes specialized in their sports later in life, rather than earlier (Zauner, Maksud and Melichna, 1989; Blimkie et al., 1993; Jayanthi et al., 2013; Feeley, Agel and LaPrade, 2016). However, it appears that early sports specialization among young athletes is on the rise (Farrey, 2008; Myer et al., 2015), and it is believed that the pressure of choosing one sport to the

exclusion of others comes from coaches, parents and fellow young athletes (Gould, 2009). The reason for early specialization is fear that, if they do not specialize, they will not be able to compete at the next level of competition, i.e. in the next age group (Myer et al., 2016). Specialization for one sport was first recorded in Eastern Europe among athletes who participated in individual sports, such as gymnastics, swimming, diving and figure skating (Mostafavifar, Best and Myer, 2013).). Development programs for future elite level athletes included intensive and long-term trainings, often pushed on by parental pressure for success (Myer et al., 2016). This evolution in youth sports developed as a result of the increasing respect of society for successful athletes who thus enjoy recognition and financial rewards for their achievements (Jayanthi et al., 2013). It is likewise important to note that success in younger age categories is not a predictor of long-term success, while in some cases, early sports specialization may function as a limiting factor for achievements at the elite level (Epstein, 2014).

Sports specialization was defined by Wiersman (2000) as early participation in an individual sport with high intensity trainings and competitions. Côté, Lidor and Hackfort (2009) classified sports specialization as focusing on one sport by spending many hours of targeted trainings aimed at improving sports skills. Sports specialization can be defined as "intense year-round trainings in one sport to the exclusion of other sports" (Jayanthi et al., 2013). Furthermore, Jayanthi et al. (2015) claim that, based on the definition, highly specialized athletes: (1) choose a main sport, (2) participate more than eight months per year in one main sport, and (3) terminate all other sports and focus on only one sport. Jayanthi et al. believe that the degree of sports specialization can be defined as low, moderate or high based on the number of elements to which a young athlete can positively respond. From all of the above, Herman et al. (2022) state that there is no consensus on the definition of specialization within one sport, and thus say that early sports specialization presumably represents continuity in the volume and intensity of trainings and competitions within one sport.

Ericsson, Krampe and Tesch-Römer (1993) defined the necessary components for acquiring professional skills in musicians, and the identical concepts were extended to sports. In order to achieve expertise, musicians must practice 10,000 hours over a period of10 years (Ericsson, Krampe and Tesch-Römer 1993). Prime musicians spend more than 10,000 hours practicing alone, while their less successful peers accumulate 7,000 hours or less (Jayanthi et al., 2013). The incentive for early specialization comes from the assumption that early experiences in professional development differentiate the musicians who become experts/elite from those who

do not (LaPrade et al., 2016). Therefore, Ericsson, Krampe and Tesch-Römer believe that individuals who start specialization early have an advantage in relation to those who start later. In addition, there is a perception among many parents that in order to gain advantages in achieving success, it is necessary for their child to specialize in one sport at an early age (Myer et al., 2016). This can best be demonstrated by the example of Tiger Woods, who was introduced to golf very early and was exposed to highly specialized training, thus becoming perhaps the best golfer of his generation (Erickson et al., 1993; Farrey, 2009). However, Côté and Fraser-Thomas (2016) suggest that early specialization excludes an important development period during which youth athletes should participate in various sports for fun and enjoyment, while in favour of persistence and acquiring skills in one sport. These missed opportunities for fun and focus on physical activity during youth likely contribute to deficits in current and long-term physical activity and health (Mostafavifar, Best and Myer 2013). Without the opportunity to try out different sports during childhood, young athletes are less likely to acquire fundamental physical, psychosocial and cognitive skills that are important for long-term success in sports (Côté, Lidor & Hackfort, 2009). If the sport specialization cycle takes place too early in youth, the comprehensive development of motor skill will be limited, which in turn increases the risk of future injury and potentially reduces the child's ability to achieve desired sporting results (Mostafavifar, Best & Myer, 2013; Hall et al., 2015).

Youth athlete development currently consists of several theoretical models, each having its own strengths and weaknesses, that can point the training of young athletes to maximize their performance (Varghese, Ruparell & LaBella, 2022).

Côté (1999) explained the development of athletes with the "developmental model of participation in sport (DMSP)". The first phase is called "trying out" (ages 6 to 13) and it occurs when athletes try a variety of different sports, with emphasis on fun and enjoyment. The second phase is "the specialization phase" (ages 13 to 15) in which athletes dedicate themselves to one or two sports and achievements become more important. In the third, "investment phase", athletes (over 15 years old) dedicate themselves to one sport hoping to achieve the elite level of performance. There is also the possibility of a fourth phase of development if a high level of achievement has been attained, and it is called "the performance" or "the perfection phase". During this phase, athletes maintain their elite level status and work on improving their skills.

Balyi and Hamilton (2004) proposed a "model of long-term athlete development" (LTAD) consisting of seven phases which are based on developmental stages and promotion of physical

activity among general population. The initial phases are "the active start", "the fundamentals" and "learn to train" phases. They promote skills required for physical literacy and are recommended to be completed before the onset of adolescence. Athletes with better developed abilities can then progress in the phases "train to train", "train to compete" and "train to win" by demonstrating key psychosocial and physical indicators. Ideally, given that athletes are selected from a system of more developed abilities, they enter the phase called "active for life" with the aim of remaining active and healthy.

Lloyd and Oliver (2012) proposed a "model of youth physical development" (YPD). The YPD model provides more details on what type of trainings should be emphasized during each developmental phase and takes additional gender differences into account. The phases of YPD consist of early childhood (ages 2 to 4), middle childhood (ages 5 to 9), adolescence (ages 10 to 19) and adulthood (ages 20 to 21). Growth rates are divided into rapid growth, stable growth, adolescent growth spurt and declining growth rate, which correspond with the defined developmental stages. The YPD model also takes into account the status of maturation, adaptation to trainings, training structure and physical qualities of trainings. Lloyd and Oliver note that this model recognizes the optimal time for training each physical ability. For example, trainings for adolescents (ages 10 to 19) should focus on agility, speed, strength, power, hypertrophy and endurance, as well as should be moderately to highly structured. Furthermore, Lloyd and Oliver say that the YPD model is not only directed towards achieving a certain level of competition, but that it also focuses on the holistic development of young athletes at all levels, which therefore makes it more generalizable than the LTAD model.

Specialization of tennis players is the subject of systematic research and debates in sports science. Literature emphasizes the need for holistic development. Therefore, numerous researchers and practitioners explored its advantages and disadvantages, particularly in the context of youth development, performance results and long-term success of athletes.

In a research carried out by Padaki et al. (2017) the aim was to determine the influence of specialization among young athletes. It was shown that the athletes specialized at the average age of 8.1 years and that 31% of athletes played one sport, while 58% played more than one sport, but had one main sport. 60% of athletes played their main sport for nine or more months a year. Padaki et al. they point out that young athletes are increasingly specialized in one sport before starting high school. In addition, they also believe that the desire for success and achieving higher levels of ability created additional pressure for specialization by coaches and

parents. Baxter-Jones, Maffulli and the TOYA Study Group (2003) also conducted a research in which they studied four sports (football, tennis, gymnastics and swimming). Study results showed that parents of swimmers more often introduced their children to sports (70%), while parents of gymnasts (42%) did so the least. Almost half of football players (47%) played sports because of their own interest, while the majority switched to intensive trainings due to encouragement from coaches (65%). Furthermore, the results showed that motivation (27%) and parental influence (57%) led children to tennis trainings, while 25% of young athletes from the sample independently decided to start with intensive trainings. Baxter-Jones, Maffulli and the TOYA Study Group found that involvement of young athletes in high-level sports largely depended on their parents, while coaches had the strongest influence on the decision to train intensively. Kliethermes et al. (2020) say that the proportion of elite level athletes who specialized early ranged between 7% and 85%, depending on the sport and definition of specialization. Furthermore, elite level athletes often specialized between the ages of 14 and 15, compared to their non-elite or semi-elite peers who usually specialized before the age of 13 (Kliethermes et al., 2020). As a result of all the above, Kliethermes et al. came to several conclusions: (1) sports specialization of young athletes is not a prerequisite for success at higher elite levels, (2) elite level athletes often specialize between the ages of 14 and 15, and (3) sports specialization will not result in better performance among young athletes who specialized in one sport compared to those who participate in multiple sports. Accordingly, in a research by Moesch et al. (2011) in which 148 elite and 95 near-elite Danish athletes from cgs sports (sports measured in centimetres, grams or seconds) participated, it was showed that near-elite athletes accumulated significantly more hours of training already at the age of 9, while continuing to train more during early adolescence until the age of 15. At the age of 18, the accumulated amount of training hours for the two groups was almost identical. After the age of 18, elite level athletes practice more training hours, while showing a significant difference until the age of 21 when compared to almost elite athletes. Finally, Moesch et al. conclude that involvement in other sports did not differ between groups and did not predict success. In addition, in a study involving 4924 male and female athletes who competed in sprint races and were ranked on the lists of the International Athletics Federation, it was shown that only 17% of male and 21% of female athletes among the top 50 ranked U-18 athletes managed to be among the top 50 senior athletes (Boccia, Cardinale and Brustio, 2021). Boccia, Cardinale and Brustio report that the top 50 ranked senior athletes systematically showed greater annual improvements during late adolescence and early adulthood compared to the athletes in the top 50 at U-18. Likewise, the top 50 ranked senior athletes reached their peak performance later than the top 50 ranked

athletes in the U-18. In the end, Boccia, Cardinale and Brustio concluded that early success in athletics is not a good predictor for success at the senior level in sprint events. For example, in a research conducted by Wilhelm, Choi and Deitch (2017), 102 active professional baseball players (aged from 22 to 40) participated, and it was shown that 50 players (48%) specialized in baseball early, with the average age at the beginning of sports specialization was 8.91 years. Wilhelm, Choi, and Deitch noted that those who specialized early reported more serious injuries during their professional baseball careers. Likewise, most professional baseball players (63.4%) believe that sports specialization before high school is not necessary for acquiring the skills necessary for playing on the professional level. Furthermore, Rugg et al. (2018) conducted a study on athletes who played other sports in addition to basketball during high school, and were defined as multi-sport athletes, and then compared with athletes who only played basketball in high school. 237 athletes were included in the research, out of which 36 (15%) were involved in multiple sports, while 201 (85%) were athletes playing only one sport in high school. The participants in multiple sports played more games (78.4% vs. 72.8%) and were also less likely to sustain a major injury during their career (25% vs. 43%). Furthermore, Rugg et al. state that a higher percentage of multi-sport athletes were active in the league at the time of data collection, indicating an increased longevity in the National Basketball Association (NBA) league (94% vs. 81.1%). Likewise, in a research by Confino et al. (2019) it was shown that multi-sport athletes had significantly more average total games, while single-sport athletes had a significantly higher incidence of upper extremity injuries compared to multi-sport athletes. In a research by Pasulka et al. (2017) it was demonstrated that out of 1190 surveyed athletes, 26% (313) specialized in one sport. Furthermore, sports with the highest share of athletes specializing in one sport were: tennis (46.7%), gymnastics (30.1%) and dance (26.3%). Athletes specializing in one sport in individual sports started specializing at a younger age (11.2 ± 2.4 vs. 12.0 ± 2.7), as well as reported higher training volumes (11.8 vs. 10.3 h/week) than those involved in team sports. Furthermore, research results of Pasulka et al. also indicated that single-sport athletes in individual sports were more prone to overexertion injuries, however, that they had a smaller share of acute injuries when compared to single-sport athletes in team sports. A study aimed at determining whether sports specialization was associated with an increased risk of injuries in the musculoskeletal system of the lower extremities among adolescent athletes was conducted by McGuine et al. (2017). 1544 athletes participated in the research and filled out a questionnaire, while classifying themselves as low specialized (59.5%), moderately specialized (27.1%) and highly specialized (13.4%). McGuin et al. concluded that athletes with moderate or high sports specialization are more likely to suffer musculoskeletal

injuries of lower extremities than athletes with low specialization. Furthermore, the results of a study with 519 junior tennis players in the American Tennis Association showed that 70% of them started specializing at an average age of 10.4 years, while 95% specialized by the age of 18 (Jayanthi et al., 2011). Players who specialized only in tennis were 1.5 times more likely to report an injury. Ratings of enjoyment and satisfaction with tennis decreased among players older than 14 years. Jayanthi et al. believe there is a potential correlation to reduced enjoyment and satisfaction as players get older and become more specialized in tennis. Jayanthi et al. concluded that players who specialized only in tennis were more likely to report a previous tennis-related injury, whereas players who sustained an injury in the past year had a significantly higher risk of future withdrawal from tournaments due to medical reasons. Furthermore, Carlson (1988) conducted a research in which he attempted to contribute to the explanation of how numerous top level Swedish tennis players simultaneously experienced international success. Two groups of players were selected for the research, an elite level group and a control group, each consisting of 10 individual athletes. The results showed that elite level players played other sports for a longer time and at a later age compared to the players in the control group. On average, elite level players specialized in tennis at the age of 14, while control group players did so at the age of 11. Until the age of about 13, there were no major differences between the two groups regarding the amount of tennis trainings. Between the ages of 13 and 15, the players in the control group trained tennis more than elite level players, while after the age of 15, elite players trained more. Carlson concluded that it is not possible to predict who will develop into a world-class tennis player exclusively on the basis of individual talent. In a study by Li et al. (2020) which involved 373 tennis players, the results showed that 75% of the top 300 professional tennis players started playing tennis between the ages of 3 and 7, 21% started playing between the ages of 7 and 10, and 4% started later; between the ages of 10 and 13. Li et al. state that research of the developmental stories of these "late starters" revealed that they also participated in other sports (e.g., football, gymnastics) before specializing in tennis. The results also showed that professional rankings between the ages of 14 and 18 were not reliable in predicting a player's future ranking. Li et al. thus concluded that players, coaches, elite sports agencies and federations may have little control over the outcome, however, that they still have immense control over strategy, policy, planning, providing resources, process and support, which can in turn lead to increased chances for elite success and maximizing player potential.

Sports specialization in childhood has become more common, and there is concern that sports specialization before adolescence could be detrimental for young athletes (Jayanthi et al., 2013). Engaging in year-round intensive training programs in one sport at an early age can result in negative outcomes for some young athletes, such as overexertion injuries, burnout and quitting from the sport/s (DiFiori et al., 2014). Several systematic reviews have shown that highly specialized athletes have a higher rate of overexertion injuries (Fabricant et al., 2016; Bell et al., 2018; Carder et al., 2020). In addition to an increased number of injuries, the authors of the systematic review concluded that specialized athletes are exposed to higher levels of burnout than non-specialized athletes (Giusti et al., 2020). Athlete burnout is usually defined as emotional and physical exhaustion (Raedeke & Smith, 2001), and it can be a precursor of quitting the sport (Fraser-Thomas, Côté & Deakin, 2008; Crane & Temple, 2015; Biese et al., 2024). Due to the negative effects on mental and physical health, numerous medical organizations, including the American Orthopedic Society for Sports Medicine (AOSSM) (McLellan, Allahabadi & Pandya, 2022), the American Academy of Pediatrics (AAP) (Brenner and Council on Sports Medicine and Fitness, 2016), the American Society of Sports Medicine (AMSSM) (DiFiori et al., 2014), and the American College of Sports Medicine (ACSM), expressed concerns about early specialization (LaPrade et al., 2016). Despite the mentioned concerns, the prevalence of highly specialized youth athletes remains a worrying trend both in academic and practical areas in youth sport (Coutinho et al., 2023).

An alternative to early sports specialization is diversification (Côté, Baker and Abernethy, 2007; Côté and Erickson, 2015). For most sports, numerous researchers believe that early diversification is more likely to lead to success (Carlson, 1988; Barynina and Vaitsekhovskii, 1992; Hodges and Starkes, 1996; Helsen, Starkes and Hodges, 1998; Lidor and Lavyan, 2002; Baker, Cote and Abernethy, 2003; Soberlak and Côté, 2003; Güllich and Emrich, 2006; Wall and Côté, 2007; Moesch et al., 2011;). Early diversification provides young athletes with a valuable physical, cognitive and psychosocial environment and fosters motivation (Wiersma, 2000; Abernethy, Baker & Côté, 2005; Moesch et al., 2011; Valovich McLeod et al., 2011). Accordingly, children should participate in various sports with qualified youth coaches, who in turn possess the necessary knowledge and skills to organize and monitor trainings and age-related modifications so that children are more likely to experience long-term success as competitive athletes (Myer et al., 2016). Furthermore, developmental sports programs should correspond to the anatomical, physiological and psychosocial uniqueness of children and

adolescents, as well as relate to their long-term physical development in order to build a strong foundation for future success (Mountjoy et al., 2011; Lloyd and Oliver, 2012).

Social capital

The social support system in youth sports contains multiple stakeholders, such as coaches, parents, siblings, teammates and sports officials (Jowett and Timson-Katchis, 2005; Dorsch et al., 2020). Shumaker and Brownell (1984) defined social support as an exchange of resources between two people with the aim of improving the well-being of the support recipient. Support from the most important people such as coaches, parents and peers in the sports context has been identified as an essential resource for athletes (Sheridan, Coffee and Lavallee, 2014). Parents are considered as one of the most significant and influential members within that network (Stein, Raedeke and Glenn, 1999) since they are a fundamental component of the youth sports system (Dorsch, 2017). Watching their children compete in an important race, with wins and losses, as well as success and failure, it is not surprising that many parents become heavily involved in monitoring and guiding (Lauer et al., 2010). For example, it has been suggested to ensure a strong parental support network during the earlier stages of playing sports because without it, a talented child is unlikely to fulfil their potential (Monsaas, 1985). Parents are extremely important in youth sports as they provide children with the support that enables them to participate and progress (Wuerth, Lee and Alfermann, 2004; Horn and Horn, 2007). The participation of children in sports can likewise improve social connection, social support, connection with peers, life satisfaction and self-esteem, and can also reduce stress, anxiety and depression (Torjman, 2004; Valois et al., 2004; Coalter, 2005; Seippel, 2006; Street, James and Cutt, 2007;). Parental involvement and support are also related to the athlete's enjoyment, performance and self-esteem (Leff and Hoyle, 1995; Hoyle and Leff, 1997). Baker et al. (2003) point out that the development of sports skills is the result of a successful interaction of biological, psychological and sociological traits. In addition, resources such as parental support and adequate instruction are essential (Baker et al., 2003).

Most recent developments in the field of parental involvement in youth sports have led to the introduction of parental education programs and interventions (Burke et al., 2024). Such programs and educations provide a convenient way towards reducing inappropriate parental involvement and improvement of athlete performance, as well as to reducing certain stressors

experienced by parents, coaches and young athletes (Burke et al., 2024). The mentioned programs are aimed at promoting and enhancing positive parental involvement in youth sports in order to provide a positive youth sports environment (Dorsch et al., 2017; Thrower, Harwood, & Spray, 2017; 2019; Tamminen et al., 2020).

Fredricks and Eccles (2004) suggested that parents fulfil three fundamental roles in their children's sports experience, namely: provider, interpreter and role model.

As providers of sports services, parents who make physical activities available to their children offer young individuals the opportunity to try out and experience sports (Côté, 1999). Parents provide transportation to trainings, matches, camps and tournaments. In addition, they also provide the necessary financial support for maintaining long-term engagement aimed at talent development (Bloom, 1985).

The second parental role of interpreter affects children's perception of competences and values which are acquired by playing sports (Fredricks and Eccles, 2004). Parental beliefs and expectations are associated with youth athletes experiencing stress, anxiety and burnout (Fredricks and Eccles, 2004).

The role of parents as role models represents their influence on the child's sports behaviour by modelling reactions to situations (Fish and Magee, 2003) through showing how to perform sports skills, and even by how to communicate with those who are involved in sports (coaches, officials, other parents and athletes) (Fredricks and Eccles, 2004).

Parents are faced with financial and time demands, they are the interpreters of the sports experience, however, they are also obliged to constantly provide emotional support to their athlete child (Andersonn and Andersonn, 2000). On the other hand, when parents apply inappropriate types of support to their children (e.g., pressuring children or having unrealistic expectations of children), this can be associated with a series of negative outcomes, including increased anxiety, fear of failure, parent-child conflicts and dropping out of school (Fraser-Thomas, Coté & Deakin, 2008; Bois, Lalanne & Delforge, 2009; Le Bars, Gernigon & Ninot, 2009; Sagar & Lavallée, 2010). Gould et al. (2006) state that today’s role played by parents in the sports involvement of young athletes is under great scrutiny and there are frequent reports of problematic or excessively involved parents. From all the above, many authors believe that parents play a significant role in the sports development of their children (Bloom, 1985; Hellstedt, 1987; Woolger and Power, 1993; Côté, 1999; Gould et al., 2006; 2008;). Furthermore, Knight and Newport (2017) point out that parenting in sports is a much more complex process

than simply knowing how and when to provide support. Research in the field of parental involvement in youth sports focuses on the one-way influence of parents on their children's participation in sports (Greendorfer, 1992). Therefore, Snyder and Purdy (1982), Weiss and Hayashi (1995) and Dorsch, Smith and McDonough (2009) showed the two-way and mutual influence of parents and athletes on socialization in sports, whereby athletes are not only influenced by their parents, but athletes also influence their parents' thoughts and behaviours.

The last two decades have been characterized by the rise of the concept of social capital as an important academic concept, with the concept of social support closely related to social capital (Novak, Svalina and Delale, 2020). Social capital is a term that includes resources that imply social relations and social inclusion (Novak, Svalina and Delale, 2020). Furthermore, Novak, Svalina and Delale state that social capital includes moral support, cultural value, leadership, the ability to play sports and logistical and financial support. They believe that all of the above affects the level of self-confidence, motivation, sense of belonging and the level of sports performance.

Sociologists Pierre Bourdieu and James Coleman are listed as the founders of the concept, and according to their approach, there are significant differences in defining social capital.

Bourdieu (1983) was the first to define social capital as a set of resources associated with the possession of a network of permanent connections between individuals and groups. Social capital can be useful both to individuals and groups, but also contribute to maintaining the existing social inequalities (Bourdieu, 1983). Bourdieu believed that capital can be manifested in three forms, namely: economic, cultural and social. Economic capital represents money, land and real estates that a person owns. Cultural capital refers to the level of education and commitment to increasing personal value. Social capital in this classification refers to social relationships and the creation of social ties and networks (Bourdieu, 1986).

Coleman (1990) defined social capital as a resource that can be found in social structure and is available to an individual or a group of individuals due to their social positioning. Social capital can take various forms, such as family ties, friendships, professional networks or membership in organizations (Coleman, 1990). Furthermore, Coleman claims that social capital has a value that cannot be measured solely by economic criteria, as it is often based on trust and reciprocity in interpersonal relationships.

The theory of social capital indicates that interpersonal trust, norms of solidarity and exchange of social support among community members represent potential and that access to such capital

factors can facilitate the actions of population members (Putnam, 1993; Kawachi, Subramanian and Kim, 2010; Furuta et al., 2012). One of the most famous authors in the study of social capital is the political scientist Robert Putnam, who defined social capital as a network of interpersonal relationships which, through social ties, mutual trust and norms of mutual help and cooperation, realizes individual and collective benefits (Putnam, 2000).

Putnam (1995; 2000) identified three determinants of social capital:

1. "Network" social capital refers to the quality and variety of social ties that a person has, such as: friendships, family relationships, connections with organizations and social groups. Quality social ties that are based on trust, reciprocity and common interests are considered as key elements of social capital.
2. "Reciprocal" social capital refers to norms of mutual assistance and cooperation. Positive social norms, such as respect and solidarity, and values, such as fairness and social responsibility, can assist in creating and maintaining social capital.
3. "Resource" social capital refers to material and non-material resources that a person can acquire through social connections, such as information, support, access to employment or other resources. Social resources are key elements of social capital as they assist individuals in achieving goals and improving life standards.

Some researchers analysed the influence of social capital and how these factors contributed to an individual's success in sports.

In a study conducted by Wolfenden and Holt (2005), six main categories were shown that reflect the complex interactions between players, parents and coaches that are associated with involvement in elite junior tennis: 1) emotional support, 2) tangible support, 3) informational support, 4) waivers, 5) pressure and 6) relationship with coaches. Based on data analysis, it was also demonstrated that parents fulfil the most significant roles in terms of providing emotional and tangible support (with the mother being more involved than the father). The analysis particularly emphasized that parental attempts to give tennis-related advice were negatively evaluated both by children and coaches. Parents were perceived as a source of pressure when they became too involved in the competitive environment. Therefore, Wolfenden and Holt believe that parents can help or hinder talent development in elite junior tennis, depending on the roles they are trying to fulfil. Furthermore, Wolfenden and Holt note that it is difficult to

achieve success without a support network (coaches, parents, siblings, friends, physical conditioning coaches). A research by Gould et al. (2006), which consisted of multiple goals, showed that parents were perceived as very important for success of junior players in tennis. The majority of parents (59%) with whom these coaches worked are considered to have a positive effect on the development of their children as players. However, Gould et al. also say that respondents believe that 36% of parents have negatively affected their child's development. Negative parental behaviours included overemphasizing victory, unrealistic expectations and criticizing the child. Positive parental behaviours included providing logistical, financial and socioemotional support, as well as opportunities for tennis and unconditional love. Gould et al. believe that parents play a crucial role in the development of young tennis players. Furthermore, Gould et al. note that, although many parents are doing an excellent job in this regard and contributing positively to their child's development, the experienced coaches they studied also believe that a significant number of parents unknowingly interfere with their child's sports development. In another study by Gould et al. (2008), the content analysis revealed that most parents had a positive influence and represented an appropriate perspective of tennis, by emphasizing child development and providing support. Namely, parents allowed their children to play several sports, and not just tennis. In addition, parents attempted to make their children's social life easier. This is important as coaches have recognized that parents are key to the development of junior tennis players and that parents can create positive experiences in tennis. However, a minority of parents were perceived as negative, demanding and overbearing, while focusing on the outcome. Gould et al. indicate that parents of tennis players should show positive attitudes and behaviours, as well as should avoid negative ones. Harwood and Knight (2009) state that parents experience a series of competitive stressors that indicate difficulties they face before, during, and after matches, including their child, opponents, other parents and officials. In a study carried out by Harwood and Knight, parents also reported on a wide range of organizational stressors that paralleled the financial, social and personal investments that accompanied their roles of providing support. Furthermore, content analysis revealed that parents of tennis players also face work demands, as well as family activities and responsibilities which lead to potential career problems, inequality in spousal and sibling attention or sibling resentment. Harwood and Knight indicate that the results of that research emphasize the importance of possessing the parenting skills required for coping with the psychological, developmental and logistical demands of competitive tennis. In addition, they say that, although the emphasis of that research was on identifying stressors associated with parenting of tennis players, there were also positive topics and factors that parents presented

about their tennis experience (e.g., parents' own satisfaction, creation of social networks, children's friendship with peers, closer relationship with the child, benefits for health and physical fitness, and a sense of pride with the child's achievements). Harwood and Knight believe it is necessary to educate and support parents in the motivational and emotional processes of competitions, as well as provide them with the necessary cognitive and motivational skills to manage themselves and their child's reactions. Furthermore, they believe that this type of education, perhaps through tournament workshops, would improve their role as interpreters and role models for their child before, during and after competitions. In a study by Lauer et al. (2010), it was demonstrated that parents exhibited many positive behaviours that facilitated development. In addition, parental support provided in specific ways was frequently mentioned, including providing transportation, giving emotional support, scheduling tournaments and making waivers in order to enable the child with an opportunity to play. Negative behaviours which slowed down development included negativity and criticism, excessive pushing, overemphasis on winning and talent development in relation to other domains of the child's life, as well as using undesirable behaviours to achieve tennis goals. For example, the analysis showed that parents do not put pressure on purpose, however, they do not recognize how the child perceives their behaviour. Upon reviewing the trends across all stages of development, Lauer et al. say that all parents created a positive experience in the early years, and that with growing pressure in the middle years there were more conflicts in which negative parenting often manifested itself in their actions and behaviour. Although parents were less involved in the elite years, it is interesting that players still wanted their parents' opinion on certain parts of their lives, such as education, finances and management of the support team, however, not in tennis. From all of the above, Lauer et al. emphasize that parents play a crucial role in talent development of junior tennis players. In another study conducted by Lauer et al. (2010), the aim was to examine the influence of parents on the development of talent and the parent-child relationship. The results were presented in three development paths of tennis: smooth, difficult and turbulent. Parents on a smooth path demonstrated more positive behaviours than parents who were not on that path. Equally important, smooth path parents avoided many negative or unintentionally harmful behaviours seen among other parents of tennis players. In particular, they displayed very few negative behaviours in their elite years, managing to skilfully avoid putting too much pressure on their children, and without drawing attention to their investment. This disproves the myth that the development of elite tennis players requires an overly involved parent. Smooth path parents demonstrated that they can facilitate the development of a successful tennis player while enjoying a healthy relationship

with their children throughout their developmental years. Parents with a difficult path showed many positive behaviours and attitudes, identically as parents with a smooth path, and they also reported positive experiences in the early years of development. Despite this, negative interactions with the child persisted and intensified during adolescence. Although some negative interactions occurred, the negative consequences were limited as parents and players seemed to resolve most of their conflicts during the elite years. Lauer et al. state that parents with a difficult path recognized that their relationship with their child was strained and sought to ease the pressure, often by communicating and reducing direct involvement over time. In particular, they reduced involvement during the elite years. However, like most families, even though some conflicts still existed, they generally maintained a healthy parent-child relationship. Similar to smooth and difficult path parents, parents with turbulent paths usually showed positive parent-child interactions in the early years. However, during the first years there were initial signs that tennis and other sports became very important. The positive relationships that existed in the early years, when children enjoyed the attention of their parents, became strained due to the increasing pressure to perform and improve in ranking during the middle and elite years. Consequently, Ryan and Deci (2000) state that the child's desire for self-determination and the parents' desire to control the tennis experience often result in conflict. Lauer et al. claim that problems which developed in the middle years continued into the elite years, while players who produced successful professional tennis careers remained in strained relationships with their parents. However, it should be said that these parents were not uneducated or abusive. In fact, they had good intentions and wanted what is best for their child, and were also positive in many ways. Athletes generally felt that the negative consequences outweighed the positive ones and assumed that tennis had become too important to their parents. Lauer et al. indicate that parental involvement does not have to be excessive or negative, as well as that parents can be positive and supportive, and still help their child develop into a successful professional tennis player. Furthermore, Knight and Holt (2013) conducted a research aimed at determining the factors which affect parental experiences at tournaments while watching their children compete in junior tennis tournaments, as well as at identifying suggestions for improving their experiences. The analysis resulted in identifying four factors that affected tournament experiences of participants, as follows: 1. child's performance and behaviour (harnessing of potential, child's on-court behaviour, child's reaction to the match); 2. sportsmanship (attitude and behaviour of opponents, parental involvement in the match); 3. parent-parent interactions (social opportunities, parental disputes); and 4. tournament context (tournament organization, focus on ranking points). The participants also provided three

recommendations for improving their experiences: 1. providing education and support for tennis players (teaching tennis players coping skills, educating tennis players on sportsmanship); 2. providing education and support for parents (offering education for the parents on tournament participation, psychological support for parents to navigate tournaments); and 3. organizational changes (organizational enforcement of rules, more referees). Knight and Holt conclude that the identification of these factors, along with the changes proposed by the participants, would have numerous effects on parent education initiatives that could improve parenting in junior tennis in the future. Knight and Holt conclude that the identification of the mentioned factors, along with the changes proposed by the participants, would have numerous effects on initiatives for parent education that could improve parenting in junior tennis in the future. In another research by Knight and Holt (2014), it was presented that each child's development is unique and will therefore require different types of parental involvement. In addition, the participants clearly indicated in the results that optimal involvement depends on the parents looking for ways to increase the child's opportunities for success and enjoyment in tennis. Knight and Holt believe that consistency between goals, emotional climate and parental practices will enhance parental involvement in youth tennis. Given that there is little research on sports parenting that specifically examines the role of parents in the introductory stages of youth sports experience, Gould et al. (2016) conducted a study aimed at examining coaches' attitudes on parental roles in 10 and Under (U-10) tennis. Gould et al. state that coaches believe parents should adopt the role of supportive/assisting parents, rather than coaching ones, as well as attempt to understand child development, have a long-term perspective on tennis development and work to improve a positive parent-child relationship. The advice and recommendations for U-10 parents included accepting the long-term athlete development pathway, planning tennis-related communication and feedback, and finding ways to connect with the tennis culture. In addition, Gould et al. believe that parents of athletes require a better understanding of child development. In a research carried out by Thrower, Harwood and Spray (2016), the need for educating parents of tennis players was also emphasized. Thrower, Harwood and Spray state that the mentioned needs can only be met if parents are in a supportive learning environment that provides them with structured education, the effectiveness of which will be determined by the parents' motivation to learn and the continuous support of key stakeholders (e.g., coaches). Furthermore, they claim that parental involvement is affected by comprehensive social characteristics (e.g., financial and time demands), as well as by indirect organizational factors. Therefore, in a study conducted by Novak, Svalina and Delale (2020), they state that various domains of social capital (family,

school, sports team) successfully predicted the sports success of young tennis players. They also believe that it is possible, with the right approach and social support from important factors such as family, school and the sports team, to support a young competitor in achieving top level athletic results. Focusing solely on one area of a young athlete's life is not enough to achieve better competitive results, since a holistic approach is required in the development of young tennis players (Novak, Svalina and Delale, 2020).

3. ORIGINAL STUDIES

Study 1: Research on Negative Life Events Among Tennis Players of Differing Success Levels: The Participants' Perspectives

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Research on Negative Life Events Among Tennis Players of Differing Success Levels: The Participants' Perspectives

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ABSTRACT

The process that athletes go through is complex and intertwined with various negative life events they are faced with. However, it is considered that overcoming challenges at an early age is connected with success in later years. Therefore, the aim of this qualitative study was to research the various negative life events (injuries, lack of financial resources, failure to be selected for the national team) of various tennis players and the way in which these events influenced their tennis career. Semi-structured interviews were conducted with three categories of male tennis players (N = 30), these being: (1) Grand Slam winners, (2) players ranked between position 150 and 300 on the professional men's tennis rankings, and (3) players ranked between position 500 and 1500 on the professional men's tennis rankings. Data analysis was implemented by using reflexive thematic analysis. Three topics were generated that included: injuries and the way they dealt with them, financial resources and how this affected their sports development, and failure to be selected for their national team. The obtained results indicate that the differences between the different level of success among tennis players refer more to the overcoming of various negative life events (injuries, lack of financial resources, failure to be selected for the national team) that the players faced during their tennis careers.

Key words: *tennis, success, interview, reflexive thematic analysis, development path*

Introduction

Upon attempting to understand and support the development of young athletes, it is important to comprehend the nature of that path and a series of factors which can positively or negatively affect their development. As well as this, is it also important to distinguish between those athletes who achieve their greatest level of success after negative life events, compared to those who are less successful. According to Collins and MacNamara, there is evidence that overcoming challenges at an early age presents a precursor of achievement at the highest level of success[1]. The success of athletes is at least to some extent considered as a product of an organized and systematically controlled process of support and training, while the aim of long-term success of athletes in top-level sport is a systematically planned process[2].

The first step in the development of a young tennis player is to start playing at an early age. Many players start playing tennis as early as three to six years old. Additionally, starting at an early age allows a player to develop a love for the game. As young tennis players progress, the focus shifts to developing more advanced skills. This stage is up to the age of twelve (U12). At this level, the player begins to specialize in a certain playing style and begins to participate in regional and national tournaments. In the stage between the ages of fourteen (U14) and sixteen (U16), players begin to improve their skills and start to partake in regional and national tournaments, as well as events at the international level. The next stage is the advanced level, from sixteen (U16) to eighteen years (U18). At this stage, players play in international tournaments to facilitate the transition to a professional career. At this level, the player must have a high level of skill to compete against the best players in the world. The final stage is the professional level, where the player competes at the highest level of tennis tournaments such as Grand Slam events. To reach the professional level, a young tennis player's path is a challenging one that requires hard work, dedication and perseverance.

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Sarkar et al. conducted research aimed at studying the traumas faced by the world's best athletes, and the results indicated that traumatic experiences have a positive effect on player performance, as well as that they incite motivation and stimulate learning[3].

Numerous processes are connected to the success of athletes, while research implies that a negative impact on the development of athletes' careers is very often caused by injuries, financial resources, and failure to be selected for the national team. In their research, Fu et al. state that tennis is a safe and low-risk sport, however still one that is associated with a unique set of acute and chronic injuries[4]. Players are at risk of injuries – regardless of the level of success (i.e. competitive or recreational) – whereas the profile of tennis injuries remains unique compared to other racquet and throwing sports with regard to physical requirements, biomechanical loads, and equipment[5]. Numerous studies have shown that the most common injuries among tennis players are lower limb injuries, followed immediately by upper limb injuries, which usually include the shoulder and the elbow. Additionally, there are also injuries of the trunk, which usually include the lower back[5–7]. Upper limb injuries are chronic and secondary due to repeated microtraumas and excessive use, while lower limb injuries among tennis players are usually acute[8,9]. In a study conducted by Kryger et al., the results stated that apart from lower limb injuries, shoulder injuries are the most common cause of players quitting professional tennis competitions[10].

Another challenge that tennis players are faced with on their path towards success is their access to financial resources. In his research, Martin states that financial resources are necessary in order to succeed in tennis[11]. Baxter-Jones and Maffulli also state that in tennis, not only by the players, but also by parents, significant resources are invested in terms of emotional, financial and logistical support which in turn has a strong impact on a players' participation in the sport[12]. While young athletes advance in their sport, their families are the ones who bear the financial costs that incur, provide transportation to training and competitions, as well as adjust their daily responsibilities for the future sports career of their child[13,14]. The most noticeable requirement is the financial burden of covering the combined costs of clothing and equipment, training and competition fees, as well as local and long-distance travel expenses[15]. Most players competing in professional tournaments and at various levels of financial winnings are in danger of premature career termination due to inability of financing[16]. Furthermore, in a study by Shrom, Cumming and Fenton, the conclusion was made that considerable financial resources are required for supporting a professional tennis career, and that a lack of funds results in stress and financial difficulties for the players' families[16].

An important role in providing support to young tennis players is played by national tennis federations. According to Brouwers et al., national tennis federations (i.e. Tennis Australia, U.S. Tennis Association and Tennis Canada) are the highest governing authorities in tennis on a national level, and are responsible for creating national tennis policies and programmes[17]. Even though national tennis federations play a major role in the development of elite-level tennis players, private tennis academies also significantly contribute to success in tennis[18]. For instance, according to MacCurdy the number of tennis players training at the national training centre in Spain is quite low, while many players train at private tennis academies[19]. However, almost all players are "under the umbrella" of the national tennis federation by means of scholarships, training camps and tournaments[19]. Generally, in a study by Crespo and Reid (2009), it was pointed out that national tennis federations and private academies must cooperate while striving for the same objective – developing elite tennis players[20]. According to Crespo and McInerney, national tennis players should establish a cooperation programme as part of the overall player development programme[21].

The data obtained in the above-mentioned studies provide valuable insight on experiences encountered by the athletes. However, there has yet to be any research that focused exclusively on what athletes themselves highlighted as essential for their career to be successful. This study provides an original contribution on the characteristics of sports careers among tennis players with differing levels of success, and thus the aim of this study is to research various negative life events (injuries, lack of financial resources, failure to be selected for the national team) and their impact on tennis players' careers.

Materials and Methods

Participants

In an intentional sample of examinees, 30 tennis players were interviewed (aged between 25 and 50). The research participants were divided into three categories of male tennis players; (1) Grand Slam winners (N=10), i.e. tennis players who have won at least one of the four Grand Slam tournaments in tennis (Australian Open, US Open, Roland Garros or Wimbledon), (2) players ranked between positions 150 and 300 on the professional men's tennis rankings, further on in the text "participants of the 2nd level of success" (N=10) (according to the official website of the Association of Tennis Professionals (ATP), or who were at one point of their career in ranked in that position), and (3) senior male tennis players with national rank, further on in the text "participants of the 3rd level of success" (N=10) (ranked between 1 and 10 on the national ranking list or between position 500 and 1500 on the ATP rankings , i.e. if at some point of their career they were ranked in one of the mentioned positions). For the selection of research participants, a specific method for biographical studies was used, including participants who best fit the research, as well as those who were deemed to provide the most valuable information in relation to the research questions asked[22].

Procedures

Data collection was implemented through three phases and by applying the semi-structured interview method. The first phase included contacting the potential participants by e-mail. The second phase involved to making direct telephone contact in which the participants were briefly presented with the procedure, aim, and research topic. The third phase was the implementation of the interview with the participants.

The data collection in this research was conducted by using the qualitative methodological approach through carrying out biographical studies by means of gathering life stories of tennis players at different levels of sporting success. A default identical interview structure (so-called interview guide) was prepared beforehand for all the participants in the study. Each question in the interview guide was open-ended which gave a series of responses that were significant for each participant. The interviews were carried out until the the studied topic was exhausted, i.e., for as long as feedback in the conversation did not begin to repeat itself. With the aim to avoid having environmental factors (noise, lights, poor weather conditions) influence the responses of the participants, the interviews took place in quiet and isolated places.

In order to achieve optimal personal context of the data, it was exceptionally important that all participants clearly connect personal experience with key phases that refer to their own careers[23,24]. It was previously indicated that this approach increases the accuracy and truthfulness of memories, and that was a major step in overcoming certain limitations of retrospective memory. This aspect is specific for this type of data collection, and guarantees the memory of personal experiences for each participant relating to a certain period of their life[23,25].

All the participants agreed to participate and gave an informed consent, while this study was approved by the Committee for Scientific Work and Ethics at the Faculty of Kinesiology University of Zagreb, number: 6/2021.

Design and Analysis

Each participant was presented with the aim and purpose of the research in detail. All interviews were recorded by video recorder and by camera for subsequent transcriptions and interview analyses, on which the participants were also informed and asked to give consent. Each participant was guaranteed with anonymity and confidentiality of the personal information they provided, as well as being allowed to withdraw from the study at any given time. All interviews were conducted by the third author due to an elevated trust and relationship with the participants as a result of the respect for their history and present situation, and the requirements of general/specific elite performance and development experience. All the interviews were transcribed verbatim, i.e. recorded by what was stated, and each interview lasted up to 60 minutes.

The reflexive thematic analysis approach, developed by Braun and Clarke (2019)[26] was used and the analysis consisted of six different stages which were carried out inductively, by having the statements of the participants coded so that they could be summarized on a level of explicit meaning. The software for qualitative analysis (QSR NVIVO 9) was used for transformation of raw data units (into thematic hierarchies by recursive inclusion into producing codes), and for the production and organization of data categories[23,27].

Results

The participants shared how they lessened different negative life events in order to achieve success in tennis. The interview analysis resulted with the formation of three different inter-related topics. The first topic was to do with injuries and the methods of dealing with them. The second topic focused on financial resources and their impact on sports development at the beginning stages of a sporting career. The third topic focused on the effect of not being selected to represent their national teams. Each of the mentioned topics is further studied hereafter.

Topic 1 – Injuries and methods of dealing with them

Sports injuries and the methods in which an athlete deals with them was the first topic discussed with the participants. The mentioned topic proved to be quite relevant as the participants described their injuries and diseases that followed them and presented setbacks, however, some of them also mentioned experiencing additional motivation for success following an injury.

Participants at the 3rd level of success considered injuries as a normal and a constituent part of tennis. They all reported having minor injuries, however they stated that these injuries did not present limitations in their sports development while being junior tennis players. One of the 3rd level participants elaborated as follows:

> "I didn't have that many problems with injuries except for muscle spasms. True, yes, I also had certain problems with the shoulder, but I took care of that by spending one month in therapies. So, I can't say that injuries held me back and were the reason why I didn't succeed."

Apart from certain smaller injuries, such as twists, sprains and muscle spasms, the players stated that after injuries they experienced mental downfalls, and that it took them a significant amount of time to get their game back to the level it was prior to sustaining the injury. During that time, they felt that they lacked adequate professional support from their coach, which could have allowed them to be capable of directing their energy towards factors directly related to sports performance.

> "You know, when fear gets to you… By the time I regained my psychological level, I lost an entire summer, however, I kept playing."

"I was extremely frustrated after that injury because I witnessed my guys moving forward, while I lost an entire year, without knowing why I lost it. That was some serious wandering. If only I broke an arm, so, I would know I had a broken arm, so you have to take a break for a year, OK then."

"Yeah, yes, I was down mentally. I lost faith in myself because I wasn't in training, or playing matches."

While for some players minor injuries presented additional motivation for continuing the "fight" to get back to achieving good results (during the transition from junior to senior ranking), others could not handle such small, however recurring injuries, thus they decided to end their tennis careers. One of the participants describes his "battle" as follows:

"After my injury, I'm struggling, fighting it, and this all goes on for a year, two years, three years, and then I reach the conclusion that this can't keep going further. Overnight tennis changed to something totally else, this sport was no longer tennis for me, this sport was a nuclear sport. Suddenly the pace just swallowed me up."

It was found that the players first issues with injuries started to occur after their junior-level career and during their transition into seniors. Injuries and overtraining were common features experienced by players at the 2nd level of success. Several of them stated having discus hernia. The participants who experienced problems with discus hernia stated that they took breaks from competitions and training for several months, but when returning to play, they were not able to reach the ranking they had prior to the injury. They indicated insufficient attention to the body position during training, such as the lack of balance, as the primary cause of their injury.

"I wasn't paying enough attention to my body. At that time, while working with my physical therapist and my coach, I wasn't entirely focused on that, you know? I wasn't stretching enough, I just played tennis."

"My back was killing at the tournament, and the more I played, the worse was the pain. The injury was in fact that stress was adding on stress. It wasn't that I hadn't been prepared enough, quite the opposite, I was overtrained."

In addition to the mentioned injuries, several participants emphasized concern for their health. Two participants at the 2nd level of success had mononucleosis, while one participant had hepatitis. Their experiences and the effects after the disease were pointed out in several quotes:

"It was hard for me because I had no energy, it was unbelievable. You know, I wake up, have breakfast, and want to go back to sleep. It was terrible."

"I'm playing a match, and I'm feeling as if I'm playing my fourth match in that day. I won several matches with vomiting, I'm throwing up and I can't play. Somehow, after my first mononucleosis I was never again at the same energy level."

They also added that looking back, they might have created pressure for themselves and perhaps that was the trigger for the development of mononucleosis. They believe that they should have gained more support from their coach in the way of promoting rest, in order for their bodies to be functional even in the most challenging of situations. Therefore, one of the participants stated that he was his own greatest enemy as he went back to training and competing too soon after illness.

"When you want to do everything quickly, you also sometime force it a little and – here comes an injury! That is how I got my back injury, shoulder injury and many other."

"I was an overly motivated athlete, and I always gave it 100%, while some players who were with me knew when to rest and they kept their health. Wrong decisions, too much of my motivation and impatience."

As the cause of their injuries and illness that started appearing and accumulating, all the participants at the 2nd level of success attributed everything to mental preparation. They stated that at that point they were more focused than ever on tennis, whereas they were neither physically, nor mentally ready for the challenges of senior-level tennis.

"You know, when the head wants to do everything fast, but the body stiffens up a little? I believe that was all. I wasn't accepting this situation where you'd say: c'mon, OK, here I am, it is what it is, let's start again!"

In order to evolve and become successful players, the Grand Slam winners work excruciatingly hard, but on that path they were also accompanied by injuries. The injuries were constantly present and were a disrupting factor they had to cope with. Therefore, all the Grand Slam winners involved in this study stated that the most important thing is to remain healthy so that one can be able to play more and enjoy the game.

"Some of the young players who performed best at junior level, why didn't they make it? Not always, but there are often stories about players who kept experiencing injuries they couldn't get rid of. But keeping your health, that is priority number one for me. If you're not healthy, you can't do anything."

One of the Grand Slam winners mentioned a good junior-level player they remembered who ended his career due to injuries and certified that keeping one's health is of the utmost importance:

"He was number one or number two, and after only three years of playing professionally he simply stopped. Out of the mentioned three years he was injured for two and a half. If he hadn't been injured, how good would he have been?!"

Furthermore, another Grand Slam winner reported how after winning a Grand Slam tournament (Wimbledon), he was playing his best tennis, however he then un-

fortunately had an injury. Upon thinking about what preceded this injury, he came to the conclusion that it happened the only time when he did not follow his doctor's instructions.

"I went to see another doctor. Stupid. So, only one time in my career, and I immediately got punished for it."

All Grand Slam winners stated that during their tennis careers they had accumulated injuries and that they were a problem. They believe that these moments were decisive in overcoming crises, as well as presented additional motivation for their development and for becoming better tennis players. Below is another quote by one of the Grand Slam winners:

"In tennis, and in life in general, in moments of crisis, the worst times, I can really grow and get better, precisely because of that."

The Grand Slam winners further highlighted that players need to focus on improving negative elements during their careers in order to place themselves in a more favourable position. In order to minimise the possibility of getting injured, many Grand Slam winners asked for assistance and included experts from various fields of sport and science into their teams, i.e., fitness coaches, psychologists, experts in biomechanics, nutritionists, etc.

"Certain periods in my career, that were the best for me, were the ones when I said to myself 'OK', I must improve in certain areas, so I found experts who helped me do that. Those were the real turning points."

Unlike participants at the 2nd and 3rd level of success, who did mental training for a shorter period, the most successful players such as the Grand Slam winners, had a psychologist in their team and regularly practised mental training. Here below are several quotes from Grand Slam winners where they state that it is extremely important to control one's emotions:

"I think that it's about having to control your emotions, accepting your bad periods, and, eventually, improving your game every day. And you must understand it all and have faith in yourself."

"You have to control your emotions so you can do what you must do on the court. And if you have to play a long ball and… You must do it. Because if you have a break point and you play a short ball, you're not doing what you're supposed to be doing. Because you've never… No, no, you must control yourself. Control your emotions, that is the key."

Extremely high loads of stress, insecurity, and the feeling of not fulfilling one's own expectations, had an effect even on the Grand Slam winners, This is one of the reasons why working with a psychologist is considered to be one of the most beneficial aspects of overcoming hard moments and experiences. Below is a quote in which one participant explains the advantages of working with a psychologist:

"I was ready to play with anyone, I was very focused and very relaxed, stress free. If you play while stressed, ultimately you can't give 100%. You're playing tennis, but you're not enjoying it. You can't play at 100% because you have limitations."

Topic 2 – Financial resources and how they affect sports development

Financial resources, and how they affect the sports development in the beginning of an athlete's tennis career was the second topic discussed by the participants. The participants at all three levels of success referred to financial resources as being significant in tennis progress. However, qualitative differences were determined between the three levels of success among tennis players.

Participants at the 3rd level of success mentioned that during their junior playing years, they were not aware of the costs spent on coaches, tournaments, hotels, and other expenses that were a part of tennis. They looked for help form sponsors, however, the result was unsuccessful. The lack of financial resources reflected on their tennis, below are some quotes from the participants in relation to the financial aspects:

"I wasn't playing a lot and I wasn't playing across Asia, Africa, USA, I never went outside of Europe. Everywhere I played was any place we could get to by car."

"Honestly, I used to be unaware of how much my father spent each month, I wasn't involved in that, my part of the job was only to train and to play."

They pointed out that their parents were not willing to spend their last resources on tennis. As their financial resources were limited, they did not want to take the risk of taking out a loan, or by borrowing money. They believed that they were investing in accordance with their capacity, however, they were not determined to invest in a coach because they were waiting to first settle down and give up on tennis.

"I mean, yet again, on the other hand I also wasn't ready for what was coming, and neither did they know what to expect. I mean, we went in to play pro level, but without knowing what it was, and still going for it. That's, perhaps, the step that we needed to prepare for better."

One participant at the 3rd level of success pointed out that an injury being the moment he became somewhat more aware of financial resources, which subsquently became the main reason for him ending his career. He explained that he was prepared in terms of his physical conditioning, he played good tennis, but during one tournament he experienced a minor injury in the posterior part of the knee due to which he forfeited the match. Further on, he stated that he immediately called his father and said to him:

"I'm going to become a coach, I'm enrolling into a programme for coach education and that is it, definite-

ly. I said to him I didn't want to continue to burden him financially."

What must be pointed out is the fact that all participants at the 3rd level of success identified financial resources as one of the main reasons for quitting tennis.

Several participants at the 2nd level stated that they had problems with financial resources. The looked back on the beginnings of their tennis career when their parents did not have sufficient financial resources to support them at tournaments, even locally, let alone abroad. Players from Balkan countries (Croatia, Serbia, etc.) were noted to have huge problems with financing, and in this situation they then found themselves having to take a harder path. They believe that players from France, Australia, and China do not have issues with financial resources. Here below is a singled-out quote from a participant describing how he went by himself to a tournament, without a coach, due to the lack of financial resources.

"I went alone to Switzerland for a tournament. I was alone, I always went by myself to tournaments. It was really hard, but it was about the money."

The lack of financial resources was creating enormous additional pressure. Money was a daily preoccupation. Here are some quotes from participants at the 2nd level:

"I was putting pressure on myself and then the lack of funds, so you end up always thinking about money."

"When I get home and hear my parent comment, I'm not stupid. You hear that they can't make ends meet, and you should be going to a tournament. And then you, when you get to the tournament, subconsciously still hear it and you think to yourself, my poor parents, how are they going to give money for me now. Suddenly you become aware of all the costs."

"I can' allow myself to have my parents invest in something, sleep in 40 m² so that I could have everything in the world of tennis, and secondly, that my brother also suffers. No way. Although we took out a loan, I said to myself, never again."

"When you have a financial burden and the training programme is another big financial load for the family, then you are constantly looking for more."

"However, I felt a huge responsibility because it was then that I started to do some calculations. Right, so me and this player share a coach and the coaches' fee is that *much*. We are now in Italy and lunch alone is that much, plus the daily allowance, plus the hotel for the coach, etc. Those numbers were spinning around in my head, and that was creating a burden for me."

Two participants at the 2nd level stated that their parents admitted they should have made the next step forward and invest in a better coach, however, that financial resources limited them in terms of the making this step forward.

"Well, now, my father has regrets because of that. Why didn't I pay for a good coach, why didn't I take out a loan?"

"I'm very lucky that I had a father who, when he saw that I loved it, committed himself to me, and was with me every day. Then again, on the other hand, I had the misfortune of us not having enough financially to push me more early with a coach, who would teach me better."

When asked "Did financial resources present a problem at the beginning of your sports career?" several Grand Slam winners replied that they did not have sufficient finances, however, that at some point they got lucky and got selected for being part of the programme at their federation.

"Yes, then the Federation granted me a scholarship and I started training here. We were three players working with one coach. That helped me a lot."

After starting with professional tennis, further on in their career, Grand Slam winners stated that they had no more problems with financial resources, and they were able to cover the costs of their coaches, travels, physical conditioning coaches, psychologists, nutritionists, etc.

"That part was very simple for me as I already had contracts and I had enough money for investing in a good coach. It wasn't very hard, no."

On the transition between the junior and senior rank, one Grand Slam winner stated that he had no money at all and that his mother made sacrifices by having to work two jobs for a certain period. Then the Federation required him to win points at the following tournament or he would be denied financial resources.

"Then getting lucky with my first ATP point, unbelievable, right? Otherwise, I would have no money at all, the Federation would not help me."

Another Grand Slam winner pointed out his opinion that it was important that things do not come too easily. Likewise, he also thinks that he grew up in a really good family and that his family and relatives created a very comfortable environment for him to grow up in.

"We didn't have anything, we had no money at all. I had to fight for everything that I wanted, everything."

Several Grand Slam winners singled out key moments in their careers. They believe that they succeeded in taking advantage of the opportunity that was presented to them despite the fact that they did not have sufficient financial resources at the beginning of their tennis career. The lack of financial resources and a bad atmosphere at their home presented a challenge and motive for achieving the greatest success, i.e. winning a Grand Slam tournament.

"That makes you want more, I guess, I don't know, it's hard to say exactly."

Topic 3 – Failure to be selected for the national team

Our third topic was focused on national tennis federations, i.e. how failure to be selected to the national team affected athletes. The participants at the three different

levels of success presented their differing views about national tennis federations.

When discussing national tennis federations, the participant at the 3rd level described their relationship with the federation differently. For some players, who believed that they deserved to be selected for their national teams, and were not, was in some way a turning point for them training even harder. They strived to prove that this was where they belong and did not give up. Failure to be selected for the national team, although they met all the requirements, eventually did not have a negative effect on one of the participants.

> "Well, no, you simply feel bad, you don't understand because you got some paper from the tennis federation, from the head coach, which essentially said exactly what the conditions were to be in the national team. And then, when you look at all the details, you meet all the requirements, perhaps even more than that, and in the end, they never invite you. Again, you feel bad, but it's no tragedy."

Regarding his failure to get selected for the national team, one of the participants at the 3rd level was aware that at that point he was not good enough and that there were others who were better than him. He pointed out that when he achieved better results, he was once again invited to the national team. He described his relationship with the federation as correct, even though there were also some negative situations, for example:

> "They prohibited me from having training sessions with the Federation because I refused to go to the National Championship, as I went to play at a tournament in order to make it to the Top 20 at the U16 International Tennis Federation. Then they didn't allow me to play, but this also ended correctly."

The other participant at the 3rd level went through all national teams up to the senior category. One of the biggest mistakes of national tennis federations is non-compliance with the goal everyone should be striving for. It is said that many players get lost on the transition from the junior to the senior category. Thus, below one participant presents the reasons why he joined the programme of the national tennis federation.

> "I got involved in the work of the Federation to try and help with my advice so that we try to provide to young players what wasn't given to me. That is, I believe, the only right path, where players are monitored, where we all train together, etc. The Federation did not compensate that, but simply guided us and that was great."

In continuation, two participants at the 2nd level stated that they had help form their national tennis federations. They pointed out that this was very important as their parents did not have the required financial resources to fund them, and with the support of the national tennis federation they could train without feeling any financial pressure. Further on, they elaborated that top-level individuals should be working in national tennis federations; thus below is a quote where one of the participants describes a situation at one national tennis federations:

> "Would you look at how our system works, look at it! What's worst, we have quality people. When I now come to the federation and when they list me the names of the coaches, I never heard of those people before. I never heard of those people, you win Davis Cups, and your coaches are some unknowns!"

Other participants at the 2nd level did not have any help from national tennis federations and that was a problem for them. They point out that expert competence is what shall enable young athletes to have a proper training process during which they shall properly master technical and other elements, as well as balance out the relationship between individual and group training, something which is of great importance. In the interview they state that they did not have such support and that in their opinion, that is one of the key factors for success.

> "I think that, when it comes to making it to the Top 100 or Top 50 on the ATP rankings, in countries which have a very well managed training and competition system, there will always be quality-level players. In countries where this isn't the case, such environments depend more on outstanding talents."

> "I regret that we don't have any similar system where, by means of the national tennis federation, all this knowledge, which some players possess, is transferred."

A negative experience of playing for the national tennis federation at the Davis Cup was described by one of the participants. He states that they were playing against one of the best national teams and that they were not favourites, however, the media blew them up as being the favourites in the match. After losing this match, he was accused of being the worst player on the court. Instead of supporting him, the national tennis federation did not take any action to help him overcome the situation.

> "And then someone also knocks you out like that. I came to a point where I was fighting with myself, I reached a wall. I'm trying, but it's not working. That was when my insecurity slowly started. I felt like I was worth nothing. Later on, when I wasn't invited to join the national team, I thought I really was worthless and I withdrew even more into myself, I was insecure."

At some point during their careers, all the elite-level tennis players in this study spent time together in a team, meaning they trained, played, and travelled together. That is how the information around the national tennis federations began for all the participants that are Grand Slam winners. One Grand Slam winner explained that he had to move away from home to a sport house when he was 14 years old. He stated that it was a sport house for different sports as well as tennis. Each Grand Slam winner pointed out that there was a turning point in their career, and that it was the moment when they were taken "under the umbrella" of the national tennis federation. For exam-

ple, some of the Grand Slam winners define their turning point as follows:

> "Allow me to explain one key moment in my career, and that pivotal moment was when I moved and when I started training here. There were these three players in the beginning, we trained together with one coach. They were the best three players in my age category. We were all good players and we always trained together. We started improving our physical conditioning intensively, we were working hard."

> "I wasn't present at the meeting that my parents had with the national tennis federation. They came to me and said: we were offered this opportunity, we think it will be good for you to have the opportunity to train with the bast players and blah, blah, blah. So I said OK, if you think that it's good for me, I'll do it."

One Grand Slam winner explained how the national tennis federation operated in his country. He said that the national tennis federation made teams of four players and that these teams were very successful. He thinks that this method of operation is successful all around the world. This positive example of team creation is presented below:

> "You know how it is, if he can win the title, so can I, because last week I beat him at practice. You support one another and that is something I think is very successful."

Discussion and Conclusion

The aim of this study was to qualitatively research the various negative life events (i.e., injuries, lack of financial resources, failure to get support from the national tennis federation) among male tennis players at three different levels of success: (1) Grand Slam winners, (2) players ranked between 150 and 300 on the professional men's tennis rankings, and (3) players ranked between position 500 and 1500 on the professional men's tennis rankings. By using reflexive thematic analysis – injuries, lack of financial resources and failure to get support from the national tennis federation were identified as significant setbacks for achieving great success in tennis. Some other unpleasant life events (war and divorce of parents) were mentioned in the interviews, however, through analysing the interviews, the three events that were mentioned most often by the participants were selected for further analysis. The discussion was based around the question of how different negative life events affected their tennis career.

The key finding in this study was that, regardless of a player's level of success, negative life events were particularly difficult for some tennis players. This is the first a qualitative study which reports on negative life events among tennis players at three different levels of success. Stambulova suggests that the positive sides of athletes' careers are often the focus of research in relation to sporting careers (i.e., success stories, facilitative environments)[28,29], however, there are also some studies that illustrate the negative sides, such as injuries and burnout[30–32].

The severity of tennis injuries can vary significantly, from minor distractions which do not affect performance, to more serious traumas which require withdrawing from tournaments[33], or even quitting sport in general. In a research study by Oršolić, Barbaros and Novak, it is highlighted that all participants at the 3rd level of success (ranked between 1 and 10 on the national ranking list or between position 500 and 1500 on the ATP ranking, i.e., if at some point of their career they were ranked in one of the mentioned positions) had a very successful beginning stage of their junior career, up until the moment of transition from junior-level to senior-level tennis. During this period, various problems tended to arise, the most often one being injuries. The mentioned injuries were seen as particularly unpleasant experiences[34]. Based on the findings of this qualitative research, tennis players at the 2nd level of success (ranked between position 150 and 300 on the ATP ranking, i.e., if at some point of their career they were ranked in one of the mentioned positions) were prone to injuries, especially injuries as result of overtraining among talented tennis players. Shannon et al. found the number of injuries among elite tennis players to be high. In this rsearch there is also evidence to suggest that some of the injuries may be as a result of poor rehabilitation and/or premature return to play, particularly in the case of muscle strains[35]. The findings of this study indicate that the participants of the 2nd and 3rd levels of success did not have, in a certain part of their career, adequate support that would direct them to easier elimination of injuries and ways to deal with them. The participants who were Grand Slam winners also perceived injuries as unpleasant experiences, but unlike the participants of the 2nd and 3rd level of success, they brought experts from different fields of sports and science into their team at a pivotal point in their career with the aim of preventing injuries. The experiences of Grand Slam winners indicate that it is possible, even despite injuries, to achieve the highest level of success in tennis. Injuries caused by overtraining, and playing while having pains in general, or despite functional limitations, appear to be a consistent appearance among elite-level athletes[36,37].

The financial demands of tennis are remarkable when considering how big a team a player in the development stages must have around him[34]. The logistical requirements of competitive tennis were presented as problems among participants at the 2nd and 3rd level of success. 3rd level participants cited lack of finances as one of the most common reasons for ending an active career. They point out that the parents could follow the financial demands of tennis up to a certain stage, but after that the lack of finances was reflected in their tennis career. Research conducted by Shrom, Cumming and Fenton says that many professional players face negative financial situations[38]. The lack of finances created a great burden for the participants of the 2nd level of success. It is not uncommon for the substantial

financial resources required to support a professional tennis career to lead to stress and financial hardship for players' families. It could be stated that the socio-economic status definitely plays a part in the success of tennis players[11]. Regardless of the study by Martin, for Grand Slam winners the lack of financial resources was a strong stimulus for achieving the greatest success. Studies have shown that only the top 100 ranked players can finance themselves[39]. By entering the professional tennis Grand Slam events, the winners secured financial independence and the possibility of further investment in the coaching team.

According to Turner and Pluim, the question that troubles each tennis nation is where to invest its resources. Furthermore, the question arises, if it takes 10 years and 10,000 hours of training for a player to reach the top level of the sport, should one invest in the foundations of sport (development) or wait until talented players reach the top and then direct the financial resources towards several elite-level players (performance)[40]. Thus, talent identification has become a crucial characteristic of national development systems for expanding elite sports[41–45]. In addition to this, the findings of this study indicate that the participants at the 3rd level of success secured all national selections, but at the transition from the junior to the senior stage there were no invitations. Although they were good juniors, not being selected for the national team had a negative effect on them. While the participants of the 2nd and 3rd level of success were in national selections at some stages of their career, the Grand Slam winners were more regularly in these selections. Based on the results of this study, the conclusion could be made that Grand Slam winners had the support of national tennis federations, which can be associated with subsequent success.

The main strength of this study is in the fact that a significant percentage of participants are Grand Slam winners, and although some consider it to be limited, the sample size met the recommendations for a qualitative research study[26].

A weakness of this study is the absence of female tennis players, thus an overall picture of negative life events in tennis is not presented.

More research is necessary for determining or recognizing other negative life events or traumatic experiences which affect the career and the level of success of a tennis player. It is hoped that the popularization of scientific results from this study could help in resolving doubts of parents and coaches about negative life events which occur in a tennis players' career and professional life, as well as for them to be minimized.

This qualitative study presents evidence on a series of challenges that tennis players faced during their adolescence and until they reached a certain level of success in their tennis career. The study proves that tennis players at different levels of success dealt with these challenges differently, despite their injuries, financial difficulties, and the failure to be selected for the national team.

A few recommendations for tennis stakeholders (parents, tennis and fitness coaches, national coaches) on how to behave in order to avoid and overcome unpleasant life events as easily as possible:

- despite the injuries that appear during a tennis career, it has been shown that one should not give up on one's goals to achieve success. It is extremely important for a tennis player to assemble a tennis team that will include coach, fitness coach, physiotherapist, doctor, nutritionist, and others in order to achieve this success.
- finances, which are extremely important at the beginning of a tennis career, are not a decisive factor for achieving the greatest success. Finding sponsors or coming "under the umbrella" of national tennis associations can largely solve the financial burden.
- not being selected for the national team is not crucial for success in tennis. Of course, being selected offers more opportunities, such as the support of the Federation.

The results of this study could contribute to the broadening of knowledge on the effect of negative life events on athletes' tennis careers, whereas on the basis of the results of new scientific insight, young tennis players could learn about accepting events with the aim of achieving top-level results.

In short, we believe that the differences between the various levels of success among tennis players refers more to the overcoming of different negative life events (injuries, lack of financial resources, failure to be selected to the national team) that tennis players were faced with during their tennis careers.

REFERENCES

1. COLLINS D, MACNAMARA Á, Sports Med, 42 (2012) 907. doi: 10.1007/BF03262302. – 2. GUELLICH A, EMRICH E, Eur J Sport Soc, 3 (2006) 85. doi: 10.1080/16138171.2006.11687783. — 3. SARKAR M, FLETCHER D, BROWN DJ, J Sci Med Sport, 18 (2015) 475. doi: 10.1016/j.jsams.2014.06.010. — 4. FU MC, ELLENBECKER TS, RENSTROM PA, WINDLER GS, DINES DM, Curr Rev Musculoskelet Med, 11 (2018) 1. doi: 10.1007/s12178-018-9452-9. — 5. PLUIM BM, STAAL JB, WINDLER GE, JAYANTHI N, Br J Sports Med, 40 (2006) 415. doi: 10.1136/bjsm.2005.023184. — 6. HUTCHINSON MR, LAPRADE RF, BURNETT QM II, MOSS R, TERPSTRA J, Med Sci Sports Exerc, 27 (1995) 826. doi: org/10.1249/00005768-199506000-00006. — 7. WINGE S, JØRGENSEN U, NIELSEN LA, Int J Sports Med, 10 (1989) 368. doi: 10.1055/s-2007-1024930. — 8. CHUNG KC, LARK ME, Hand Clin, 33 (2017) 175. doi: 10.1016/j.hcl.2016.08.009. — 9. DINES JS, BEDI A, WILLIAMS PN, DODSON CC, ELLENBECKER TS, ALTCHEK DW, WINDLER G, DINES DM, J Am Acad Orthop Surg, 23 (2015) 181. doi: 10.5435/JAAOS-D-13-00148. — 10. KRYGER KO, DOR F, GUILLAUME M, HAIDA A, NOIREZ P, MONTALVAN B, TOUSSAINT JF, Am J Sports Med, 43 (2015) 34. doi: 10.1177/0363546514552996. — 11. MARTIN L, J. Med. Sci. Tennis, 20 (2015) 116. — 12. BAXTER-JONES ADG, MAFFULLI N, TOYA STUDY GROUP, J Sports Med Phys Fitness, 43 (2003) 250. — 13. DUNCAN J, Young People's Involvement in Sport. In:

KREMER J, OGLE S, TREW K (Eds) Focus group interviews with élite young athletes, coaches and parents (Routledge, London, 1997). doi: 10.4324/9780203978184. — 14. ROWLEY S, TOYA: Training of Young Athletes Study: Identification of Talent (Sports Council, Great Britain, 1992). — 15. KAY T, Eur Phys Educ Rev, 6 (2000) 151. doi: 10.1177/1356336X000062004. — 16. SHROM SJ, CUMMING J, FENTON SJ, Int J Sport Exerc Psychol, (2022) 1. doi: 10.1080/1612197X.2022.2099947. — 17. BROUWERS J, SOTIRIADOU P, DE BOSSCHER V, Sport Manag Rev, 18 (2015) 343. doi: 10.1016/j.smr.2014.10.003. — 18. HOULIHAN B, Managing High Performance Sport. In: SOTIRIADOU P, DE BOSSCHER V (Eds) Commercial, political, social and cultural factors impacting on the management of high performance sport (Routledge, London, 2012). doi: 10.4324/9780203132388. — 19. MACCURDY D, ITF CSSR, 15 (2008) 27. — 20. CRESPO M, REID M, Tennis powers and their keys to success (ITF Coaches education programme: Coaching high performance players course, 2009). — 21. CRESPO M, MCINERNEY P, ITF CSSR, 14 (2006) 2. — 22. MILLER RL, Researching life stories and family histories, Analysing life histories (Sage Publications, Thousand Oaks, CA, 2000.). — 23. COLLINS D, MACNAMARA Á, MCCARTHY N, Front Psychol, 6 (2016). doi: 10.3389/fpsyg.2015.02009. — 24. OLLIS S, MACPHERSON A, COLLINS D, J Sports Sci, 24(3) (2006) 309. doi: 10.1080/17461390500188710. — 25. DRASCH K, MATTHES B, Qual Quant, 47 (2013) 817. doi: 10.1007/s11135-011-9568-0. — 26. BRAUN V, CLARKE V, Qual Res Sport Exerc Health, 11 (2019) 589. doi: 10.1080/2159676X.2019.1628806. — 27. CÔTÉ J, SALMELA JH, BARIA A, RUSSELL SJ, Sport Psychol, 7 (1993) 127. doi: 10.1123/tsp.7.2.127. — 28. STAMBULOVA N, Routledge International Handbook of Sport Psychology. In: SCHINKE RJ, MCGANNON KR, SMITH B (Eds) Athletes' transitions in sport and life: Positioning new research trends within the existing system of athlete career knowledge (Routledge, London, 2016.). doi: 10.4324/9781315777054. — 29. STAMBULOVA NB, Curr Opin Psychol, 16 (2017) 62. doi: 10.1016/j.copsyc.2017.04.013. — 30. HENRIKSEN K, LARSEN CH, CHRISTENSEN MK, Int J Sport Exerc Psychol, 12 (2014) 134. doi: 10.1080/1612197X.2013.853473. — 31. GUSTAFSSON H, SAGAR SS, STENLING A, Scand J Med Sci Sports, 27 (2017) 2091. doi: 10.1111/sms.12797. — 32. IVARSSON A, STAMBULOVA N, JOHNSON U, Int J Sport Exerc Psychol, 16 (2018) 365. doi: 10.1080/1612197X.2016.1242149. — 33. JAYANTHI NA, O'BOYLE J, DURAZO-ARVIZU RA, Sports Health, 1 (3) (2009) 231. doi: 10.1177/1941738109334274. — 34. ORŠOLIĆ M, BARBAROS P, NOVAK D, Coll Antropol, 45(1) (2021) 45. doi: 10.5671/ca.45.1.6. — 35. SHANNON N, CABLE B, WOOD T, KELLY J, Curr Sports Med Rep, 19 (2020) 414. doi: 10.1249/JSR.0000000000000760. — 36. BAHR R, Br J Sports Med, 43 (2009) 966. doi: 10.1136/bjsm.2009.066936. — 37. PLUIM BM, LOEFFEN FGJ, CLARSEN B, BAHR R, VERHAGEN EALM, Scand J Med Sci Sports, 26 (2016) 564. doi: 10.1111/sms.12471. — 38. SHROM SJ, CUMMING J, FENTON SJ, Int J Sport Exerc Psychol, (2022) 21. doi: 10.1080/1612197X.2022.2099947. — 39. GOVEA Z, PÉREZ-GALARCE F, CANDIA-VÉJAR A, Int J Comput Sci Sport, 21 (2022) 9. doi: 10.2478/ijcss-2022-0002. — 40. TURNER MS, PLUIM BM, Br J Sports Med, 41(11) (2007) 701. doi: 10.1136/bjsm.2007.041582. — 41. BLOYCE D, SMITH A, Sport Policy and Development (Routledge, London, 2009). doi: 10.4324/9780203890684. — 42. DE BOSSCHER V, DE KNOP P, VAN BOTTENBURG M, SHIBLI S, Eur Sport Manag Q, 6 (2006) 185. doi: 10.1080/16184740600955087. — 43. GREEN M, OAKLEY B, Leis Stud , 20 (2001) 247. doi: 10.1080/02614360110103598. — 44. HOULIHAN B, GREEN M, Comparative Elite Sport Development: Systems, Structures and Public Policy. In: HOULIHAN B, GREEN M (Eds) Comparative elite sport development (Routledge, London, 2007.). doi: 10.4324/9780080554426. — 45. LYLE JWB, Career Dev Int, 2 (1997) 314. doi: 10.1108/13620439710187945.

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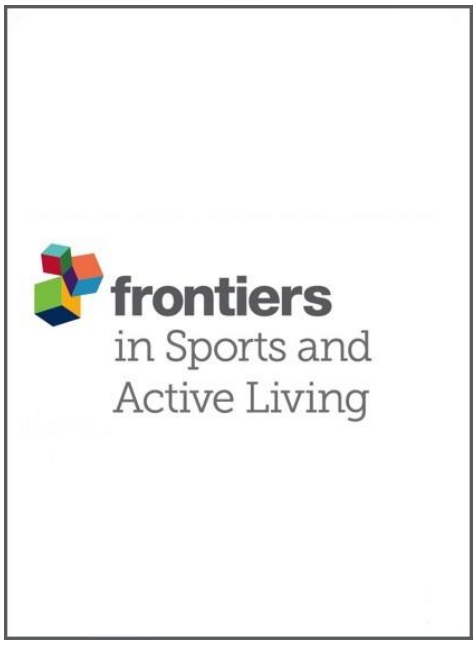
ISTRAŽIVANJE NEGATIVNIH ŽIVOTNIH DOGAĐAJA RAZLIČITIH RAZINA USPJEŠNOSTI TENISAČA: PERSPEKTIVE SUDIONIKA

S A Ž E T A K

Proces kroz koji sportaši prolaze složen je i isprepleten raznim neugodnim životnim događajima s kojima se suočavaju te ovisi o određenom stupnju uspjeha. Međutim, smatra se da je prevladavanje izazova u ranoj mladosti povezano s uspjehom u kasnijim godinama. Iz tih razloga cilj ove kvalitativne studije jest istražiti različite negativne životne događaje (ozljede, nedostatak financija, neizbor u nacionalnu selekciju) te kako su oni utjecali na njihovu tenisku karijeru. Polustrukturirani intervjui provedeni su s trima kategorijama muških tenisača (N = 30), i to: (1) Grand Slam pobjednici, (2) igrači rangirani od 150. do 300. mjesta i (3) igrači rangirani od 500. do 1500. mjesta na profesionalnoj teniskoj ljestvici. Analiza podataka provedena je korištenjem refleksivne tematske analize. Generirane su tri teme koje uključuju: ozljede i način kako su se nosili s njima, financije i kako su one utjecale na sportski razvoj te neizbor u nacionalnu selekciju. Rezultati ukazuju na to da se razlike između različitih razina uspješnosti tenisača više odnose na prevladavanje različitih neugodnih životnih događaja (ozljede, financije, neizbor u nacionalnu selekciju) s kojima su se suočavali tijekom svoje teniske karijere.

Study 2: What makes a Grand Slam champion? Early engagement, late specialization and timely transition from having fun to dedication

Oršolić, M., Barbaros, P., & Novak, D. (2023). What makes a Grand Slam champion? Early engagement, late specialization and timely transition from having fun to dedication. Frontiers in sports and active living, 5, 1213317.



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What makes a Grand Slam champion? Early engagement, late specialization and timely transition from having fun to dedication

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In order to provide adequate support for young tennis players, it is important to understand the development path and factors which can have a positive or negative impact on the development of a player. The aim of this research was to determine the factors that affected sports specialization in tennis by means of qualitative analysis (early, optimal, or late). As well as to deepen the knowledge around the phenomenon of specialization in tennis among players of differing success levels through their personal experiences, in order to contribute to a better understanding of their specialization. The authors interviewed 30 tennis players of differing levels, including 10 participants from the most elite level (Grand Slam champions), exploring their contrasting experiences of development. The data set was analyzed using reflexive thematic analysis. Three topics were generated, which included the following: engaging in sport, decisions, and time of specialization. The obtained results offer a stimulus to reflect on numerous aspects of athlete development.

KEYWORDS
tennis, specialization, success, development path, interview, reflexive thematic analysis

1. Introduction

There is an increasingly frequent discussion, both in the academic and sporting world, around the best pathway and age for children with a high potential for success to begin participating in sport (1). Uneven development paths experienced by athletes from sports in which top-level performance takes place before or after an athlete has fully matured, may imply various patterns of support by the parents, coaches, and peers during the development of an athlete. For example, in some sports, top-level performance is achieved at an adult age (2, 3). In order to provide support to young athletes, it is important to understand the development path and factors which can have a positive or negative affect on the development of their specialization, as well as to distinguish between athletes who achieve highly, as well as their less successful colleagues (4–7).

In scientific literature, many different viewpoints have been researched and presented. One point of view emphasizes the importance of a high level of specialization in young athletes (e.g., national team level and above) for the later achievement of high-level senior performance, whereas another point of view suggests the limitations of high-level specialization among young athletes for later senior high-level performance (6). For this reason, the question arises whether an early start in sports specialization is a prerequisite for later success in sport. A large number of previous studies indicate that early sports specialization is not a prerequisite for success, and that it can actually even hinder long-term achievement in certain sports (6, 8–18).

Despite the fact that early specialization in sports is increasing, recent studies found that late specialization (described as specialization after the age of 12) is more common among top-level athletes (19). Opposite to early specialization, elite athletes in multiple sports tend to start with more intensive training later on in their adolescence (20). In a study of elite and near-elite Danish athletes with the average age of 24,5 (athletics, weightlifting, cycling, rowing, swimming, skiing), the results showed that the elite group started with intensive training at a later age, as well as spending fewer hours practicing their main sport up to the age of 15 when compared to the near-elite group (21). For most sports, it is more probable that early diversity (diversification) shall lead to success (21–30). Current data on the sports specialization of elite, professional, and Olympic athletes is mostly retrospective and consists of survey-based evidence, according to which a majority of sports show better performance following the multi-sports engagement of young athletes. While additionally, sports specialization among young athletes is also associated to an increased risk of injuries among athletes at the highest of levels (31). Present guidelines for youth participation in sports greatly differs within and between sports, and there is lack of consensus on how young athletes should train. Other aspects of participation in sports also need to be regarded, as they can also contribute to the problem of sports specialization in young athletes (32). However, many parents and athletes believe that early specialization is the best method for becoming a top-level athlete (19, 33–35).

On the other hand, in a study overview by Mosher et al. (36) they found that there is explicit evidence that early specialization is harmful and should be avoided in any context. At the conclusion of the study, it was determined that without a consistent definition of early specialization, it is difficult to conclude on such a level of harmfulness of early specialization for young athletes as it is claimed by numerous organizations (e.g., American Orthopedic Society for Sports Medicine, American Academy of Pediatrics, International Society of Sport Psychology, National Association for Sports and Physical Education). Some defined early specialization as "year-long intensive training in one sport with the exclusion of other sports" (15), whereas others defined the beginning of early specialization as "the period when an athlete determines one sport as more important than another" (37). Hendry and Hodges (38) consider an increase in the number of training sessions per year as a key marker of early specialization, while Baker et al. (39) indicate early age and early inclusion into competitive sport as key parameters of early specialization.

There are presumptions among coaches, whereas the literature is not persuasive, as to the optimal starting age for beginning with tennis training that would allow for future success, given that tennis is a complex skill-based sport, usually characterized by long careers and with many top-level players actively playing even in their thirties (40–43).

Some coaches claim that many top-level professional tennis players started training as early as at the age of four, as well as that it is important to start early in order to ensure a satisfactory level of acquiring technical tennis elements (44). Further research by Li et al. (45) indicated that 75% of the top 300 players started playing tennis between the ages of 3 and 7, whereas 21% began playing between the ages of 7–10, and 4% started later, between 10 and 13. With regard to specialization, a study by the American Tennis Association showed that 70% of athletes specialized by the age of 10 years (46). However, a study by Carlson (24) concludes that elite tennis players specialized later and trained less than their near-elite peers between the ages of 13 and 15, but that they significantly increased their training after the age of 15. Result-based talent identification forces athletes to specialize in their sports at a younger age. Tennis experts suggest that on-court results should not be utilized as the only predictor of later success, particularly before puberty (47–49).

On the basis of all the above-mentioned, the conclusion can be made that it is important to focus research towards what athletes emphasize as relevant for their career to be successful, as such an approach has not been previously implemented in the creation of individual sporting careers, nor has the personal experience of one's own sports career been assessed in an appropriate manner. In view of the defined research problem, the following research question has been raised: which factors do tennis players of different levels of success perceive as key for optimal specialization in tennis? Therefore, the purpose of this study is to deepen the knowledge around the phenomenon of specialization in tennis among players of differing success levels by means of their personal experiences, in order to contribute to their better understanding, as well as to improve the process of creating individual sporting careers. In accordance with the mentioned purpose of this study, the aim is to provide an in-depth qualitative description of the development path of tennis players, as well as how different development paths affected specialization in tennis (early, optimal or late). The secondary purpose of the study is to collect enough data to share valuable information for parents, coaches, and junior tennis players. In layman's terms, which key decisions have former male Grand Slam singles players made during their junior careers that helped propel them to winning a Grand Slam or multiple Grand Slams?

2. Materials and methods

2.1. Philosophical perspectives and design

In this study, thematic analysis was used as a qualitative descriptive approach. Thematic analysis as an independent qualitative descriptive approach is mostly described as "a method for identifying, analyzing and reporting on patterns (themes) within data" (50, 51). Given that this study was focused on understanding the perspective of different development paths of tennis players during their adolescence, the qualitative descriptive approach was considered as appropriate. This study was positioned within the Interpretivist Paradigm as well as following Subjectivist Epistemology. The rationale for the approach was understanding the complexity of personal experiences of the tennis players, on the basis of which data shall be produced regarding differing levels of success among tennis players. On the

level of content, this implies focusing on understanding what a certain life situation or problem meant for an individual player, as well as what can be used to enhance individuals' development paths of future players who are hoping to achieve success in tennis. By studying the beginning of sports specialization in tennis players, this study aims help identify tennis players who started with sports specialization either early or late on in their life. In this way, specific strategies and interventions within tennis practice can be created and implemented which could facilitate achieving a more adequate method of specialization in tennis. By determining the beginning of sports specialization, this study shall assist in producing an optimal approach for including children into the process of sports specialization.

Upon taking into consideration the aim of the study, male tennis players of differing levels of sporting success participated in this research. The selection method adheres to a specific approach for biographical studies which includes all participants who best correspond to the research questions and from whom the most valuable information shall be obtained in response to these questions (52).

Consequently, 30 players (aged between 25 and 50 years) selected by deliberate sample were interviewed. Eight of the participants are still active players, whereas 22 of them had finished their competitive careers. The research participants were divided into three categories: (1) Grand Slam winners ($N = 10$), i.e., tennis players who won at least one of the four Grand Slam tennis tournaments (Australian Open, US Open, Roland Garros or Wimbledon), (2) players ranked between 150 and 300 on the professional men's tennis rankings ($N = 10$) [according to the official website of the Association of Tennis Professionals (ATP) or who were at one point in their career ranked in that position], and (3) senior male tennis players of national rank ($N = 10$) (ranked between 1st and 10th place on the national ranking list or between 500 and 1,500 on the ATP ranking, i.e., who were at one point in their career ranked in one of these positions). All of our participants tennis careers took part between the time period 1990 and 2022.

2.2. Methods and data collection

In this research, a qualitative methodological approach was used by implementing biographical studies by means of collecting life stories from tennis players of differing levels of sporting success.

The participants, who meet the above-mentioned criteria, were invited to take part through direct personal contact. In order to ensure optimal personal context of the data, it was extremely important for each participant to distinctly relay personal experience to key phases which relate to their own careers (4, 53). It had previously been shown that such an approach increases the accuracy and authenticity of memories (4, 54) and had been an important step in overcoming certain limitations of retrospective remembering. This is a specific and key aspect for this type of data collection by ensuring the remembrance of each participant's personal experience related to a specific life period. Each question in the interview guide was open-ended, which resulted with a range of responses that were meaningful for each single participant.

All interviews were conducted by an individual educated in implementing such procedures, who is also a coach with extensive experience on the ATP tour. The above-mentioned circumstances allowed for a more comfortable atmosphere during the interview and sincere replies in communication with the players. Prior to conducting the interviews, a selection of the participants took part in pilot interviews. The pilot interviews greatly contributed to the increase of the research quality-level of this study, as they resulted in recognizing the need adapt certain questions or other methods which did not elicit proper responses or enable the researcher to receive a rich set of data (55). All interviews were transcribed verbatim, i.e., recorded according to what was said. Each interview lasted between 50 and 70 min, with an average duration of 60 min. The interviews where then checked with the co-authors, which enabled the head interviewer to rehearse and improve the interview process, including the comprehensibility and clarity of the questions, use of more accessible language for the participants, as well as the effective use of probes for elaboration and clarification (56–59).

Data collection was organized in three phases by applying the semi-structural interview method. The first phase included establishing contact with the potential participant via telephone call and email. The second phase referred to explaining the procedure, purpose, and topic of the research to the participants. The third phase included the implementation of the interview with the participant. The interviews were conducted in quiet and isolated places in order to prevent environmental factors (noise, light, bad weather) from affecting the participant's responses. A default interview structure was prepared in advance, however questions were open ended in order to gain individual insight into each participants different experiences. The interviews were conducted up until the point when the research topic was exhausted, i.e., as long as conversation reflections did not start repeating.

The interviews began with a detailed explanation of the aim and purpose of the research, which was then followed by the participants' providing their names and age, as well as a short introduction of their development path in tennis. The mentioned process facilitated the follow-up questions and transcriptions, as well as served as a type of icebreaker. After this initial phase, the interview was continued with questions regarding the specialization process of the tennis player. The problem questions within this study included: at what age did the player start engaging in sports?, at what age did the player begin training?, was tennis the only sport the player trained in? (if not, which other sports), did the tennis player train in a small or big club?, does the tennis player think that young players should immediately start training at top-level camps (clubs) in order to achieve elite-level results?, at what age did the tennis player start with more intensive tennis training?, does the tennis player consider that children should start with specialization in tennis as soon as possible?, if the tennis player could go back to the beginning of his career would he change something about the

specialization process?, would the tennis player start earlier or later with more intensive tennis training and why would the tennis player start earlier/later with more intensive training?. The participants were asked to elaborate on their response to each of the questions.

Considering the subjective and individual nature of the research topic, each participant was asked an additional set of questions at the end of the interview in order to gain a deeper understanding of the sports path that tennis players go through. The questions at the end of the interview were asked with the aim to extract additional information, such as: what does success in tennis represent for each player?, which factors determine success in tennis?, is genetic heritage important for success in tennis, or are external conditions more important?, what differentiates successful from less successful tennis players?, and if there is something the player wanted to add or further explain regarding a previously discussed topic if a certain question was not asked or in case the tennis player was not able to fully respond in that instance.

2.3. Ethics

All participants agreed to take part in the study and gave prior informed consent, while the research was approved by the home institution of the second and third researchers and co-authors.

2.4. Data analysis

For the possibility of later transcription and interview analysis, all interviews were recorded with a tape recorder and video camera, which was communicated to the participants prior to the start of any said recording, and they were required to give their consent. Anonymity was guaranteed to each participant, as well as confidentiality of any personal information. Participants were allowed to remove themselves from the study at any given moment. All interviews were transcribed verbatim, i.e., recorded according to what was stated. The reflexive thematic analysis approach was used, which was developed by Braun and Clarke (60), for interview analysis, which comprises of six separate stages and is implemented inductively, so that the statements of the participants are coded with the aim to summarize them at the level of explicit meaning. The first phase comprised of interview transcription, which is deemed a good method for familiarizing oneself with the obtained data. The mentioned phase also included several readings of interview transcripts and the identification of data segments which contained significant information. The second phase consisted of producing initial codes from the data. Several potential topics were coded that were regarded as interesting and relevant for further research. The third phase involved sorting different codes into possible topics and comparing all relevant coded data extracts within the identified topics. The fourth phase consisted of a two-level review and refinement of topics, as follows: review at the level of coded data, and coding of additional data within topics which was omitted during the previous coding phases. The fifth phase was the definition and naming of the topics, during which the chosen topics were further refined. The final sixth phase consists of producing a report having finished with fully developing the topics.

3. Methodological rigor

Thematic analysis is a qualitative research method for identifying, analyzing, organizing, describing, and reporting on topics contained within a data set (50). Braun and Clarke (50) state that thematic analysis is a useful method for examining the perspectives of different research participants, pointing out similarities and differences, as well as generating unexpected insights. A series of steps was introduced in order to increase data credibility (57, 61). Conducting pilot interviews (and using the same interviewer the entire time) assisted in increasing the consistency of the interviews. The interviewer's experience (identical as in the pilot interview) as a coach with a rich background on the ATP tour procured trust and a comfortable atmosphere during the interview. All interview transcripts were delivered to the participants for their verification, allowing them to add, delete, or revise any data they considered as wrong in relation to their communication during the interview (56). Furthermore, the third author subsequently contacted the participants by telephone in order for them to confirm their statements and discuss the study findings. All of these activities confirmed to the authors that the participants were properly instructed for the research involvement. All of the participants verified their transcripts. All three members of the research team participated in joint meetings and collectively took part in the analysis of the obtained data. The mentioned meetings included detailed discussions on the standout topics. There were some uncertainties in relation to some of the topics, however, following repeated meetings and detailed analysis, an agreement was reached in order to present the obtained data as accurately as possible. The final coding scheme was agreed in the course of the above-mentioned discussion and analysis. This important process contributed to data credibility, ensuring the interpretative validity, and minimizing the risk of individual research bias (62).

4. Researchers' reflexivity

I have personally (third author) experienced the misunderstandings of my coaches and my surroundings in tennis, as a result of which my wrong decisions arose from not understanding the path experienced by top-level athletes with the aim to achieve the best possible results. For this reason, I decided to terminate my sports career and enroll into college. At college I specialized in tennis and started working both as a tennis and a physical conditioning coach. Athletes' limitations on the path towards achieving top-level results became the subject of my research interest. It was my own personal sports experience that created this desire to study the mentioned area. Both the first and second authors (also former tennis players and coaches)

took part in the data collection process, as they also ended their sports careers and engaged in researching athletes' success. Conducting reflexive discussions with both mentioned co-authors assisted me in elaborating on my presumptions, as well as in remaining focused on the experiences of the participants, instead of my personal situations. All of the above-mentioned is reflected in the subjectivist epistemological position of this paper.

5. Results

In keeping with the aim of this study, data analysis resulted in a large amount of relevant information which had an impact on the development of the careers of the athletes involved. The data analysis aimed to include quotes by the participants within each question or sub-question. Stories of the participants from their childhood onwards were presented with the aim of demonstrating how different events and experiences in key developmental moments formed their sporting careers. The analysis resulted in seven sub-topics that were presented as part of three main topics: (I) engaging in tennis, (II) decisions, and (III) time of specialization.

With the aim to facilitate the tracking of quotes, the participants were marked according to their category of success. Grand Slam winners were tagged as Level 1, participants ranked between position 150 and 300 were Level 2, while participants ranked between position 500 and 1,500 were Level 3. The second number of each mark represents the sequential order when the participant was interviewed within his category.

TOPIC 1. Engaging in tennis

This topic represented the different ways in which the participants described their beginnings in tennis. Within this topic, there were three sub-topics: important people relating to an athlete choosing tennis, impact of additional activities, and growing up in different environments.

Important people relating to an athlete choosing tennis

An early beginning in playing tennis was found in almost all participants at the third level of sporting success. This mostly included tennis lessons, mini tennis, and playing in groups, with training sessions being once or twice per week. However, two participants from the third level of success stated that their first contact with tennis took place when they were three and four years old:

> "I think I was four years old, and somewhat more seriously probably at the age of six. I don't remember that, but my parents told me so." *L3/9*

Participants at the second level of sporting success, in comparison with their less successful colleagues, had a similar early beginning (at the age of six or seven):

> "I started when I was six and a half years old, before I started first grade at school. It was tennis school, mini tennis." *L2/7*

While a similar early start characterized participants at the second and third level of sporting success (at the age of 6 or 7 years old), most Grand Slam winners had a somewhat earlier start (aged 4 or 5). In the beginning, these were training sessions once per week, and when the coaches noticed their talent, they started training twice per week and were included into team training with older players. They described their early beginning in tennis as follows:

> "I started when I was five years old and I played only one day per week, on Saturdays." *L1/1*

> "So I started playing tennis when I was really, really young. I was very small, almost still in diapers. When I was four years old, at home I was always hitting a ball against the door of our apartment." *L1/2*

> "I began playing tennis when I was four, three or four, early. When I was really young, maybe one and a half years old, or one, as soon as I could crawl, I had a wooden tablespoon for soup and a small ball, and I would hit the ball and then crawl to catch it, that is how I started." *L1/3*

The participants hereafter described the process of choosing tennis, i.e., who initiated the choice to be precisely tennis. With regard to them starting to play tennis, the participants recounted their experiences in detail while reminiscing and illustrating various individual events, whereas their beginnings in the sport and how they ended up specifically in tennis, they consider a be a combination of circumstances.

Participants at the third level of sporting success chose tennis as a result of multiple reasons, and some of them stated that their brother or sister already played tennis:

> "My sister started tennis before me, and then, along with her, I also tried it. I went to her training without any obligations and then, in the end, I liked it." *L3/2*

One of the participants reported that he was the initiator in deciding upon tennis:

> "I saw tennis on the TV and then I told my father that I wanted to play." *L3/4*

Another participant at the third level of success stated that his PE teacher played a considerable role in his choosing when he contacted his parents:

> "The PE teacher was a private coach, and he asked my parents if they wanted their child to try playing tennis. And that was how it started, and then I played my first tournaments." *L3/5*

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Some of the participants from the third level of success said that they chose tennis mostly because the tennis courts were nearby their house or because they saw their father playing tennis:

> "I lived 150 meters away from the tennis courts and that's how I ended up in tennis, and not, for example, at a football stadium which was farther away." *L3/3*

> "My father was banging the tennis ball against the wall, and my sister and I were running around him and shouting: 'Let me try it, let me try it!'. And then we took that racquet in our hands and banged the tennis ball against the wall. Six months later, we enrolled in a tennis school." *L3/6*

It is interesting that among participants at the second level of success, fathers played an important part in their child's enrollment:

> "My father played tennis recreationally and applied for a coaches' license. And so I played a little with him. I liked it and after that the racquet never left my hands." *L2/9*

One of the participants at the second level of success described choosing tennis by emphasizing that it was exclusively his initiative:

> "It was my initiative to play tennis. I also played football, and I was good at it, but I left it and went to play tennis. There was plenty of my initiative, and it is not often seen nowadays that someone would simply take a racquet and tennis ball and go and hit it against a wall." *L2/4*

Some of the Grand Slam winners pointed towards fathers as key individuals:

> "My father started playing at a club. He joined in and started playing tennis. He then brought me and my brother, who was five years older than me, with him to play at this club. So yes, I followed my father, joined the club, and enrolled in a tennis school." *L1/1*

> "Tennis was a new sport here, and my uncle was the head of some tennis club in Germany. That is how my father took me and my older brother to training, and so I started training tennis." *L1/7*

Impact of additional activities

Additional activities turned out to be an interesting topic in which a significant difference can be observed among the players of the three different levels of success. For example, for participants at the third level of success, tennis was the only sport they engaged in, while participants at the second level of success also showed interest in other sports. Despite being interested in other sports, they were nonetheless not included into training at organized sports clubs for these other sports.

When they started playing tennis, participants at the third level of success did not demonstrate interest in playing other sports at organized clubs.

> "I was at tennis the entire day, at that point I trained tennis for six, seven hours." *L3/10*

However, during their developmental years, participants at the second level of success also showed interest in other sports, but they pointed out that their attention was still directed towards tennis:

> "Yes, there was also football and handball, but that was all on an amateur level. I mean, there was no thinking about any other sports for me as soon as I felt that this was it." *L2/1*

During their developmental years, Grand Slam winners also showed a liking for other sports. In addition to tennis, they also actively trained in other sports, whilst their attention was equally directed both towards tennis and the second sport that they were involved in. It was not until their later years that they focused solely on tennis:

> "At first my father wanted me to play two sports, tennis, and ice hockey. And so I did that for one or two years, but then I concentrated only on tennis." *L1/3*

> "At sports school I learned athletics, cricket, field hockey, basketball, and different kinds of sport, so that I developed as an athlete practically before I developed as a tennis player." *L1/5*

Growing up in different environments

Participants feelings towards the challenges of growing up in a smaller towns or larger cities when related to sport showed a high level of awareness on the certain advantages and disadvantages that could be present. The participants believed that the size of the city definitely affected the beginning of sports specialization.

However, growing up in a smaller town meant athletes did not have too much of a choice, i.e., the option of training in other sports, directed them towards early specialization. A bigger city offers more possibilities in terms of a more versatile development, but also a wider selection in choosing more expert training teams. One of the participants at the third level of success who grew up in a smaller town stated the following:

> "In a big city there are certainly more quality-level coaches, and there are certainly more options if you are looking for a private coach. It is a fact that you have a wider choice for playing other sports, and at a certain point you can better decide on what better suits you." *L3/4*

Several participants at the third level of success pointed out that leaving the smaller town for a bigger city made them feel uneasy and less safe:

> "What was a huge disadvantage for me when I was leaving for bigger cities was that I felt uncomfortable or perhaps less safe because in my smaller environment I felt comfortable." *L3/3*

Participants at the second level of sporting success described how growing up in a smaller or bigger town affected the beginning of sports specialization. Likewise, they stated that with consideration to the environment they grew up in, they did everything they could to benefit from it, as well as that some tennis players, regardless of the limitations of growing up in a small town, managed to get to the international level:

> "Yes, I do think that the size of the town does affect specialization. In environments where there is only one sport, then everyone plays that one sport." *L2/3*

> "Some of my colleagues at a certain point in their growing up, just like me, when they turned 14, 15, 16 years old, started training somewhere else because this was a too small environment for them." *L2/5*

In addition to this, they also stated that growing up in a big city offers a wider set of possibilities, for example, tennis clubs, the option of sparing with better players, and competitions, etc.:

> "I think that bigger towns offer more when it comes to the conditions. But I think that in the end all that is not as crucial as, in my opinion, that there is not really any education for those children, coaches and parents who work with those athletes during those phases." *L2/9*

Grand Slam winners described growing up in smaller or bigger towns to be less relevant for their advancement, however, that this aspect also depends a lot on one's character. They emphasized that between the ages of 8 and 14, the most important aspect is to train and have fun:

> "I think that it depends on someone's character, as well as on their situation at home. So, I am not an overly social person, and that's why I think that it wouldn't be good for me if I had been growing up in the city. But I do know some players from my youth, who grew up in the city and they were good players when they were younger, but then, when they were 13 or 14 years old, they started going out a little, and having other interests, and in cities there is a lot going on. There is nothing interesting happening in the village." *L1/3*

One Grand Slam winner believed that growing up and training in a smaller town was an advantage for him and that because of this, his attention was directed solely towards tennis:

> "So, the attention, perhaps, that you receive in a smaller town is greater, and you can train much more. However, at the same time, I was really lucky because in my club there were players who were in the top 7 in the world, and there were also other players, I would say between positions 120 and 400. And that is why I always had excellent sparring partners, you know, partners with whom I hit tennis balls with. And players who could teach me how to improve my game. That's why I couldn't have been in a better place, and have a better environment for growing up as a tennis player." *L1/2*

TOPIC 2. Decisions

The second topic of this research piece concentrated on the decisions that guided the subsequent tennis career of each participant. This topic contained two sub-topics: the development path, and from having fun to transitioning towards a more dedicated training process.

Development path

All three categories of participants elaborated on both the positive and negative sides of their experiences within their own tennis development. What significantly characterized participants at the second and third level of sporting success was a premature narrow specialization, as well as the fact that at some point, they lacked competition. The majority of the participants from the second and third level of success pointed out that if they could go back in time, they would build their tennis story on the principle of broadness, where they would partake in more international events to gain more experience as opposed to staying in their home country and competing in local tournaments.

> "I lacked, however, some of that competitive experience. I would add that perhaps I should have competed more in some international tournaments to get a broader perspective." *L3/2*

It is interesting that going to world renowned tennis academies was marked as one of the key decisions in their sports careers that they perhaps should not have made. Participants' perceptions were that staying at the best tennis academies was not the right path towards development for these players, and that they believe they would have achieved much more progress if they had stayed at home with a good coach.

> "I was at one of the best tennis academies and I think that wasn't the right path. I lost several years at the academy, and learned probably 10 to 15% of what I could have learned with a good coach, and a quality programme. I would've learned more in three weeks during the summer when I was at home, then I would've learned in six months at the tennis academy." *L3/8*

As a reason for the inability to reach their full tennis potential, participants at the second level of sports success also mentioned their experience in going to world-renowned tennis academies:

> "I consider that to be a mistake as I think that I had been more focused on some other things, instead of tennis. At home I would've surely been more focused on tennis than I had been at the tennis academies." *L2/1*

They would postpone going away to tennis academies for a time when they would be ready to focus on nothing other tennis:

> "I would change only that I would prolong another few years of being at home during that period between 13, 14 and 15 years old." *L2/1*

Some of the participants stated that they did not have sufficient tennis skills and that they learned certain skills as late as at the age of 20, 21 and 22. The participants felt that by that point, they should have already known these aspects if they were to progress to a better level. They believe that their path towards success could not have been kept up by insufficiently competent coaches and the work that had been carried out in younger age categories:

> "I think that we had coaches who only started and that it was them who learned from us. This is perhaps one of the reasons why among many players, and also in my case and many of my colleagues, a pronounced weariness takes place after a certain number of years if specialization is started too early." *L2/5*

> "In my case, I lacked this through the childhood years, a certain type of education, and here I mean things around tennis, such as some kind of physical work, i.e. physical conditioning training. What I would've liked was that I had the opportunity of someone educating me a little better and teaching me why you must stretch out, why you must run for condition, what that adds up to in the end." *L2/9*

As positive example one of the Grand Slam winners pointed out was the moment they started to train with an elite group of players:

> "The key moment in my career was when the federation put us in the group with older players. Three other top players in my age group were also there. We always trained together." *L1/1*

> "I was in luck, I ended up with a coach who also trained four national champions." *L1/2*

Nevertheless, the most significant was the reaction of the Grand Slam winners to the support they received from their teammates. They considered the support to be the accelerant for their future success:

> "We had much success with assembling teams as, you know, if he can win the championship, then I can also win the title because I won against him at last week's practice. You support one another and that's something that I think is extremely efficient. I this that's very successful all around the world." *L1/2*

Settling down in a new environment and a new club was a challenge which was difficult to deal with even for Grand Slam winners:

> "Allow me to explain one key moment in my career, and that crucial point was when I moved. Yes, that transition was pivotal for me. I wasn't feeling good in the beginning. I didn't like it, and I went home for the weekend every Friday afternoon for almost two years. That wasn't easy for me." *L1/1*

From having fun to dedication in the training process

In some parts of the interview, the participant also often mentioned dedication to the training process, thus the mentioned sub-topic proved to be extremely important in the segment of reaching their tennis potential demonstrated at an early age. The participants at the third level of sporting success demonstrated the opinion that they were not actually fully committed and enthusiastic in their training process:

> "Perhaps the difference between me and the players who reached the top level is that they enjoyed it, while us who didn't reach that level, we weren't serious, we fooled around, etc. I wasn't responsible enough. I would say that my training was excellent, however, it wasn't always 100% as when there was someone with me. If it was a great day, then I would have a great practice, but if it wasn't, then my performance would be at 60 or 70%." *L3/1*

On the other hand, there were once again explicit qualitative differences between participants at the second and third level of success. The participants at the second level of sporting success were mostly characterized by a positive dedication, love for tennis and focus:

> "Well I think that 100% dedication is important for success in tennis, and I mean really 100%. So, if you are willing to work, then it must be at 100%. There is no other option, only that. Dedication and arrogance. Arrogance, you must be really audacious to show your teeth and to realize that nobody can break you." *L2/1*

> "First you want to achieve certain goals, and that kept me going between the ages of 21 and 30. Although there were rough times, I had been injured, I wasn't earning money, I had accomplished enough, but not too much. And then I made a career from the age of 30 until I was 40 years old." *L2/2*

Despite the fact that they trained really hard and were focused on tennis, they felt that they were missing a certain detail to become even more successful. They emphasized that tennis is a

specific sport and that for success, it was important to integrate a number of factors:

> "I was really concentrating on my tennis, how to improve my strokes, but on the other hand, I wasn't doing enough work on speed for my body. Therefore, that was one of the mistakes in the end. I had to be very careful, but earlier, between the age of 20 and 30, I surely wasn't doing enough work." *L2/2*

> "Modesty is certainly my virtue, however this package, which is necessary for a professional player to get into the top 100, I didn't have. I had 9 out of the 10 required elements (categories), but I didn't have this one I was missing—perseverance." *L2/4*

Grand Slam tennis players demonstrated exceptional dedication and love for tennis even in their earlier years:

> "I had found my love for sport at a very early age. I was a fanatic when it came to tennis. I only wanted to play, and play, and train, I never had enough. Sometimes my mother and father had to drag me from the tennis court as it was enough, they said, and I had to go get some sleep and eat, get myself ready." *L1/2*

Success and winning Grand Slam tournaments can be contributed to dedication, focus, and love for the sport:

> "But I believe that the basic thing lies in what you really want. The basic thing is your commitment and your love for the sport you're playing." *L1/10*

TOPIC 3. Time of specialization

The third research topic was oriented towards the time of player specialization. Within this topic, there were two sub-topics: targeted and more intensive training, and most optimal time for targeted and more intensive training.

Targeted and more intensive training

A large number of participants at the third level of sporting success pointed out that they started with targeted and more intensive tennis training very early on in their tennis career. They attribute their early beginning with more targeted and intensive training to talent, due to which they acquired faster initial tennis skills and for this reason, with their coach's initiative, they transferred from group to individual training:

> "I didn't stay for long in club training as it wasn't working for me, so I, starting since I was seven or eight years old, trained everything individually." *L3/1*

> "I transferred from group to individual training around the age of eight, and that was early. I remember being better than the others in the group, so the coach took me to tournaments." *L3/5*

However, some of the participants at the third level of success trained in groups the entire time, and they did not perceive the precise transition to more intensive trainings from group to individual sessions:

> "Everything was mostly organized at the club-base level, club trainings, sparing partners, matches, etc. So I don't really know about private classes (laughter)." *L3/4*

> "To be completely honest with you, it was all a game to me. When did the exact transition take place, I don't know, I can only say that I did not notice that there was any transition." *L3/10*

Among participants at the second level of success, a later start of targeted and more intensive training is noticeable. Data analysis determined that the reason for this was playing another sport at a recreational level, which the participants at the second level of success equally loved. Below are their statements regarding the age at which they focused and trained more solely in tennis:

> "Well, I started training more seriously when I was 14 years old, that is when I began playing tennis every day." *L2/3*

> "I started training more seriously at the age of 14, 15, and then at the age of 16, I went to Germany. I totally went into professionalism." *L2/4*

The statements of Grand Slam winners are not in favor of early specialization, i.e., of prematurely focusing and training intensely in tennis, which is confirmed by the data analysis—as they themselves did not start too early with specialization:

> "I started training more individually when I was perhaps 12, 13 years old, when I played at the national championship. At that point I trained almost every day. And it was not until later on that I started competing on weekends, both individually and in team competitions." *L1/1*

> "I played and trained in other sports as well, and then, when I was 15 years old, there was only tennis." *L1/5*

> "I began training more seriously and more intensively only after finishing elementary school, for sure not too early." *L1/7*

The most optimal time for targeted and more intensive training

Below are some considerations of the participants regarding the most optimal time for starting with targeted and more intensive training (narrow specialization) in tennis. The participants believe that in sport today, and thus also in tennis, intensive individual training starts sooner than it did previously, and that

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this is not beneficial. Likewise, they elaborated on the fact that focus should be directed more towards technique, as well as that players should be slowly introduced into competitions.

Participants at the third level of success also maintain that children should not focus exclusively on tennis too early on in their life, however, this surely varies from one player to the other. On the basis of their personal experiences, participants stated that they would recommend that children train at club level, and that only occasional individual training is included.

> "Today I would advise children and their parents to keep this sort of club programme until the age of 12 to 14 years old, however, also to introduce individual training once or twice a week." *L3/2*

> "In my opinion, narrow specialization should be introduced at that moment when the player has sufficient tennis broadness and when he's physically mature enough for it. I would certainly build the story on broadness, and in no case on narrow specialization in the sense of having many tournaments." *L3/3*

Some participants believe that parents pressure their children and start with premature targeted and more intensive training due to the fact that they did not succeed in their own accomplishments, i.e., did not have a successful sports career themselves.

> "The problem is when parents pressure their children and then the child decides something on force and is not sure of its choice." *L3/1*

> "Sometimes people who didn't accomplish something when they were young, they ask that of their children, whereas the children perhaps aren't ready and don't want that, and then problems occur." *L3/6*

Participants at the second level of success also reported that it is not a good choice to start with premature specialization. Equally, they believe that children should be directed towards engaging in as many sports as possible and with the main goal being to have fun.

> "When you're 15, 16 years old, you can play tennis, but before that, it's too early in my opinion. It's dangerous to specialize too early." *L2/2*

> "I think it's important to also train in another sport, such as athletics, football or any other sport, as long as you're training something else." *L2/10*

This type of more versatile beginning and later specialization was additionally emphasized by one participant for whom narrow and early specialization did not prove to be the optimal solution. The below quote confirms the thesis on why his friends quit sport early on in their life:

> "I know a lot of children, my friends, who were in sport from the age of 1 to 12, or to the age of 14, and then they gave up on sport. I think that it's very important to start slowly." *L2/3*

Statements from Grand Slam winners suggest that it could be beneficial for future aspiring players to develop their motor skills through engaging in other sports at a young age, as well as not to start too early with targeted and intensive training (narrow specialization). It is interesting that Grand Slam winners pointed out the following—that for someone to be a better and more successful athlete, they feel that it would be highly beneficial for players to play as many sports as possible, and their most optimal suggested time for targeted and intensive training was described in the following quotes:

> "At a certain phase, if you want to be successful, very successful in a certain sport or to be excellent in something else, you must focus on a specific topic or one sport, depending on what it is." *L1/5*

> "I think that if you strain your body too much before it has completely grown up, there is a great risk of many injuries, which will then cause problems." *L1/7*

> "I don't know, but I certainly wouldn't play for three of four hours each day of the week. And you need to rest also, you know." *L1/10*

6. Discussion

This is the first study which presents qualitative research factors that affected specialization in tennis among players at three levels of sporting success: (1) Grand Slam winners, (2) players ranked between position 150 and 300, and (3) players ranked between position 500 and 1,500 on the professional men's tennis rankings. Through thematic analysis, early specialization was identified as an important barrier to a successful tennis career. The accounts of successful and less successful players provided valuable insight into how their tennis careers initially developed, players' perceptions of how specialization impacted upon success, and the consequences of early specialization experiences for overall success.

Grand Slam winners described that when they started playing tennis at a very early age, it was characterized by a small number of training sessions per week, they also emphasized that tennis was not the only sport that they engaged in. Balyi, Way and Higgs (63) claim that at the purpose of the childhood development phase should be to instill the love for sports and encourage children to get involved in sport. Introducing children to a racquet and ball appropriate for their age group, improving hand-eye coordination, gaining confidence, learning various basic tennis moves—are all some of the goals which should be achieved during this period according to Lloyd et al. (64). Starting early is quite often correlated with success, and thus

Li et al. (45) state in their research that some coaches claim how many top-level professional tennis players started as early as at the age of four, as well as that it is important to start early in order to acquire technical tennis skills. However, studies have shown that an earlier beginning and a greater volume of specific sports training and competition during adolescence is not necessarily correlated with greater success (65, 66). According to Roetert et al. (67), coaches have a significant role in terms of introducing young children into tennis and teaching the skills required for enjoying the game for the duration of one's lifetime. Coaches can surely play an important role in achieving a healthy, positive and educational surrounding which is suitable for proper skill development (68). Nevertheless, the inclusion of young children in sports greatly depends on the parents, as parental influence presents 57% at that age, whereas later on this important role is taken over by sports clubs and coaches. Parents have the greatest influence on the decision of a young athlete to play tennis (69).

Studies have shown that young children who participate in a large number of sports at a younger age have higher results in tasks of gross motor coordination, as well as a reduced risk of injuries in comparison to children who specialized in only one sport at an early age (70, 71). Without the opportunity to try out different sports during their childhood, it is less likely that young athletes shall acquire fundamental physical, psychosocial, and cognitive abilities which are relevant for long-term success in sports (72). By specializing in only one sport, athletes can reduce the need to participate in versatile sports activities throughout the entire year, which can in turn result in a decline of sporting skill development during one's lifetime (73).

The size of the city where an athlete is born can be a significant prerequisite for future sporting achievements (74). Studies quite often point out arguments which explain why it is more advantageous to grow up in smaller to middle-sized cities, as opposed to bigger cities. Despite the fact that big cities can offer children and young athletes better conditions, such as well-designed and equipped sports facilities and better coaching leadership, it appears that sports programs implemented in big cities significantly lack time, more personal athlete-coach relationships and an insufficient focus on the individual (75, 76). Combined qualitative reports provided by coaches and quantitative data analysis from various research pieces further support the idea that smaller and middle-sized cities, as opposed to big cities, are considered as a more suitable sports environment for children and adolescents (aged between 14 and 18) (77). For the above-mentioned reasons, training in a smaller town has its advantages, however, in order to achieve better sports results, after the age of 14 it is necessary to switch sporting surroundings from smaller to bigger cities.

The private sector in tennis offers highly professionalized training centers and academies which provide all-inclusive development paths for players, from talent identification to elite-level tennis (78). Tennis players advance through a talent development process to tennis clubs and national training centers or private academies (79). Data analysis revealed that the participants were not satisfied with going to tennis academies, and therefore Crespo and Over (80) believe that the key role is that of local-level tennis clubs, both in providing the opportunity to participate in sports, and providing modified sports programs and competition formats. Consequently, De Bosscher et al. (81) consider that the development of elite athletes, including success at national and international competitions, inevitably requires a strategic approach to the development of top-level athletes.

Having fun leads to dedication in the training process, thus this seemingly insignificant factor during training holds the potential of having a significant role in terms of ultimate success. Weiss et al. (82) presented results which found that having fun was the primary indicator of dedication in sports among 198 USA junior tennis players. Another study by Casper et al. (83), including adult tennis players in the USA, revealed that having fun and personal investment represented the most significant preconditions for dedication in sports. In an interesting research piece by Weiss and Neibert (84), the authors reported that the level of dedication among athletes can alter in the process of aging. The results of this study likewise showed that Grand Slam winners were more enthusiastic and dedicated to training, and also considered enjoying the game as a main factor for success.

There is no evidence that intensive training and specialization before adolescence is required for reaching elite-level status in individual sports such as tennis. The risks of early sports specialization include higher injury rate, greater psychological stress, and ceasing to play sports in early youth (85, 86). In a paper by Li et al. (45), the results showed that the majority of players started tennis between the age of 3 and 7, which indicates that tennis is a sport that children start playing early, which seems to be an important if the aim is to achieve success on a professional level, while such results are also confirmed by research in football implemented by Hendry and Hodges (38). Furthermore, a common characteristic of those who started late with more targeted and intensive training was that they also engaged in other sports as well (e.g., football, gymnastics, etc.). The mentioned research points to the fact that an early start in tennis and late specialization can also result in elite-level success (87). However despite this,, young athletes are increasingly getting involved in early sports specialization (i.e., intensive engagement in only one sport starting at early childhood) in order to gain an early advantage in the sense of developing skills (88).

The age at which young athletes should specialize is one of the most relevant discussions in youth sports today, whereas researchers from around the world have been debating this issue for decades (89). Determining the timely beginning for sport specialization in young athletes, and its effect on the further career of athletes, present the key finding of this study, which will assist in defining the optimal time for introducing children to tennis. The debate about specialization is grounded on the question when an athlete should specialize in a particular sport. According to Jayanthi et al. (20), sports specialization in tennis should be constantly ongoing. In the study by Schneider and Jayanthi (87), it was concluded that an early introduction and late specialization in tennis can result in elite-level success. It is interesting to recognize that all Grand Slam winners developed

their career precisely in that manner. Sports specialization is recommended in late adolescence, as early specialization results in great risk of injuries, psychological stress and reduced participation in sport, which is definitely identified in this study and further confirmed in various other research pieces (19, 20, 36, 90).

It is precisely the experiences of Grand Slam winners that shows it is possible to reach the top of the game without specializing early. It looks like pre-adolescent specialization is not always a requirement to become an elite athlete. Moreover, later specialization may mean there is more chance of children choosing the sport that is best for them—not simply one that suited their physical predispositions better at a particular time, or was their parents' favorite (91). Based on the findings of this qualitative research, we might conclude that a hybrid approach—early engagement and later specialization—offer a prudent alternative to early specialization (91, 92). In the early engagement model, players are actively encouraged to accumulate sufficient hours in their main sport, in this case tennis, so as to not accumulate a large practice deficit relative to early specializers. But early engagers are also encouraged to continue playing as many sports as they like to gain the necessary sport-specific skills, as well as a broad range of physical and mental skills (91). There are no empirical studies on early engagement in tennis, however, there are some studies supporting this model in other sports (38, 93, 94).

A key strength of this study was that a substantial proportion of the sample were Grand Slam champions, which is uncommon in qualitative and sport science research. Studies often research less successful tennis players because they are much more accessible. There is different criteria for determining the sample size within qualitative research (60). The sample size containing sufficient information strength depends on the following: (a) aim of the research, (b) specificity of the sample, (c) use of the established theory, (d) quality of dialogue, and (e) analysis strategy (95). With a total of ten Grand Slam champions recruited in this study, the sample size met the recommendation for a qualitative research study (60). However, it is important to acknowledge that the research findings may not be generalizable to the entire population of male tennis players. Furthermore, the content quality of this study is demonstrated by the possibility of generalization, reliability, and versatility of the obtained data. We believe that the presented results provide an adequate incentive for speculation among coaches, parents, and any other members of sports staff regarding the proper manner of supporting young athletes.

Focusing exclusively on male tennis players presents the main drawback of this study, as it does not provide a complete picture on sports specialization in tennis. Future studies should certainly be directed towards researching personal situations and experiences among female tennis players. Upon insight into literature, one can notice a very small number of qualitative research studies on the personal events and experiences of athletes/tennis players at differing levels of sporting success, as well as studies on sports specialization in tennis in general, and thus this study provides a basis for other researchers in their future research within this field. There is a need to determine how other barriers influence tennis careers and impact levels of success in tennis. The inter-relatedness of other barriers may be important in understanding a holistic approach to improving success levels of younger tennis players, and for the measurement of success-related barriers. However, more research is needed to explore these inter-relations.

Based on the presented study results, it can be recommended that first introduction to tennis should take place early on in an individuals life, however, it should be directed primarily towards evoking the feeling of having fun. Furthermore, we can say that an early engagement in tennis should be followed by later specialization.

7. Conclusion

This qualitative study examines the experiences of three differing categories of tennis players. The players reflect on their perspective of their own sporting careers, and on how they experienced their development path prior to reaching a certain level of success. The results of this study clarified the difficulties that tennis players are faced with on their path towards success. The results also enable planning for the optimal time to start with sports specialization in tennis for future tennis players, coaches, and other sports staff.

In the process of this review, topics were identified, and the following standards were proposed. These standards should be included in future practice in order to assist sports communities and service providers in making all processes more effective:

- it is important that first introduction tennis is more towards earlier youth with the aim of evoking positive feelings and love for the sport;
- specialization (targeted and more intensive training) is recommended later on in adolescence, as early specialization includes great risk of sports injury occurrences, experiencing great psychological stress, and consequently stopping participation in sport;
- previous research also indicates that it is desirable for tennis players, in addition to training, to do other sports as well in order to develop various skills and abilities that shall provide long-term benefits in achieving greater success in tennis.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Committee for Scientific Work and Ethics of the Faculty of Kinesiology University of Zagreb, number: 6/2021. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the conception and design of the study. DN and MO performed the data collection. All authors contributed to manuscript revision, read, and approved the submitted version. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

1. Sweeney L, Horan D, MacNamara Á. Premature professionalisation or early engagement? Examining practise in football player pathways. *Front Sports Act Living*. (2021) 3:660167. doi: 10.3389/fspor.2021.660167

2. Balyi I, Hamilton A. Long-term athlete development: trainability in childhood and adolescence. *Olympic Coach*. (2004) 16(1):4–9.

3. Coutinho P, Mesquita I, Fonseca AM. Talent development in sport: a critical review of pathways to expert performance. *Int J Sports Sci Coach*. (2016) 11 (2):279–93. doi: 10.1177/174795411663749

4. Collins D, MacNamara Á, McCarthy N. Super champions, champions, and almosts: important differences and commonalities on the rocky road. *Front Psychol*. (2016) 2009. doi: 10.3389/fpsyg.2015.02009

5. Rees T, Hardy L, Güllich A, Abernethy B, Côté J, Woodman T, et al. The great British medalists project: a review of current knowledge on the development of the world's best sporting talent. *Sports Med*. (2016) 46(8):1041–58. doi: 10.1007/s40279-016-0476-2

6. Güllich A, Barth M, Macnamara BN, Hambrick DZ. Quantifying the extent to which successful juniors and successful seniors are two disparate populations: a systematic review and synthesis of findings. *Sports Med*. (2023) 53(6):1–17. doi: 10.1007/s40279-023-01840-1

7. Güllich A, Macnamara BN, Hambrick DZ. What makes a champion? Early multidisciplinary practice, not early specialization, predicts world-class performance. *Pers Psychol Sci*. (2022) 17(1):6–29. doi: 10.1177/1745691620974772

8. Barth M, Güllich A. Non-linear association of efficiency of practice of adult elite athletes with their youth multi-sport practice. *J Sports Sci*. (2021) 39(8):915–25. doi: 10.1080/02640414.2020.1851900

9. Barth M, Güllich A, Raschner C, Emrich E. The path to international medals: a supervised machine learning approach to explore the impact of coach-led sport-specific and non-specific practice. *PLoS One*. (2020) 15(9):e0239378. doi: 10.1371/journal.pone.0239378

10. Borowski LA, Yard EE, Fields SK, Comstock RD. The epidemiology of US high school basketball injuries, 2005–2007. *Am J Sports Med*. (2008) 36(12):2328–35. doi: 10.1177/0363546508322893

11. Güllich A. International medallists' and non-medallists' developmental sport activities–a matched-pairs analysis. *J Sports Sci*. (2017) 35(23):2281–8. doi: 10.1080/02640414.2016.1265662

12. Güllich A. Sport-specific and non-specific practice of strong and weak responders in junior and senior elite athletics–A matched-pairs analysis. *J Sports Sci*. (2018) 36(19):2256–64. doi: 10.1080/02640414.2018.1449089

13. Güllich A. "Macro-structure" of developmental participation histories and "micro-structure" of practice of German female world-class and national-class football players. *J Sports Sci*. (2019) 37(12):1347–55. doi: 10.1080/02640414.2018.1558744

14. Jayanthi N, Feller E, Smith A. Junior competitive tennis: ideal tournament and training recommendations. (2013) www. stms-web. org, 50.

15. Jayanthi N, LaBella CR, Fischer D, Pasulka J, Dugas LR. Sports-specialized intensive training and the risk of injury in young athletes: a clinical case-control study. *Am J Sports Med*. (2015) 43(4):794–801. doi: 10.1177/0363546514567298

16. LaPrade RF, Agel J, Baker J, Brenner JS, Cordasco FA, Côté J, et al. AOSSM Early sport specialization consensus statement. *Orthop J Sports Med*. (2016) 4 (4):2325967116644241. doi: 10.1177/2325967116644241

17. Loud KJ, Gordon CM, Micheli LJ, Field AE. Correlates of stress fractures among preadolescent and adolescent girls. *Pediatrics*. (2005) 115(4):e399–e406. doi: 10.1542/peds.2004-1868

18. Rose MS, Emery CA, Meeuwisse WH. Sociodemographic predictors of sport injury in adolescents. *Med Sci Sports Exercise*. (2008) 40(3):444–50. doi: 10.1249/mss.0b013e31815ce61a

19. Mosher A, Fraser-Thomas J, Wilson MJ, Baker J. Proportions of early specializers varies according to methods and skill level. *Sports*. (2022) 10(3):34. doi: 10.3390/sports10030034

20. Jayanthi N, Pinkham C, Dugas L, Patrick B, Labella C. Sports specialization in young athletes: evidence-based recommendations. *Sports Health*. (2013) 5(3):251–7. doi: 10.1177/1941738112464626

21. Moesch K, Elbe AM, Hauge ML, Wikman JM. Late specialization: the key to success in centimeters, grams, or seconds (cgs) sports. *Scand J Med Sci Sports*. (2011) 21(6):e282–90. doi: 10.1111/j.1600-0838.2010.01280.x

22. Baker J, Côté J, Abernethy B. Sport-specific practice and the development of expert decision-making in team ball sports. *J Appl Sport Psychol*. (2003) 15 (1):12–25. doi: 10.1080/10413200305400

23. Barynina II, Vaitsekhovskiĭ SM. The aftermath of early sports specialization for highly qualified swimmers. *Fit Sports Rev Int*. (1992) 27(4):132–3.

24. Carlson R. The socialization of elite tennis players in Sweden: an analysis of the players' backgrounds and development. *Sociol Sport J*. (1988) 5(3):241–56. doi: 10.1123/ssj.5.3.241

25. Güllich A, Emrich E. Evaluation of the support of young athletes in the elite sports system. *Eur J Sport Soc*. (2006) 3(2):85–108. doi: 10.1080/16138171.2006.11687783

26. Helsen WF, Starkes JL, Hodges NJ. Team sports and the theory of deliberate practice. *J Sport Exerc Psychol*. (1998) 20(1):12–34. doi: 10.1123/jsep.20.1.12

27. Hume PA, Hopkins WG, Robinson DM, Robinson SM, Hollings SC. Predictors of attainment in rhythmic sportive gymnastics. *J Sports Med Phys Fitness*. (1993) 33 (4):367–77. PMID: 8035585.

28. Lidor R, Lavyan NZ. A retrospective picture of early sport experiences among elite and near-elite Israeli athletes: developmental and psychological perspectives. *Int J Sport Psychol*. (2002) 33(3):269–89.

29. Soberlak P, Côté J. The developmental activities of elite ice hockey players. *J Appl Sport Psychol*. (2003) 15(1):41–9. doi: 10.1080/10413200305401

30. Wall M, Côté J. Developmental activities that lead to dropout and investment in sport. *Phys Educ Sport Pedagogy*. (2007) 12(1):77–87. doi: 10.1080/17408980601060358

31. McLellan M, Allahabadi S, Pandya NK. Youth sports specialization and its effect on professional, elite, and olympic athlete performance, career longevity, and injury rates: a systematic review. *Orthop J Sports Med*. (2022) 10(11):23259671221129594. doi: 10.1177/23259671221129594

32. AMSSM Collaborative Research Network Youth Early Sport Specialization Summit, Tenforde AS, Montalvo AM, Nelson VR, Myer GD, Brenner JS, et al. Current sport organization guidelines from the AMSSM 2019 youth early sport specialization research summit. *Sports Health*. (2022) 14(1):135–41. doi: 10.1177/19417381211051383

33. Post EG, Rosenthal MD, Rauh MJ. Attitudes and beliefs towards sport specialization, college scholarships, and financial investment among high school baseball parents. *Sports*. (2019) 7(12):247. doi: 10.3390/sports7120247

34. Bell DR, Post EG, Trigsted SM, Schaefer DA, McGuine TA, Brooks MA. Parents' awareness and perceptions of sport specialization and injury prevention recommendations. *Clin J Sport Med*. (2020) 30(6):539–43. doi: https://doi: 10.1097/JSM.0000000000000648

35. Post EG, Rosenthal MD, Root HJ, Rauh MJ. Knowledge, attitudes, and beliefs of parents of youth basketball players regarding sport specialization and college scholarship availability. *Orthop J Sports Med*. (2021) 9(8):23259671211024594. doi: 10.1177/23259671211024594

36. Mosher A, Fraser-Thomas J, Baker J. What defines early specialization: a systematic review of literature. *Front Sports Act Living*. (2020) 2:596229. doi: 10.3389/fspor.2020.596229

37. Moseid CH, Myklebust G, Fagerland MW, Bahr R. The association between early specialization and performance level with injury and illness risk in youth elite athletes. *Scand J Med Sci Sports*. (2019) 29(3):460–8. doi: 10.1111/sms.13338

38. Hendry DT, Hodges NJ. Early majority engagement pathway best defines transitions from youth to adult elite men's soccer in the UK: a three time-point retrospective and prospective study. *Psychol Sport Exerc*. (2018) 36:81–9. doi: 10.1016/j.psychsport.2018.01.009

39. Baker J, Cobley S, Fraser-Thomas J. What do we know about early sport specialization? Not much!. *High Ability Stud*. (2009) 20(1):77–89. doi: 10.1080/13598130902860507

40. Kovalchik SA, Bane MK, Reid M. Getting to the top: an analysis of 25 years of career rankings trajectories for professional women's tennis. *J Sports Sci*. (2017) 35(19):1904–10. doi: 10.1080/02640414.2016.1241419

41. Li P, De Bosscher V, Weissensteiner JR. The journey to elite success: a thirty-year longitudinal study of the career trajectories of top professional tennis players. *Int J Perform Anal Sport*. (2018) 18(6):961–72. doi: 10.1080/24748668.2018.1534197

42. Gallo-Salazar C, Salinero JJ, Sanz D, Areces F, del Coso J. Professional tennis is getting older: age for the top 100 ranked tennis players. *Int J Perform Anal Sport*. (2015) 15(3):873–83. doi: 10.1080/24748668.2015.11868837

43. Reid M, Morris C. Ranking benchmarks of top 100 players in men's professional tennis. *Eur J Sport Sci*. (2013) 13(4):350–5. doi: 10.1080/17461391.2011.608812

44. Joffe P. Early or late specialisation? High-performance perspective. (2019). www.sportsciencesupport.com/early-or-late-specialisation-high-performance-perspective/ (Accessed 31 May, 2023).

45. Li P, Weissensteiner JR, Pion J, Bosscher VD. Predicting elite success: evidence comparing the career pathways of top 10 to 300 professional tennis players. *Int J Sports Sci Coach*. (2020) 15(5–6):793–802. doi: 10.1177/1747954120935828

46. Jayanthi N, Dechert A, Durazo R, Dugas L, Luke A. Training and sports specialization risks in junior elite tennis players. *J Med Sci Tennis*. (2011) 16(1):14–20.

47. MacCurdy D. Talent identification around the world and recommendations for the Chinese Tennis Association. ITF Coaching. (2006). Available at: www. itftennis.com/shared/medialibrar y/pdf/original/IO, 18455.

48. Unierzyski P. *Why some talents were lost and why some not: results of research with practical propositions. Proceedings of IFT worldwide coaches symposium ITF* (2003).

49. Unierzyski P. Foundations for talent identification and player development programmes. Editorial C (2006).

50. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. (2006) 3(2):77–101. doi: 10.1191/1478088706qp063oa

51. Braun V, Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qual Res Psychol*. (2021) 18(3):328–52. doi: 10.1080/14780887.2020.1769238

52. Miller RL. Analysing life histories. In: *Researching Life Stories and Family Histories*. London. (2000). p. 112–54. doi: 10.4135/9781849209830.n5

53. Ollis S, Macpherson A, Collins D. Expertise and talent development in rugby refereeing: an ethnographic enquiry. *J Sports Sci*. (2006) 24(3):309–22. doi: 10.1080/17461390500188710

54. Drasch K, Matthes B. Improving retrospective life course data by combining modularized self-reports and event history calendars: experiences from a large scale survey. *Qual Quant*. (2013) 47(2):817–38. doi: 10.1007/s11135-011-9568-0

55. Malmqvist J, Hellberg K, Möllås G, Rose R, Shevlin M. Conducting the pilot study: a neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *Int J Qual Methods*. (2019) 18:1609406919878341. doi: 10.1177/1609406919878341

56. Miles MB, Huberman AM. *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks: Sage (1994). doi: 10.1016/s0272-4944(05)80231-2

57. Johnson RB. Examining the validity structure of qualitative research. *Education*. (1997) 118(2):282–92.

58. Coutinho P, Ribeiro J, da Silva SM, Fonseca AM, Mesquita I. The influence of parents, coaches, and peers in the long-term development of highly skilled and less skilled volleyball players. *Front Psychol*. (2021) 12:667542. doi: 10.3389/fpsyg.2021.667542

59. Williams A, Butt J, Kavanagh E. An exploration of coaches' and sport psychologists' experiences of managing performance blocks. *J Appl Sport Psychol*. (2023):1–19. doi: 10.1080/10413200.2023.2214745

60. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qual Res Sport Exerc Health*. (2019) 11(4):589–97. doi: 10.1080/2159676X.2019.1628806

61. Smith B, McGannon KR. Developing rigor in qualitative research: problems and opportunities within sport and exercise psychology. *Int Rev Sport Exerc Psychol*. (2018) 11(1):101–21. doi: 10.1080/1750984X.2017.1317357

62. Silverman D, Marvasti A. *Doing qualitative research: A comprehensive guide*. Thousand Oaks: Sage (2008).

63. Balyi I, Way R, Higgs C. *Long-term athlete development*. Champaign: Human Kinetics (2013). doi: 10.5040/9781492596318.ch001

64. Lloyd RS, Oliver JL, Faigenbaum AD, Howard R, Croix MBDS, Williams CA, et al. Long-term athletic development-part 1: a pathway for all youth. *J Strength Cond Res*. (2015) 29(5):1439–50. doi: 10.1519/jsc.0000000000000756

65. Güllich A, Emrich E. Considering long-term sustainability in the development of world class success. *Eur J Sport Sci*. (2014) 14(Suppl):S383–97. doi: 10.1080/17461391.2012.706320

66. Vaeyens R, Güllich A, Warr CR, Philippaerts R. Talent identification and promotion programmes of Olympic athletes. *J Sports Sci*. (2009) 27(13):1367–80. doi: 10.1080/02640410903110974

67. Roetert EP, Woods RB, Jayanthi NA. The benefits of multi-sport participation for youth tennis players. *ITF Coaching Sport Sci Rev*. (2018) 26(75):19–23. doi: 10.52383/itfcoaching.v26i75.249

68. Roetert EP, Bales J. Invited welcome: a global approach to advancing the profession of coaching. *Int Sport Coaching J*. (2014) 1(1):2–4. doi: 10.1123/iscj.2013-0026

69. Baxter-Jones ADG, Maffulli N. Parental influence on sport participation in elite young athletes. *J Sports Med Phys Fit*. (2003) 43(2):250. PMID: 12853909.

70. Fransen J, Pion J, Vandendriessche J, Vandorpe B, Vaeyens R, Lenoir M, et al. Differences in physical fitness and gross motor coordination in boys aged 6–12 years specializing in one versus sampling more than one sport. *J Sports Sci*. (2012) 30(4):379–86. doi: 10.1080/02640414.2011.642808

71. Hall R, Foss KB, Hewett TE, Myer GD. Sport specialization's association with an increased risk of developing anterior knee pain in adolescent female athletes. *J Sport Rehabil*. (2015) 24(1):31–5. doi: 10.1123/jsr.2013-0101

72. Côté J, Lidor R, Hackfort D. ISSP position stand: to sample or to specialize? Seven postulates about youth sport activities that lead to continued participation and elite performance. *Int J Sport Exerc Psychol*. (2009) 7(1):7–17. doi: 10.1080/1612197X.2009.9671889

73. Myer GD, Jayanthi N, DiFiori JP, Faigenbaum AD, Kiefer AW, Logerstedt D, et al. Sports specialization, part II: alternative solutions to early sport specialization in youth athletes. *Sports Health*. (2016) 8(1):65–73. doi: 10.1177/1941738115614811

74. MacDonald DJ, Cheung M, Côté J, Abernethy B. Place but not date of birth influences the development and emergence of athletic talent in American football. *J Appl Sport Psychol*. (2009) 21(1):80–90. doi: 10.1080/10413200802541868

75. Fraser-Thomas J, Côté J, MacDonald DJ. Community size in youth sport settings: examining developmental assets and sport withdrawal. *Revue phénEPS/PHEnex J*. (2010) 2(2):1–9. http://ojs.acadiau.ca/index.php/phenex/article/view/8

76. Kelly AL, Côté J, Jeffreys M, Turnnidge J, editors. *Birth advantages and relative age effects in sport: Exploring organizational structures and creating appropriate settings*. Bruxelles: Routledge (2021). doi: 10.3389/fspor.2021.721704

77. Maayan Z, Lidor R, Arnon M. The birthplace effect in 14–18-year-old athletes participating in competitive individual and team sports. *Sports*. (2022) 10(4):59. doi: 10.3390/sports10040059

78. Brouwers J, Sotiriadou P, De Bosscher V. Sport-specific policies and factors that influence international success: the case of tennis. *Sport Manage Rev*. (2015) 18(3):343–58. doi: 10.1016/j.smr.2014.10.003

79. Brouwers J, Sotiriadou P, De Bosscher V. The ability of sport management interns to critically reflect in organisational settings view project prospecting for gold: an examination for an optimal framework for a high-performance talent transfer program view project. *Eur Sport Manag Q*. (2015) 15:454–77. doi: 10.1080/16184742.2015.1067239

80. Crespo M, Over S. ITF coaching and sport science review: an analysis of 17 years–50 issues. *ITF Coaching Sport Sci Rev*. (2010) 50(18):32–3.

81. De Bosscher V, De Knop P, van Bottenburg M. An analysis of homogeneity and heterogeneity of elite sports systems in six nations. *Int J Sports Mark Sponsorship*. (2009) 10(2):7–27. doi: 10.1108/ijsms-10-02-2009-b003

82. Weiss MR, Kimmel LA, Smith AL. Determinants of sport commitment among junior tennis players: enjoyment as a mediating variable. *Pediatr Exerc Sci*. (2001) 13(2):131–44. doi: 10.1123/pes.13.2.131

83. Casper JM, Gray DP, Stellino MB. A sport commitment model perspective on adult tennis players' participation frequency and purchase intention. *Sport Manage Rev.* (2007) 10(3):253–78. doi: 10.1016/S1441-3523(07)70014-1

84. Weiss WM, Neibert PJ. Changes over time in the predictors of athletic training program commitment. *Athl Train Educ J.* (2014) 9(2):64–71. doi: 10.4085/090264

85. Bell DR, Post EG, Biese K, Bay C, Valovich McLeod T. Sport specialization and risk of overuse injuries: a systematic review with meta-analysis. *Pediatrics.* (2018) 142 (3). doi: 10.1542/peds.2018-0657

86. Waldron S, DeFreese JD, Pietrosimone B, Register-Mihalik J, Barczak N. Exploring early sport specialization: associations with psychosocial outcomes. *J Clin Sport Psychol.* (2019) 14(2):182–202. doi: 10.1123/jcsp.2018-0061

87. Schneider A, Jayanthi NA. Parent child dyad health status of specialized tennis players versus multi sport adolescent tennis players. *J Med Sci Tennis.* (2016) 23 (1):28–35.

88. Toms M, Jeanes R, editors. *Routledge handbook of coaching children in sport.* 1st ed. New York: Routledge (2022). doi: 10.4324/9781003199359

89. Horton S. Environmental influences on early development in sports experts. In: Sean, editor. *Talent identification and development in sport.* New York: Routledge (2013). p. 59–70.

90. Oršolić M, Barbaros P, Novak D. Talent in sports is never enough: a preliminary qualitative data analysis. *Coll Antropol.* (2021) 45(1):45–53. doi: 10.5671/ca.45.1.6

91. Williams M, Wigmore T. *How elite athletes are made.* London, Boston: Nicholas Brealey Publishing (2020).

92. Ford PR, Ward P, Hodges NJ, Williams AM. The role of deliberate practice and play in career progression in sport: the early engagement hypothesis. *High Ability Stud.* (2009) 20(1):65–75. doi: 10.1080/13598130902860721

93. Hendry DT, Williams AM, Ford PR, Hodges NJ. Developmental activities and perceptions of challenge for national and varsity women soccer players in Canada. *Psychol Sport Exerc.* (2019) 43:210–8. doi: 10.1016/j.psychsport.2019.02.008

94. Fawver B, Cowan RL, DeCouto BS, Lohse KR, Podlog L, Williams AM. Psychological characteristics, sport engagement, and performance in alpine skiers. *Psychol Sport Exerc.* (2020) 47:101616. doi: 10.1016/j.psychsport.2019.101616

95. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies. *Qual Health Res.* (2016) 26(13):1753–60. doi: 10.1177/1049732315617444

Study 3: Family ties and social capital among grand slam tennis champions

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Family ties and social capital among grand slam tennis champions

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Abstract

As a competitive sport, tennis demands a comprehensive understanding of the factors which contribute to success at different levels of performance. In order to clarify the aforementioned, the aim of this study was to explore and understand the perspective of tennis players, at differing levels of success, and the impact of social capital on their sporting careers. A particular emphasis was put on an elite group of tennis players who succeeded in reaching the pinnacle of success by winning a Grand Slam title. Semistructured interviews were conducted with 30 tennis players, including 10 Grand Slam winners. Upon transcription, the interviews were analyzed by using reflexive thematic analysis. Family presence and support during the challenges faced by tennis players emerged as a clear research topic following the research analysis. The perspectives of tennis players on the influence of social capital on long-term sports development and achievements revealed that the family plays a key role in the process of raising and supporting tennis

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players. In order to improve the long-term sports development of tennis players, families must ensure and provide a more significant role in the accrual of social capital, however it is not necessarily a sufficient condition to success.

Keywords
tennis, social capital, interview, reflexive thematic analysis, success

Introduction

Research on social capital has a long history with many scholars contributing to its development. There are various approaches used by different authors who have introduced the notion of social capital from numerous disciplines of the social sciences, these being sociology, economics, education, anthropology, and political science. Sociologists Pierre Bourdieu and James Coleman, together with political scientist Robert Putnam, are indicated as the founders of the concept, however significant differences in defining social capital are found as a result of their approaches. Bourdieu (1983) was the first to define social capital as a set of resources that are associated with possessing a network of lasting relationships between individuals and groups. He claimed that social capital, the same as economic capital, can be used for achieving various goals, including access to resources and information, as well as establishing trust and kinship. Bourdieu emphasized that social capital is not equally accessible to everyone, but that it is frequently unevenly distributed throughout society depending on an individual's social position and one's affiliation to different social groups. Therefore, according to Bourdieu, social capital can be beneficial to individuals and groups, however, it can also contribute to maintaining existing social inequalities. Bourdieu presumed that capital can be manifested by way of three forms, namely: economic, cultural, and social. Social capital refers to social relationships and creating social ties and networks (Bourdieu, 1986). One of the most significant authors who also dealt with social capital was the American sociologist James S. Coleman. Coleman (1990) defined social capital as a resource which is present in social structure and is accessible to an individual or a group of individuals as a result of their social positioning. Coleman claimed that social capital can be beneficial to individuals in different situations, such as in getting employed, acquiring information, or solving problems. He also argued that social capital can be manifested in various forms, such as family ties, friendships, professional networks or membership in organizations. According to Coleman, social capital possesses a value that cannot be measured exclusively by economic criteria, but that it is often based on trust and reciprocity in interpersonal relationships (Coleman, 1990). Coleman, like Bourdieu, identified the individual rather than the community as the focus of his concept of social capital, while a number of other scholars had a different perspective.

Robert Putnam is also one of the most prominent authors who studied social capital. In his book *Bowling Alone: The Collapse and Revival of American Community* (2000), he defined social capital as a network of interpersonal relationships, which by way of social relations, mutual trust, and norms of mutual aid and cooperation, results in individual

and collective benefits (Putnam, 2000). After Putnam, social capital became a very popular concept in sociological research. With the aim to better portray the essence of how communities' function, social capital is further on defined by means of the efficiency of relationships among community members. Given the different definitions of social capital that we have discussed above, we are understanding the term and utilizing the concept aligned with Bourdieu and Coleman which emphasizes the concept as a personal resource inhered within social networks (Carpiano, 2006; Carpiano and Fitterer, 2014). In our paper we are drawing on the connections of the person as capital.

Numerous authors then further contributed to the development of this concept through their studies, and many approaches of defining and measuring social capital subsequently emerged. The popularity of social capital results from the fact that it can clarify a wide range of social phenomena, such as economic growth (Fukuyama, 1995; Knack and Keefer, 1997; Tavits, 2006), the quality of state and local policy outcomes (Putnam, 1993; Rothstein, 2003), people's health and well-being (Lin, 2002; Helliwell et al., 2014), and sports and the success of athletes (Novak et al., 2020). The theory of social capital indicates that interpersonal trust, norms of solidarity and the exchange of social support among community members represent potential, and that access to these mentioned capital factors can mitigate actions of population members (Furuta et al., 2012; Kawachi et al., 2010; Putnam, 1993). It can most definitely be said that social capital is a "resource" that can impact an individual's (or player's) opportunities or chances of success. The role of family (the bonding process and family relationship throughout an individual's life) can sometimes play an important part in the production of sports performance. In an elite sport such as tennis, an athlete's family contributes in a myriad of ways - socially, emotionally, and of course, financially - to the success (or failure) of the development of an athlete. Such contributions can and do take many forms in elite sports for youth players, from funding athletic training, club memberships and travel, to providing emotional encouragement, and in many cases, taking on the role of coach.

A drawback to previous research is the fact that the measuring instruments used in most of the mentioned research studies are not suitable for athletic populations. This is because they are tailored for more general samples and have limited abilities to test on professional athletes. Namely, measuring instruments used in future research should be suitable for estimating the level of social support among athletes. In addition, previous quantitative and qualitative studies have not included the highest level of tennis players (Grand Slam winners) (Gould et al., 2008; Collins et al., 2016; Huxley et al., 2018). Grand Slam tournaments are the most prestigious tournaments in the world for tennis players. These events include the Australian Open, the French Open (Roland Garros), Wimbledon, and the US Open. The level of influence exerted by social capital on the performance of the highest tier of Grand Slam tennis players, relative to those players who are less successful, is unknown. Also, the information related to specific domains (emotional, self-esteem, informational, and tangible support) that affect success in sports is unknown. In view of the defined research problem, the following research question is raised: "Do tennis players of differing levels of success consider family as a key to the development of their tennis career and how did their family influence their development?" The aim of this research was to understand the perspectives of

male tennis players at differing levels of success and the impact social capital has, specifically in relation to their family, on their long-term sports development and achievements.

Materials and methods

Philosophical perspective and design

Qualitative descriptive research was conducted (Sandelowski, 2000) by using semi-structural interviews aimed at examining tennis players' perspectives. According to Sandelowski (2000), the qualitative description of methods is appropriate for research as it provides genuine answers regarding people's experiences of a certain event or situation and standpoints—circumstances or factors that affect their decisions or actions. When it comes to the characteristics of sporting careers among tennis players at differing success levels, in the context of multiple perspectives, it can be said that little is known of the personal experiences of tennis players' careers. Thus, precisely due to the relevance of social factors such as family, the qualitative descriptive approach was considered to be suitable. One of the advantages of qualitative research is the ability to provide explanations of processes and patterns of human behavior which are difficult to quantify (Tenny et al., 2022). This study is aimed at understanding the effect family ties and social capital has on male tennis players success at differing levels. Emphasis was placed on three levels of success between the tennis players and how the experiences of the participants may differ depending on their personal standpoints. One of the aims of this study was to contribute to a better understanding on the importance of family to the success of tennis players in terms of their development. Likewise, this study may produce a prevailing opinion that a coach is pivotal for success, and finally, that the synergy of all social participants is essential for achieving top-level results.

Participants

Upon considering the design of this study a total of 30 male tennis players (aged between 25 and 50), chosen by means of purposive sampling, were interviewed. All participants had been competing at various points since 1990, with eight participants still being active at the time of this study. Twenty-two of the participants had ended their competitive careers. The research participants were distributed into three categories as follows: (1) Grand Slam winners ($N = 10$), that is, tennis players who won at least one of the four tennis Grand Slam tournaments (Australian Open, US Open, Roland Garros or Wimbledon); (2) tennis players ranked between the positions 150 and 300 on the professional men's tennis rankings ($N = 10$) (according to the official website of the Association of Tennis Professionals (ATP), or who were at one point during their career ranked in the aforementioned position); and (3) senior tennis players of a national rank ($N = 10$) (ranked between position 1 and 10 on their national ranking list, or between 500 and 1500 on the ATP ranking, i.e., who were at one point during their career ranked in one of the aforementioned positions). Of the total 10 Grand Slam winners, eight

players were from Europe, and one was from Australia. Among the tennis players ranked between position 150 and 300 on the professional men's tennis rankings, there were six players from Croatia, one from Serbia, one from Slovenia, one from Bosnia and Herzegovina, and one from France. Among the senior tennis players of national ranks, nine players were from Croatia and one player was from Kazakhstan. Including a considerable share of Grand Slam winners in this study presents a significant strength, particularly in qualitative and sports scientific research where less successful athletes are most often analyzed. This research aimed to meet the required recommendations of impactful qualitative research. Some key aspects included are: (a) a clear research aim, (b) sample specificity, (c) the use of established theory, (d) dialog quality, and (e) analysis strategy (Malterud et al., 2016; Braun and Clarke, 2019). Overall, the combination of generalizability, reliability, data diversity, and potential to stimulate reflection points to the conclusion, should allow the study to provide significant value in improving understanding and creating positive change in relation to the research topic, in this case being how athletes can benefit greatly by family support. Data diversity implies that the study findings have the potential for application in various areas of research, or for addressing different research questions due to the in-depth research carried out, as well as the diverse range of both professional and lower-level athletes that the study incorporated.

Data collection and methods

Semistructured interviews are considered to be the most suitable data collection method for this type of research as they allow obtaining detailed information from the participants while discussing their interpretation on the influence of significant people, for example parents, in their sporting development (Cohen et al., 2017; Denzin and Lincoln, 2011). Data collection was implemented in three phases by applying the method of semistructural interviews. The first phase included establishing contact with potential participants via telephone and e-mail. The second phase referred to explaining the procedure, aim, and topic of the research to each participant. The third phase consisted of conducting the interview with each participant. The interviews were conducted in quiet and isolated places in order to prevent the influence of surrounding factors (noise, lights, and poor weather) on the responses of the participants. A default interview structure (the so-called interview guide) was prepared in advance, and it was identical for all research participants. The interviews started with a detailed elaboration on the aim of this study in that it was to contribute to a better understanding and challenge prevailing views on the importance of family to the success of tennis players in terms of their development. After this, each participant stated his name and age, and then briefly presented his developmental path in tennis. Upon completing this initial phase, each interview was continued with questions on social support and social capital in tennis. Problem questions within this study were as follows: "Who are the members of your family?", "What kind of relationships did you have in your family and your environment?", "Can you shortly describe the members of your family?", "Who were you especially close with?", "Were you having conflicts with someone, and if so, why?", "Who played the key role in you growing up?", "Can you describe how your parents provided support?", "Were they always supportive of you regardless of the results?", "What messages and instructions did you receive about

life and to what extent did this determine your life?", "Is there anyone else in addition to your family who you would especially single out from your environment that had a significant influence on your sporting career and in what way did that person contribute to your success? What did you learn from that person?". All interviews were conducted by the leading author, who was an individual educated in implementing the mentioned procedures, and who was also a coach with extensive experience on the ATP tour. Such circumstances allowed for a more familiar atmosphere during the interviews and sincere responses during the communication with the tennis players.

Before conducting the interview, several participants took part in pilot interviews. The pilot interviews resulted in the modification of certain questions (Malmqvist et al., 2019). All interviews were transcribed verbatim. Each interview lasted between 50 and 70 minutes, with an average duration of 60 minutes. The interviews were then examined together with the co-authors, which allowed the main interviewer to practice and improve the interview process, as well as the clarity and comprehensibility of the questions, using a more open vocabulary for the participants, and an effective usage of probes for elaboration and clarification (Coutinho et al., 2021; Johnson, 1997; Miles and Huberman, 1994; Williams et al., 2023). The participant interviews were conducted in two languages, these being Croatian and English. The Croatian players conducted their interviews in Croatian, and all other participants conducted their interviews in English. With the researchers being Croatian natives, it felt most natural for them to conduct the interviews with the Croatian players in Croatian, and with the well-known diverse language skills of international tennis players, there is a widespread fluency of English on the tour. It should be noted that the researchers were fluent in Croatian and English, making it easy for them to conduct the interviews in these languages, as well as to translate and transcribe the interviews following their conclusion for further data analysis. In order to provide an optimal set of personal information, it was extremely important for each of the participants to clearly convey their personal experiences in the pivotal phases of their careers (Collins et al., 2016; Ollis et al., 2006). This approach had previously been shown to increase the accuracy and authenticity of recollections (Collins et al., 2016; Drasch and Matthes, 2013) and was thus an important step in overcoming certain limitations of retrospective memory.

Ethics

All participants agreed to partake in the study and gave prior informed consent, and the study was approved by the home institution of the first and third researchers.

Data analysis

In order to enable subsequent transcription and analysis, all interviews were taped with a tape recorder and video camera. Each participant was also guaranteed anonymity, as well as confidentiality of all personal information obtained. The participants had the option to remove themselves from the research at any given moment. In the interview analysis process the reflexive thematic analysis approach was used, developed by Braun and Clarke (2019), consisting of six phases and implemented inductively, in such a way

that the participants' statements were coded as to be reduced to the level of explicit meaning. The first phase included transcribing the interviews, which was a good way for familiarizing the researchers with the obtained data. This phase also required several readings of interview transcripts and identification of data segments which contained relevant information. The second phase consisted of producing initial codes. Several possible themes that were regarded as interesting and relevant for subsequent research were coded. The third phase required classifying different codes into potential themes and comparing all relevant coded data extracts within each identified theme. The fourth phase included a two-level review and amending of the themes as follows: review of coded data and coding of additional information within themes that were neglected in previous phases of data coding. The fifth phase included defining and naming the themes, during which the selected themes were additionally revised. The final sixth phase consisted of compiling a report upon the completion of the overall thematic formation.

Methodological rigor

A number of steps were taken to increase data reliability, as well as data credibility (Johnson, 1997). Conducting pilot interviews (with the same interviewer throughout) helped in maximizing interview consistency. A familiar atmosphere was created due to the interviewer's experience as a coach and the deeper level of understanding he has of the sport, and possibly the challenges that players might encounter in their life and development. All interview transcripts were delivered to the participant for verification, while allowing them to add, delete or revise all data they considered to be incorrect in relation to their communication during the interview (Miles and Huberman, 1994). Furthermore, the first author subsequently contacted all the participants by telephone in order for them to corroborate their statements and discuss the study findings. All the mentioned activities confirmed to the authors that the participants were well informed regarding the research. Each participant verified his interview transcripts. All five members of the research team were present at joint meetings and collectively analyzed the data. The highlighted themes were elaborately discussed during these joint meetings. The final coding scheme was defined during this discussion and analysis. This important process contributed to the credibility of the obtained data, ensured for interpretative validity, and reduced the risk of individual research bias (Silverman and Marvasti, 2008).

Reflexivity of researchers

Researcher bias usually results from selective observation and selective recording of information, as well as from allowing one's personal standpoints and perspectives to affect the manner in which data is interpreted and how the research is conducted (Johnson, 1997.) According to Johnson (1997), a key strategy used for understanding researcher bias is called reflexivity. Reflexivity means that the researchers actively engage in critical self-reflection on their potential biases and mindsets. Through reflexivity, researchers become self-aware if they are monitoring and trying to control their biases. The first author noted that they experienced a lack of understanding from their

coaches and social environment in tennis, which resulted in their poor decisions coming from not understanding the path which top-level athletes go through in order to achieve the best possible results. This was the reason they personally decided to end their sporting career and enroll in college. In college, they specialized in tennis and started working both as a tennis coach and a physical conditioning coach. The limitations athletes face on their way to achieving top-level sports results became the subject of their research interests. Their personal experience as an athlete created a desire to study the aforementioned field. In the process of data collection there were also the second, third, fourth, and fifth authors who participated (likewise former tennis players, coaches, and scientists), and who also ended their sports careers and then researched success among athletes. Having reflexive discussions with the co-authors helped them to elaborate on their presumptions, as well as to remain focused on the participants' experiences instead of their own personal situations.

Results

Data analysis showed that social capital in the sports environment has a great impact on the development of tennis players, however, the analysis shows that its effect varies in relation to the players' level of success. The results are organized in a manner to indicate the similarities and differences in the mentioned environments, and suitable quotes are also provided to clarify the theme. With the aim to facilitate the tracking of quotes, the participants were marked according to their category of success. Grand Slam winners were tagged as Level 1, participants ranked between position 150 and 300 were Level 2, while participants ranked between position 500 and 1500 were Level 3. The second number of each mark represents the sequential order when the participant was interviewed within his category.

Presence and support of family during challenges faced by tennis players

Family support is marked as one of the most important factors in the development of tennis players. All family members among participants at the third level of success were actively involved in the process of their sports development. In order for a successful tennis story, the players feel that it is very important and beneficial for both parents to be part of the development process. They also point out that the family, that is, their parents were the main drivers of the support.

> The environment, i.e., the parents are the key and most important factor. For the most part, parental support was unquestionable, and if it wasn't for them, I wouldn't have achieved anything. They followed me always and gave me support, I mean it's not that they were going all crazy or something, but they were simply, in the context of that time so to say, the ones who were keeping up better than the others. L3/3

> Someone might say that they didn't have that, and it was surely harder for them than it was for me, but I really did have enormous support from the entire family, and that it really important and great. L3/10

Besides emotional support from family members, which is extremely important to younger players to help them remain focused and motivated during the hard times, there is also the aspect of financial and logistical support. Therefore, one of the participants at the third level of success stated the following:

> They are there for you your whole life, so if dad cannot make it, then your grandfather drives you to the tournament. If grandfather also can't make it, then it's grandmother who takes you. They were all involved. My mother wasn't that much involved in sports, but all the things with food and nutrition and everything else, she was very much part of it. L3/1

The financial challenges which the parents of participants at the third level of success were facing had a significant impact on their tennis careers. The mentioned situation was described as a constant "fight" for finding financial resources:

> I started thinking about it and then it began to worry me during those years. I became aware of how much it all costs and how much my dad and mum work so that I could go to Algeria and Tunis. Now, when I talk about it, they are still paying off my loans from the USA, South America from when I was 16, 17, 18 years old. L3/1

The people who generally had the most significant influence on their sports development were the fathers, and thus it was with them that they most often had conflicts regarding certain situations on which they did not agree. Furthermore, players believe that their fathers were sometimes too easy on them, and they think that in such cases their paternal weakness prevailed, that is, love that they recognized and took advantage of. Below are quotes from two participants at the third level of success whose fathers were also their coaches:

> We would come into conflict because this dad-coach relationship is not easy. You are with him every day, you talk about all kinds of things and then he says something to you at tennis, and there are also days when you are a bit nervous and when it's not good. Automatically if he says something to me, I will react because it feels like you're at home. That's not an easy relationship. L3/6

> He forced me too hard and loved to yell at me all the time. He was often mad at me, and I never got the chance to say something, I was like a machine, and he was, I don't know… Hmmm, sometimes during a match he would drag me off the court when I was playing really bad and lost, he would pull me out of the court into the toilet and hit me. L3/9

The below quote is from a participant at the third level of success who states that he took in his father's suggestions and comments, however, that there were also moments when he did not agree with his father's decisions, which presented a difficulty in his development path:

> They say that being a dad-coach is the hardest thing, and it is, it's the toughest and I felt this too because you talk about tennis 24/7. My dad couldn't separate between the two roles, without talking about trainings at home, and at a certain age this bothered me, but I understand that he wanted what's best for me. L3/10

There were also some parental conflicts, that is, arguments between the father and the mother, according to the statements of several participants at the third level of success. In addition, they said that the mentioned conflicts were not related to their performance, but to the lack of financial resources. One participant stated that this sometimes affected him and also transferred to the court and, ultimately, to his result:

> I would even say that it perhaps motivated me even more so that I wanted to win even more, but I don't know, simply perhaps at some stage I couldn't deal with that emotionally in a good way so maybe it was mirrored on the field. L3/2

Participants at the second level of success also state that their parents had a significant effect on their tennis development. They point out that stress is inevitable, as well as subordinating the family to the process of tennis improvement, both in terms of time, as well as regarding resources. Furthermore, they state that the mentioned situation is quite common in tennis and that excessive parental involvement can also result in considerable negativity. The people they said to be most involved in the process of tennis development were their fathers:

> My dad was the one person who motivated me the most. When he saw that I wanted it, he then pushed me to the most. Let's go, c'mon, c'mon, c'mon, and come see this, and see that, etc. L2/1

> When he saw that I was really interested in tennis and that I was making good progress and that I wanted to dedicate myself to tennis and play even more, then he also eventually got really involved in tennis. He never played tennis before that, we went into tennis together. L2/5

One of the participants at the second level of success points out that family support is important, however, that ultimately everything depends on the individual. He says he liked having solitude and did not like to discuss tennis matches with his parents. Another participant stated that family support was permanent, despite the fact that his parents were not tennis coaches, however, that being surrounded by other coaches stimulated him to develop a "sports-type" mindset. Even though he was fully dedicated to his tennis, he reached a period when he dismissed any type of suggestion:

> In that period nobody was with me. My dad tried, but I kept pushing him away. Everyone tried, but I rejected them all, even my coach. I was so well educated and charismatic that I started reading psychology. That went to such an extreme measure that no coach could work with me. L2/9

Nonetheless, parental support was most evident in terms of financial and emotional support. The participants point out that it is questionable how parents who were not tennis professionals manage to deal with the overall process, and if their involvement

is too intense or not. Mothers were emphasized as very important for support in the mentioned process, and thus one of the participants at the second level of success stated the following:

> It matters when you know your entire family is with you. My mom's role was very important, as she was supporting me in terms of a homemaker, cooking, laundry, etc. L2/5

Parental support was present even after poorly played matches or weaker results. However, the players expected greater professional support from the parents. They consider the mentioned professional support was supposed to be present in making better decisions in the process of choosing quality coaches. Likewise, several participants stated that they expected greater pressure from their parents regarding their results:

> No, no, there wasn't much anger. I always had their support, it was like: You should, or you can do better. For me that was a sentence that made me keep on playing. L2/3

> My dad took me to tennis tournaments and everything, but there was never any stress on the result. He would always say: Time is on your side. I would be crying after a match, and he would be telling me stories. I wanted him to push me more. If I could hold something against them, it's the fact that I needed them to push me more. We should've started working professionally sooner and should've hired a better coach. L2/6

> I have always been kind of shy, and all that starts at home. Parents who are too nice and you never feel any pressure. I never felt I was being pressured. My dad would say to me: So you played badly, so what, it doesn't matter, let's move on. My parents never criticized me ever in my life. L2/7

Statements from Grand Slam winners revealed that they had their families support and that it was normal and very important for them, i.e., just as it is supposed to be, support without any pressure:

> Yes, only support, nothing else… No pressure, no nothing. Maybe once a month my dad would talk to my coach, he didn't even watch me during trainings. L1/1

> I think they were involved enough, maybe sometimes even too much, just like I said. What I'm seeing nowadays in the tennis world scares me a bit. Also, I must say, you have to have one or both parents that are a little "crazy". But in a good way, if you know what I mean. You have to, or it's hard to succeed. Because if you look at top-level players, only a small number of them had parents working normal jobs and letting their kids play what they want, and without being involved in it, that's very rare to find. Quite rare, you know. You have to have parents who are involved, but in a good way. L1/2

The mentioned support was present during the development phase, and so one of the participants said that his father never even considered the possibility of him becoming a professional tennis player, but only wanted him to enjoy himself when playing tennis. Upon remembering, the participant stated that it was a very important

moment for him when he realized he had this support because during a certain period he was experiencing setbacks while transitioning to a higher category that was much more demanding:

> I wasn't winning that often, and I would cry when I lost a match. And one time my dad said, if I once again started crying when I lost a match that I should stop playing tennis, he didn't want me to feel hurt. He said I was a child and that I have to enjoy my life, and not suffer when I played tennis, and that if I start crying next time then I wouldn't play anymore. L1/1

One Grand Slam winner stated that he grew up in a good family and that his cousins, as well as his family, created a really good atmosphere right from an early age. Likewise, he emphasized that in addition to family support, genetics were also very important in order to be successful. He believed that there are reasons why successful athletes have successful children since they pass on these attributes and genetic abilities:

> I felt love, a love for sports at a very early age. I was fantastic when it came to tennis. I just wanted to play, and play and train, I could never have enough. Sometimes my mum and dad had to pull me away from the court. L1/2

"My parents were not athletes, i.e., tennis players, and they knew little about tennis, but they left everything over to the coach and I think that was a good decision," this was a statement from one of the Grand Slam winners. Below he also says that they were involved in the process to a certain degree, they asked questions, however, not to the point of them becoming an interference:

> According to my estimation, 90% of the parents who are involved in their children's careers are bad for their development… You know, this is just a guess, maybe I'm wrong, it might be 80%, but it's not 50% or something like that. Parents… just take a look at the tour and you can see it right away, you can see which parents are involved. I'm not saying… Support is a good thing, but those parents who intervene into the coaching, give advice to the coach, talk a lot of "crap" on what they should be doing, bla, bla, bla, bla… That can never work. It can run for a year or two if the coach is really patient. But it has to be bad for the career. Then they change the coach, but that perhaps doesn't work… It is very good to have support, but what my parents did, that was pretty good. Support, but with a distance. L1/5

An interesting detail was pointed out by a Grand Slam winner who had two older brothers that were engaged in another sport. Their mother and father would drive them all to and from training, and the most interesting part of the ride was when his brothers would ask him: "How was your training, did you finally learn how to hit a forehand volley?". He stated that he initially did not understand that, but he later realized that he was given the opportunity to explain how he learned something, while they were then also satisfied because he learned something. He continued explaining that his environment was never critical of him, and he subsequently realized that they were always impressed by what he had learned.

> They were always asking questions, but they gave me space to explain how I did it. Instead of telling me what I should've learned or what they think that I did, they always listened to my explanations. They allowed me the express what I had been doing. L1/6

Discussion

One of the key strengths of this study is the fact that the inductive approach allowed for the emphasis of the participants' perspectives on the relevant domain of social capital. This study is, in addition, the first one to understand the perspectives of male tennis players at differing levels of success and the impact that social capital has, specifically in relation to their family, on their long-term sports development and achievements. The participation of tennis players at different levels of success enabled an in-depth understanding of the complexity of personal experience, as well as sometimes the incompatibility between perceptions of social capital as a key factor of sport success.

The presence and support of the family in overcoming challenges tennis players are faced with is a topic that requires clarification, in the sense of explaining what type of family, that is, parental support was experienced by tennis players and how it affected their sports results. The results showed the complexity of the parent-player relationship, as well as that the parents' role can vary between extremely positive to extremely negative in a player's sporting experience.

There are numerous very high-profile discussions of fathers' influences on the development of elite-level tennis players. Films have even been made about this (e.g., King Richard). Meanwhile, many former players' biographies and memoirs delve deeply into the relationship between tennis players and their parents, revealing how this dynamic shaped their careers and personal lives. These biographies and memoirs offer perspectives on the parent-athlete relationship in that they come from some of the greatest tennis players of all time to have played the game. This in turn offers an inside perspective and understanding of these players thoughts, as well as showing the positive and challenging (negative) aspects of parental involvement in the world of professional tennis. Andre Agassi (2009) has talked extensively about the relationship with his father (e.g., in Agassi's autobiography *Open*). In his book Andre Agassi traces his life and career as an athlete. This book tells us about the road, tortuous and slippery as ever, toward success in life (and in tennis too). The book describes the more than difficult relationship with his father, the ogre who forced Andre as a child to exhausting, dramatic training sessions with a ball-throwing machine, in the immense and spectral Nevada desert:

> My hatred of tennis is directed against the dragon, a ball-shooting machine constructed by my terrifying father.

> I always wanted to please my dad; I didn't want to upset him. I didn't dare. Bad things happen when a father is upset. If he says that I will play tennis, if he says that I will be the best in the world, that this is my destiny, then I can only nod my head and listen.

Nadal and Carlin (2011) in his book, *Rafa: My Story* talks extensively about the role of his uncle Toni stating how strict his uncle was:

> Uncle Toni was strict with me from the very beginning. He demanded a lot from me, he put a lot of pressure on me. He would use rough language, shout a lot, and scare me—especially when the other boys didn't show up and it was just the two of us.

> Uncle Toni was so strict with me. My mother remembers this, as a small child, sometimes I would come home from practice crying. She would try to get me to tell her what happened, but I preferred to stay silent. I once admitted to her that Toni had a habit of calling me "Mama's son", which hurt her, but I begged her not to say anything to Toni, because it would only make things worse.

However, not all former players had the same experience. Sampras and Bodo (2009) in his book "A Champion's Mind: Lessons from a Life in Tennis" by Pete Sampras, he talked about his father's role as extremely positive in his sporting experience:

> My dad got along with almost everyone. There are no crazy stories about my father like some other parents. My dad never got into a shouting match with the other parent, let alone a fight. He always took the high road.

Jimmy Connors (2013) in his book *The Outsider: A Memoir* remembers only positive things in regards with his father involvement:

> My father never criticized me negatively in regards with my tennis. He wanted me to do well in school. Unfortunately, I've never been good at it.

Through the quotes from the above autobiographies, we can see that there was a mixture of both intense and heavily involved parents or some other family members who applied a lot of pressure to their children. There were also some parents who had a more laid back and less intense approach when supporting their children's tennis activity. Our data aligns with some of these autobiographies in that each Grand Slam champion that we interviewed found their parents to adopt more of a laid back, less intense, yet still supportive approach as they were progressing in the early stages of their tennis careers. These biographies and memoirs offer unique perspectives on the parent-athlete relationship in that these are some of the highest achieving players to have played the game. They offer their insight into their experiences in relation to the child/parent relationship and showcase both the positive and challenging aspects of parental involvement in the world of professional tennis.

The topic of parental inclusion into organized sports of young athletes has often been discussed and criticized (Jellinek and Durant, 2004). According to Fredricks and Eccles (2005), parents play an important role in engaging in sports as they typically contribute to the initial engagement of children in sports, as well as provide both concrete and emotional support in the course of a child's sports career. The parents generally bring their children to the competition venue and tend to stay there throughout their child's matches, which means that parents can possibly have multiple effects on the children and their behavior (Genevois, 2011). However, some feel that there is a very thin line between providing support and being excessively included in children's participation

in sports, depending on parenting styles (Hollins, 2016; Holt et al., 2008). Namely, excessive involvement can result in negative outcomes which can then add to having lower levels of motivation and loss of enthusiasm for participating in sports, thus leading young athletes to experiencing stress and conflicts with their parents, and even up to overloading or quitting (Anderson et al., 2003; Coutinho et al., 2021; Wuerth et al., 2004; Jago et al., 2011; Ryan, 1995; Udry et al., 1997).

Upon understanding and respecting the various ways in which parents support their children in tennis, one can state that the parents play a key role in determining their children's sporting paths. The results of this study point to the fact that participants at the third level of success had the expected support during their developmental sports path while they were growing up, however, as a result of excessive parental involvement, the players believe that they felt enormous pressure, which was thus the most often cause of conflicts between the fathers and the players. According to Babkes and Weiss (1999), some athletes can perceive the support from their parents as pleasant and intrinsically motivating, whereas, according to Hellstedt (1990), others regard such parental support as pressure. Furthermore, the results of the study indicate that the involvement of the fathers, particularly when they take over the role of the coach, can bring in a set of unique challenges and tension into the player–coach relationship. The mentioned conflicts between fathers and players among participants at the third level of success, especially the ones whose fathers were also their coaches, proved to be a significant element of the player–coach relationship in the world of competitive tennis. The role of parent/coach is morally and practically fraught and, in some ways, complicates any straightforwardly causal conclusions about the role of family-based social capital in the development of elite youth talent. In fact, the father/coach-child/athlete relationship may in fact facilitate success in sport, and yet at the same time destroy (or at least deplete) the stock of familial social capital. Study results suggest that high financial costs related to training, participating in tournaments, and traveling often exceeded the families' expectations, and resulted in disagreements regarding the optimal way of allocating resources. Disagreements about finances among participants at the third level of success presented a permanent source of tension between the parents in the context of tennis. The impact of such conflicts between the parents on a player's tennis results was undeniable. The emotional tension resulting from parental discussions distorted focus, motivation, and the overall performance on the tennis court.

This paper highlights the ways in which mothers primarily contribute "emotional" support to the development of their children's careers, whereas fathers appear to play a more active—and more authoritarian—role as coaches. It can be understood that in modern society, fathers are expected to take accountability for the development of their children (Coakley, 2006). One way of achieving this can be acting as a coach for your own child to gain a close relationship or at least guarantee time spent together (Stefansen et al., 2018).

Previous research states that fathers generally have a familiarity with the context of organized competitive sports, and therefore by engaging as a coach, they generally have strong sporting capital of their own. They are, in a way, re-entering into familiar surroundings (Harrington, 2006). As a consequence of this, by being in such familiar surroundings and having a competence in this area, it makes the role as a coach a safe space

where fathers can feel proficient as in their role as a father. In line with this, being part of a child's everyday life from a sporting perspective shows a present and responsible father, a normative ideal that features a high amount of cultural and social value in contemporary western societies (Coakley, 2006). This suggests that from a family coaching perspective, the arena is dominated by male figures. However, it should also be considered that children may react differently to either a father or mother figure being their coach, and it should not depend solely on the father figure taking that role by default. As an individual may feel they have a closer relationship with her mother, that could subsequently result in having a better sporting outcome if their mother were to take up that position. In research conducted by Orsolic et al. (2021, 2023a), it was found that parents should play a key role during the transitional phase, that is, in the transfer from junior to professional tennis, as well as that the ambition for achieving better results, can represent the greatest obstacle for children in the transitional phase.

For participants at the second level of success, their parents provided them with the best possible conditions for playing tennis, including both financial and emotional support, as well as assistance during tournaments and competitions. However, the results showed that participants at the second level of success demonstrated considerable potential and achieved notable results, while they aspired toward reaching higher levels of achievement. These individuals often found themselves at sensitive crossroads in their careers, where they needed strategic guidance in order to make the right decisions that can considerably affect their success in sport. In addition, the results also indicated that participants at the second level of success expressed a strong desire for having additional expert support, especially in the process of selecting their coach.

Studies on positive motivation influences by the family (Bengoechea and Strean, 2007; Keegan et al., 2010) and benefits for the overall well-being of young athletes and their development in sports (DeFreese and Smith, 2014; Freeman and Rees, 2009; Huxley et al., 2018; Knight et al., 2018; Stambulova et al., 2015) were consistent with these results among Grand Slam winners. The obtained results suggest that family support such as that experienced by Grand Slam winners is important. Family members provided emotional and moral support for Grand Slam winners, while the encouragements and beliefs of their family considerably affected their self-confidence and motivation. According to certain studies that researched the relationship between parental behavior and sports results among young athletes, it was revealed that high levels of perceived parental support, encouragement, involvement and gratification were associated with greater pleasure and intrinsic motivation (Gould et al., 2008; Lauer et al., 2010; Scanlan and Lewthwaite, 1986). Therefore, it is important for young players to receive the appropriate support within their sport and the surrounding environment so that the negative outcomes on their long-term health, well-being and performance could be reduced (Thomas et al., 2019; Orsolic et al., 2023b). In the newspaper *La Repubblica*, and later reported by *Tennis World* (2015), a statement was made by the father of a Grand Slam winner in which he emphasizes that parental love comes with a unique responsibility, which he believes is key to the child's success. He acknowledges the burden of giving children the freedom to choose their own path, suggesting that such freedom may come with its own set of challenges. Furthermore, he expresses regret for his strictness with his son, implying that he sees it as a necessary part of his child's

success. He also connects his involvement with his own unfulfilled ambitions as an athlete.

The key findings in this study allow for determining and analyzing various factors that contribute to the development and success of tennis players. The aim of this study was to consider the perspective that male tennis players have on the role their family plays in helping them overcome challenges, as well as their long-term sports development and achievements. The support of family plays an important role in the development of tennis players. The presence of a family that provides support, in addition to making timely and proper decisions regarding the future direction of their career, stimulates a positive and encouraging environment for tennis players for achieving the ultimate success, such as is winning a Grand Slam tournament. It can further be understood that a parenting style of being less intense may lead to more sporting success in children. Overbearing and overpowering input from a parent may lead to a negative parent/child relationship, as well as a loss of interest in sport from the child's perspective. It is important for a parent to be supportive, however, when examining whether more or less input from a parent leads to better success, we can understand that a less intense input proves to be more successful in the sporting success of children in the long term.

Despite the strengths of this study, there are also certain limitations that must be addressed. It might seem as though several of the questions asked were either leading questions or questions that implied a particular position as given, for example, "Who were you especially close with?" (implies that the athlete was "especially close" with someone, when perhaps they were not). To avoid this limitation, the leading researcher tried not to lead the respondents toward certain answers. The leading author, who is a coach too, did conduct the interviews and hypothetically may have impacted the research data collection process with his own biases. Moreover, players will always have biases toward or against certain coaches. Therefore, we cannot ignore that there could be consequences to an athlete revealing personal/sensitive information to a coach who might use that information (e.g., if coaching a future opponent of that player), is a shortcoming of this research.

Expanding the scope of the research to personal experiences of female tennis players is essential for a more comprehensive understanding of the sport. Future research would also benefit from a larger sample size and combining the perspectives of athletes, as well as other key stakeholders (schools, friends, coaches) to provide a better understanding of the developmental social environment. Furthermore, this research can stimulate an interdisciplinary collaboration and encourage integrating qualitative and quantitative approaches to gain a more comprehensive understanding of tennis players' experiences. Finally, future research should explore the involvement of families and family relations in wider socioeconomic and cultural structures and forces. For example, it would be worth exploring how and to what extent the strength of family ties is itself shaped by social norms, economic privilege (or deprivation), and cultural (symbolic) capital. One might imagine that a family rich in strong ties to one another but economically impoverished and/or lacking in relevant symbolic capital (as is often the case for first generation immigrant families) might struggle to produce an elite tennis player.

Conclusion

Various factors contribute to the development and success of tennis players. By means of qualitative analysis, a key theme was identified in this research study: family involvement and influence of family members on tennis players and their career path. The phenomenon of over-parenting in sports has become widespread and seen throughout all the levels of athlete development. Our research findings suggest that in relation to some participants in this study, a less intense impact from parents can sometimes provide more beneficial results, which we believe is an important message. However, it should also be taken into account that it varies depending on the individual athlete and the specific parenting techniques they prefer as well as react best to. Sports communities and service providers can create an environment that fosters a holistic development of athletes, promotes friendship and maximizes their potential. Therefore, it can be important to achieve balance between family influence and allowing athletes to make their own decisions. Accepting and adhering to individual preferences and the above guidelines could go a long way toward achieving success, including the extreme result of winning prestigious tournaments such as a Grand Slam, but one should keep in mind that this may not be a sufficient condition. It should also be taken into account that this research was carried out on a limited sample size, of which the findings may be challenged by additional and further research. Tennis is an individual sport where each athlete has their own path to success, as well as ideal training and social situations in order for them to reach their full potential and achieve highly, this research merely aims to add to the body of current research around social capital and the potential positive impact it can have on a range of tennis players from the lower levels to the professional level.

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References

Agassi A (2009) *Open: An Autobiography*. New York: HarperCollins.

Anderson JC, Funk JB, Elliott R, et al. (2003) Parental support and pressure and children's extracurricular activities: Relationships with amount of involvement and affective experience of participation. *Journal of Applied Developmental Psychology* 24(2): 241–257.

Babkes ML and Weiss MR (1999) Parental influence on children's cognitive and affective responses to competitive soccer participation. *Pediatric Exercise Science* 11(1): 44–62.

Bengoechea EG and Strean WB (2007) On the interpersonal context of adolescents' sport motivation. *Psychology of Sport and Exercise* 8(2): 195–217.

Bourdieu P (1983) The field of cultural production, or: The economic world reversed. *Poetics* 12: 311–356.
Bourdieu P (1986) The forms of capital. In: Richardson J (ed) *Handbook of Theory and Research for the Sociology of Education*. Westport, CT: Greenwood, 241–258.
Braun V and Clarke V (2019) Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health* 11(4): 589–597.
Carpiano RM (2006) Toward a neighborhood resource-based theory of social capital for health: Can Bourdieu and sociology help? *Social Science & Medicine* 62(1): 165–175..
Carpiano RM and Fitterer LM (2014) Questions of trust in health research on social capital: What aspects of personal network social capital do they measure? *Social Science & Medicine* 116: 225–234..
Coakley J (2006) The good father: Parental expectations and youth sports. *Leisure Studies* 25(2): 153–163.
Cohen L, Manion L and Morrison K (2017) *Research Methods in Education*. London: Routledge.
Coleman JS (1990) *Foundations of Social Theory*. Cambridge: Harvard University Press.
Collins D, MacNamara Á and McCarthy N (2016) Super champions, champions, and almosts: Important differences and commonalities on the rocky road. *Frontiers in Psychology* 6: 171615.
Connors J (2013) *The Outsider: A Memoir*. New York: HarperCollins.
Coutinho P, Ribeiro J, da Silva SM, et al. (2021) The influence of parents, coaches, and peers in the long-term development of highly skilled and less skilled volleyball players. *Frontiers in Psychology* 12: 667542.
DeFreese JD and Smith AL (2014) Athlete social support, negative social interactions, and psychological health across a competitive sport season. *Journal of Sport and Exercise Psychology* 36(6): 619–630.
Denzin NK and Lincoln YS (2011) *The Sage Handbook of Qualitative Research*. London: Sage.
Drasch K and Matthes B (2013) Improving retrospective life course data by combining modularized self-reports and event history calendars: Experiences from a large scale survey. *Quality & Quantity* 47(2): 817–838.
Fredricks JA and Eccles JS (2005) Family socialization, gender, and sport motivation and involvement. *Journal of Sport and Exercise Psychology* 27(1): 3–31.
Freeman P and Rees T (2009) How does perceived support lead to better performance? An examination of potential mechanisms. *Journal of Applied Sport Psychology* 21(4): 429–441.
Fukuyama F (1995) *Trust: The Social Virtues and the Creation of Prosperity*. New York: Free Press.
Furuta M, Ekuni D, Takao S, et al. (2012) Social capital and self-rated oral health among young people. *Community Dentistry and Oral Epidemiology* 40(2): 97–104.
Genevois C (2011) The role of parents in the training of beginner tennis players. *Coaching & Sport Science Review* 40: 632–636.
Gould D, Lauer L, Rolo C, et al. (2008) The role of parents in tennis success: Focus group interviews with junior coaches. *The Sport Psychologist* 22(1): 18–37.
Harrington M (2006) Sport and leisure as contexts for fathering in Australian families. *Leisure Studies* 25(2): 165–183.
Helliwell JF, Huang H and Wang S (2014) Social capital and well-being in times of crisis. *Journal of Happiness Studies* 15(1): 145–162.
Hellstedt JC (1990) Early adolescent perceptions of parental pressure in the sport environment. *Journal of Sport Behavior* 13(3): 135.

Hollins DK (2016) When enough is enough: The impact of parental involvement in children's participation in organized sports. PhD Thesis, Portland State University, USA.
Holt NL, Tamminen KA, Black DE, et al. (2008) Parental involvement in competitive youth sport settings. *Psychology of Sport and Exercise* 9(5): 663–685.
Huxley DJ, O'Connor D and Bennie A (2018) Olympic and world championship track and field athletes' experiences during the specialising and investment stages of development: A qualitative study with Australian male and female representatives. *Qualitative Research in Sport, Exercise and Health* 10(2): 256–272.
Jago R, Davison KK, Brockman R, et al. (2011) Parenting styles, parenting practices, and physical activity in 10-to 11-year olds. *Preventive Medicine* 52(1): 44–47.
Jellinek M and Durant S (2004) Parents and sports: Too much of a good thing? *Contemporary Pediatrics* 21(9): 17–20.
Johnson RB (1997) Examining the validity structure of qualitative research. *Education* 118(2): 282–292.
Kawachi I, Subramanian SV and Kim D (2010) *Social Capital and Health*. New York: Springer Science, 215–28.
Keegan R, Spray C, Harwood C, et al. (2010) The motivational atmosphere in youth sport: Coach, parent, and peer influences on motivation in specializing sport participants. *Journal of Applied Sport Psychology* 22(1): 87–105.
Knack S and Keefer P (1997) Does social capital have an economic payoff? A cross-country investigation. *The Quarterly Journal of Economics* 112(4): 1251–1288.
Knight CJ, Harwood CG and Sellars PA (2018) Supporting adolescent athletes' dual careers: The role of an athlete's social support network. *Psychology of Sport and Exercise* 38: 137–147.
Lauer L, Gould D, Roman N, et al. (2010) Parental behaviors that affect junior tennis player development. *Psychology of Sport and Exercise* 11(6): 487–496.
Lin N (2002) *Social Capital: A Theory of Social Structure and Action*. New York: Cambridge University Press.
Malmqvist J, Hellberg K, Möllås G, et al. (2019) Conducting the pilot study: A neglected part of the research process? Methodological findings supporting the importance of piloting in qualitative research studies. *International Journal of Qualitative Methods* 18: 1609406919878341.
Malterud K, Siersma VD and Guassora AD (2016) Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research* 26(13): 1753–1760.
Miles MB and Huberman AM (1994) *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks: Sage.
Nadal R and Carlin J (2011) *Rafa: My Story*. London: Sphere.
Novak D, Svalina F and Delale EA (2020) Connection between social capital and sport success of young tennis players. *Social Sciences* 9(11): 206.
Ollis S, Macpherson A and Collins D (2006) Expertise and talent development in rugby refereeing: An ethnographic enquiry. *Journal of Sports Sciences* 24(3): 309–322.
Orsolic M, Barbaros P and Novak D (2021) Talent in sports is never enough: A preliminary qualitative data analysis. *Collegium Antropologicum* 45(1): 45–53.
Orsolic M, Barbaros P and Novak D (2023a) Research of negative life events/circumstances among tennis players of different success level: Participants' perspective. *Collegium Antropologicum* 47(1): 1–10.
Orsolic M, Barbaros P and Novak D (2023b) What makes a Grand Slam champion? Early engagement, late specialization and timely transition from having fun to dedication. *Frontiers in Sports and Active Living* 5: 1213317.
Putnam RD (1993) The prosperous community: Social capital and public life. *The American Prospect* 4(13): 35–42.

Putnam RD (2000) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
Rothstein B (2003) Social capital, economic growth and quality of government: The causal mechanism. *New Political Economy* 8(1): 49–71.
Ryan J (1995) *Little Girls in Pretty Boxes*. New York: Doubleday Books.
Sampras P and Bodo P (2009) *A Champion's Mind: Lessons from a Life in Tennis*. New York: Crown.
Sandelowski M (2000) Focus on research methods: Whatever happened to qualitative description? *Research in Nursing dr Health* 23(4): 334–340.
Scanlan TK and Lewthwaite R (1986) Social psychological aspects of competition for male youth sport participants: IV: Predictors of enjoyment. *Journal of Sport Psychology* 8(1): 25–35.
Silverman D and Marvasti A (2008) *Doing Qualitative Research: A Comprehensive Guide*. Thousand Oaks: Sage.
Stambulova NB, Engström C, Franck A, et al. (2015) Searching for an optimal balance: Dual career experiences of Swedish adolescent athletes. *Psychology of Sport and Exercise* 21: 4–14.
Stefansen K, Smette I and Strandbu Å (2018) Understanding the increase in parents' involvement in organized youth sports. *Sport, Education and Society* 23(2): 162–172.
Tavits M (2006) Making democracy work more? Exploring the linkage between social capital and government performance. *Political Research Quarterly* 59(2): 211–225.
Tenny S, Brannan JM and Brannan GD (2022) *Qualitative study*. Treasure Island, FL: StatPearls Publishing. Available at: https://www.ncbi.nlm.nih.gov/books/NBK470395/ (accessed 12 November 2023).
Thomas CE, Chambers TP, Main LC, et al. (2019) Factors influencing the early development of world-class Caribbean track and field athletes: A qualitative investigation. *Journal of Sports Science & Medicine* 18(4): 758.
Udry E, Gould D, Bridges D, et al. (1997) People helping people? Examining the social ties of athletes coping with burnout and injury stress. *Journal of Sport and Exercise Psychology* 19(4): 368–395.
Williams A, Butt J and Kavanagh E (2023) An exploration of coaches' and sport psychologists' experiences of managing performance blocks. *Journal of Applied Sport Psychology* 36(2): 301–319.
Wuerth S, Lee MJ and Alfermann D (2004) Parental involvement and athletes' career in youth sport. *Psychology of Sport and Exercise* 5(1): 21–33.

4. DISCUSSION

This doctoral dissertation is aimed on the theoretical and empirical conceptualization of sports success and the analysis of the development of tennis players' careers. Upon applying qualitative methodology and biographical studies, the research presents an in-depth analysis of tennis players' life stories in order to obtain insight into their developmental paths. Starting from their personal experiences and subjective interpretations of their sports journey, the aim was to identify and explain the differences among tennis players of different levels of sports success. The study, by using purposive sampling, consisted of interviewing 30 male tennis players, divided into three groups according to their level of sports success: (1) Grand Slam winners (N = 10), (2) professional tennis players ranked between position 150 and 300 on the professional men's tennis ranking list (N = 10), and (3) senior players with national rank between 1st and 10th position on the national ranking list or on the ATP ranking list between position 500 and 1500 (N = 10). For the analysis of the interviews, the reflexive thematic analysis according to Braun and Clarke (2019) was applied, conducted by using an inductive approach. The analytical procedure comprised of six phases. The first phase composed of transcribing the interviews, which was a good way to become familiar with the obtained data. The mentioned phase also included several readings of the interview transcripts and the identification of data segments containing significant information. The second phase consisted of generating initial codes from the obtained data. Several potential topics that were considered as interesting and relevant for further research were coded. The third phase involved sorting the different codes into potential topics and comparing all relevant coded data extracts within the identified topics. The fourth phase consisted of two levels of reviewing and refining the topics, as follows: review at the level of the coded data, and coding additional data within the topics that were disregarded in previous coding phases. The fifth phase was defining and naming the topics, during which the selected topics were further refined. The final sixth phase consisted of producing the reports after the overall development of the topics was completed.

In accordance with the general objective of the research, data analysis enabled the identification and interpretation of key factors and patterns of experience that shaped the sports success and career development of the tennis players. In this context, three interconnected studies were conducted. The first study (Study 1) aimed at investigating negative life events/circumstances, such as injuries, financial constraints, and non-selection for the national team, as well as how the mentioned events, from the perspective of the tennis players' personal experience,

influenced the development of their tennis careers. The second study (Study 2) examines the developmental paths of tennis players, with particular emphasis on early, optimal and late specialization, as well as their influence on the sports career and achieved level of success. The third study (Study 3) focuses on investigating the perspectives of tennis players regarding different levels of success and the role of social capital, particularly in relation to their family, in long-term sports development and the achievement of sports success.

In the context of understanding the development of sports careers and sports success, previous research indicate injuries as one of the key factors shaping tennis players' careers. For participants at the third level of success, injuries represented the most common and subjectively most unpleasant challenge, whereas, similarly, the results suggest that participants at the second level of success were also highly prone to injuries associated with overtraining, which points to specific risk patterns in the development of talented athletes. In a research conducted by Pluim et al. (2016), it was also confirmed that overexertion injuries were the most common health problem (47%), followed by illnesses (36%) and acute injuries (13%). In accordance with the aim of this dissertation, the mentioned findings indicate that tennis players at the second and third levels of success experienced insufficient professional and institutional support in injury prevention and coping with their consequences during certain phases of their careers. Furthermore, Pluim et al. (2016) consider the relatively high incidence of injuries in this group of young players as a cause for concern. In contrast, the experiences of Grand Slam winners point to different patterns of sports career management, as they included interdisciplinary expert teams during crucial, i.e., pivotal periods, with the aim of injury prevention and long-term preservation of their abilities. According to Bahr (2009), overtraining often leads to injuries, and playing through pain or despite functional limitations is a common occurrence among elite level athletes. In their attempt to achieve the best possible sports success, athletes, according to Van der Sluis et al. (2017), are likely to maintain risky health-related behavioural patterns, such as prolonged ignoring of pain, which can result in detrimental health consequences.

Such experiences confirm that, despite the frequency and severity of injuries, it is possible to achieve the highest level of sports success, whereby injuries caused by overtraining and playing through pain remain a permanent characteristics of elite level sport, however, with different consequences depending on available resources and coping strategies.

The financial and logistical demands of competitive tennis represent one of the key structural factors which shape the development of a tennis player's sports career, especially during

developmental and transitional phases of the career. High costs of coaching support, travel and competitions require the involvement of a broader team of experts, which for many athletes and their families constitutes a significant financial burden. Balliauw et al. (2017) state that junior tennis players do not have the same experience as 30-year-old players and that they need a customized cycle in junior development, both from the athletic and financial perspective. In addition, they also believe that covering costs and offering opportunities for gaining experience is more important than monetary rewards. Furthermore, the findings of this dissertation indicate that logistical and financial challenges are particularly highlighted among participants at the second and third levels of success. Participants at the third level of success pointed out the lack of financial resources as one of the most common reasons for quitting an active sports career, noting that parents could cover the required costs only up to a certain stage of development, after which the lack of resources directly limited further progress. Similarly, participants at the second level of success reported significant psychological and existential burdens associated with financial uncertainty. According to the present financial model, professional tennis organizations are unable to provide an acceptable income for each tennis player who considers tennis as a professional occupation (Balliauw et al., 2017). In a research carried out by Örnek and Biçer (2021), conducted among promising tennis players who stopped playing tennis, it was determined that athletes, when evaluating the challenges they faced during their tennis career, most frequently reported having financial difficulties. Also, in a study conducted by Yavuz, Arıcan and Türkmen (2024), financial resources were highlighted as one of the reasons for terminating the tennis career. Such findings demonstrate the important role of socioeconomic status in achieving sports success, whereas long-term maintaining in. In a research by Hernandez et al. (2023), participants cited costs as a holdback to their children's participation in club sports and competitions involving travel. Given the high and continuous costs associated with tennis, including coaching fees, court usage and tournament participation, Johnson (2024) concludes that financial accessibility, rather than talent level, represents the largest and most significant barrier to engaging in this sport. In contrast to the experiences of tennis players at lower levels of success, participants who achieved Grand Slam victories perceived financial difficulties in the early stages of their careers as a strong motivational incentive, while upon entering the highest level of professional tennis they secured financial stability and the opportunity for further investment in an interdisciplinary expert team.

The mentioned findings further indicate that financial resources, in complex interdependence with the athlete's personal characteristics and the conditions of the sports and social

environment, play a crucial role in directing sports careers, as well as in achieving and maintaining top-level sports success.

When it comes to the development of sports careers and achieving top-level success, one of the key questions for national tennis systems is how to most effectively direct the available resources. In this context, talent identification has become a crucial element of national development strategies directed towards fostering and ensuring the long-term sustainability of elite level sports. Therefore, the mentioned findings have thrown further light on the role of institutional support in shaping careers and their tennis paths. Participants at the third level of success stated that they were included in all national selections during their junior career, however, upon transitioning to the senior category, invitations to the national team ceased, which they experienced as an extremely negative event with long-term consequences for their further career development. Despite successful junior level results, failure to be selected for the national team represented an important turning point that, in combination with other limiting factors, contributed to the slowdown or termination of their sports career. Sotiriadou, Shilbury and Quick (2008) emphasize that the role of stakeholders financing sports alters through different phases of the developmental process, which is also confirmed by previous research indicating that sport development strategies initiated and implemented by stakeholders differ significantly depending on each phase of development. According to Brouwers, Sotiriadou and De Bosscher (2015), the market orientation of tennis motivated the involvement of various private sports organizations, such as private academies and organizations, in the development and support of elite level players. Furthermore, Brouwers, Sotiriadou and De Bosscher point out that the increasingly prominent role of local clubs in most processes of developing top players refers to the need to re-evaluate the level of support received by the clubs, as well as their ability to ensure optimal developmental pathways. Although tennis players at the second and third levels of success were involved in national selections during certain phases of their careers, the experiences of Grand Slam tournament winners differed in terms of continuity and stability of institutional support. Grand Slam champions were significantly more frequently and over longer periods included in national representative programs, which indicates stronger and more systematic support from national tennis federations.

In accordance with the objective of this dissertation, the mentioned findings indicate that long-term institutional support, combined with the personal resources of athletes and other environmental factors, plays a crucial role in achieving the highest level of sports success.

Reports from tennis players at different levels of success provided valuable insight into the early stages of their sports careers, particularly regarding the beginning of tennis participation, the start of specialization, and the long-term consequences of early sports experiences on the achieved sports success. In accordance with the objective of this dissertation, the mentioned findings indicate that the developmental paths of tennis players are not linear but are shaped by a complex interaction of individual and social factors, as well as environmental factors.

However, Grand Slam winners described an early beginning of playing tennis, however without a high intensity and volume of trainings, as well as without exclusive focus on tennis. Their early sports experiences were marked by a limited number of weekly trainings and parallel participation in other sports. Such experiences are consistent with developmental models which emphasize that the goal in childhood should be to develop a love for sports, acquire basic motor and coordination skills, and build self-confidence, rather than an early focus on results and specialization. Although an early start is often associated with the development of technical skills, empirical findings consistently show that a greater volume of specific trainings and competitions at a young age are not necessarily correlated to later elite level success. Therefore, Brouwers, Sotiriadou and De Bosscher (2015) suggest in their research that tennis clubs need coaches who are professional, motivated and possess the appropriate knowledge and skills for working with children. It is the responsibility of national tennis federations to ensure that clubs have coaches with a wide range of knowledge and expertise, from working with children to the processes of talent identification and selection (Pankhurst, 2013). While coaches play a crucial role in creating a stimulating, safe and educational sports environment, parents represent the dominant factor in initial involvement of children in tennis.

Research results also indicate the importance of the sports environment in the development of tennis players. Growing up and training in smaller and medium-sized cities proved as more effective in the early stages of development, primarily due to the greater availability of coaches, individualized approaches and stronger social relationships. However, in achieving higher levels of sports success, participants highlighted the need of moving to larger sports centres during adolescence, where higher quality competitive and developmental conditions are available. The interview conducted by Delforge and Le Scanff (2006) with players who did not achieve their tennis ambitions showed that parents often did not know how to handle the transition of their children from a family environment into tennis academies. Although private tennis academies offer structured developmental programs, the experiences of participants

indicate dissatisfaction with such systems, while emphasizing local tennis clubs as key bearers of long-term sports development.

The consensus statement on youth athlete development encourages children to participate in a variety of age-appropriate sports activities, whether structured or unstructured (Bergeron et al. 2015). Furthermore, Jayanthi, Kliethermes and Côté (2020) state that biographical studies of elite level athletes indicate that their childhood sports experiences included specific sports trainings, games and participation in various sports. In this context, the diversity of childhood sports experiences proved to be an important prerequisite for long-term sports development. Participating in multiple sports is associated with better motor coordination, a reduced risk of injuries and the development of a broader range of psychosocial and cognitive skills, which are key for long-term success in sports. Therefore, a particularly important finding of this dissertation relates to the role of fun and intrinsic motivation in the development of a sports career. Fun showed to be a strong predictor of commitment to trainings and long-term participation in sports, with Grand Slam champions emphasizing enjoyment in the game as one of the essential factors in their own success. Such findings confirm that commitment to sports changes throughout an athlete's life cycle, however, that long-term motivation results from positive sports experiences, and not exclusively from external pressures or result expectations. Contrary to that, early specialization limits the development of abilities and is associated with an increased risk of injuries, psychological stress and early quitting from sports, which was also confirmed in the experiences of participants. Likewise, Jayanthi et al. (2011) claim that the American Academy of Pediatrics published a statement on the position regarding sports specialization, recommending that early intensive trainings in a single sport should be postponed until adolescence. In accordance with previous research and the findings of this dissertation, there is no evidence that specialization before adolescence is a necessary prerequisite for achieving an elite level in tennis. Research by Helsen et al. (2000) and Unierzyski (2003) suggests that the timing of specialization, tournament experience and player maturity level significantly affect results in younger age categories, however, have minimal impact on success in senior competitions. Brouwers, De Bosscher and Sotiriadou (2012) state that there is no clearly defined age at which a player should start competing in order to be successful at a professional level, and that it is difficult to identify an age at which performance could be used as a reliable indicator for talent selection for later success. Furthermore, MacCurdy (2006) argues that the age of 12 is too early for identifying talent in tennis, while Unierzyski (2003) claims that the reliability of tournament results as a predictor is greater at the

age of 14 than at the age of 12. The experiences of participants, particularly Grand Slam winners, show that early exposure to tennis, combined with a delayed specialization, can represent a successful and sustainable long-term path for athlete development. The mentioned combined approach allows athletes to gain the necessary training experience, while simultaneously participating in different sports that stimulate their physical, psychological and social development. Bridge and Toms (2013) also determined that athletes who participated in two to four sports between the ages of 11 and 15 are more likely to reach an elite level in sport compared to those who engaged in only one sport. Furthermore, a research by Li et al. (2020) demonstrates that late investment and specialization in tennis represent an alternative developmental path which can also lead to elite level sports success.

The development of sports success in tennis is not a result of early specialization, but rather a long-term, strategically managed process which includes early engagement, a variety of sports experiences, a quality sports environment and continuous institutional support. Such an approach provides the basis for redefining developmental models in tennis and is of great significance for coaches, parents and national sports systems.

The role of the family in the development of a tennis player's sports career represents one of the essential forms of social support that can significantly shape an athlete's sports path, success and long-term well-being. In accordance with the objective of this dissertation, the findings indicate the complexity of the relationship between parents and players, as well as the fact that parental support can act as a strong protective factor, however also as a source of pressure with potentially negative consequences for sports development and performance.

The research results suggest that parental involvement in tennis ranges from extremely supportive to extremely controlling. The experiences of participants at different levels of success show that in the early stages of a career, parents most often ensure the initial involvement in sports, as well as financial and logistical support and emotional stability, whereas in later stages their roles differ depending on the level of success and the context of sports development. In a research by Yavuz et al. (2024), it is stated that most athletes started playing tennis with strong parental support, while expecting tennis to enable them gaining social recognition and educational opportunities. Furthermore, the autobiographical records of Grand Slam winners further illustrate the diversity of parenting styles and their long-term impact on sports careers. The experiences of Andre Agassi and Rafael Nadal indicate intense and authoritarian patterns of parental or family involvement, characterized by high expectations and

pressure, while the records of Pete Sampras and Jimmy Connors describe a more relaxed and supportive parental approach. Such examples emphasize that there is no single model of parental involvement that guarantees success, but that the way an athlete interprets and experiences parental support plays a crucial role in its effect. All interviewed Grand Slam winners described parental support as stable, non-intrusive and emotionally focused, particularly in the early stages of their careers. In a study by Haugen et al. (2024), a Grand Slam winner stated strong parental support as one of the key factors for success. The mentioned form of support enabled them to develop autonomy, intrinsic motivation and long-term commitment to sports, which proved to be key in achieving top level sports success. The father has been identified as the single most important person behind the success of a tennis player (Haugen et al. 2024). Furthermore, Haugen et al. claim that the father, as a former player with international experience, understood the demands of the sport, ways of managing emotions during the game and knew how to gather a team required for achieving top level results. Parental involvement does not have to be excessive or negative, on the contrary, parents can play a positive and supportive role, while contributing to the child's development into a successful professional tennis player (Lauer et al., 2010). On the other hand, participants at the third level of success reported on excessive parental involvement, particularly on behalf of the fathers, which was often manifested through control, high expectations and conflicts. Excessive involvement did not imply only pressure to win and move up the ladder, but also cases where parents did everything for their children, while not allowing them to learn to do things on their own and "fight their own battles" (Gould et al., 2016). Such patterns of parental behaviour were perceived as a source of strong psychological pressure, and often led to damaged family relationships, reduced motivation and a negative impact on sports performance. Players and coaches negatively assessed parents when they became excessively involved in competitive environments, which has also been previously identified as a source of stress in youth sports (Leff & Hoyle, 1995; Barber, Sukhi & White, 1999). The situation where fathers simultaneously took on the role of parents and coaches proved to be particularly problematic, making it even more difficult to distinguish between emotional support and demands related to achieving sports results. For example, assuming a supportive role is in keeping with the findings of Omli and Wiese-Bjornstal (2001), who showed that children in younger age groups prefer supportive parental behaviour, while they negatively perceive situations in which parents behave as demanding coaches. Therefore, Gould et al. (2016) emphasize the need for parents of athletes to better understand child development. Sports scientists recommend achieving an optimal level of parental involvement in order to limit the pressure experienced by children (Hellstedt, 1987).

Participants at the second level of success described parental support as extremely strong and comprehensive, however, at the same time they were at sensitive transitions in their careers, where they lacked professional guidance. Their experiences indicate the need for a gradual transfer of responsibility from the family to a wider professional team, especially in making key decisions in the career, such as choosing a coach or competitive strategy. A research conducted by Rosenfeld, Richman and Hardy (1989) showed that emotional support is primarily provided by parents and friends, while technical information is the responsibility of coaches and teammates. The support which required technical expertise thus most often came from persons with appropriate technical knowledge.

The role of mothers and fathers in sports development significantly differed. Mothers most often provided emotional stability and support, whereas fathers more often had an organizational and leadership role, often including coaching responsibilities. In addition, mothers were responsible for laundry and cooking during the player's childhood and youth, ensuring a proper nutrient intake and good hygiene (Haugen et al., 2024). Although such involvement can have positive effects, the research results suggest that there is no universal justification for the assumption that the father should automatically assume the coaching role, given that individual relationships and emotional closeness play an essential role in sports development. According to the social capital theory, the relationship between parents and athletes can simultaneously provide support and resources to the family, however also create stress and strain, depending on the way support is provided. Although parents, especially fathers, often have significant sports experience and seek to provide the best possible conditions for the child's development, excessive control can damage the emotional balance and autonomy of young athletes in the long term. Strong family support represents a foundation in the developmental years of sports talents (Rees et al., 2016) and it is thus reasonable to assume that both parents had a positive effect on the performance of tennis players (Haugen et al., 2024).

Family support represents one of the most important factors in the development of sports careers of tennis players, however, its effect depends on the way, intensity and context of involvement. The experiences of Grand Slam tournament winners indicate that a balanced and emotionally stable family support is a strong foundation for long-term sports success. The mentioned findings have great significance for parents, coaches and sports systems, particularly in the context of transitional phases in the career and sustainable development of elite level athletes.

In order to enable a deeper understanding of the complexity of sports career development and to further improve the process of shaping individual sports paths, two more topic units (support from school and friends and the influence of coaches), which were not covered by previous research, are covered in the continuation of the dissertation. These topics complement the existing theoretical and empirical framework, as well as provide a deeper insight into the complexity of the development of top-level athletes. In order to facilitate the tracking of citations, participants are marked according to their category of success. Grand Slam winners were designated as Level 1, participants ranked between position 150 and 300 were Level 2, while participants ranked between position 500 and 1500 were Level 3. The second number of each rating represents the order in which the participant was interviewed within their category.

Combination of support from school and friends creates a well-rounded environment encouraging growth and success of tennis players

The pursuit of achieving the highest possible level of success in tennis disrupted the balance between the importance of education and tennis. Participants at the third level of success were dedicated exclusively to tennis and believe that they did not pay enough attention to their education. They stated that they had fun and often missed out on school during that period. Here below are quotes from several participants:

> *"I think I neglected school a little, actually now that I think about it, I neglected school a little too much." L3/1*
>
> *"It was as if I didn't even go to school, let's be realistic!" L3/2*
>
> *"At a certain point, I had more than 200 excused absences in my class, I missed classes when I went to elementary school, oh my God!." L3/3*

Many participants at the third level of success stated that they went to tennis trainings more frequently, while they would say there would be time for school later. Most of them went to some type of correspondence school. Although they did not attend classic type schools or missed many classes, several of them pointed out that they nonetheless liked going to school.

> *"I liked going to school, I was good at my education, I had OK classes, as well as some that I didn't like, but I generally liked going to school." L3/1*

"It was good for me, i.e., in the end it turned out that it was great." L3/6

It was interesting to notice how it was always the mothers who were paying more attention to education, whereas the fathers were more relaxed and directed more attention to tennis. Therefore, in the end, the participants themselves stated that at that point someone should have suggested paying some more attention to school or at least equally towards tennis and school.

"I wish that at that point I had a firmer parental guidance. Maybe had someone pressured me when I stopped playing tennis, I might've continued with school." L3/1

All participants at the third level of success who regularly attended classes stated that they had support at their school and that their teachers were understanding towards them. They said they were not allowed the privilege to be examined when they wanted, however, in agreement with their teachers, upon returning from tennis tournaments, they would be examined on school lessons within the next few days.

"When I came to high school, everything was regular for me, normal – training, high school, tournaments. The last two years they allowed me to be examined when I would arrange it with the teacher, because of my tennis. They were somewhat understanding that way, although that wasn't much. It wasn't some private school so that they would allow 'special treatment' for me. Generally, this was where they allowed me some additional 'space' in that way." L3/4

Support from friends in the athletic development of tennis players once again proved to be one of the main factors in the mentioned process. Participants at the third level of success shared different experiences on how their friends contributed to their sports maturation, thus here below are several quotes describing the mentioned support:

"They were really supportive of me, they even drove me, motivated me, pushed me forward because they knew how many sacrifices I had to make, both during elementary school and my childhood. They could even be tough on me and say: C'mon, get away from us, you have your own path and go home, you have trainings, tomorrow is your tournament, etc." L3/1

"My friends from elementary school were a great support, just as if I had been there with them all the time. That really filled me with energy, because despite all my hard work, effort, much travelling, and all kinds of things, then when I got home, I felt 'recharged' and that 'energy refill' is always needed for everyone." L3/3

"About that, they were really great. As much as I was or wasn't at home, we were a great team and I've kept in touch with them even until today." L3/6

"Oh well, they were my support always and forever, when I was home, we would hang out all the time, so there was never a time that I got back home, and they wouldn't have time for me. They were really the best and they're still up to this day my best friends." L3/7

Several participants at the third level of success stated that they spent most of their free time with friends who play another sport or friends from their neighbourhood streets. One of the participants at the third level of success pointed out that he only chose tournaments to go based on the best possible company so that he could feel as comfortable as possible. He also added that he liked many other things, such as for example: playing football, playing basketball, going to games with other fans, or some other activities. He felt that all the aforementioned was quite a distraction for him. Thus, below the mentioned participant at the third level of success described how it usually all comes down to friends at tennis as they share mutual interests (tennis).

"Like it or not, you create a group of friends where you train, or when you go to the same tournaments because you're all, kind of, on the same page. You have things to talk about, the same problems. Had I maybe gone another way, at that point, I'm not really sure, ha ha ha ha ha… You know, I would tear myself apart because they'll invite you to a birthday party and then they all stay out until 3 in the morning, and the next day I have trainings, no, no, you just can't. I had to decide. That was also another one of my decisions – to simply draw the line and say that this crowd was no longer a good fit for me." L3/2

Participants at the second level of success had similar support at school as did the participants at the third level of success. They spent their school days in a completely unusual way, i.e., quite differently than the other students. They stated they often missed classes and went to tennis tournaments and trainings, while the others only missed out on school when they were ill.

"I was always coming and going, while the others thought that was, you know, weird." L2/1

Although participants at the second level of success often missed school, they stated that the other students in their class liked them and helped them during exams. Here is a quote from one of the participants:

> *"As for everything – we really all loved each other. Everyone in my class helped me out so many times by copying off them during exams! So, what was I to do, this one helps me copy at the bottom of the page, the other one at the top, and so they really supported me a lot." L2/1*

There were conflicting statements regarding the support from teachers and professors. Participants at the second level of success said that they had support from their school considering the sport they were playing, however, there were still some who did not provide support and deliberately made their school days more difficult, thus the participants stated as follows:

> *"I had problems, especially with one particular teacher, that man did not like me, he didn't like me at all. He especially didn't tolerate me going out, so he would be like how I could go out, when I haven't studied." L2/1*

> *"When I come back after two weeks and they make me take the test on the first day, and only me. They would say: You're taking the test." L2/4*

Several participants at the second level of success felt that it was important to go to school and that from the present perspective they would make a different decision, i.e., they would attend school regularly and go to college.

> *"Now, when I look at it from this perspective, I think it could've all been managed and there was no need to put everything on the line, that I could've gone to high school and organize having enough time for practice and everything. I think that was yet another type of isolation and I feel that I missed out on a lot during my childhood in terms of my social time, hanging out with friends, school activities, etc." L2/5*

One of the participants at the second level of success emphasized that, regardless of how much a child wants to play a sport, school should be a priority, and the schedule between going to school and trainings should be managed until the teenage period, and even during studying at a college. From his current perspective, he considers his parents made a hasty decision to transfer him at a very early stage to only taking exams, i.e., to correspondence school.

"Learning and taking exams at school was managed individually. I simply think that my parents were too young and that their decision was irrational." L2/5

Participants at the second level of success also described having support from friends during their sports development. This included friends from elementary school, high school, and tennis. Although they often travelled, played tournaments and started into professional tennis, they stated their friends were always supportive. They emphasized that the mentioned support from friends played a key role in their personal growth and character development.

Grand Slam winners also experienced various situations regarding support at school during their tennis development. One Grand Slam winner thus described not wanting to go to school and even hating it. He said he had very little or no education at all, however he felt that he had been very lucky to be able to earn his living from tennis. In addition, he pointed out that in his time education for tennis players was very weak and that nothing was organized. He felt that the situation is currently much better organized and provided examples of tennis academies in Australia that must be connected with a good school so that tennis players can attend it in an organized way.

"I mean, in my days it was a disaster, I think it was nothing short of a tragedy, things weren't organized well at all. I think now there are some academies which also have schools. I think that's very, very important because very few tennis players can make a living in tennis, very, very few of them. So, I feel it's organized much better than it was in my time," L1/5

Several Grand Slam winners stated they regularly attended elementary school, in the morning or in the afternoon, depending on their class schedule. In high school they already started with training both in the morning and in the afternoon, so they had to go to correspondence school or have private classes organized for them.

"In high school I already started training both in the morning and the afternoon. By the time I would be finished with trainings at 5 p.m., then I would go straight from the tennis club to the house I mentioned and there we would have classes. The classes were held by private teachers from 6 until 9 p.m." L1/1

Further below one of the Grand Slam winners pointed out that he had excellent support at school, however, that his parents were very strict with regard to school. He stated his parents would always tell him: "You can never know how successful you'll be in tennis, so school is

very important". He felt that he had good grades at school as a result of his parents being so demanding. Here is his quote that emphasizes he is satisfied with his education:

> *"But if I look back on this now, I had a different type of education. You know, there's a difference between being capable of getting by on the street and possessing a high-level intellectual capacity, so to speak. Considering the way I lived my life, I was much better at getting by than I was intellectually smart or academically clever, academic intelligence. So, the way my life was going, I had, I was given amazing circumstances as a received the best possible education. You play tennis, travel to different countries, meet many diverse people at all levels, everyone, from presidents of a country to anyone else. That's why I must say that I couldn't have asked for nothing more than the type of education that I received, that I got." L1/2*

All Grand Slam winners emphasized that their friends were incredibly important in their sports development. In addition, they also stated it was extremely difficult not having time to spend with their friends at all during the periods when they were at tennis camps. Furthermore, they said their friends created a positive environment in which they could achieve progress and that they thus contributed to their success.

> *"Between 8 and 14, tennis was important to me, but the most important thing to me was having fun with many friends. I really enjoyed that. They were important to me, and I missed them when I was at tennis camps. Whenever I was at home during the weekends, I would spend all of my time with them. I am still often in contact with them." L1/1*

Importance and influence of coaches on development and success of tennis players

In tennis, the coach plays a significant role in the development and success of players. A good and experienced coach can make a considerable difference to a player's success and assist in reaching the full potential. Participants at the third level of success, i.e., several of them, mentioned a lack in quality and insufficient education of coaches who trained them. They attributed the mentioned lack of quality and insufficient education of their coaches to the period they grew up in and believed that their development in this period limited them in achieving a greater level of success in tennis.

"I started into this professional world and my coach stayed with me, and in time I realized he had nothing more to give with regard to tennis. On the other hand, there was also this sense of fanatism about my coach, and I really felt he wanted to make sacrifices for me too. Nevertheless, later on, now that I look at it, he should've said to me when I was 14: We did a good job and now go on and find someone to upgrade all that." L3/2

"Not to belittle or insult anyone who ever worked with me, but those coaches weren't professional tennis coaches. They were involved in tennis training, in addition to their jobs, since they were former players, so, of course, they knew tennis, played tennis, were experienced players, etc. They drilled us quite well and taught as much as they could, but giving quality insight in terms of technique or tactics, as well as physical conditioning, mental training, etc. there was less of all that as they weren't professional coaches." L3/3

Among many of the participants at the third level of success, the period between the age of 14 and 18 showed to be critical for them. Most often, that was when they changed coaches. As tennis players progress, they are faced with new challenges that require different strategies and approaches. Changing the coach can provide an opportunity to work with a great expert in a certain aspect of the game. However, despite the coach's professional expertise, sometimes the personalities of the player and the coach might not match, or their communication can be ineffective. Here is a quote from one of the participants at the third level of success for who the change of coaches did not show to be such a good decision:

"All in all, I was not comfortable with the way other coaches worked, I simply couldn't find myself in it. And then simply a man can't move on, it doesn't work, because when you step on the court, it's not just the forehand and the backhand, it's a matter of self-confidence. You either believe you can do it, or you don't trust anything you're doing, etc. If you don't believe in what you're doing, you'll never beat a guy who's, I won't say twice, but much weaker than you. But if for example you do believe, then you have a shot at winning against someone who's better than you, but if you don't have faith, you can't. That's the part that makes the biggest difference, because everyone knows how to play a forehand and backhand shot." L3/6

Here below, another participant at the third level of success described how he had a quite steady beginning but then, after the age of 14, he started changing between many coaches. A lack of results was followed by changing the coach, thus from today's perspective he believes that

coaches should not be replaced so often and that this was a mistake for him. This is a quote in which he explains how he felt after each coach change which took place every few months or years.

> *"At the point when you change between many coaches, there comes a lot of problems, as each of them has his own philosophy. Each one of them has his own thing on what he thinks should be done and how, and then confusion happens in your head. When I am at home alone, I start analysing everything that different coaches said to me and then the real mess takes place: How and what am I supposed to do now, I shouldn't play like that one told me, or should I do as the other one said?" I think that's already kind of a problem." L3/7*

One of the fundamental problems among participants at the second level of success was finding a coach with experience as a professional player. The participants believe that coaches, without such type of personal experience, had difficulties with providing relevant insight and effective guidelines. Many of the participants at the second level of success did not have a developmental plan on how they should progress as young tennis players, i.e., they were not provided with such a plan by their coaches. Furthermore, they also added that working with them should have been more targeted and expert, and that there was a lack of tennis knowledge. Here are the quotes of the participants as follows:

> *"It was really hard. The problem with the coaches here was, all the coaches that I had, none of them were professional tennis players, meaning that they had no type of experience in how and what makes up the life of a professional tennis player." L2/3*

> *"I think that many coaches in the earlier phase of my generation actually learned from us. I think I didn't acquire certain technical elements as I should've, because later on I was limited and forced to correct them at an older age, which left its mark on me." L2/5*

> *"However, I came to him as a tactically and technically untrained player. I didn't have the proper work from the beginning when I was little. My former coaches (local trainers) gave it their best and they were good coaches, but considering my present knowledge and how I see things, there was a lot of faulty work." L2/6*

> *"Let's say that I had in my hometown someone who had the right knowledge, a coach who I would've started working with at the age of 10, instead of at 14, I'm sure things would be much better, because I would've learned much more during that period, and I*

wouldn't have ended up so distorted and so on. I might have developed in that upper part which I hadn't worked on at all until I was 14." L2/9

Another participant at the second level of success also believed that changes of coaches are inevitable and claimed that the mentioned coach changes resulted in improvement in his case. He stated that during the training process he then felt he was receiving more quality input and that he was making progress. In addition to all of the aforementioned, poor results also resulted in changing the coach.

"When it became clear I was going to compete at the international level, then during that period we searched for coaches with somewhat more experience, who could offer some kind of guaranty of faster progress, and there was a tendency for me to train with coaches who previously travelled and trained some players who made it to the international level, so that had an effect on it." L2/5

Data analysis revealed that participants at the second level of success did not often change coaches. Maintaining a relationship with one coach benefited the players in terms of training continuity, personalized leadership and emotional support required for achieving one's fullest potential on the court. However, it was also showed that making certain decisions presented key moments for long-term success, particularly when it came to hiring a good tennis coach. Making decisions requires analysing various factors, such as personal goals, budget, available resources and expertise needed to achieve the desired results.

"Me, if I could go back in time, had I known this was coming, it doesn't matter, if I had 100 million or not, I probably should've invested a little more in my tennis. I should've had a better team, I should've trusted my team more, and I should've chosen smarter people for my team." L2/7

Grand Slam winners assigned a significant part of their success to quality coaches who improved their performance and guided them during the early stages of their careers. The role of the coach also reached far beyond the tennis court lines, as they shaped their lives and careers. The impact of a good coach cannot be ignored since his contribution to a player's development set the foundations for future remarkable achievements of Grand Slam winners. Here below are some of the quotes of Grand Slam winners as follows:

"And, of course, there are many things to consider. You must have good coaches and the entire structure surrounding you must be firm. In the end – I had good coaches, and good people around me." L1/1

"He was the best coach I could ever have, in terms of mentality on the court, but also outside the court. I believe I had the best coach when it comes to tennis and the way he helped me on the court and outside of it to become a better person." L1/3

"I mean, for me my coach was really a top-notch guy in terms of tennis knowledge. And in terms of his experience, knowledge, psychology, work methods, mindset, strategies, I really speeded up in many things. The knowledge and experience I got was in a way that I achieved it all five times faster than I would've done with some coach who didn't have as much experience or if I had gone alone. So, in three months I gained so much knowledge like I would've got with others in five years. So, in that sense, in those formative years, this really shaped me." L1/7

"You know, I was quite lucky, I had an amazing coach at the right time. We accidentally moved to a place where the best coach also lived and – bam, I was a very successful athlete." L1/10

Several Grand Slam winners occasionally searched for new perspectives or training styles, while most Grand Slam tournament winners recognized the value of stability and continuity in their relationships with their coaches. A unique set of tennis demands, the need for consistency and closeness, trust, as well as long-term planning and goal setting, contributed to achieving the greatest possible results, i.e., winning the biggest tournaments.

"Since I was 16 or 17 until the end of my career, he was my only coach." L1/3

"I had the same coach almost the entire time. Also, there weren't many changes there. So, me and my coach had a unique vision the whole time. You know, regardless if it's right or wrong, when I look back, there are some things I would definitely change about my game in terms of technique. But we always kept to the same plan and worked on certain things in order to improve them." L1/5

Changing the coach can be a significant decision for tennis players who want to improve their game on different surfaces. A new coach can present fresh ideas, strategies and game plans which are in line with the challenges of playing on different surfaces. In addition, this can assist in the development of mental resilience in combination with technical adjustments which can

be of great use to players aiming at improving their game on different surfaces. Changing the coach for one Grand Slam winner showed to be a good decision, so here below follows his quote:

> *"I needed to change my coach, we were in conflict regarding several things, we discussed my game style, I played using a lot of top-spin and I only served kick serves, and I wanted to improve my game on hard surfaces. He didn't really agree with that, so I decided to make a change. I went through with this one change because I wanted to play more aggressively, and to up my game on hard surfaces. I stayed with this other coach for six years. He understood what I wanted, and we started playing more tournaments on hard surfaces, and it went really well. I improved my game, my serve, and I played a little differently." L1/1*

Winning a Grand Slam tournament is a splendid achievement, however, maintaining such success requires continued hard work. Nevertheless, sometimes the euphoria of a win can be followed by a plunge in results, leaving tennis players and their teams perplexed and searching for answers. In such situations, reflecting on factors which contributed to the initial success and identifying the areas that demand improvements are key steps. The most relevant details were pointed out by a Grand Slam winner who found himself in such a situation.

> *"And now what, how to move forward again and how to achieve as much as possible, another step forward, while at this sort of personal peak? And then also, just like, I took some time for myself, to think about how, and what are, let's say, the major factors for success. And then: Can I be better at training preparations, can I do better in terms of rest, can I improve with my nutrition, technique, tactics, training focus, intensity, motivation and so on some seven, eight, nine entires, let's say… And now, looking at all that, it's all very simple. Can I maybe be more focused during trainings by only one percent? That's maybe one stroke. Let's try that! C'mon, I'll try! Let's try if I can set myself to sleep nine hours and wake up at a similar time each day. Let's try it! Let's try analysing a little the technical part of my game and see if I can improve by one percent there! And so, this entire process, when you put it all together, then it's not one percent anymore, it's eight, nine or ten percent at that level. And then, of course, you need to have an entire team and concrete analysis, but also great discipline, to make it all happen." L1/7*

Social capital is a social environment factor which provides access to possibilities and resources that can assist tennis players in reaching their full potential. An athlete's environment in which he operates is often complex and consists, among other things, of coaches, parents, teachers, school, clubs and friends (Gerdin et al., 2020). As a result of the aforementioned, all three success levels of participants created a situation in which the participants, driven by a desire for success, unintentionally neglected the importance of education. In the attempt to achieve balance between tennis trainings/competitions and education, most participants attended correspondence schools. The combination of intensive tennis trainings/competitions and education undoubtedly presented an enormous challenge for all participants. Results show that, although they did not adhere to a traditional school structure, the participants expressed their gratitude to schools for their period of education. However, in a research conducted by Gjaka et al. (2021), the parents pointed out the need for information on procedures, services and options provided by athlete-friendly high schools and universities, as this would be important in the process of guiding and making educational decisions about the future possibilities of athletes. Generally, the transition from high school into higher education, i.e., studying, could parallel the transition from junior to senior sports, while both of the mentioned transitions present various challenges due to increased demands (Gjaka et al., 2021).

While family, school and coaches unambiguously play a significant role in the support for tennis players, the influence of friends should not be underestimated. On the path towards success as a tennis player, all participants at all three levels of success highlighted the importance of support from their friends. Likewise, the mentioned results demonstrated that friendships created within the tennis community often lead players towards friendly competitions/trainings, which significantly contributed to player development. Such friendships are perceived as positive as they encourage and assist tennis players increase their game level and achieve greater success. As an athlete progresses in sports, friends outside of the sport are considered to be an important source of support, considering the fact that they tend to meet motivational and emotional needs of athletes (Côté et al., 2007; Fraser-Thomas et al., 2008 a,b; Barreiros et al., 2013; Bruner et al., 2013). Coutinho et al. (2021) implemented a study among male volleyball players and their results showed that top-level players emphasized the importance of friends outside of the sport because they understood their demanding sports life and plans. In keeping with the results of previous research, (Côté et al., 2007; Keegan et al., 2010; Barreiros et al., 2013; Bruner et al., 2013; Coutinho et al., 2021), these results also highlight the important role of friends (both inside and outside of the sport) during the development of athletes. Therefore,

the findings suggest that friends can contribute to having higher levels of commitment to sports as they can be the source of pleasure, encouragement and support (Patrick et al., 1999; Gould et al., 2002).

Several studies on developmental environments of athletes additionally highlight the role of coaches as they, together with schools, parents, other sports trainers and mentors, create the support structure which presents a key importance for the development of athletes (Gerdin et al., 2020). In a research by Coutinho et al. (2021), which was implemented among male volleyball players, the coach's recognition of a player's value also created a positive effect that was noticed by all the players. In order to achieve success and develop to their fullest potential, participants at all levels of success demand leadership and support from experienced coaches. At the beginning of playing tennis (tennis play programs, tennis schools, etc.), most players can be trained by "local" coaches who can offer them a lot of time and encouragement (Brown, 2001). However, Brown (2001) further on points out that, after a certain amount of time, it might be necessary to replace the coach with one who can help the players to perfect and improve their technique and skills. Finding a coach with professional playing experience is often considered as key for achieving success, which the results also suggest. Namely, the obtained results showed that participants at the third level of success did not have coaches with the sufficient level of quality required to meet their desires and development potential. Brown (2001) emphasizes that the development of top-level players requires different types of coaches during various periods of player development and their careers, while a research by Oršolić et al. (2021) states that coaches need to pay particular attention to the period of a player's career when the transition from junior to senior tennis takes place. Participants at the third level of success had a quiet start, and with a relatively stable training team setup. During their early years they trained with coaches who provided them with solid basic skills and knowledge. However, the results show that they started striving for greater development and progress, and that the mentioned appetite for success encouraged them to start on a path of constant changes of coaches.

Other researchers emphasize the importance of coach expertise and dedication, as well as of personal interest in continued professional development (Cassidy et al., 2006; Culver and Trudel, 2008). Participants at the second level of success particularly pointed out the problem of finding a quality-level coach with professional playing experience. Finding individuals who possess both the required playing experience and coaching skills presented a big challenge for them. Gilbert and Trudel (2004), as well as Denison et al. (2013), consider that it is important

for coaches to possess a positive attitude towards life-long learning in a sport that is constantly evolving, and to always pursue a reflexive approach with regard to their own work. The results suggest that the ever-evolving nature of the competition required the ability to adapt, while sometimes a new perspective was needed in order to reignite the desire for success. Thus, several participants at the second level of success characterized changing coaches as an inevitable process in their continued growth and achievement of greater success.

The role of quality coaches on their path to reaching the pinnacle of tennis success was also recognized by Grand Slam winners. In addition, the results point to the fact that building a relationship of trust and understanding was one of the fundamental elements of a successful relationship between Grand Slam winners and coaches. In most cases, the interest of the coach was pointed towards improving performance, competitive results and winning titles (Lindgren and Barker-Ruchti, 2017). With regard to the dilemma between the demands that coaches face and the potential negative consequences they can cause, various researchers suggest that the training process should be focused not only on learning skills and physical elements for performance improvements, but also on a wider care for the athletes (Cushion and Jones, 2006; Hardman, 2010). In accordance with the aforementioned, the results confirm that Grand Slam winners did not only work on perfecting their skills and physical strength, but that they also had strong mental and emotional support from their coaches. It was highlighted that quality coaches recognized the psychological challenges players were facing, as well as provided them with the required support in order to help them in overcoming such obstacles.

The development of top-level athletes is a result of the connection between different components of social capital - family, school, friends and coaches. Proper coordination and quality support from all operators is essential for harmonizing educational and sports requirements, encouraging intrinsic motivation and enabling long-term sports success.

5. GENERAL CONCLUSION

By presenting the three studies, the doctoral dissertation offers a valuable insight into the complexity of personal experience as a key factor in the sports success of tennis players. On the terminological, however also on the content level, this implies focusing on how individuals perceive and interpret certain life situations or challenges. Such an approach can challenge and improve determined scientific understandings of the essential factors which contribute to success in tennis, while emphasizing the importance of personalized experiences and the unique ways in which they affect tennis players' performance.

All research questions were answered, data analysis was carried out and all objectives of this dissertation were achieved. Study 1 investigated how various negative life events/ circumstances affect tennis players' careers and how they cope with challenges. It was shown that the participants at the third level of success had a calm and balanced start in their careers until the transition to senior competition, at which point injuries became one of the greatest challenges. Participants at the second level of success, especially the extremely talented ones, were more often exposed to injuries associated with overtraining. Despite frequent injuries, Grand Slam winners continued to perform after recovery, and sometimes even in conditions of pain or functional limitations, showing a high level of resilience and determination. Participants at the second and third levels of success faced logistical problems, while the financial difficulties among Grand Slam winners acted as additional incentive for achieving top-level results. Talent identification and systematic support of national tennis federations proved to be crucial in providing support to gifted players. In conclusion, the success of tennis players at different levels depended on their ability to overcome negative life events/circumstances, including injuries, financial challenges and failure to be selected for the national team, whereas the differences between levels of success reflected in the way of dealing with such challenges. Study 2 researched how different developmental pathways in the early stages of the career shapes the success of tennis players. Tennis players at different levels of success started playing tennis at different ages and with different training intensity, which had a significant impact on their later success. Participants at the second and third levels of success started playing tennis at the age of six or seven, specialized too early and often participated in competitions, while considering that going to world-famous tennis academies was a bad decision. In contrast, Grand Slam winners started playing tennis at the age of four or five, but with a small number of trainings

per week and in combination with other sports. They specialized later and attributed the key to their success to training with elite level players and strong peer support. In conclusion, early exposure to the sport is important for the development of love for the game and positive feelings towards playing tennis, whereas specialization is recommended in late adolescence in order to reduce the risks of sports injuries, psychological stress and quitting from the sport. Diversity in trainings and participation in several sports contributes to the development of a wider range of skills, which in the long term increases the possibility of achieving top-level success in tennis. Study 3 examined how social capital, particularly in relation to their families, affects the long-term development and achievements of tennis players at different levels of success. Participants at the third level of success had an actively involved family that provided emotional, financial and logistical support, even though financial challenges affected their careers. The greatest influence on sports development was made by fathers, with whom conflicts most often occurred. Participants at the second level of success also had parental support, particularly in financial and emotional terms, however, they emphasized the need for additional professional support, for example when choosing a coach. Grand Slam winners received family support from the earliest days, which contributed to a positive environment and was an important prerequisite for their success. In conclusion, social capital, especially in relation to their family, plays a key role in the long-term sports development of tennis players, however, it is not the only condition for success. The phenomenon of excessive parenting is present at all levels of athlete development, while less intense, but a balanced parental support has more beneficial results for long-term sports development.

This doctoral dissertation provides insight into the factors that affect the development of young tennis players. Likewise, it highlights the impact of negative life events/ circumstances on their careers and suggests players to accept and adapt to such challenges, as that can improve their performance. In addition, the results on the onset of sport specialization help determine the risks of early specialization and the benefits of later specialization. The mentioned knowledge can assist in creating custom strategies and interventions within tennis clubs in order to optimize the development of young tennis players. Furthermore, by investigating the relationship between social capital and progress in tennis, the dissertation emphasizes the role of social ties and support networks in the development path of tennis players. Ultimately, the goal is to create a stimulating environment for coaches and professionals who work with young tennis players, enabling

them to effectively deal with negative life events/circumstances that may arise in the sports and private life of tennis players. Such an approach aims at minimizing the impact of the mentioned challenges, facilitate the process of sport specialization and provide targeted and suitable support to all individuals involved in tennis player development. By doing so, it can be ensured that young tennis players receive in-depth guidelines, encouraging their sports and personal development.

Research strengths and limitations

This doctoral dissertation has certain advantages. One of the key strengths of this dissertation is that a significant part of the sample consists of Grand Slam winners, which is very unusual in qualitative and sports scientific research. The participation of such elite level athletes brought considerable depth, authenticity and credibility to the findings, as their experiences offer a rare and valuable perspective on the factors contributing to long-term success in tennis. By including participants who have achieved the greatest level of success, the dissertation provides a unique opportunity for understanding the intricate dynamics of sports development at the elite level.

In addition, this dissertation represents an exceptional effort in comprehending the perspectives of male tennis players on negative life events/circumstances, the beginning of specialization and the role of social capital in shaping their sports careers. The mentioned factors are essential, however often overlooked aspects of athlete development. By addressing such topics, the dissertation fills a gap in the existing literature and offers a more comprehensive view of the complex path to elite level performance.

Furthermore, the involvement of tennis players at different levels of success allowed for a deeper understanding of personal experiences within the sport. Such an approach highlighted the complexity of individual development paths and revealed inconsistencies in perceptions between players at different levels of success. Such diversity in perspectives allowed for a more comprehensive exploration of factors influencing success, as well as highlighted the variability of careers.

Overall, the qualitative methodological approach in this dissertation not only expanded the scope of understanding within sports science, but also contributed new ideas in athlete development.

However, there are several limitations that should be taken into account when interpreting the data obtained in this doctoral dissertation. Although the mentioned sample allows for in-depth analysis in the context of a particular sport, it does not offer a comprehensive understanding of broader factors that affect athletic success in different sports. The decision to focus exclusively on tennis players is a significant drawback. Consequently, the conclusions of the dissertation are less generalizable to athletes outside the tennis world.

The current sample may not be representative of a broader population of tennis players, especially when variables such as level of experience, geographic location or gender are considered. A larger sample would very likely further confirm and determine the obtained knowledge, but surely also broaden the perspective of an even better and more comprehensive understanding of the obtained research results.

Future research guidelines

Upon reviewing the literature, a very small number of qualitative research can be noticed on personal events and experiences of athletes/tennis players at different levels of sports performance, as well as studies on negative life events/circumstances, sports specialization and the influence of social capital in tennis. The mentioned research approach can stimulate interdisciplinary collaboration and induce the integration of qualitative and quantitative approaches in order to gain a more comprehensive understanding of the experiences of tennis players. Likewise, future research should be focused on researching personal situations and experiences among female tennis players. In addition to negative life events/circumstances, such as injuries, lack of financial resources and failure to be selected for the national team, future research should investigate what other negative life events/circumstances tennis players encountered during their careers. Future studies should focus on researching athletes in different sports and how sports specialization affected their sports success. Furthermore, such an approach of mutual connection with other sports can be important for an overall understanding of sports development of young tennis players. However, more research is also needed to explore the mutual correlation. Future research can assist in view of the best pathways for player development, customizing training strategies and providing support systems that tennis players and athletes face in other sports.

LITERATURE

Abbott, A., Button, C., Pepping, G. J., & Collins, D. (2005). Unnatural selection: talent identification and development in sport. *Nonlinear Dynamics, Psychology, and Life Sciences*, 9(1), 61-88.

Abernethy, B., Baker, J., & Côté, J. (2005). Transfer of pattern recall skills may contribute to the development of sport expertise. *Applied Cognitive Psychology*, 19(6), 705-718.

Abrams, G. D., Renstrom, P. A., & Safran, M. R. (2012). Epidemiology of musculoskeletal injury in the tennis player. *British journal of sports medicine*, 46(7), 492-498.

AMSSM Collaborative Research Network Youth Early Sport Specialization Summit, Herman, D. C., Nelson, V. R., Montalvo, A. M., Myer, G. D., Brenner, J. S., DiFiori, J. P., Jayanthi, N. A., Marshall, S. W., Kliethermes, S. A., Beutler, A. I., & Tenforde, A. S. (2022). Systematic Review of Health Organization Guidelines Following the AMSSM 2019 Youth Early Sport Specialization Summit. *Sports health*, 14(1), 127-134.

Andersonn, C., & Andersonn, B. (2000). *Will You Still Love Me If I Don't Win?* Dallas, Texas: Taylor Publishing Company.

Arede, J., Ferreira, A. P., Gonzalo-Skok, O., & Leite, N. (2019). Maturational development as a key aspect in physiological performance and national-team selection in elite male basketball players. *International Journal of Sports Physiology and Performance*, 14(7), 902-910.

Arede, J., Freitas, T. T., Johnson, D., Fernandes, J. F., Williams, S., Moran, J., & Leite, N. (2022). Training load, maturity timing and future national team selection in national youth basketball players. *Journal of Functional Morphology and Kinesiology*, 7(1), 21.

Armstrong, A. R., Galligan, R. F., & Critchley, C. R. (2011). Emotional intelligence and psychological resilience to negative life events. *Personality and individual differences*, 51(3), 331-336.

Back, J., Johnson, U., Svedberg, P., McCall, A., & Ivarsson, A. (2022). Drop-out from team sport among adolescents: A systematic review and meta-analysis of prospective studies. *Psychology of Sport and Exercise*, 61, 102205.

Bahr, R. (2009). No injuries, but plenty of pain? On the methodology for recording overuse symptoms in sports. *British journal of sports medicine*, 43(13), 966-972.

Baker, J., Cote, J., & Abernethy, B. (2003). Sport-specific practice and the development of expert decision-making in team ball sports. *Journal of applied sport psychology*, 15(1), 12-25.

Baker, J., Horton, S., Robertson-Wilson, J., & Wall, M. (2003). Nurturing sport expertise: factors influencing the development of elite athlete. *Journal of sports science & medicine*, 2(1), 1-9.

Balliauw, M., Verlinden, T., Van Den Spiegel, T., & Van Hecke, J. (2017). *Towards a sustainable financial model for professional tennis players*. Faculty of Business and Economics, University of Antwerp.

Balyi, I., & Hamilton, A. (2004). Long-term athlete development: Trainability in childhood and adolescence. *Olympic coach*, 16(1), 4-9.

Banerjee, I., Robinson, J., Munoosingh, B., Jain, N., & Amsadevi, R. S. (2020). Meaning of success: perception of medical students, and faculty-A qualitative study from a medical school in Mauritius. *Nepal Journal of Epidemiology*, 10(3), 905-914.

Barber, H., Sukhi, H., & White, S. A. (1999). The influence of parent-coaches on participant motivation and competitive anxiety in youth sport participants. *Journal of Sport Behavior*, *22*(2), 162-180.

Bar-Eli, M., Plessner, H., & Raab, M. (2011). *Judgment, decision-making and success in sport*. Malden: John Wiley & Sons.

Barreiros, A., Côté, J., & Fonseca, A. M. (2013). Training and psychosocial patterns during the early development of Portuguese national team athletes. *High Ability Studies*, *24*(1), 49-61.

Barth, M., Güllich, A., & Emrich, E. (2018). The rich get richer and the poor get poorer-the Matthew mechanism as an approach to explain selection effects and the occurrence of multiple medalists in the" production" of international success in alpine ski racing. *Current Issues in Sport Science (CISS)*, 3, 008.

Barynina, I. I., & Vaitsekhovskii, S. M. (1992). The aftermath of early sports specialization for highly qualified swimmers. *Fitness and Sports Review International*, 27(4), 132-133.

Baxter-Jones, A. D. G., & Maffulli, N. (2003). Parental influence on sport participation in elite young athletes. *Journal of sports medicine and physical fitness*, 43(2), 250-255.

Baxter-Jones, A. D., Maffulli, N., & TOYA Study Group (2003). Parental influence on sport participation in elite young athletes. *The Journal of sports medicine and physical fitness*, 43(2), 250-255.

Bayle, E. (2007). Essai de définition du management des organisations sportives: objet, champ, niveaux d'analyse et spécificités des pratiques managériales. *Staps*, 75(1), 59-81.

Bayle, E. (2017). Switzerland: The organisation of sport and policy towards sport federations. *Sport policy systems and sport federations: a cross-national perspective* (pp. 263-282). London: Palgrave Macmillan.

Bell, D. R., Post, E. G., Biese, K., Bay, C., & Valovich McLeod, T. (2018). Sport specialization and risk of overuse injuries: a systematic review with meta-analysis. *Pediatrics*, 142(3), e20180657.

Bergeron, M. F., Mountjoy, M., Armstrong, N., Chia, M., Côté, J., Emery, C. A., Faigenbaum, A., Hall, G. J., Kriemler, S., Léglise, M., Malina, R. M., Pensgaard, A. M., Sanchez, A., Soligard, T., Sundgot-Borgen, J., van Mechelen, W., Weissensteiner, J. R. & Engebretsen, L. (2015). International Olympic Committee consensus statement on youth athletic development. *British journal of sports medicine*, *49*(13), 843-851.

Biese, K. M., Winans, M., Rudek, G., Cadmus-Bertram, L., Andreae, S., Brooks, M. A., Kliethermes, S., McGuine, T. A. & Bell, D. R. (2024). Sport Specialization and Sport Motivation in Middle School–Aged Athletes. *Journal of Athletic Training*, 59(3), 274-280.

Bjørndal, C. T., Andersen, S. S., & Ronglan, L. T. (2018). Successful and unsuccessful transitions to the elite level: The youth national team pathways in Norwegian handball. *International Journal of Sports Science & Coaching*, 13(4), 533-544.

Blimkie, C. J., Lefevre, J. O. H. A. N., Beunen, G. P., Renson, R. O. L. A. N. D., Dequeker, J., & Van Damme, P. A. S. C. A. L. (1993). Fractures, physical activity, and growth velocity in adolescent Belgian boys. *Medicine and science in sports and exercise*, 25(7), 801-808.

Bloom, B. (1985). *Developing talent in young people*. New York: Ballantine.

Blume, K., & Wolfarth, B. (2019). Identification of potential performance-related predictors in young competitive athletes. *Frontiers in physiology*, 10, 1394.

Boccia, G., Cardinale, M., & Brustio, P. R. (2021). World-Class Sprinters' Careers: Early Success Does Not Guarantee Success at Adult Age. *International journal of sports physiology and performance*, 16(3), 367-374.

Bois, J. E., Lalanne, J., & Delforge, C. (2009). The influence of parenting practices and parental presence on children's and adolescents' pre-competitive anxiety. *Journal of sports sciences*, 27(10), 995-1005.

Bompa, T. (1995). *From Childhood to Champion Athlete*. Toronto: Veritas Publishing.

Bourdieu, P. (1983). The field of cultural production, or: The economic world reversed. *Poetics*, 12(4-5), 311-356.

Bourdieu, P. (1986). The Forms of Capital. *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). New York: Greenwood.

Bozděch, M., & Zháněl, J. (2024). Junior to senior transition of male elite junior tennis players: A retrospective study. *Plos one*, 19(10), e0309472.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597.

Brenner, J. S., & COUNCIL ON SPORTS MEDICINE AND FITNESS (2016). Sports Specialization and Intensive Training in Young Athletes. *Pediatrics*, 138(3), e20162148.

Bridge, M. W., & Toms, M. R. (2012). The specialising or sampling debate: a retrospective analysis of adolescent sports participation in the UK. *Journal of Sports Sciences*, 31(1), 87-96.

Brooks, J. H., & Fuller, C. W. (2006). The influence of methodological issues on the results and conclusions from epidemiological studies of sports injuries: illustrative examples. *Sports medicine*, 36(6), 459-472.

Brouwers, J., De Bosscher, V., & Sotiriadou, P. (2012). An examination of the importance of performances in youth and junior competition as an indicator of later success in tennis. *Sport Management Review*, 15(4), 461-475.

Brouwers, J., Sotiriadou, P., & De Bosscher, V. (2015). An examination of the stakeholders and elite athlete development pathways in tennis. *European Sport Management Quarterly*, 15(4), 454-477.

Brown, J. (2001). *Sports talent*. Human kinetics.

Bruner, M. W., Eys, M., & Turnnidge, J. (2013). Peer and group influences in youth sport. *Morgantown: Fitness Information Technology*, 157-178.

Buckley, P. S., Bishop, M., Kane, P., Ciccotti, M. C., Selverian, S., Exume, D., Emper, W., Kevin B. Freedman, K. B., Hammoud, S., Cohen, S. B. & Ciccotti, M. G. (2017). Early single-sport specialization: a survey of 3090 high school, collegiate, and professional athletes. *Orthopaedic journal of sports medicine*, 5(7), 2325967117703944.

Burgess, D. J., & Naughton, G. A. (2010). Talent development in adolescent team sports: A review. *International journal of sports physiology and performance*, 5(1), 103-116.

Burke, S., Sharp, L. A., Woods, D., & Paradis, K. F. (2024). Enhancing parental support through parent-education programs in youth sport: A systematic review. *International Review of Sport and Exercise Psychology*, 17(1), 208-235.

Caine, C. G., Caine, D. J., & Lindner, K. J. (1996). The epidemiologic approach to sports injuries. *Epidemiology of Sports Injuries* (pp. 1-13). Champaign: Human Kinetics.

Caine, D., Maffulli, N., & Caine, C. (2008). Epidemiology of injury in child and adolescent sports: injury rates, risk factors, and prevention. *Clinics in sports medicine*, 27(1), 19-50.

Cakravastia, A., & Setiawan, M. (2022). Role of local club in developing value chain of high performance national tennis athlete. *ITF Coaching & Sport Science Review*, 30(87), 63-71.

Carder, S. L., Giusti, N. E., Vopat, L. M., Tarakemeh, A., Baker, J., Vopat, B. G., & Mulcahey, M. K. (2020). The concept of sport sampling versus sport specialization: preventing youth athlete injury: a systematic review and meta-analysis. *The American Journal of Sports Medicine*, 48(11), 2850-2857.

Carlson, R. (1988). The socialization of elite tennis players in Sweden: An analysis of the players' backgrounds and development. *Sociology of sport journal*, 5(3), 241-256.

Cassidy, T., Potrac, P., & McKenzie, A. (2006). Evaluating and reflecting upon a coach education initiative: The CoDe of rugby. *The Sport Psychologist*, *20*(2), 145-161.

Chen, H., Li, C., Meng, X., Chmura, P., & Wei, X. (2023). Development of youth tennis players: A study based on the ranking history of top ATP/WTA players worldwide and China. *Plos one*, 18(11), e0289848.

Chevinsky, J. D., Shah, N. V., Tretiakov, M., Aylyarov, A., Penny, G. S., Dekis, J. C., Chorney, J. N., Ahmed, N., Sodhi, N., Wilhelm, A. B., Urban, W. P., Paulino, C. B., & Newman, J. M. (2017). Demographics of Tennis-Related Injuries that Presented to Emergency Departments in the United States. *Surgical technology international*, 31, 352-358.

Coalter, F. (2005). *The Social Benefits of Sport An Overview to Inform the Community Planning Process*. Stirling: University of Stirling.

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge: Harvard University Press.

Collins, D., MacNamara, A., & McCarthy, N. (2016). Super Champions, Champions, and Almosts: Important Differences and Commonalities on the Rocky Road. *Frontiers in Psychology*, 6, 2009.

Confino, J., Irvine, J. N., O'Connor, M., Ahmad, C. S., & Lynch, T. S. (2019). Early sports specialization is associated with upper extremity injuries in throwers and fewer games played in Major League Baseball. *Orthopaedic journal of sports medicine*, 7(7), 2325967119861101.

Côté, J. (1999). The influence of the family in the development of talent in sport. *The sport psychologist*, 13(4), 395-417.

Côté, J., & Erickson, K. (2015). Diversification and deliberate play during the sampling years. *Routledge handbook of sport expertise* (pp. 305-316). New York: Routledge.

Côté, J., & Fraser-Thomas, J. (2016). Youth involvement and positive development in sport. *Sport psychology: A Canadian perspective*, 3, 256-287.

Côté, J., Baker, J., & Abernethy, B. (2007). Practice and play in the development of sport expertise. *Handbook of sport psychology*, 3(1), 184-202.

Côté, J., Lidor, R., & Hackfort, D. (2009). ISSP position stand: To sample or to specialize? Seven postulates about youth sport activities that lead to continued participation and elite performance. *International journal of sport and exercise psychology*, 7(1), 7-17.

Coutinho, P., Ramos, A., Afonso, J., Bessa, C., Ribeiro, J., Davids, K., Fonseca, A. M., & Mesquita, I. (2023). To Sample or to Specialise? Sport Participation Patterns of Youth Team Sport Male Players. *Children*, 10(4), 729.

Coutinho, P., Ribeiro, J., da Silva, S. M., Fonseca, A. M., & Mesquita, I. (2021). The influence of parents, coaches, and peers in the long-term development of highly skilled and less skilled volleyball players. *Frontiers in Psychology*, *12*, 667542.

Crane, J., & Temple, V. (2015). A systematic review of dropout from organized sport among children and youth. *European physical education review*, 21(1), 114-131.

Culver, D., & Trudel, P. (2008). Clarifying the concept of communities of practice in sport. *International Journal of Sports Science & Coaching*, *3*(1), 1-10.

Cushion, C., & Jones, R. L. (2006). Power, discourse, and symbolic violence in professional youth soccer: The case of Albion Football Club. *Sociology of sport journal*, *23*(2), 142-161.

Cutrona, C. E., & Russell, D. W. (1990). Type of social support and specific stress: Toward a theory of optimal matching. *Social support: An interactional view* (pp. 319-366). New York: Wiley.

De Bosscher, V. Schaillée, H., & Truyens, J.(2009). Ontwikkelen van een topsportindex voor jeugdkampioenschappen. In welke mate is er een verband tussen prestaties op internationale jeugdkampioenschappen en later topsportsuccess. *Policy report for the Flemish ministry of Sport, Culture and Media*. Brussels: Vrije Universiteit Brussel.

De Bosscher, V., De Knop, P., & Heyndels, B. (2003). Comparing tennis success among countries. *International Sports Studies*, 25(1), 49-68.

De Bosscher, V., van Bottenburg, M., Shibli, S., & De Knop, P. (2013). Managing high performance sport at the national policy level. *Managing high performance sport* (pp. 45-64). London and New York: Routledge.

De Loës, M. (1997). Exposure data: Why are they needed?. *Sports Medicine*, 24(3), 172-175.

Delforge, C., & Le Scanff, C. (2006). Parental influence on tennis players: Case studies. *Revista de Psicología del Deporte*, *15*(2), 233-248.

Denison, J., Mills, J., & Jones, L. (2013). Effective coaching as a modernist formation: A Foucauldian critique. *Routledge handbook of sports coaching* (pp. 388-399). Routledge.

DiFiori, J. P., Benjamin, H. J., Brenner, J. S., Gregory, A., Jayanthi, N., Landry, G. L., & Luke, A. (2014). Overuse injuries and burnout in youth sports: a position statement from the American Medical Society for Sports Medicine. *British journal of sports medicine*, 48(4), 287-288.

Dines, J. S., Bedi, A., Williams, P. N., Dodson, C. C., Ellenbecker, T. S., Altchek, D. W., Windler, G., & Dines, D. M. (2015). Tennis injuries: epidemiology, pathophysiology, and treatment. *The Journal of the American Academy of Orthopaedic Surgeons*, 23(3), 181-189.

Dorsch, T. E. (2017). Optimising family involvement in youth sport. *Sport psychology for young athletes* (pp. 106-115). London: Routledge.

Dorsch, T. E., King, M. Q., Dunn, C. R., Osai, K. V., & Tulane, S. (2017). The impact of evidence-based parent education in organized youth sport: A pilot study. *Journal of applied sport psychology*, 29(2), 199-214.

Dorsch, T. E., Smith, A. L., & McDonough, M. H. (2009). Parents' perceptions of child-to-parent socialization in organized youth sport. *Journal of Sport and Exercise Psychology*, 31(4), 444-468.

Dorsch, T. E., Smith, A. L., Blazo, J. A., Coakley, J., Côté, J., Wagstaff, C. R. D., Warner, S., & King, M. Q. (2020). Toward an Integrated Understanding of the Youth Sport System. *Research Quarterly for Exercise and Sport*, 93(1), 105-119.

Durand-Bush, N., Salmela, J. H., & Thompson, K. A. (2004). Le rôle joué par les parents dans le développement et le maintien de la performance athlétique experte. *Staps*, 64(2), 15-38.

Ekstrand, J., & Karlsson, J. (2003). The risk for injury in football. There is a need for a consensus about definition of the injury and the design of studies. *Scandinavian Journal of Medicine and Science in Sports*, 13(3), 147-149.

Elferink-Gemser, M. T., Jordet, G., Coelho-E-Silva, M. J., & Visscher, C. (2011). The marvels of elite sports: how to get there?. *British journal of sports medicine*, 45(9), 683-684.

Ellenbecker, T. S., & Roetert, E. P. (2004). An isokinetic profile of trunk rotation strength in elite tennis players. *Medicine and science in sports and exercise*, 36(11), 1959-1963.

Ellenbecker, T. S., Pluim, B., Vivier, S., & Sniteman, C. (2009). Common injuries in tennis players: exercises to address muscular imbalances and reduce injury risk. *Strength & Conditioning Journal*, 31(4), 50-58.

Engebretsen, L., Soligard, T., Steffen, K., Alonso, J. M., Aubry, M., Budgett, R., Dvorak, J., Jegathesan, M., Meeuwisse, W. H., Mountjoy, M., Palmer-Green, D., Vanhegan, I., & Renström, P. A. (2013). Sports injuries and illnesses during the London Summer Olympic Games 2012. *British journal of sports medicine*, 47(7), 407-414.

Epstein, D. (2014). *The sports gene: Inside the science of extraordinary athletic performance*. New York: Penguin.

Erickson, A. R., Yasuda, K., Beynnon, B., Johnson, R., & Pope, M. (1993). An in vitro dynamic evaluation of prophylactic knee braces during lateral impact loading. *The American Journal of Sports Medicine*, 21(1), 26-35.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological review*, 100(3), 363-406.

Fabricant, P. D., Lakomkin, N., Sugimoto, D., Tepolt, F. A., Stracciolini, A., & Kocher, M. S. (2016). Youth sports specialization and musculoskeletal injury: a systematic review of the literature. *The Physician and sportsmedicine*, 44(3), 257-262.

Farrey, T. (2008). *Game on: the all-american race to make champions of our children*. New York: ESPN Books.

Farrey, T. (2009). *Game on: How the pressure to win at all costs endangers youth sports, and what parents can do about it*. New York: Random House.

Farsides, T., & Woodfield, R. (2003). Individual differences and undergraduate academic success: The roles of personality, intelligence, and application. *Personality and Individual differences*, 34(7), 1225-1243.

Feeley, B. T., Agel, J., & LaPrade, R. F. (2016). When is it too early for single sport specialization?. *The American journal of sports medicine*, 44(1), 234-241.

Fernandez-Fernandez, J., Sanz-Rivas, D., & Mendez-Villanueva, A. (2009). A review of the activity profile and physiological demands of tennis match play. *Strength & Conditioning Journal*, 31(4), 15-26.

Figueiredo, A. J., Gonçalves, C. E., Coelho E Silva, M. J., & Malina, R. M. (2009). Youth soccer players, 11–14 years: maturity, size, function, skill and goal orientation. *Annals of human biology,* 36(1), 60-73.

Filipcic, A., Panjan, A., Reid, M., Crespo, M., & Sarabon, N. (2013). Tournament structure and success of players based on location in men's professional tennis. *Journal of sports science & medicine*, 12(2), 354-361.

Finch, C. F. (1997). An overview of some definitional issues for sports injury surveillance. *Sports medicine*, 24(3), 157-163.

Fish, J., & Magee, S. (2003). *101 ways to be a terrific sports parent: Making athletics a positive experience for your child*. New York: Fireside.

Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of sport and exercise*, 13(5), 669-678.

Fraser-Thomas, J., Coté, J., & Deakin, J. (2008). Examining adolescent sport dropout and prolonged engagement from a developmental perspective. *Journal of applied sport psychology*, 20(3), 318-333.

Fraser-Thomas, J., Côté, J., & Deakin, J. (2008). Understanding dropout and prolonged engagement in adolescent competitive sport. *Psychology of sport and exercise*, 9(5), 645-662.

Fredricks, J. A., & Eccles, J. S. (2004). Parental influences on youth involvement in sports. *Developmental sport and exercise psychology: A lifespan perspective* (pp. 145-164). Morgantown: Fitness Information Technology, University of Virginia.

Fu, M. C., Ellenbecker, T. S., Renstrom, P. A., Windler, G. S., & Dines, D. M. (2018). Epidemiology of injuries in tennis players. *Current reviews in musculoskeletal medicine*, 11(1), 1-5.

Fuller, C. W., Ekstrand, J., Junge, A., Andersen, T. E., Bahr, R., Dvorak, J., Hägglund, M., McCrory, P., & Meeuwisse, W. H. (2006). Consensus statement on injury definitions and data collection procedures in studies of football (soccer) injuries. *Scandinavian journal of medicine & science in sports*, 16(2), 83-92.

Fuller, C., & Drawer, S. (2004). The application of risk management in sport. *Sports medicine*, 34(6), 349-356.

Furuta, M., Ekuni, D., Takao, S., Suzuki, E., Morita, M., & Kawachi, I. (2012). Social capital and self-rated oral health among young people. *Community dentistry and oral epidemiology*, 40(2), 97-104.

Geeraert, A., Groll, M., & Alm, J. (2013). Good governance in International Non-Governmental Sports Organisations: an empirical study on accountability, participation and executive body members in Sport Governing Bodies. *Action for Good Governance in International Sports Organisations* (pp. 190-217). Play the Game: Danish Institute for Sports Studies.

Gerdin, G., Fahlström, P. G., Glemne, M., & Linnér, S. (2020). Swedish tennis coaches' everyday practices for creating athlete development environments. *International Journal of Environmental Research and Public Health*, 17(12), 4580.

Gescheit, D. T., Cormack, S. J., Duffield, R., Kovalchik, S., Wood, T. O., Omizzolo, M., & Reid, M. (2019). A multi-year injury epidemiology analysis of an elite national junior tennis program. *Journal of science and medicine in sport*, 22(1), 11-15.

Gescheit, D. T., Cormack, S. J., Duffield, R., Kovalchik, S., Wood, T. O., Omizzolo, M., & Reid, M. (2017). Injury epidemiology of tennis players at the 2011–2016 Australian Open Grand Slam. *British journal of sports medicine*, 51(17), 1289-1294.

Gilbert, W. D., & Trudel, P. (2004). Role of the coach: How model youth team sport coaches frame their roles. *The sport psychologist*, *18*(1), 21-43.

Giusti, N. E., Carder, S. L., Vopat, L., Baker, J., Tarakemeh, A., Vopat, B., & Mulcahey, M. K. (2020). Comparing burnout in sport-specializing versus sport-sampling adolescent athletes: A systematic review and meta-analysis. *Orthopaedic journal of sports medicine*, 8(3), 2325967120907579.

Gjaka, M., Tessitore, A., Blondel, L., Bozzano, E., Burlot, F., Debois, N., Delon, D., Figueiredo, A., Foerster, J., Gonçalves, C., Guidotti, F., Pesce, C., Pišl, A., Rheinisch, E., Rolo, A., Ryan, G., Templet, A., Varga, K., Warrington, G., Capranica, L., MacDonncha, C. & Doupona, M. (2021). Understanding the educational needs of parenting athletes involved in sport and education: The parents' view. *PLoS One*, *16*(1), e0243354.

Gould, D. (2009). The professionalization of youth sports: it's time to act!. *Clinical Journal of Sport Medicine*, 19(2), 81-82.

Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of applied sport psychology*, *14*(3), 172-204.

Gould, D., Lauer, L., Rolo, C., Jannes, C., & Pennisi, N. (2006). Understanding the role parents play in tennis success: a national survey of junior tennis coaches. *British journal of sports medicine*, 40(7), 632-636.

Gould, D., Lauer, L., Rolo, C., Jannes, C., & Pennisi, N. (2008). The role of parents in tennis success: Focus group interviews with junior coaches. *The sport psychologist*, 22(1), 18-37.

Gould, D., Pierce, S., Wright, E. M., Lauer, L., & Nalepa, J. (2016). Examining expert coaches' views of parent roles in 10-and-under tennis. *Sport, Exercise, and Performance Psychology*, 5(2), 89-106.

Greendorfer, S. L. (1992). Sport socialization. *Advances in sport psychology* (pp. 201-218). Human Kinetics.

Güllich, A., & Emrich, E. (2006). Evaluation of the support of young athletes in the elite sports system. *European Journal for Sport and Society*, 3(2), 85-108.

Güllich, A., & Emrich, E. (2012). Individualistic and collectivistic approach in athlete support programmes in the German high-performance sport system. *European Journal for Sport and Society*, 9(4), 243-268.

Guzmán, J. F., & Kingston, K. (2012). Prospective study of sport dropout: A motivational analysis as a function of age and gender. *European Journal of Sport Science*, 12(5), 431-442.

Hägglund, M., Waldén, M., Bahr, R., & Ekstrand, J. (2005). Methods for epidemiological study of injuries to professional football players: developing the UEFA model. *British journal of sports medicine*, 39(6), 340-346.

Haimson, O. L., Carter, A. J., Corvite, S., Wheeler, B., Wang, L., Liu, T., & Lige, A. (2021). The major life events taxonomy: Social readjustment, social media information sharing, and online network separation during times of life transition. *Journal of the Association for Information Science and Technology*, 72(7), 933-947.

Halim, V., & Putera, H. D. (2023). The most common injuries in tennis players and prevention strategies: a literature review. *Orthopaedic Journal of Sports Medicine*, 11(2), 2325967121S00874.

Hall, R., Foss, K. B., Hewett, T. E., & Myer, G. D. (2015). Sport specialization's association with an increased risk of developing anterior knee pain in adolescent female athletes. *Journal of sport rehabilitation*, 24(1), 31-35.

Hardman, A., Jones, C., & Jones, R. (2010). Sports coaching, virtue ethics and emulation. *Physical Education and Sport Pedagogy*, *15*(4), 345-359.

Hardy, L., Barlow, M., Evans, L., Rees, T., Woodman, T., & Warr, C. (2017). Great British medalists: Psychosocial biographies of super-elite and elite athletes from Olympic sports. *Progress in brain research*, 232, 1-119.

Harwood, C., & Knight, C. (2009). Stress in youth sport: A developmental investigation of tennis parents. *Psychology of sport and exercise*, 10(4), 447-456.

Harwood, C., & Knight, C. (2009). Understanding parental stressors: An investigation of British tennis-parents. *Journal of sports sciences*, 27(4), 339-351.

Haugen, T. A., Ruud, C., Sandbakk, S. B., Sandbakk, Ø., & Tønnessen, E. (2024). The Training and Development Process for a Multiple-Grand-Slam Finalist in Tennis. *International Journal of Sports Physiology and Performance*, 19(11), 1247-1255.

Hefti, F. (2006). *Kinderorthopädie in der Praxis*. Heidelberg: Springer-Verlag.

Hellstedt, J. C. (1987). The coach/parent/athlete relationship. *The Sport Psychologist*, 1(2), 151-160.

Helsen, W. F., Hodges, N. J., Winckel, J. V., & Starkes, J. L. (2000). The roles of talent, physical precocity and practice in the development of soccer expertise. *Journal of sports sciences*, *18*(9), 727-736.

Helsen, W. F., Starkes, J. L., & Hodges, N. J. (1998). Team sports and the theory of deliberate practice. *Journal of Sport and Exercise psychology*, 20(1), 12-34.

Helsen, W. F., Van Winckel, J., & Williams, A. M. (2005). The relative age effect in youth soccer across Europe. *Journal of sports sciences*, 23(6), 629-636.

Henry, I., Amara, M., Al-Tauqi, M., & Lee, P. C. (2005). A typology of approaches to comparative analysis of sports policy. *Journal of sport management*, 19(4), 480-496.

Hernandez, M. I., Miller, E. C., Prieto, L. A., Columna, L., Biese, K. M., & Bell, D. R. (2023). The current youth sport culture and its impact on sport participation experiences of low socioeconomic status families. *Internet Journal of Allied Health Sciences and Practice*, 21(2), 9.

Hill, M., Scott, S., McGee, D., & Cumming, S. P. (2021). Are relative age and biological ages associated with coaches' evaluations of match performance in male academy soccer players?. *International Journal of Sports Science & Coaching*, 16(2), 227-235.

Hjelm, N., Werner, S., & Renstrom, P. (2010). Injury profile in junior tennis players: a prospective two year study. *Knee surgery, sports traumatology, arthroscopy*, 18(6), 845-850.

Hjelm, N., Werner, S., & Renstrom, P. (2012). Injury risk factors in junior tennis players: a prospective 2-year study. *Scandinavian journal of medicine & science in sports*, 22(1), 40-48.

Hodges, N. J., & Starkes, J. L. (1996). Wrestling with the nature expertise: A sport specific test of Ericsson, Krampe and Tesch-Römer's (1993) theory of "deliberate practice." *International Journal of Sport Psychology*, 27(4), 400-424.

Horn, T. S., & Horn, J. L. (2007). Family influences on children's sport and physical activity participation, behavior, and psychosocial responses. *Handbook of sport psychology*. New York: Wiley.

Horne, E. (2023). Tennis development at the ground level: Coaches' perceptions of how incentive structures impact the development systems national tennis associations implement. *ITF Coaching & Sport Science Review*, 31(91), 55-59.

Houlihan, B. (2009). Mechanisms of international influence on domestic elite sport policy. *International journal of sport policy and politics*, 1(1), 51-69.

Houlihan, B., & Chapman, P. (2015). Modernisation and elite sport development in England and the United Kingdom: Talent identification and coach development. *Managing elite sport systems* (pp. 31-48). London: Routledge.

Houlihan, B., & Green, M. (2008). *Comparative elite sport development : systems, structures and public policy*. London: Routledge

Howells, K., & Fletcher, D. (2015). Sink or swim: Adversity-and growth-related experiences in Olympic swimming champions. *Psychology of sport and exercise*, 16(3), 37-48.

Hoyle, R. H., & Leff, S. S. (1997). The role of parental involvement in youth sport participation and performance. *Adolescence*, 32(125), 233-243.

Humphrey, J. A., Humphrey, P. P., Greenwood, A. S., Anderson, J. L., Markus, H. S., & Ajuied, A. (2019). Musculoskeletal injuries in real tennis. *Open access journal of sports medicine*, 10, 81-86.

Hutchinson, M. R., Laprade, R. F., Burnett, Q. M., Moss, R. O. B. E. R. T., & Terpstra, J. E. F. F. (1995). Injury surveillance at the USTA Boys' Tennis Championships: a 6-yr study. *Medicine and science in sports and exercise*, 27(6), 826-831.

Iancheva, T., & Kuleva, M. (2017). Goal orientation and cope with success in sport. *In International Scientific Congress "Applied Sports Sciences"*, 218-223.

Jayanthi, N. A., LaBella, C. R., Fischer, D., Pasulka, J., & Dugas, L. R. (2015). Sports-specialized intensive training and the risk of injury in young athletes: a clinical case-control study. *The American journal of sports medicine*, 43(4), 794-801.

Jayanthi, N. A., O'Boyle, J., & Durazo-Arvizu, R. A. (2009). Risk factors for medical withdrawals in United States tennis association junior national tennis tournaments: a descriptive epidemiologic study. *Sports Health*, 1(3), 231-235.

Jayanthi, N., Dechert, A., Durazo, R., Dugas, L., & Luke, A. (2011). Training and sports specialization risks in junior elite tennis players. *Journal of Medicine and Science in Tennis*, 16(1), 14-20.

Jayanthi, N., Kliethermes, S. A., & Côté, J. (2020). Youth sport specialisation: the need for an evidence-based definition. *British Journal of Sports Medicine*, *54*(4), 196-197.

Jayanthi, N., Pinkham, C., Dugas, L., Patrick, B., & LaBella, C. (2013). Sports specialization in young athletes: evidence-based recommendations. *Sports health*, 5(3), 251-257.

Johnson, A., Farooq, A., & Whiteley, R. (2017). Skeletal maturation status is more strongly associated with academy selection than birth quarter. *Science and Medicine in Football*, 1(2), 157-163.

Johnson, F. (2024). Unraveling the Net Worth: Exploring Financial Disparities and Diversity Deficits in Tennis.

Jowett, S., & Timson-Katchis, M. (2005). Social networks in sport: Parental influence on the coach-athlete relationship. *The sport psychologist*, 19(3), 267-287.

Junge, A., & Dvorak, J. (2000). Influence of definition and data collection on the incidence of injuries in football. *The American journal of sports medicine*, 28(5), 40-46.

Junge, A., Dvorak, J., Graf-Baumann, T., & Peterson, L. (2004). Football injuries during FIFA tournaments and the Olympic Games, 1998-2001: development and implementation of an injury-reporting system. *The American journal of sports medicine*, 32(1), 80-89.

Kalén, A., Lundkvist, E., Ivarsson, A., Rey, E., & Pérez-Ferreirós, A. (2021). The influence of initial selection age, relative age effect and country long-term performance on the re-

selection process in European basketball youth national teams. *Journal of sports sciences*, 39(4), 388-394.

Kalén, A., Padrón-Cabo, A., Lundkvist, E., Rey, E., & Pérez-Ferreirós, A. (2021). Talent selection strategies and relationship with success in European basketball national team programs. *Frontiers in Psychology*, 12, 666839.

Kawachi, I., Subramanian, S. V., & Kim, D. (2010). *Social capital and health*. New York: Springer Science.

Keegan, R., Spray, C., Harwood, C., & Lavallee, D. (2010). The motivational atmosphere in youth sport: Coach, parent, and peer influences on motivation in specializing sport participants. *Journal of applied sport psychology*, *22*(1), 87-105.

Kibler, W. B., & Safran, M. (2005). Tennis injuries. *Medicine and sport science*, 48, 120-137.

Kiraly, I., & Gál, A. (2011). From grass roots to world class (A strategy for delivering physical activity). Physical Culture and Sport. *Studies and Research*, 51(1), 25-39.

Kirk, D., Carlson, T., O'Connor, A., Burke, P., Davis, K., & Glover, S. (1997). The economic impact on families of children's participation in junior sport. *Australian journal of science and medicine in sport*, 29(2), 27-33.

Kliethermes, S. A., Nagle, K., Côté, J., Malina, R. M., Faigenbaum, A., Watson, A., Feeley, B., Marshall, S. W., Labella, C. R., Herman, D. C., Tenforde, A., Beutler, A. I., & Jayanthi, N. (2020). Impact of youth sports specialisation on career and task-specific athletic performance: A systematic review following the American Medical Society for Sports Medicine (AMSSM) Collaborative Research Network's 2019 Youth Early Sport Specialisation Summit. *British Journal of Sports Medicine*, 54(4), 221-230.

Knight, C. J., & Holt, N. L. (2013). Factors that influence parents' experiences at junior tennis tournaments and suggestions for improvement. *Sport, Exercise, and Performance Psychology*, 2(3), 173-189.

Knight, C. J., & Holt, N. L. (2013). Strategies used and assistance required to facilitate children's involvement in tennis: Parents' perspectives. *The sport psychologist*, 27(3), 281-291.

Knight, C. J., & Holt, N. L. (2014). Parenting in youth tennis: Understanding and enhancing children's experiences. *Psychology of Sport and exercise*, 15(2), 155-164.

Knight, C. J., & Newport, R. A. (2017). Understanding and working with parents of young athletes. *Sport psychology for young athletes* (pp. 303-314). London: Routledge.

König, D., Huonker, M., Schmid, A., Halle, M., Berg, A., & Keul, J. (2001). Cardiovascular, metabolic, and hormonal parameters in professional tennis players. *Medicine and science in sports and exercise*, 33(4), 654-658.

Koopmann, T., Faber, I., Baker, J., & Schorer, J. (2020). Assessing technical skills in talented youth athletes: a systematic review. *Sports Medicine*, 50(9), 1593-1611.

Kovacs, M. S. (2006). Applied physiology of tennis performance. *British journal of sports medicine*, 40(5), 381-386.

Kovacs, M. S. (2007). Tennis physiology: training the competitive athlete. *Sports medicine*, 37(3), 189-198.

Kovacs, M. S., Ellenbecker, T. S., Kibler, W. B., Roetert, E. P., & Lubbers, P. (2014). Injury trends in American competitive junior tennis players. *Journal of Medicine and Science in Tennis*, 19(1), 19-24.

Kovacs, M. S., Mundie, E., Eng, D., Bramblett, J., Kovacs, M. J., & Hosek, R. (2015). How did the top 100 professional tennis players (ATP) succeed: an analysis of ranking milestones. *Journal of Medicine and Science in Tennis*, 20(2), 50-57.

Kring, L., Iversen, E., Ibsen, B., & Fehsenfeld, M. (2024). Exploring the impact of stressful life events on quality of life: meaning making and narrative reconstruction. *International Journal of Qualitative Studies on Health and Well-being*, 19(1), 2330117.

Krueckel, J., Szymski, D., Lenz, J., Fluegel, J., Weber, J., Achenbach, L., Meffert, R., Alt, V., & Fehske, K. (2024). Tennis Injuries Among German League Players: Investigating Patterns and Epidemiology of Acute and Chronic Injuries. *Open access journal of sports medicine*, 15, 67-75.

Langley, J., & Brenner, R. (2004). What is an injury?. *Injury Prevention*, 10(2), 69-71.

LaPrade, R. F., Agel, J., Baker, J., Brenner, J. S., Cordasco, F. A., Côté, J., Engebretsen, L., Feeley, B. T., Gould, D., Hainline, B., Hewett, T. E., Jayanthi, N., Kocher, M. S., Myer, G. D., Nissen, C. W., Philippon, M. J. & Provencher, M. T. (2016). AOSSM early sport specialization consensus statement. *Orthopaedic journal of sports medicine*, 4(4), 2325967116644241.

Lauer, L., Gould, D., Roman, N., & Pierce, M. (2010). How parents influence junior tennis players' development: Qualitative narratives. *Journal of Clinical Sport Psychology*, 4(1), 69-92.

Lauer, L., Gould, D., Roman, N., & Pierce, M. (2010). Parental behaviors that affect junior tennis player development. *Psychology of sport and exercise*, 11(6), 487-496.

Le Bars, H., Gernigon, C., & Ninot, G. (2009). Personal and contextual determinants of elite young athletes' persistence or dropping out over time. *Scandinavian journal of medicine & science in sports*, 19(2), 274-285.

Leff, S. S., & Hoyle, R. H. (1995). Young athletes' perceptions of parental support and pressure. *Journal of youth and adolescence*, 24(2), 187-203.

Levental, O., Yaffe, Y., & Lev Arey, D. (2023). Goals and success in sport: The perspectives of parents and adolescent girls in Kayaking. *Behavioral Sciences*, 13(7), 580.

Li, P., Weissensteiner, J. R., Pion, J., & Bosscher, V. D. (2020). Predicting elite success: Evidence comparing the career pathways of top 10 to 300 professional tennis players. *International Journal of Sports Science & Coaching*, 15(5-6), 793-802.

Lidor, R., & Lavyan, N. Z. (2002). A retrospective picture of early sport experiences among elite and near-elite Israeli athletes: developmental and psychological perspectives. *International Journal of Sport Psychology*, 33(3), 269-289.

Lindgren, E. C., & Barker-Ruchti, N. (2017). Balancing performance-based expectations with a holistic perspective on coaching: A qualitative study of Swedish women's national football team coaches' practice experiences. *International Journal of Qualitative Studies on Health and Well-Being*, *12*(2), 1358580.

Llanes, A. C., Deckey, D. G., Zhang, N., Curley, K. L., Curley, N. D., Chhabra, A., & Neal, M. T. (2023). Lower-extremity injuries predominate in American high school tennis players. *Arthroscopy, sports medicine, and rehabilitation*, 5(6), 100811.

Lloyd, R. S., & Oliver, J. L. (2012). The youth physical development model: A new approach to long-term athletic development. *Strength & Conditioning Journal*, 34(3), 61-72.

Luhmann, M., Fassbender, I., Alcock, M., & Haehner, P. (2021). A dimensional taxonomy of perceived characteristics of major life events. *Journal of Personality and Social Psychology*, 121(3), 633-668.

Lynall, R. C., Kerr, Z. Y., Djoko, A., Pluim, B. M., Hainline, B., & Dompier, T. P. (2016). Epidemiology of National Collegiate Athletic Association men's and women's tennis injuries, 2009/2010–2014/2015. *British journal of sports medicine*, 50(19), 1211-1216.

MacCurdy, D. (2006). Talent identification around the world and recommendations for the Chinese Tennis Association. *ITF Coaching Website*: www.itftennis.com/shared/medialibrary/pdf/original/IO, 18455.

MacNamara, A, Button, A., & Collins, D. (2010b). The role of psychological characteristics in facilitating the pathway to elite performance. Part 2: examining environmental and stage related differences in skills and behaviours. *The Sport Psychologist*, 24(1), 74-96.

MacNamara, A., Button, A., & Collins, D. (2010a). The role of psychological characteristics in facilitating the pathway to elite performance. Part 1: identifying mental skills and behaviours. *The Sport Psychologist*, 24(1), 52-73.

Maffulli, N. (1992). The growing child in sport. *British medical bulletin*, 48(3), 561-568.

Malina, R. M. (2010). Early sport specialization: roots, effectiveness, risks. *Current sports medicine reports*, 9(6), 364-371.

Malina, R. M., Ribeiro, B., Aroso, J., & Cumming, S. P. (2007). Characteristics of youth soccer players aged 13–15 years classified by skill level. *British journal of sports medicine*, 41(5), 290-295.

Maquirriain, J., & Baglione, R. (2016). Epidemiology of tennis injuries: An eight-year review of Davis Cup retirements. *European journal of sport science*, 16(2), 266-270.

Maquirriain, J., & Ghisi, J. P. (2006). The incidence and distribution of stress fractures in elite tennis players. *British journal of sports medicine*, 40(5), 454-459.

Martin, L. (2015). Is socioeconomic status a contributing factor to tennis players' success. *Journal of Medicine and Science in Tennis*, 20(3), 116-121.

McCurdie, I., Smith, S., Bell, P. H., & Batt, M. E. (2017). Tennis injury data from The Championships, Wimbledon, from 2003 to 2012. *British journal of sports medicine*, 51(7), 607-611.

McGuine, T. A., Post, E. G., Hetzel, S. J., Brooks, M. A., Trigsted, S., & Bell, D. R. (2017). A Prospective Study on the Effect of Sport Specialization on Lower Extremity Injury Rates in High School Athletes. *The American journal of sports medicine*, 45(12), 2706-2712.

McLellan, M., Allahabadi, S., & Pandya, N. K. (2022). Youth sports specialization and its effect on professional, elite, and olympic athlete performance, career longevity, and injury rates: a systematic review. *Orthopaedic Journal of Sports Medicine*, 10(11), 23259671221129594.

McLoughlin, E., Arnold, R., Moore, L. J., Slavich, G. M., & Fletcher, D. (2024). A qualitative exploration of how lifetime stressor exposure influences sport performers' health, well-being, and performance. *Anxiety, Stress, & Coping*, 37(2), 233-250.

Meeuwisse, W. H. (1994). Assessing causation in sport injury: a multifactorial model. *Clinical Journal of Sport Medicine*, 4(3), 166-170.

Meisel, P. L., DiFiori, J. P., Côté, J., Nguyen, J. T., Brenner, J. S., Malina, R. M., Ryan, E., 3rd, & Güllich, A. (2022). Age of Early Specialization, Competitive Volume, Injury, and Sleep Habits in Youth Sport: A Preliminary Study of US Youth Basketball. *Sports health*, 14(1), 30-44.

Messina, G., Francavilla, V. C., Lima, F., Padua, E., Secolo, G., Secolo, I., Iovane, A., Parisi, M. C., & Di Corrado, D. (2024). Effects of Proprioceptive Insoles and Specific Core Training on Postural Stability for Preventing Injuries in Tennis. *Journal of Functional Morphology and Kinesiology*, 9(1), 34.

Meylan, C., Cronin, J., Oliver, J., & Hughes, M. (2010). Talent identification in soccer: The role of maturity status on physical, physiological and technical characteristics. *International Journal of Sports Science & Coaching*, 5(4), 571-592.

Moesch, K., Elbe, A. M., Hauge, M. L., & Wikman, J. M. (2011). Late specialization: the key to success in centimeters, grams, or seconds (cgs) sports. *Scandinavian journal of medicine & science in sports*, 21(6), e282-e290.

Monsaas, J. A. (1985). Learning to be a world-class tennis player. *Developing Talent in Young People* (pp. 211-269). New York: Ballantine.

Montalvan, B., Guillard, V., Ramos-Pascual, S., van Rooij, F., Saffarini, M., & Nogier, A. (2024). Epidemiology of musculoskeletal injuries in tennis players during the French Open Grand

Slam Tournament from 2011 to 2022. *Orthopaedic journal of sports medicine*, 12(4), 23259671241241551.

Moore, L. J., Young, T., Freeman, P., & Sarkar, M. (2018). Adverse life events, cardiovascular responses, and sports performance under pressure. Scandinavian *Journal of Medicine & Science in Sports*, 28(1), 340-347.

Morales, M. (2013). How the 92nd-ranked tennis player in the world earns a comfortable living. *Forbes*.

Moran, J., Paxton, K., Jones, B., Granacher, U., Sandercock, G. R., Hope, E., & Ramirez-Campillo, R. (2020). Variable long-term developmental trajectories of short sprint speed and jumping height in English Premier League academy soccer players: An applied case study. *Journal of sports sciences*, 38(22), 2525-2531.

Moreno-Pérez, V., Hernández-Sánchez, S., Fernandez-Fernandez, J., Del Coso, J., & Vera-Garcia, F. J. (2018). Incidence and conditions of musculoskeletal injuries in elite Spanish tennis academies: a prospective study. *The Journal of sports medicine and physical fitness*, 59(4), 655-665.

Moreno-Pérez, V., Prieto, J., Del Coso, J., Lidó-Micó, J. E., Fragoso, M., Penalva, F. J., Reid, M., & Pluim, B. M. (2021). Association of acute and chronic workloads with injury risk in high-performance junior tennis players. *European journal of sport science*, 21(8), 1215-1223.

Morley, D., McKenna, J., Gilbert, S., French, J., Till, K., Quarmby, T., & Turner, G. (2018). Can't pay, can't play? Talent lead's perspectives on the financial constraints experienced by athletes on the England Talent Pathway. *High Ability Studies*, 29(1), 51-64.

Mostafavifar, A. M., Best, T. M., & Myer, G. D. (2013). Early sport specialisation, does it lead to long-term problems?. *British journal of sports medicine*, 47(17), 1060-1061.

Mountjoy, M., Andersen, L. B., Armstrong, N., Biddle, S., Boreham, C., Bedenbeck, H. P., Ekelund, U., Engebretsen, L., Hardman, K., Hills, A. P., Kahlmeier, S., Kriemler, S., Lambert, E., Ljungqvist, A., Matsudo, V., McKay, H., Micheli, L., Pate, R., Riddoch, C., Schamasch, P., Sundberg, C. J., Tomkinson, G., van Sluijs, E., & van Mechelen, W. (2011). International Olympic Committee consensus statement on the health and fitness of young people through physical activity and sport. *British journal of sports medicine*, 45(11), 839-848.

Murphy, D. F., Connolly, D. A. J., & Beynnon, B. D. (2003). Risk factors for lower extremity injury: a review of the literature. *British journal of sports medicine*, 37(1), 13-29.

Murphy, S. (1999). *The cheers and the tears: A healthy alternative to the dark side of youth sports today*. San Francisco: Jossey-Bass.

Myer, G. D., Jayanthi, N., DiFiori, J. P., Faigenbaum, A. D., Kiefer, A. W., Logerstedt, D., & Micheli, L. J. (2016). Sports specialization, part II: alternative solutions to early sport specialization in youth athletes. *Sports health*, 8(1), 65-73.

Myer, G. D., Jayanthi, N., Difiori, J. P., Faigenbaum, A. D., Kiefer, A. W., Logerstedt, D., & Micheli, L. J. (2015). Sport specialization, part I: does early sports specialization increase negative outcomes and reduce the opportunity for success in young athletes?. *Sports health*, 7(5), 437-442.

Myer, G. D., Jayanthi, N., DiFiori, J. P., Faigenbaum, A. D., Kiefer, A. W., Logerstedt, D., & Micheli, L. J. (2016). Sports specialization, part II: alternative solutions to early sport specialization in youth athletes. *Sports health*, 8(1), 65-73.

Myers, N. L., Sciascia, A. D., Kibler, W. B., & Uhl, T. L. (2016). Volume-based interval training program for elite tennis players. *Sports Health*, 8(6), 536-540.

Néri-Fuchs, J. B., Sedeaud, A., Marc, A., De Larochelambert, Q., Toussaint, J. F., & Brocherie, F. (2023). Medical withdrawals in elite tennis in reference to playing standards, court surfaces and genders. *Journal of Science and Medicine in Sport*, 26(6), 296-300.

Nigg, B. M., & Yeadon, M. R. (1987). Biomechanical aspects of playing surfaces. *Journal of sports sciences*, 5(2), 117-145.

Novak, D., Svalina, F., & Delale, E. A. (2020). Connection between social capital and sport success of young tennis players. *Social sciences*, 9(11), 206.

Noyes, F. R., Lindenfeld, T. N., & Marshall, M. T. (1988). What determines an athletic injury (definition)? Who determines an injury (occurrence)?. *The American journal of sports medicine*, 16(1), 65-68.

Ollis, S., MacPherson, A., & Collins, D. (2006). Expertise and talent development in rugby referees: an ethnographic enquiry. *Journal of Sports Sciences*, 24(3), 309-322.

Omli, J., & Wiese-Bjornstal, D. M. (2011). Kids speak: Preferred parental behavior at youth sport events. *Research quarterly for exercise and sport*, *82*(4), 702-711.

Örnek, S., & Biçer, T. (2021). *Üst düzey tenis sporcularının tenisi bırakma nedenlerinin incelenmesi* (Doctoral dissertation). Marmara University.

Oršolić, M., Barbaros, P., & Novak, D. (2021). Talent in sports is never enough: a preliminary qualitative data analysis. *Collegium antropologicum*, *45*(1), 45-53.

Ostojic, S. M., Castagna, C., Calleja-González, J., Jukic, I., Idrizovic, K., & Stojanovic, M. (2014). The biological age of 14-year-old boys and success in adult soccer: do early maturers predominate in the top-level game?. *Research in Sports Medicine*, 22(4), 398-407.

Padaki, A. S., Popkin, C. A., Hodgins, J. L., Kovacevic, D., Lynch, T. S., & Ahmad, C. S. (2017). Factors That Drive Youth Specialization. *Sports health*, 9(6), 532-536.

Pankhurst, A. (2013). Talent identification and development - the important links between research, systems, parents and coaches. *ITF Coaching and Sport Science Review*, 59, 15-16.

Park, C. L. (2010). Making sense of the meaning literature: an integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological bulletin*, 136(2), 257-301.

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of general psychology*, 1(2), 115-144.

Park, C. L., & George, L. S. (2013). Assessing meaning and meaning making in the context of stressful life events: Measurement tools and approaches. *Journal of Positive Psychology*, 8(6), 483-504.

Parpa, K., Michaelides, M., Petrov, D., Kyrillou, C., & Paludo, A. C. (2022). Relationship between Physical Performance, Anthropometric Measurements and Stroke Velocity in Youth Tennis Players. *Sports*, 11(1), 7.

Pasulka, J., Jayanthi, N., McCann, A., Dugas, L. R., & LaBella, C. (2017). Specialization patterns across various youth sports and relationship to injury risk. *The Physician and sportsmedicine*, 45(3), 344-352.

Patrick, H., Ryan, A. M., Alfeld-Liro, C., Fredricks, J. A., Hruda, L. Z., & Eccles, J. S. (1999). Adolescents' commitment to developing talent: The role of peers in continuing motivation for sports and the arts. *Journal of youth and adolescence*, *28*(6), 741-763.

Perkins, R. H., & Davis, D. (2006). Musculoskeletal injuries in tennis. *Physical Medicine and Rehabilitation Clinics*, 17(3), 609-631.

Pluim, B. M., & Safran, M. (2004). From breakpoint to advantage. *Includes description, treatment, and prevention of all tennis injuries*. Vista: USRSA.

Pluim, B. M., Fuller, C. W., Batt, M. E., Chase, L., Hainline, B., Miller, S., Montalvan, B., Renström, P., Stroia, K., Weber, K., & Wood, T. O. (2009). Consensus statement on epidemiological studies of medical conditions in tennis, April 2009. *Clinical journal of sport medicine*, 19(6), 445-450.

Pluim, B. M., Jansen, M. G. T., Williamson, S., Berry, C., Camporesi, S., Fagher, K., Heron, N., van Rensburg, D. C. J., Moreno-Pérez, V., Murray, A., O'Connor, S. R., de Oliveira, F. C. L., Reid, M., van Reijen, M., Saueressig, T., Schoonmade, L. J., Thornton, J. S., Webborn, N., & Ardern, C. L. (2023). Physical Demands of Tennis Across the Different Court Surfaces, Performance Levels and Sexes: A Systematic Review with Meta-analysis. *Sports Medicine*, 53(4), 807-836.

Pluim, B. M., Loeffen, F. G. J., Clarsen, B., Bahr, R., & Verhagen, E. A. L. M. (2016). A one-season prospective study of injuries and illness in elite junior tennis. *Scandinavian journal of medicine & science in sports*, 26(5), 564-571.

Pluim, B. M., Staal, J. B., Windler, G. E., & Jayanthi, N. (2006). Tennis injuries: occurrence, aetiology, and prevention. *British journal of sports medicine*, 40(5), 415-423.

Popp, N., Miller, J., & Hambrick, M. (2013). Break point for the USTA: Developing a strategic vision for the United States Tennis Association. *Case Studies in Sport Management*, 2(1), 1-9.

Putnam, R. D. (1993). The Prosperous Community: Social Capital and Public Life. *The American Prospect*, 4(13), 35-42.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Touchstone book/Simon & Schuster.

Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of sport and exercise psychology*, 23(4), 281-306.

Ranis, G., & Stewart, F. (2000). Strategies for success in human development. *Journal of human development*, 1(1), 49-69.

Reece, L., Fricker, P., & Maguire, K. (1986). Injuries to elite young tennis players at the Australian Institute of sport. *Australian journal of science and medicine in sport*, 18(4), 11-15.

Rees, T., Hardy, L., Güllich, A., Abernethy, B., Côté, J., Woodman, T., Montgomery, H., Laing, S., & Warr, C. (2016). The great British medalists project: a review of current knowledge on the development of the world's best sporting talent. *Sports medicine*, 46(8), 1041-1058.

Reid, M., Crespo, M., Santilli, L., Miley, D., & Dimmock, J. (2007). The importance of the International Tennis Federation's junior boys' circuit in the development of professional tennis players. *Journal of sports sciences*, 25(6), 667-672.

Rice, R. P., Roach, K., Kirk-Sanchez, N., Waltz, B., Ellenbecker, T. S., Jayanthi, N., & Raya, M. (2022). Age and gender differences in injuries and risk factors in elite junior and professional tennis players. *Sports health*, 14(4), 466-477.

Rosenfeld, L. B., Richman, J. M., & Hardy, C. J. (1989). Examining social support networks among athletes: Description and relationship to stress. *The sport psychologist*, *3*(1), 23-33.

Rugg, C., Kadoor, A., Feeley, B. T., & Pandya, N. K. (2018). The Effects of Playing Multiple High School Sports on National Basketball Association Players' Propensity for Injury and Athletic Performance. *The American journal of sports medicine*, 46(2), 402-408.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68-78.

Saarinen, M., Bertram, R., Aunola, K., Pankkonen, J., & Ryba, T. V. (2023). Student Athletes' Causal Attributions for Sport and School Achievement in Relation to Sport Dropout and Grade Point Average. *Journal of Sport and Exercise Psychology*, 45(1), 15-25.

Sæther, S. A. (2015). Selecting players for youth national teams–a question of birth month and reselection?. *Science & Sports*, 30(6), 314-320.

Sagar, S. S., & Lavallee, D. (2010). The developmental origins of fear of failure in adolescent athletes: Examining parental practices. *Psychology of Sport and Exercise*, 11(3), 177-187.

Salvador, M. L. E., Fernandes, E. P., Di Cimbrini, T., Smith, C., & Göksu, G. G. (2023). Female chairs on the boards of European National Sports Federations: a comparative study. *Gender in Management: An International Journal*, 39(4), 497-515.

Schlesinger, T., Löbig, A., Ehnold, P., & Nagel, S. (2018). What is influencing the dropout behaviour of youth players from organised football? A systematised review. *German journal of exercise and sport research*, 48(2), 176-191.

Schroepf, B., & Lames, M. (2018). Career patterns in German football youth national teams–a longitudinal study. *International journal of sports science & coaching*, 13(3), 405-414.

Seippel, O. (2006). The meanings of sport: fun, health, beauty or community?. *Sport in Society*, 9(1), 51-70.

Sell, K., Hainline, B., Yorio, M., & Kovacs, M. (2014). Injury trend analysis from the US Open Tennis Championships between 1994 and 2009. *British journal of sports medicine*, 48(7), 546-551.

Shannon, N., Cable, B., Wood, T., & Kelly IV, J. (2020). Common and less well-known upper-limb injuries in elite tennis players. *Current sports medicine reports*, 19(10), 414-421.

Sheridan, D., Coffee, P., & Lavallee, D. (2014). A systematic review of social support in youth sport. *International Review of Sport and Exercise Psychology*, 7(1), 198-228.

Shrom, S. J., Cumming, J., & Fenton, S. J. (2023). Lifestyle challenges and mental health of professional tennis players: an exploratory case study. *International Journal of Sport and Exercise Psychology*, 21(6), 1070-1090.

Shumaker, S. A., & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. *Journal of social issues*, 40(4), 11-36.

Singh, K., & Singh, P. (2021). Incidence of Sports Injury and its relationship with psychological factors: A qualitative review. *Saudi Journal of Sports Medicine*, 21(3), 75-80.

Skille, E. Å., Stenling, C., & Fahlén, J. (2017). Talent policies. *Routledge handbook of talent identification and development in sport* (pp. 455-465). London: Routledge.

Snyder, E. E., & Purdy, D. A. (1982). Socialization into sport: Parent and child reverse and reciprocal effects. *Research Quarterly for Exercise and Sport*, 53(3), 263-266.

Soberlak, P., & Côté, J. (2003). The developmental activities of elite ice hockey players. *Journal of applied sport psychology*, 15(1), 41-49.

Solanellas, F., Muñoz, J., Genovard, F., & Petchamé, J. (2023). Governance policies in sports federations. A comparison according to their size. *Journal of Infrastructure, Policy and Development*, 8(1), 2834.

Sotiriadou, K., Shilbury, D., & Quick, S. (2008). The attraction, retention/transition, and nurturing process of sport development: Some Australian evidence. *Journal of sport management*, 22(3), 247-272.

Souter, G., Lewis, R., & Serrant, L. (2018). Men, mental health and elite sport: A narrative review. *Sports medicine-open*, 4(1), 57.

Stein, G. L., Raedeke, T. D., & Glenn, S. D. (1999). Children's perceptions of parent sport involvement: It's not how much, but to what degree that's important. *Journal of Sport Behavior*, 22(4), 591-601.

Storm, L. K. (2015). *"Coloured by Culture": Talent Development in Scandinavian Elite Sport as seen from a Cultural Perspective* (Doctoral dissertation). University of Southern Denmark.

Storm, L. K., Kristoffer, H., & Krogh, C. M. K. (2012). Specialization pathways among elite Danish athletes: a look at the developmental model of sport participation from a cultural perspective. *International journal of sport psychology*, 43(3), 199-222.

Street, G., James, R., & Cutt, H. (2007). The relationship between organised physical recreation and mental health. *Health Promotion Journal of Australia*, 18(3), 236-239.

Swaab, R. I., Schaerer, M., Anicich, E. M., Ronay, R., & Galinsky, A. D. (2014). The too-much-talent effect: Team interdependence determines when more talent is too much or not enough. *Psychological Science*, 25(8), 1581-1591.

Tamminen, K. A., McEwen, C. E., Kerr, G., & Donnelly, P. (2020). Examining the impact of the Respect in Sport Parent Program on the psychosocial experiences of minor hockey athletes. *Journal of sports sciences*, 38(17), 2035-2045.

Thrower, S. N., Harwood, C. G., & Spray, C. M. (2016). Educating and supporting tennis parents: A grounded theory of parents' needs during childhood and early adolescence. *Sport, Exercise, and Performance Psychology*, 5(2), 107-124.

Thrower, S. N., Harwood, C. G., & Spray, C. M. (2017). Educating and supporting tennis parents: An action research study. *Qualitative Research in Sport, Exercise and Health*, 9(5), 600-618.

Thrower, S. N., Harwood, C. G., & Spray, C. M. (2019). Educating and supporting tennis parents using web-based delivery methods: A novel online education program. *Journal of Applied Sport Psychology*, 31(3), 303-323.

Torjman, S. (2004). *Culture and recreation: Links to well-being*. Ottawa: Caledon Institute of Social Policy.

Torres-Unda, J., Zarrazquin, I., Gil, J., Ruiz, F., Irazusta, A., Kortajarena, M., Seco, J., & Irazusta, J. (2013). Anthropometric, physiological and maturational characteristics in selected elite and non-elite male adolescent basketball players. *Journal of sports sciences*, 31(2), 196-203.

Torres-Unda, J., Zarrazquin, I., Gravina, L., Zubero, J., Seco, J., Gil, S. M., Gil, J., & Irazusta, J. (2016). Basketball performance is related to maturity and relative age in elite adolescent players. *The Journal of Strength & Conditioning Research*, 30(5), 1325-1332.

Unierzyski, P. (2003). Why some talents were lost and why some not: Results of research with practical propositions. *In Proceedings of IFT worldwide coaches symposium ITF*.

Unierzyski, P. (2005). How to recognise tennis talent. *14th ITF worldwide coaches workshop, Turkey*.

Unierzyski, P. (2006). Foundations for tennis talent identification and player development tennis programs. *ITF Coaching and Sport Science Review*, 14(39), 3-5.

Vaeyens, R., Güllich, A., Warr, C. R., & Philippaerts, R. (2009). Talent identification and promotion programmes of Olympic athletes. *Journal of sports sciences*, 27(13), 1367-1380.

Valois, R. F., Zullig, K. J., Huebner, E. S., & Drane, J. W. (2004). Physical activity behaviors and perceived life satisfaction among public high school adolescents. *Journal of school health*, 74(2), 59-65.

Valovich McLeod, T. C., Decoster, L. C., Loud, K. J., Micheli, L. J., Parker, J. T., Sandrey, M. A., & White, C. (2011). National Athletic Trainers' Association position statement: prevention of pediatric overuse injuries. *Journal of athletic training*, 46(2), 206-220.

Van der Sluis, A., Brink, M. S., Pluim, B., Verhagen, E. A., Elferink-Gemser, M. T., & Visscher, C. (2017). Is risk-taking in talented junior tennis players related to overuse injuries?. *Scandinavian journal of medicine & science in sports*, 27(11), 1347-1355.

Van Dijk, Y. (2016). A sponsorship game plan for tennis players. *ITF Coaching & Sport Science Review*, 24(70), 16-18.

Van Mechelen, W. (1992). Running injuries: a review of the epidemiological literature. *Sports medicine*, 14(5), 320-335.

Van Mechelen, W., Hlobil, H., & Kemper, H. C. (1992). Incidence, severity, aetiology and prevention of sports injuries: a review of concepts. *Sports medicine*, 14(2), 82-99.

Van Mechelen, W., Hlobil, H., Kemper, H. C., Voorn, W. J., & de Jongh, H. R. (1993). Prevention of running injuries by warm-up, cool-down, and stretching exercises. *The American journal of sports medicine*, 21(5), 711-719.

Varghese, M., Ruparell, S., & LaBella, C. (2022). Youth athlete development models: A Narrative review. *Sports Health*, 14(1), 20-29.

Vasenina, E., Hammert, W. B., Kataoka, R., Dankel, S. J., & Buckner, S. L. (2022). Injuries and strength training practices in collegiate tennis. *Sports*, 10(10), 149.

Viollet, B., Scelles, N., & Peng, Q. (2023). From sport policy to national federation sport policy: an integrative literature review and conceptualisation attempt. *Sustainability*, 15(4), 2949.

Wall, M., & Côté, J. (2007). Developmental activities that lead to dropout and investment in sport. *Physical education and sport pedagogy*, 12(1), 77-87.

Weiss, M. R., & Hayashi, C. T. (1995). All in the family: Parent-child influences in competitive youth gymnastics. *Pediatric Exercise Science*, 7(1), 36-48.

Wiersma, L. D. (2000). Risks and benefits of youth sport specialization: Perspectives and recommendations. *Pediatric exercise science*, 12(1), 13-22.

Wilhelm, A., Choi, C., & Deitch, J. (2017). Early sport specialization: effectiveness and risk of injury in professional baseball players. *Orthopaedic journal of sports medicine*, 5(9), 2325967117728922.

Wilkinson, R., Cowden, R. G., Chen, Y., & VanderWeele, T. J. (2023). Exposure to negative life events, change in their perceived impact, and subsequent well-being among US adults: A longitudinal outcome-wide analysis. *Social Science & Medicine*, 324, 115861.

Winand, M. (2009). *Déterminants de la performance organisationnelle des fédérations sportives: une analyse comparée des ligues sportives de la Communauté française de Belgique*. (Doctoral dissertation). Université catholique de Louvain, Belgium.

Wolfenden, L. E., & Holt, N. L. (2005). Talent development in elite junior tennis: Perceptions of players, parents, and coaches. *Journal of applied sport psychology*, 17(2), 108-126.

Wooden, J., & Yaeger, D. (2011). *A game plan for life: The power of mentoring*. New York: Bloomsbury.

Woolger, C., & Power, T. G. (1993). Parent and sport socialization: Views from the achievement literature. *Journal of Sport Behavior*, 16(3), 171-189.

Wuerth, S., Lee, M. J., & Alfermann, D. (2004). Parental involvement and athletes' career in youth sport. *Psychology of sport and Exercise*, 5(1), 21-33.

Yavuz, Ü., Arıcan, H. Ö. B., & Türkmen, E. (2024). I Was an Elite Tennis Athlete; I Played, I Won, I'm Forced and I Left. *International Journal of Sport Culture and Science*, 12(1), 23-33.

Zauner, C. W., Maksud, M. G., & Melichna, J. (1989). Physiological considerations in training young athletes. *Sports Medicine*, 8(1), 15-31.

Zhai, Y. (2022). Tennis and socioeconomic class: the change in perception of the sport. *Advances in Applied Sociology*, 12(4), 69-74.

Zhai, Y. (2022). Tennis and socioeconomic class: the change in perception of the sport. *Advances in Applied Sociology*, 12(4), 69-74.

BIOGRAPHY

Mario Oršolić was born on February 1, 1983 in Tolisa (Posavina region of Bosnia). He completed his primary education at the Elementary school Fr. Ilija Starčević in Tolisa, and secondary school at the School of Economics and Administration in Osijek. He graduated in 2014 from the Faculty of Kinesiology University of Zagreb, and in 2015 he passed the professional exam. In 2017, he enrolled in the postgraduate doctoral study in kinesiology (Faculty of Kinesiology University of Zagreb).

From 2014 to 2019, he worked in primary and secondary schools as a Physical Education teacher, and in 2016 he participated in the training of non-swimmers organized by the Osijek Red Cross. He has been employed at the Faculty of Food Technology in Osijek since 2019, where he conducts practical classes in Physical Education. He also conducts practical classes in Physical Education at the Department of Chemistry and at the Faculty of Medicine in Osijek within the Pharmacy (joint study of the Faculty of Food Technology Osijek and the Faculty of Medicine in Osijek), Medicine and Medical Laboratory Diagnostics study program. Since 2021, he has been a member of the Management Board of the Centre for the provision of services in Osijek, and since 2023 he has been the president of the Committee for Sport and Physical Education at the Josip Juraj Strossmayer University in Osijek.

Since 1990, he has been an active player for several football clubs such as: CFC Cibalia, FC Osijek, FC Višnjevac. He was a demonstrator in the elective course Tennis at the Faculty of Kinesiology University of Zagreb in the academic years 2010/2011 and 2011/2012. He is a B licensed coach of the Croatian Tennis Coaches Association, and since 2012 he organized and managed the Tennis Club Pro-Level (Posavina region of Bosnia), where he distinguished himself as a successful manager of programs for children and adults. At the Tennis Club Tennis Talents Osijek, he works as an expert associate in the field of organizing various events, as well as working with young tennis players. Since 2022, he has been working as an individual physical conditioning coach for young athletes in various sports.

He is the author of several scientific and professional papers, as well as a participant in numerous conferences in the fields of kinesiological education, recreation, nutrition and sports.

LIST OF PUBLISHED PAPERS

Oršolić, M., Barbaros Tudor, P., & Bosnar, K. (2018). Age, Educational and Gender Differences in Interest Towards Three Racquet Sports on a Sample of Middle-Aged Adults. *In 14th International Scientific Conference of Sport Kinetics*, 183-189.

Barić, M., Barbaros Tudor, P., & **Oršolić, M.** (2018). Differences in situational efficiency of the match winners in 2015 Australian Open and Roland Garros. *In World Congress of Performance Analysis of Sport XII: Proceedings*, 151-156.

Oršolić, M., Barbaros Tudor, P., & Novak, D. (2019). Primjena kineziloških sadržaja s mini pilates loptom u uredskim uvjetima s ciljem prevencije nastanka bolnih mišićno-skeletnih simptoma. *28. ljetna škola kineziologa Republike Hrvatske*, 353-358.

Oršolić, M., Barbaros Tudor, P., & Šarić, A. (2020). Recommended amounts of macronutrients before and after tennis matches. *Hrana u zdravlju i bolesti: znanstveno-stručni časopis za nutricionizam i dijetetiku*, 9(1), 40-47.

Paripović, T., Barbaros, P., & **Oršolić, M.** (2021). Differences in parameters of service situational efficiency between players who won and lost matches at Wimbledon 2017. *In 9th International Scientific Conference on Kinesiology*, 833-836.

Oršolić, M., Barbaros, P., & Novak, D. (2021). Talent in sports is never enough: a preliminary qualitative data analysis. *Collegium antropologicum*, 45(1), 45-53.

Oršolić, M., Knežević, M., & Barbaros, P. (2021). Vježbe na polubalansnoj „bosu“ lopti s ciljem prevencije ozljeda i poboljšanja izvedbe tenisača/ica. *29. ljetna škola kineziologa Republike Hrvatske*, 998-1005.

Oršolić, M., Ćurić, M., & Bilić, Z. (2022). Tjelesna aktivnost studenata kao dio svakodnevice za vrijeme pandemije uzrokovane virusom SARS-COV-2. *30. ljetna škola kineziologa Republike Hrvatske*, 1434-1442.

Moslavac, T., Šubarić, D., Jašić, M., **Oršolić, M.**, Paštar, M., Sokolić, D., & Jozinović, A. (2022). Mogućnosti iskorištenja nusproizvoda iz industrije prerade riže. *Neke mogućnosti iskorištenja nusproizvoda prehrambene industrije - Knjiga 4.* Prehrambeno tehnološki fakultet Sveučilišta Josipa Jurja Strossmayera u Osijeku, 365-393.

Kljajević, V., Stanković, M., Đorđević, D., Trkulja-Petković, D., Jovanović, R., Plazibat, K., **Oršolić, M.**, Čurić, M., & Sporiš, G. (2022). Physical Activity and Physical Fitness among University Students—A Systematic Review. *International Journal of Environmental Research and Public Health*, 19(1), 158.

Ćurić, M., Mujanović, E., Mujanović, A. N., Atiković, A., & **Oršolić, M.** (2023). Effects of Learning Alpine Skiing Techniques on Postural Stability. *Sport Mont*, 21(3).

Oršolić, M., Barbaros, P., & Novak, D. (2023). Research on Negative Life Events Among Tennis Players of Differing Success Levels: The Participants' Perspectives. *Collegium antropologicum*, 47(1), 1-10.

Oršolić, M., Barbaros, P., & Novak, D. (2023). What makes a roland champion? Early engagement, late specialization and timely transition from having fun to dedication. *Frontiers in sports and active living*, 5, 1213317.

Novak, D., **Oršolić, M.**, Barbaros, P., Suzuki, E., & Subramanian, S. V. (2025). Family ties and social capital among grand slam tennis champions. *International Review for the Sociology of Sport*, 10126902241298498.

Vidović, S., Drenjančević, I., Kolar, M., Dabić, G., **Oršolić, M.**, Degmečić, D., Zibar, L., Labak, I., & Heffer, M. (2025). High prevalence of depression, anxiety, and stress among students in Croatia after the COVID-19 pandemic: A possible association with sleep quality and physical activity. *Psychiatria Danubina*, 37(3), 344-352.