International Tennis Federation

COACHING & SPORT SCIENCE REVIEW

www.itfcoachingreview.com. August 2025. 33th Year. Issue 96. ISSN 2225-4757

Issue 96

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Editorial

Luca Santilli & Miguel Crespo

Tennis Development, Development Department, International Tennis Federation, London, UK.

Welcome to the 96th issue of the ITF Coaching & Sport Science Review, the second of 2025, celebrating 33 years of publication. This is a special Issue, dedicated to the theme "Tennis: The Sport for Life." Through this edition, we aim to showcase how different initiatives are not only advancing player development and coaching standards but also reinforcing tennis as a lifelong pursuit that supports physical, mental, and social well-being across all ages and abilities. From education and performance to inclusion and innovation, each featured story reflects the commitment of different stakeholders to making tennis accessible, sustainable, and impactful for generations to come.

Furthermore, in this editorial, we highlight several key initiatives that the ITF is currently implementing to support the global delivery of effective tennis development programmes. These include the ITF Academy surpassing half a million users, the use of the ITF World Tennis Number as the official rating system for the 2025 Intercollege Tennis Association (ITA) Summer Series, the inspiring Wimbledon performance of Solana Sierra—a graduate of the ITF Grand Slam Player Development Programme—and the upcoming ITF World Coaches Conference in Vilnius, which invites coaches from around the world to explore future trends in tennis, among other topics.

TENNIS THE SPORT FOR A LIFETIME

Coaches play a key role in promoting the health benefits of tennis, which go far beyond physical fitness (Crespo et al., 2021). The ITF is placing strong emphasis on tennis as a sport that not only improves overall well-being but also contributes significantly to longer life expectancy.

Scientific research shows that playing tennis is linked to substantial reductions in mortality, particularly from cardiovascular disease (Chao et al., 2021). Compared to other forms of exercise like running, swimming and others, tennis has been shown to add nearly 10 years to life expectancy—highlighting its unique value in promoting long-term health (Spring et al., 2020).

The World Health Organization recommends regular moderate to vigorous physical activity for adults aged 18–64 (World Health Organization, 2024). Tennis stands out as an ideal choice, offering both aerobic and anaerobic benefits, and aligning with the goals of the ITF Masters Tour to encourage lifelong participation (Fernandez Fernandez et al., 2009). Furthermore, research has emphasised the relevance of well-being as a performance pillar using a holistic approach for monitoring tennis players (Michel et al., 2023).

Beyond longevity, tennis supports mental health and cognitive function (Kovacs et al., 2016). Regular play has been associated with reduced symptoms of depression and anxiety, especially among younger populations. It also contributes to improved brain health and emotional well-being (Yazici et al., 2016). Research has concluded that tennis participation is associated with reductions in depressive and anxiety symptoms, improved self-confidence, and enhanced resilience (Konstantinou et al., 2025).

Importantly, the health benefits of tennis apply across all age groups. From youth development to senior participation, tennis supports:

- Enhanced aerobic capacity
- Reducing blood pressure (Carpes et al., 2021)
- Leaner body composition (Swank et al., 1998)
- Improved cholesterol and lipid profiles (García et al., 2013)
- Stronger bones (Jackson et al., 2020)
- Lower risk of diabetes (Leelayuwat, 2013) and heart disease (Pluim et al., 2014)

As coaches, promoting tennis as a lifelong sport can have a profound impact on players' physical and mental health (Jacobs & Schmitz, 2002). Encouraging consistent participation not only improves performance but also contributes to a healthier, longer life (Stubbs & Werneck, 2024).

Tennis stands as a beacon of health and vitality. Its ability to enhance physical fitness, mental well-being, and overall quality of life underscores its significance as a sport that transcends boundaries and promotes health across all ages. The ITF celebrates tennis not only as a game of skill and strategy but also as a powerful sport to promote a healthier, happier world.

ITF WORLD COACHES CONFERENCE

Tennis coaches from around the globe are encouraged to participate in the 2025 ITF World Coaches Conference, taking place from 29–31 October at the SEB Arena in Vilnius, Lithuania. The event is organised by the International Tennis Federation (ITF) in collaboration with the Lithuanian Tennis Union and Tennis Europe.

Held every two years, the conference consistently attracts over 600 coaches from more than 100 countries, offering a unique opportunity for professional development, knowledge exchange, and networking with leading figures in coaching, sport science, and player development.

This year's theme, "Future Trends in Tennis: Preparing Today for Tomorrow's Game," explores the latest innovations in coaching practices, athlete development, and emerging technologies that are shaping the future of the sport.

Participants will benefit from a dynamic programme that includes both on-court demonstrations and off-court presentations, delivered by internationally recognised experts. Past editions have featured Grand Slam champions, elite touring coaches, and respected tennis educators such as Mary Pierce, Alex Corretja, Miles Maclagan, Arantxa and Emilio Sánchez Vicario, Albert Costa, Wayne Black, and Pat Cash.

Confirmed speakers for the 2025 edition are listed on the official conference website, giving attendees a preview of the insights and expertise they can expect.

The ITF World Coaches Conference plays a key role in the ITF's global development strategy, reinforcing its commitment to raising coaching standards and supporting the growth of tennis at every level.

Registration is open until 14 September 2025 at 23:59 EET. Places are limited, so coaches are encouraged to register early to secure their spot.

ITF ACADEMY USERS HIT HALF A MILLION

The ITF Academy recently celebrated a major milestone, having welcomed over 500,000 users since its launch in March 2019. This achievement reflects the Academy's growing role as a central resource for tennis education and development across the globe.

Designed to support coaches, players, parents, support teams, member nations, and fans, the ITF Academy offers a wide range of learning opportunities tailored to all levels of the game. It provides both online and in-person courses, making tennis education more accessible and flexible than ever before.

As part of the ITF's broader mission to grow and improve tennis for future generations, the Academy delivers content across various formats—including videos, articles, research papers, animations, and audio—covering topics such as general sport education, wheelchair tennis, beach tennis, and blind tennis.

Registration is free, and users can explore short, engaging e-learning modules alongside more comprehensive certification programmes. The platform also features a rich library of materials from global tennis conferences and expert-led sessions.

The Academy's growth aligns with insights from the 2024 Global Tennis Report, which revealed that 106 million people are actively playing tennis worldwide. As the sport continues to expand, the ITF Academy remains a vital tool for empowering individuals to deepen their knowledge and contribute to tennis at every level.

Whether you're a coach looking to enhance your skills, a parent supporting a young player, or a federation seeking development tools, the ITF Academy offers valuable resources to help you stay informed and connected to the sport.

ITF WORLD TENNIS NUMBER AND THE 2025 ITA SUMMER SERIES COLLEGIATE TENNIS

Throughout the summer, the ITF World Tennis Number (WTN) served as the official rating system for the 2025 ITA Summer Series—a nationwide collegiate tennis circuit that ran from June 13 to July 27 across more than 50 U.S. college campuses. The Series concluded with the ITA National Summer Championships held in Memphis, Tennessee, from August 9–12.

The Summer Series provided valuable match play opportunities for college athletes, top juniors, and former collegiate players. All tournament results were integrated into the WTN system, which determined entry eligibility and seeding. Entry requirements included minimum WTN ratings of 17.0 for women and 10.0 for men.

The WTN offers a global, dynamic scale ranging from 1 (elite professional) to 40 (beginner), with separate ratings for singles and doubles. It uses an algorithm to evaluate match outcomes and expectations, ensuring fair competition across all ages, genders, and skill levels. While central to college tennis, WTN also supports recreational and professional players worldwide, reinforcing its role as a unified standard for rating players at every level.

For coaches, the ITA Summer Series represented a key opportunity to help players stay match-fit during the off-season, maintain or improve their WTN rating, and prepare for the upcoming college season.

The Series featured weekly Summer Points Race tournaments with open entry and WTN-based flighted draws, Summer Masters Series events, with one men's and one women's tournament each week. Semi-finalists from these events earned direct entry into the National Championships, and select tournaments offering prize money

By encouraging participation in WTN-rated events, coaches helped players gain competitive experience and track their development through a reliable, data-driven system.

NEWS FROM THE ITF GRAND SLAM PLAYER DEVELOPMENT PROGRAMME TOURING TEAM

Solana Sierra made headlines this summer by becoming the first Argentinian woman to reach the fourth round at Wimbledon in over two decades—since Paola Suárez's run in 2004. Her breakthrough came after a hard-fought victory over Spain's Cristina Bucsa, with Sierra prevailing 7-5, 1-6, 6-1.

Her Wimbledon journey was already remarkable before that milestone. Sierra secured her first-ever Grand Slam main draw win against Australia's Olivia Gadecki, followed by a second-round triumph over Britain's Katie Boulter. Notably, she entered the main draw as a lucky loser, having initially fallen in the qualifying rounds. An injury withdrawal by Belgium's Greet Minnen opened the door for Sierra to compete—and she seized the opportunity.

Sierra's rise reflects her steady progression through the ITF player development pathway. She reached No. 12 in the ITF World Tennis Tour Junior Rankings and was a semi-finalist at the 2022 US Open Junior Championships. During that run, she was part of the ITF Grand Slam Player Development Programme (GSPDP) Touring Team, which supports talented players from developing tennis nations by providing access to high-level competition.

Her development has also been supported through three GSPDP grants, totalling $75,000, which have helped her compete internationally and continue her professional growth.

Sierra has consistently represented Argentina in the Billie Jean King Cup by Gainbridge and was one of the standout performers on the ITF World Tennis Tour in 2024, capturing six titles. She also claimed her first WTA-level trophy at the Antalya 125 event in April and added another title at W75 Bellinzona, marking her 15th professional title and one of her biggest wins on the ITF circuit.

Her Wimbledon performance not only marks a personal milestone but also highlights the impact of the ITF's development initiatives in supporting emerging talent from around the world.

NEW CLASSIFICATION TIERS FOR ELECTRONIC LINE CALLING SYSTEMS

Coaches should be aware of recent updates to the classification of Electronic Line Calling (ELC) systems, introduced by the ITF in collaboration with the ATP, WTA, and the four Grand Slams. ELC systems are now categorized into three levels: Gold, Silver, and Bronze, making the technology more accessible across different tiers of competition.

- Gold-level systems are designed for top-tier international events such as Grand Slams, ATP and WTA Tours, Billie Jean King Cup, and Davis Cup.
- Silver-level systems are suitable for second-tier international competitions, including the ITF World Tennis Tour.
- Bronze-level systems are intended for national-level tournaments.

This new framework replaces the previous single-tier classification and allows for broader implementation of ELC technology across the tennis ecosystem. Systems are evaluated based on four consistent criteria: accuracy, reliability, suitability, and practicality. Once a system meets the standards for a specific tier, it becomes eligible for use in events sanctioned by the international governing bodies.

For coaches, this means greater clarity on the type of ELC system being used at different levels of play, and assurance that all approved systems meet rigorous standards. The unified evaluation process also promotes transparency and consistency in how ELC systems are monitored and deployed throughout the tennis calendar.

More detailed information on the evaluation procedures is available on the ITF website.

We hope you found this editorial both informative and thought-provoking. Its purpose is to highlight some of the key efforts the ITF is making to advance tennis on a global scale. We also encourage new contributions to the ITF CSSR through the designated platform. Our sincere thanks go to all the authors for their valuable input and to everyone who submitted their work. Comprehensive submission and publication guidelines can be found on the platform and on the latest issue page of the ITF Academy. We trust you will enjoy this concluding edition of the ITF Coaching and Sport Science Review.

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RECOMMENDED ITF TENNIS ACADEMY CONTENT (CLICK BELOW)

COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 6-11
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.685

A Coaches Guide to Prevention and Care of Lower Extremity Injuries in Tennis Players

Kerry C Dollaway and Kyle Hannays

Centre for Kinesiology, Physical Education and Sport, The University of Trinidad and Tobago.

ABSTRACT

Tennis requires rapid direction changes, explosive movements, and repetitive actions, all of which place significant stress on the lower extremities. Consequently, players often experience injuries such as plantar fasciitis, tendonitis, Osgood-Schlatter disease, muscle strains, ligament ruptures, and stress fractures. Teenage and female athletes are particularly vulnerable. This paper explores the aforementioned lower extremity injuries, their symptoms, and prevention strategies, emphasizing the role coaches play in reducing injury risk. It highlights the importance of early detection, interdisciplinary collaboration with physical therapists, athletic trainers, and sports medicine specialists and coach education. Practical guidelines for injury prevention and management are explored, along with a framework for future research on injury trends in Caribbean tennis players.

Key words: Tennis injuries, lower extremity injury prevention, coaching strategies, sport medicine collaboration

Received: 18 February 2025

Accepted: 28 March 2025

Corresponding author: Kyle Hannays, kahannays@hotmail.com

INTRODUCTION

Prevention of Lower Extremity Injuries in Tennis Players

Tennis requires substantial physical effort, power, speed, agility, mobility, and endurance. The sport's intense nature; that is, the need for frequent acceleration, deceleration, and rapid lateral movements; places significant strain on the lower extremity. With the growing participation of teenagers and female players, especially in competitive spheres, the incidence of lower extremity injuries has increased (Fu et al., 2018). These injuries can range from minor ligament sprains and muscle strains to more severe conditions like stress fractures and ligament tears, which can jeopardize an athlete's career. This paper will focus on some of the more common injuries, of which coaches should be aware. These are plantar fasciitis, tendonitis, Osgood Schlatter's disease, muscle strains, ligament injuries and shin splints.

The repetitive movements inherent to tennis heighten the risk of injury, making injury prevention a priority. Special attention is required for young athletes since they are still developing, and female athletes given their distinct physiological and biomechanical characteristics. Hormonal fluctuations and rapid growth spurts can lead to muscular imbalances and biomechanical issues in adolescents, which increase the risk of injury. Similarly, hormonal variations and anatomical differences, such as a wider quadriceps (Q) angle, predisposes female athletes to knee injuries (Daneshmandi et al., 2011).

Given the above, adequately trained coaches are less of a 'perk' and more a necessity. Coaches play a crucial role in safeguarding the health, safety, and well-being of their athletes. They must actively promote and facilitate the implementation of proper injury prevention and treatment

practices. As such, educational programs that equip coaches with the necessary knowledge and skills to understand injury causes, prevention strategies, and appropriate care are essential. These initiatives will empower coaches to serve as the first line of defence against injuries, helping athletes reach their full potential, extend their careers, and maintain their well-being within the sport.

COMMON LOWER EXTREMITY INJURIES IN TENNIS PLAYERS

Plantar Fasciitis

Plantar fasciitis, a common condition among tennis players, involves inflammation of the plantar fascia—a thick band of

connective tissue running from the heel to the toes on the underside of the foot that supports the arch. The primary symptom is sharp pain in the heel and arch, often most noticeable in the morning or after prolonged sitting. This pain can be severe, interfering with training and participation in sports. Athletes may also experience stiffness, which worsens with walking, standing, or extended physical activity.

Several factors increase the risk of plantar fasciitis in tennis players, including poorly fitted footwear and frequent play on hard courts (Menon & Jain, 2018). Repetitive stress from running and jumping can cause micro-tears and inflammation in the fascia. Shoes that lack proper fit, cushioning, arch support, or traction can worsen or trigger the condition. Additionally, playing on hard surfaces increases ground reaction forces, which can transmit pressure through the feet, impacting joints along the kinetic chain (Buchanan & Kushner, 2024). Anatomical foot structures, such as high arches (pes cavus) or flat feet (pes planus), may further increase biomechanical stress on the plantar fascia.

Prevention strategies are essential for minimizing the risk of plantar fasciitis. Athletes should wear properly fitting tennis shoes that provide adequate arch support, cushioning, and shock absorption tailored to their foot type. It is also important to promptly replace worn-out shoes to maintain proper support. Incorporating foot-strengthening exercises, such as toe curls, arch lifts, and calf stretches, can help improve the strength and flexibility of the supporting muscles and fascia. Stretching exercises, particularly targeting the gastrocnemius, soleus, tibial muscles, and plantar fascia, are also recommended before and after training to prevent injuries.

For athletes with a history of plantar fasciitis or shin splints, using orthotic inserts or custom insoles can provide additional arch support and help alleviate stress on the plantar fascia (Buchanan & Kushner, 2024). By following these preventative measures, athletes can reduce their risk of injury and maintain optimal performance.

Tendonitis

Tendonitis is the inflammation of a tendon, the fibrous tissue that connects muscle to bone. Tennis players are particularly prone to Achilles' tendonitis, though it can also affect other lower extremity tendons, such as the patellar tendon. Symptoms of tendonitis include pain, swelling, and difficulty moving the joint associated with the affected tendon. Pain often worsens with physical activity and can persist, though at a milder level, even at rest (Loiacono et al., 2019). Additional signs include swelling, tenderness to touch, warmth, and redness around the tendon, which are common indicators of inflammation. If left untreated, acute or chronic tendonitis can lead to an antalgic gait, reduced mobility, and impaired performance.

Several factors contribute to the development of tendonitis in tennis players, including overloading, sudden increases in training intensity, improper equipment, and hard playing surfaces. Repetitive activities like running and jumping, particularly with poor technique, increase stress on the knee and ankle tendons, causing micro-tears and inflammation. Overtraining is a significant factor, as the high-impact nature of tennis often leaves little time for tendon recovery (Irby et al., 2020). Biomechanical issues, such as improper movement patterns, further strain the tendons, while inadequate footwear—especially shoes lacking arch support—can exacerbate these issues. Therefore, coaches must pay keen attention to maintaining proper biomechanics, which is essential to ensure safe movement patterns that minimize stress on the tendon. Coaches play a crucial role in monitoring and evaluating athletes' form throughout training to prevent injuries (Federer et al., 2017)

Preventing tendonitis requires a comprehensive approach that focuses on reducing tendon stress, improving strength, and maintaining joint mobility. Gradually increasing training volume and intensity helps the tendons adapt to higher loads, reducing the risk of inflammation. Athletes should follow a structured strength and conditioning program with progressive intensity and regular rest periods. Stretching the gastrocnemius muscle group and patellar tendon enhances flexibility, while exercises like calf raises, eccentric heel drops, and ankle mobility drills strengthen the tendons and surrounding muscles.

Osgood-Schlatter Disease

Osgood-Schlatter disease is an overuse injury marked by pain and swelling at the tibial tuberosity, where the patellar tendon attaches to the upper tibia (shinbone). This condition commonly affects growing children, especially those who have recently had a growth spurt and participate in sports that involve frequent running and jumping, like tennis. Athletes with Osgood-Schlatter often experience pain just below the kneecap, which intensifies with activity and may continue as a throbbing ache at rest (Corbi et al., 2022). Inflammation around the tibial tuberosity, along with the development of a callus or bump on the shin, can limit an adolescent's participation in sports and other activities.

The condition results from repeated stress on the tibial tuberosity, especially from movements like jumping, running, and sudden direction changes, which are common in tennis. Activities that involve rapid deceleration and explosive motions increase the risk of developing Osgood-Schlatter disease (Corbi et al., 2022). This repetitive stress pulls on the patellar tendon at the growth plate of the tibial tuberosity, causing pain and inflammation. The condition is often exacerbated during growth spurts when bones, muscles, and tendons develop at different rates. For example, the quadriceps may strengthen more rapidly than the tibia, placing additional stress on the patellar tendon. This imbalance leaves the tibial tuberosity more vulnerable to injury, and in severe cases, the quadriceps' force can cause an avulsion fracture by pulling the tendon away from the bone (Lucenti et al., 2022).

Treatment for Osgood-Schlatter disease focuses on reducing stress on the tibial tuberosity and managing growth-related imbalances. Limiting high-impact activities, especially those involving explosive movements and rapid deceleration, is essential during critical growth periods. Coaches and parents should encourage young athletes to engage in low-impact exercises to prevent excessive strain on the knee. A well-designed strength and conditioning program that balances the forces exerted by the quadriceps and hamstrings is critical for minimizing stress on the tibial tuberosity. Exercises such as squats, multi-directional lunges, leg presses, hamstring curls, and quadriceps stretches can help maintain this balance.

Additional support, such as knee braces or sleeves, can provide extra protection by cushioning impact forces on the knee (Circi et al., 2018). Ensuring athletes follow balanced training programs with proper warm-up and cool-down routines can further reduce the likelihood of developing Osgood-Schlatter disease.

Lower Extremity Muscle Strains

Muscle strains is a common injury experienced by tennis players. They typically involve partial tears in muscles, most commonly affecting the calf, hamstrings, hip adductors, or quadriceps. These injuries result in sudden pain, swelling, and reduced muscle function, significantly impacting athletic performance (Ishøi et al., 2020). Affected muscles may exhibit tenderness, mild bruising, and stiffness, which worsens with movement or stretching. The primary causes of muscle strains in tennis are overuse, fatigue, insufficient warm-ups, and activities requiring rapid acceleration, explosive movements, or sudden deceleration. Since tennis, by nature, demands the above, muscles are subjected to substantial stress which further increase the risk of injury during intense practice or matches.

Preventing muscle strains requires a comprehensive strategy. A proper warm-up that includes dynamic stretching is essential to enhance muscle flexibility and readiness. These drills should mimic actual game movements to prepare the muscles effectively. Strengthening exercises targeting the calf, hamstrings, and quadriceps are crucial for building muscle power, endurance, and the capacity to withstand stress. Recovery is equally important, as it allows muscles to heal and regenerate after intense workouts (Koscso et al., 2022). Coaches play a key role in managing athletes' training volumes thus preventing overexertion and promoting long-term development.

Rupture and Sprains of Major Ligaments

Ligament injuries are prevalent in tennis and include both acute and chronic tears or strains of key ligaments, such as the anterior cruciate ligament (ACL) and the medial collateral ligament (MCL). Common symptoms include sharp pain, swelling, inflammation, stinging sensations, and reduced mobility in the knee or ankle joint. Movement involving the injured leg may be painful, and weight-bearing activities can feel uncomfortable. Bruising and inflammation around the affected ligament are also common (Leong et al., 2019). In more severe cases, athletes may hear a snapping or popping sound, which could indicate a ligament tear. The frequent directional changes, sudden stops and rapid acceleration required in tennis, places significant stress on knee ligaments, making them particularly vulnerable to injury (Leong et al., 2019). Improper landings with the knee locked or extended, as well as sudden pivots or rotations, can further increase the risk of ligament sprains or tears.

To prevent ligament injuries in tennis, it is essential to address biomechanical inefficiencies and establish protective measures. Strength and conditioning programs should target the quadriceps, hamstrings, and calves to prepare athletes for the demands of training and gameplay. Coaches should emphasize proper biomechanics, focusing on movements such as jumping, landing, turning, and accelerating or decelerating safely. For athletes with a history of knee injuries or ligament instability, wearing knee braces or sleeves during practice can enhance joint stability and provide added protection (Zitnay & Weiss, 2018). Additionally, implementing thorough warm-up and cool-down routines before and after games is crucial. These routines help prepare muscles and ligaments for activity and promote relaxation, reducing the risk of strains and sprains.

Medial Tibial Stress Syndrome (MTSS) - Shin Splints

Tibial Stress Syndrome, commonly known as "shin splints," is characterized by pain along the anterior, posterior, and medial sides of the tibia, or shin bone. Athletes often report discomfort in the front or back of the shin, particularly during running and jumping. This condition arises from repetitive stress on the tibia caused by high-impact activities, including running and jumping. Research indicates that MTSS constitutes 6% to 16% of running injuries and around 50% of lower leg injuries (Kortebein & Patrick, 2000). Often classified as an overuse injury, MTSS occurs in athletes, military recruits, and individuals who engage in regular physical activity without sufficient recovery (Moen & Tol, 2012).

Factors contributing to the development of MTSS include inappropriate footwear, training on hard surfaces, poor biomechanics, inadequate arch support, ankle eversion, and muscle imbalances, particularly between the calf and tibialis muscles. Treatment typically involves rest, ice, and activity modification which focuses on correcting underlying biomechanical issues to prevent recurrence. If not properly managed, MTSS can lead to more serious complications, such as stress fractures. A critical yet often neglected aspect of treating MTSS is using arch support orthotics to help correct biomechanical abnormalities in the foot's arch. These orthotics can significantly aid in pain reduction and facilitate a quicker return to play (Naderi & Bagheir, 2013).

IMPLEMENTING INJURY PREVENTION STRATEGIES IN TENNIS CLUBS

The Pre-Participation Examination (PPE)

The pre-participation examination (PPE) is crucial for injury prevention. It assesses athletes before they engage in sports to reduce both short- and long-term health risks while optimizing overall health. Though it is typically conducted before starting a sport, the PPE should be performed annually to maintain athlete well-being (Dollaway et al., 2020).

Key components of the PPE include a comprehensive evaluation of health and medical history; the Medical History Questionnaire (MHQ) is essential. The MHQ can uncover 64-78% of an athlete's medical conditions before a physical exam, making it more sensitive than the examination itself (Kurowski & Chandran, 2000). Fitness performance tests should follow the health status assessment, with requirements tailored to the specific sport, as they can vary significantly between activities.

The main objectives of the PPE are to:

1. Identify medical conditions that may heighten the risk of injury or sudden death.
2. Clear individuals for unrestricted sports participation.
3. Designate individuals for specific sports while prohibiting others.
4. Release individuals only after further medical evaluation.
5. Prevent participation until necessary medical treatment is received.
6. Bar individuals from sports until serious medical issues are addressed.
7. Comply with legal and insurance requirements (Carek & Mainous, 2003)

Recognizing Early Signs of Injury

Identifying early signs of injury is crucial for preventing further damage, particularly in tennis. Coaches should be vigilant for indicators such as persistent or recurring pain in specific areas, swelling, inflammation, joint or muscle stiffness, and noticeable declines in performance or technique. During training sessions and matches, if these symptoms are detected, coaches should respond appropriately thus facilitating early treatment and reducing the risk of minor injuries becoming chronic conditions, that could side-line athletes for extended periods.

Training and Conditioning

Dynamic stretching before training and games is essential for muscle and joint health and injury prevention. An effective warm-up prepares the body for activity by increasing blood flow and oxygen supply to the muscles, thus enhancing their pliability. Conversely, a proper cool-down, which includes static stretching, helps lower heart rates and reduce muscle tension, alleviating post-workout stiffness and soreness, thereby decreasing recovery time. By incorporating structured warm-up and cool-down routines during training and matches, coaches can enhance players' physical performance and resilience (Van Hooren & Peake, 2018). These practices not only prepare athletes mentally and physically for intense activity but also play a significant role in preventing both major and minor injuries while supporting long-term athletic performance.

Strength and flexibility training are also essential components to injury prevention and performance. Strength training should be supervised by a qualified professional to strengthen muscles around joints and minimize the risk of strains and sprains. Flexibility exercises are also essential for maintaining mobility, which is vital for safe tennis movements (Vasenina et al., 2022). Integrating both strength and flexibility training into regular practice is key for improving performance, preventing injuries, and supporting athletes' overall health. Coaches should focus on biomechanically efficient movement patterns, including proper foot positioning, landing techniques, and turning motions during training. Regular technique assessments can ensure compliance with injury prevention strategies. When executed effectively, this approach can help identify injury risks, allowing coaches to implement strategies to reduce them, ultimately enhancing performance and decreasing the chance of chronic injuries.

Equipment and Environment

Proper footwear is one of the most important equipment considerations for preventing lower extremity injuries in tennis. Athletes should wear sport-specific shoes that fit well, provide arch support, and offer adequate shock absorption to minimize lower extremity injuries. Selecting the right tennis shoes based on individual comfort, foot type, and playing style can significantly reduce the risk of foot and lower extremity injuries. Regular inspections and timely replacements of worn-out shoes are essential. Regarding playing surfaces, whenever possible, softer options like clay, which reduce ground reaction forces, should be prioritized over concrete courts. This can help alleviate the risk of injury from repetitive movements in tennis (Allen et al., 2018), and ultimately enhance joint longevity, and prolong their peak performance throughout their tennis careers.

Recovery and Rest

To reduce injury risk, athletes must allow their muscles adequate rest between training sessions. Coaches should ensure that athletes have sufficient rest days and promote healthy sleep habits. By emphasizing rest and sleep, coaches can help athletes replenish muscle glycogen stores, recover from minor injuries, and avoid overtraining (Balk & Englert, 2020). This comprehensive injury prevention strategy can enhance the longevity of an athlete's career, improve their resilience in challenging situations, and reduce the occurrence of injury. Early reporting of discomfort and pain followed by prompt and proper treatment of injuries is essential in preventing the escalation of prevent minor issues. Athletes should also be educated on the Rest, Ice, Compression, and Elevation (RICE) method to reduce inflammation from acute injuries. Timely intervention and effective treatment aids in rehabilitation efforts and minimizes disruptions to training and competition.

A Collaborative Approach to Injury Prevention and Treatment

Effective communication and collaboration with healthcare professionals—such as physiotherapists, athletic trainers, strength and conditioning coaches, nutritionists, sports psychologists, and sports medicine specialists—are crucial for addressing and preventing injuries in athletes. This collaborative approach allows for holistic and optimal care by facilitating early issue identification, appropriate rehabilitation initiation, and education for athletes, coaches, and parents on injury management. This approach also

creates an environment within which athletes feel supported and empowered which creates an environment conducive to athlete development and success.

Early injury detection is vital for timely treatment and complication avoidance. Coaches must refer athletes to healthcare practitioners at the first sign of injury to address concerns, achieve accurate diagnoses, and establish treatment plans that expedite recovery and minimize downtime (Duarte et al., 2024). This close collaboration helps maintain the long-term health and performance of tennis players. Additionally, a well-structured rehabilitation program, tailored to the specific needs of injured athletes, is essential for effective injury management. Experienced healthcare professionals should develop and monitor these programs, adjusting as needed for enhanced recovery outcomes. Coaches' involvement in rehabilitation demonstrates their commitment to athlete health and well-being throughout their careers. Educating athletes on injury prevention and treatment, including sharing recovery techniques and promoting strength and flexibility training, empowers them to prioritize their health. This education fosters a health-first mindset critical for longevity in tennis (Kempe et al., 2023).

Notwithstanding the collaboration highlighted above, tennis clubs should implement effective injury prevention measures tailored to their athletes. This should involve extensive educational sessions, for both athletes and coaches, focused on injury care and prevention (see section on coaching education). These sessions must adequately cover areas such as sports safety, first aid, nutrition, biomechanical analyses specific to tennis movements, strength and conditioning, appropriate warm-ups and cool-downs, and concussion awareness. This proactive approach will enable tennis clubs and coaches to promote athletes' health and well-being, which can enhance on-court performance and extend athletes' careers.

Coaches, in collaboration with physiotherapists, athletic trainers, and strength and conditioning experts, should conduct thorough assessments of athletes' overall health, strength, flexibility, mobility, endurance, and agility before they join the club. Individualized training programs, designed in collaboration with the above specialists and coaches, should be created to cater to each player's specific needs and abilities to help prevent injuries. These programs must take into account each athlete's strengths, weaknesses, and injury history to minimize the risk of frequent injuries. Thus, coaches not only adapt training sessions to boost performance but also help athletes establish a physical and mental foundation that can prevent injuries with the potential to shorten their tennis careers. This athlete centred approach also fosters open communication while simultaneously building trust and collaboration within the club.

Coaching Education and Training

Coaching education plays a pivotal role in injury prevention and athlete care. Proper training helps coaches implement evidence-based practices (Hughes et al., 2024); these practices reduce the risk of overuse injuries, improper training loads, and inadequate recovery periods. Without structured education, issues related to early specialization and excessive training intensity can lead to long-term injuries and hamper player development.

Injury prevention efforts should include the development of structured certification programs focused on biomechanics, injury risk assessment, load management, rehabilitation techniques, and tennis-specific strength and conditioning. Practical workshops that incorporate on-court demonstrations, case studies, and interactive sessions will further enhance the proposed programs' efficacy. Psychological aspects of injury management, such as athlete motivation and return-to-play strategies, may also prove useful.

Implementation of Educational Programs

The integration of injury prevention into coaching education requires collaboration with physiotherapists, sport scientists, and university kinesiology departments. Each expert should contribute towards the development of certification programs that blend theoretical knowledge with practical applications. By partnering with universities and professional medical associations, tennis clubs and coaching organizations can offer standardized certification programs that ensure all coaches receive high-quality education in injury prevention. These programs should include both theoretical coursework and hands-on assessments to verify a coach's competency in implementing injury prevention strategies.

THE DANGERS OF IGNORING INJURIES

Ignoring injuries can lead to serious, life-threatening conditions, chronic pain, and even the end of an athlete's career. To prevent these outcomes, coaches must stress the importance of reporting injuries and following prescribed treatment plans. Untreated injuries can develop into chronic conditions that limit an athlete's capabilities, leading to extended time off and decreased performance. Acute injuries may worsen, resulting in ongoing pain and dysfunction that can diminish performance and potentially force early retirement from the sport (Ledreux et al., 2020). Therefore, effective injury management and the implementation of appropriate rehabilitation and strength conditioning programs are crucial for ensuring athletes' long-term careers in tennis. Injury prevention and a structured approach to re-entering training and competition are vital to safeguarding an athlete's career (Prieto-González et al., 2021). By prioritizing the health and motivation of athletes, coaches aid in athlete success in the competitive tennis environment.

CONCLUSION AND FUTURE RESEARCH

Addressing lower extremity injuries in tennis requires a multi-faceted approach involving education, training, and collaboration with health professionals. Coaches' understanding of injury prevention strategies can greatly reduce the risk of injuries, ultimately benefiting athletes' health and performance. This guide provides a practical resource for coaches and tennis club managers, accenting the importance of proactive injury prevention measures.

Future research on the prevalence of lower extremity injuries among tennis players in the Caribbean will prove crucial in shaping prevention strategies. The University of Trinidad and Tobago, in collaboration with tennis academies, clubs, and national federations across the English-speaking Caribbean, intends to conduct a comprehensive study to assess injury incidence, training practices, and coaches' knowledge of injury prevention. Data collection methods will include surveys from coaches and athletes, injury logs from clubs, and biomechanical assessments conducted by sports scientists. This research will inform evidence-based policies and guide the development of region-specific injury prevention strategies.

CONFLICT OF INTEREST

There is no conflict of interest related to this study.

FUNDING

This research required no external funding.

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COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 13-17
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.664

Stefan Edberg's one-handed "safe elbow" backhand: A biomechanical point of view and a technical reference model for amateurs

Rodolfo Lisi[1], Simone Cigni[2], Pietro Gussio[3], Marianna Meroni[4], Michele Perniola[5] & Renato Rodano[6]

[1]Ministry of Education and Merit, Cassino (FR), Italy. [2]Asst Saints Paul and Charles, Division of Orthopedics and Traumatology, Milano, Italy. [3]Tennis Coach, Milano, Italy. [4]Humanitas University, Milano, Italy . [5]Ministry of Education and Merit, Bologna, Italy. [6]Biomedical engineer, Milano, Italy.

ABSTRACT

Tennis champion Stefan Edberg is remembered not only for his top match results on the ATP tour, but also for the technical-stylistic elegance and effectiveness of some of his strokes. In addition to his backhand volley, the Swedish player also excelled with his one-handed backhand - OHB (flat, topspin and slice). This paper analyzes Edberg's topspin and flat backhand highlighting its peculiarities from a kinesiological and biomechanical point of view. The analysis evidence motor strategies aimed to prevent elbow and wrist pathologies (often implying a difficult and prolonged healing process) in amateurs. Starting from this analysis, an attempt has been made to define a technical reference model to approach the game of tennis without neglecting physical features related to it.

Key words: One-handed backhand (OHB), kinetic chain, elbow injuries, leading with the elbow.

Received: 27 November 2024

Accepted: 8 May 2025

Corresponding author: Rodolfo Lisi, rodolfo.lisi@libero.it

INTRODUCTION

Former champion Percy Rosberg, Stefan Edberg's coach in his first years of activity, deserves credit for having transformed the Swedish' cumbersome two-handed backhand (THB), into a one-handed shot, as elegant as effective. Edberg, who later became one of the strongest tennis players of all the times, never showed any severe pain on his epicondyle, affecting his competitive career as often happens in amateur players, sometimes even compromising their sport practice (De Smedt et al., 2007). Furthermore, if it's true that the phenomena damaging the condylar insertion and the extensor tendons of the elbow are to be ascribed, primarily, to the vibrations induced by the ball-racket impact, it is equally true that the poor training, the precarious muscle coordination, and an inadequate muscular preparation of the humero-ulnar, proximal radio-ulnar and radio-humeral compartments, may easily represent risk factors. Edberg was able to synchronize muscle contractions by adopting the classical "closed stance" (Figure 1A) making them coordinating in a specific sequence connecting the lower limbs with the racket arm, in an efficient dynamic kinetic chain.

Due to this integration an adequate transfer of energy, built up in the initial phase of the movement, is possible, implying a more rational distribution of the forces along the body segments. More precisely, the energy transfer comes from the feet to the trunk through the upward twist of the legs, and from the trunk to the shoulders until it reaches the racket. In the past, this possibility was also determined by the speed of the game which was much lower than that of modern tennis. Some authors (Saal, 1996; Ruiz-Cotorro et al., 2006) highlighted how this technical approach significantly reduces the stress on the "pars interarticularis", proving to be probably safer from a biomechanical point of view than

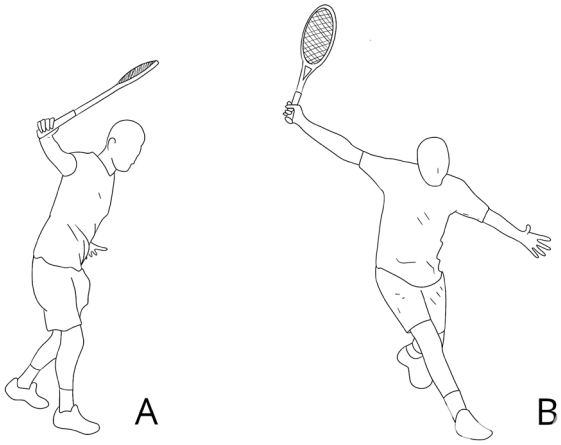

Figure 1. *Classic one-handed backhand (A); Modern one-handed backhand (B).*

modern methods of interpreting fundamental dynamic gestures (Figure 1B). Although the position in Figure 1B allows for a wider range of motor solutions (the tennis player is able to apply a greater force to the shot), we believe that in the one-backhand performed in a “classic and closed stance” (Figure 1A), the movement of the dominant arm provide for a lesser flexion of the elbow, reducing the supination movements of the forearm and extension of the wrist. Therefore, being a primary goal for amateurs competing until an old age without compromising their physical integrity, we support the use of the position mentioned in Figure 1A. Furthermore, the example of Stefan Edberg reminds us that it is possible to excel adopting a classic technique, even in an era (such as the 80’s and 90’s) characterized by the presence of a great number of performing tennis players and of court surfaces not so suited to his own way of playing (such as red clay is). Actually, at the end of his career, the Swedish player had a positive record in head-to-head meetings of 4-0, on the same red clay, against the Austrian Thomas Muster, one of the most clay court players of the 90’s.

Finally: is that just a coincidence that Roger Federer chose the Swedish coach to train him on how to use one-handed backhand to unlock his net approach (Tignor, 2023)?

TENNIS AND LATERAL EPICONDYLITIS

On lateral epicondylitis, as Zati and colleagues remind us (Zati et al., 2008) «the most probable mechanical triggering factor is the continuous and repeated use of the forearm in extension, external rotation and supination, an execution technique common to many sports, but typical of the one-handed backhand in tennis». The suffering on the epicondyle and the surrounding areas, however, have various and multiple origins based on the anatomic structures injured by the athletic gesture, providing various symptomatic clinical evidences sometimes associated such as enthesitis, fasciitis, myalgia, neuralgia, dysaesthesia up to paresis (Clavert et al., 2009).

Compared to the one-handed backhand (OHB), lateral epicondylitis is less observable in tennis players using the two-handed backhand - THB (Chung & Lark, 2017). In the range of motion related to the execution of the two-handed stroke, the non-dominant limb which acts mainly in opposition, helps to absorb a great part of the impact, while the dominant acts longitudinally. Generally speaking, and taking a right-handed player as a reference, the grip on the lower part of the handle is ensured by the right hand which, in ulnar deviation, creates a stiffening of the complex forearm-wrist-hand system, giving stability to the upper limb as a whole (De Gasperis et al., 2012) and avoiding reckless and potentially harmful movements on the entheses.

” LEADING WITH THE ELBOW” IN TENNIS: YES, OR NOT?

In some sports, such as baseball, the so-called “leading with the elbow”, a connecting element between the” loading phase” and the” acceleration phase”, embraces different opinions.

This method, consisting of an exaggerated increase in horizontal adduction of the shoulder and flexion of the elbow, divides the expert’s opinions: some of them, more interested in achieving high ball exit speeds, are questioning about the real effectiveness of the prevalence of the elbow over the other joints in the dynamics of the throw; others, more oriented towards health and accident prevention, remember how the adoption of "leading with the elbow" exposes the elbow to a forced valgus stresses transmitted mainly to the anterior bundle of the ulnar collateral ligament. Pink and Jobe (2000) proposed the definition of “hyper-angulation” (Figure 2), according to which an increase in the range of horizontal abduction of the shoulder, during the arm loading phase (“cock position”), is correlated with a greater predisposition to the onset of pathologies at the level of the anatomical districts above mentioned.

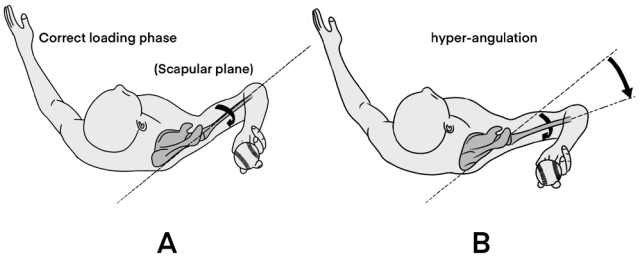

Figure 2. *The correctly performed loading phase sees the humerus aligned with the scapular plane (A). An excessive retreat in the coronal plane (hyper-angulation”) can lead to high tension on the anterior capsuloligamentous structures of the shoulder (B).*

Similar considerations could be applied to tennis. The advancement of the elbow both in the serve and in the backhand, useful for giving greater speed to the shot, can lead to tendon pathologies if the movement of the elbow is performed in extension/supination. A proper grip is required before the impact when, at the point of maximum extension of the arm, the forearm pronates, to bring the string plate into an adequate position towards the ball. In a nutshell, the various phases making up a throw must be executed, or rather synchronized, finely (throw coordination), i.e. they must respect a succession of motions to maximize the overall contribution of the various forces and, consequently, the mechanical effectiveness of the throw (kinetic chain). Leaving aside the biomechanical implications of the serve, shared with the ones required for the execution of the backhand, we wish anyway to focus our attention on the executive dynamics of the second one. Bernhang and colleagues (Bernhang, Dehner & Fogarty, 1974), as well as Elliott (Elliott, 1989), advise avoiding the improper way of conducting the backhand technical gesture known under the heading “leading elbow backhand technique”. Beginner players, in other words, usually perform a "late" backhand with the elbow which anticipates the arm and points towards the net (Figure 3). An incorrect mechanism of action includes, among the others, incorrect kinematics of the wrist. When the hand is aligned with the forearm (Figure 4), the wrist is in a neutral position or in the anatomical reference position (wrist 0 neutral, metacarpophalangeal and interphalangeal joints 0 neutral). On the sagittal plane, the flexion and extension movements of the wrist around the axis that joins the styloid processes of the radius and ulna (Figure 4) normally vary in the order of 85° in extension (or dorsal inclination) and 90° in flexion (or palmar inclination). Amateurs hit the ball with the wrist flexed at 13° from neutral, with additional flexion at impact. Otherwise, professionals perform the backhand with the wrist extended by 23° with a further extension at impact (Blackwell & Cole, 1994).

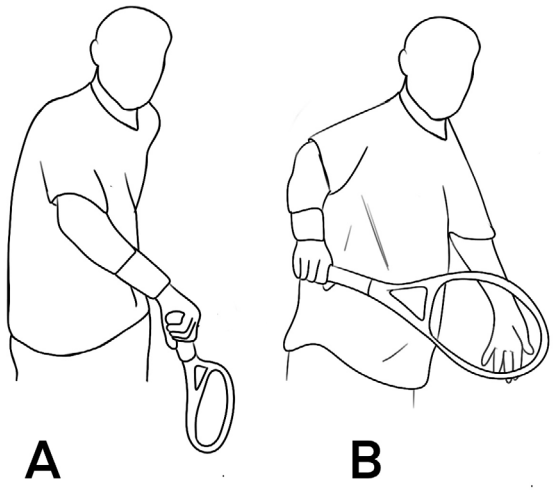

Figure 3. *Leading elbow backhand technique. The tennis player "brings the shot" with a flexed elbow and, in the preparatory phase (A), the head of the racket is facing downwards or, in any case, positioned below the level of the wrist.*

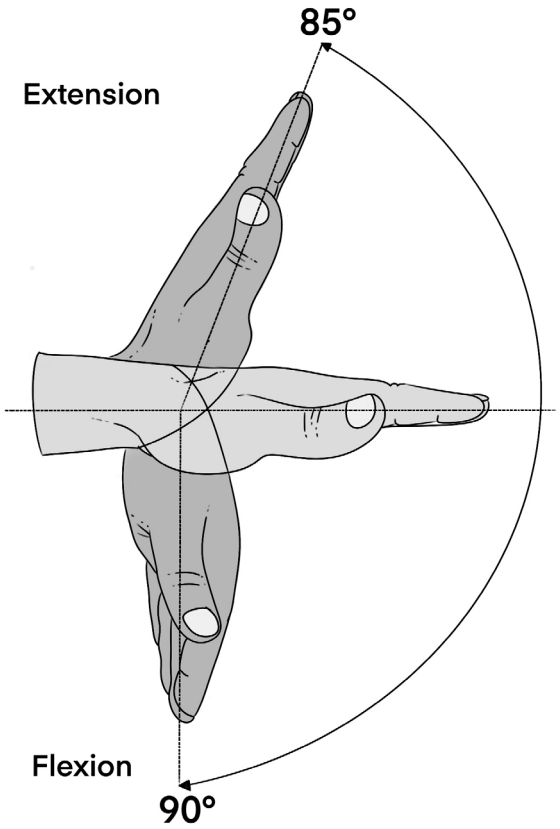

Figure 4. *The flexion-extension movements of the wrist occur at the level of the radiocarpal joint. In the center of the figure is reported the basic anatomical position of the hand in relation to the forearm (neutral alignment).*

In the first ones, the incongruous posture of the hand-wrist-forearm area can be traced back to a multiplicity of factors.

Instead considering Stefan Edberg and other professional tennis players, the specifications of a "correct" one-handed backhand (OHB) include (Figure 5):

1) optimal execution timing;

2) adequate transfer of body mass to the ball;

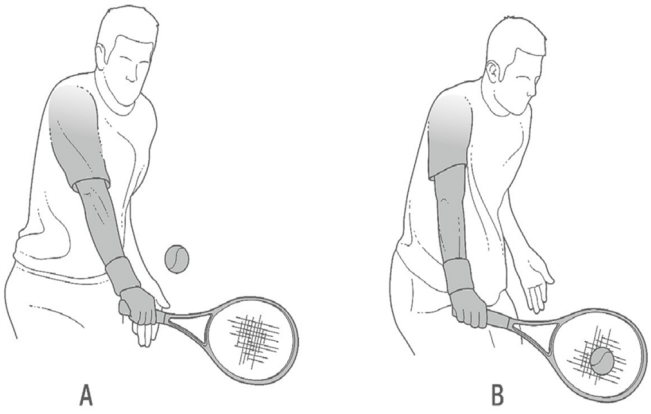

Figure 5. *Edberg's one-handed backhand: A) pre-impact; B) impact.*

3) dominant arm extended at the beginning of the movement to hit (a) and on impact (b).

At the beginning of his career, Edberg played all the strokes with a continental grip (Figure 6B), limiting his ability to generate fast topspin balls off the forehand. Probably, the Swedish tennis player tried to avoid a greater comfort near the net, thus managing to intercept the ball without changing his grip. With coach Tony Pickard, Edberg begin to adopt an eastern backhand's grip (Figure 6A) and this showed off being an appropriate choice, not only regarding certain aspects of his game (i.e. production of effective kick serves, especially against opponents with one-handed backhand - OHB), but also to protect wrist and elbow.

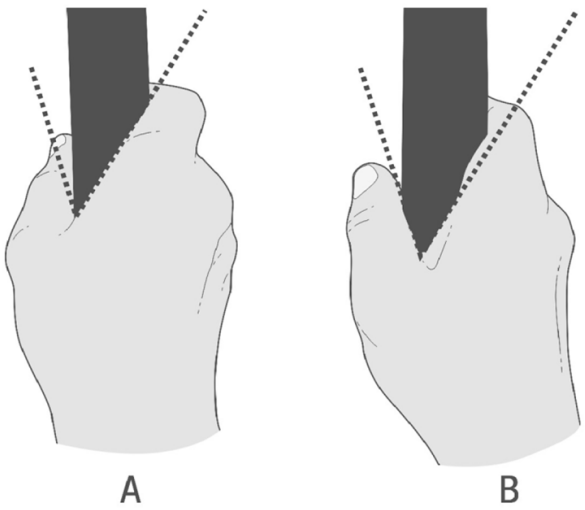

Figure 6. *A) Eastern backhand's grip; B) Continental grip.*

In the eastern grip, in fact, the palm of the hand is placed on the handle with the thenar eminence surmounting the upper surface; the hypothenar eminence effectively supports the right part of the handle. In this way the wrist is quite stiff, with a lower functional load on the elbow.

The continental grip is often adopted by the amateurs, but «[..]this way of holding the racket does not guarantee the dynamics essential for fast impacts. Only a variation in the position of the wrist can correct the backward impact, however at the cost of a notable increase in functional overload» (Candela, 1998). In other words, the athlete, in motor situations that are not fully controlled (backward impact, uncoordinated and dislocated positions), is forced to modulate the movement of the wrist beyond physiological limits, compromising the stabilization of the joint. It should be remembered that wrist kinematics and EMG data indicate that amateur players eccentrically contract the wrist extensors for the entire duration of the stroke, maintaining a constant level of activation in the presence of an increase in flexion (Blackwell & Cole, 1994). As far as we know, the repetition of actions performed with excessive eccentric muscular activity, associated with an attitude of reduced wrist extension, is considered the main cause of "tennis elbow" disease. Among the expert players, on the contrary, the muscles act concentrically with greater activity after the impact depending on the extension of the wrist (Blackwell & Cole, 1994).

CONCLUSION AND OPERATIVE PROPOSALS

The possibility of reducing the onset of pathologies affecting the epicondylar tendons is obviously linked to the execution of the gesture, which is carried out on a polyarticular path, in which the muscular structures coordinate execution. Specifically, the goal is to reduce the movements of wrist extension and active supination of the forearm, which act on the epicondylar enthesis, as well as obviously improving the basic technique. The execution of the backhand among tennis players, even professionals, ranges over a rather broad area, where the movement takes on different features. Ideally, elbow extension (to compensate for the flexion necessary in the preparation part of the shot) and the humeral head's external rotation, both involved in the final part of motion, the forearm and wrist should constitute a stable kinetic chain throughout the entire execution, being however free of tension (as it happens in the musical gesture). This concept has been defined for a long time for any activity that involves the learning of a specific technique, where agonists' and antagonist's muscles coordinate without generating useless and counterproductive contractions. Furthermore, the distal portion of the limb remains fundamental in the management of the whole athletic gesture, where the grip of the racket, the only part that requires extreme stability, mainly given by the flexor tendons, mainly influences the activation of proximal muscle tensions: in relation to this aspect the eastern grip seems to be the best. However, it is important to note how looking for a rotational impact on the ball (specifically in the top spin), now increasingly exasperated, can constitute the cause of proximal stresses (both in the active movement and in its preparation), and could potentially cause epicondyle's pathologies. The search for the perfect kinetic sequence remains a goal, perhaps unattainable as it is linked to the search for rotational effects of the ball. What matters, especially among the amateur tennis player, is to reduce the pathological risk by acting on the technique and, naturally, on the health of the athlete himself. All this is obviously acquired with an accurate and specific training, in order to codify and optimize central motor patterns becoming automatic over time, upstream of which will be the constant control of the team (considering professional tennis players) in charge of the competitive career of the athlete. The basic concept remains the search for an execution that follows a movement suitable for overloading the tendon structures of the epicondyle as little as possible. This is done by avoiding excessive or unnecessary movements in extension/supination. Treating this aspect greatly reduces the possibility of the onset of tendinopathies. The amateur who does not have a team following him will have much more difficulty in achieving correct execution, while a professional, certainly more aware of the problem (also to avoid slowdowns in the activity with economic damage) will be able to reach an optimal level in shot management. In the specific object of this paper, the execution methods of the backhand visible in Stefan Edberg's athletic gesture allow us to have a good executive example, that could certainly help even amateurs to improve the movement dynamics, consequently avoiding tendon damage, when the motion is repeated chronically, that could seriously affect the sport activity. Clearly, the central movement memorization mechanisms, typical of every sporting and artistic activity, will facilitate spontaneity of execution over time. In addition, we believe it is necessary to introduce some recommendations for amateurs: 1) Decreasing grip strength and relaxing forearm muscles (Figure 7B) during the so-called "down time", such as changeovers, between sets, and breaks between points, even for just a few seconds (Lisi, 2014; Lisi, 2017; Lisi, 2019).This precaution avoids prolonged isometric contraction of the arm muscles and especially of the hand, which could tire and lead to mistakes in correctly playing the ball (Lisi, 2019).

In our opinion, however, it would be desirable to reduce the grip strength and relax the forearm muscles also in the follow-through phase of the backhand stroke (OHB and THB), as suggested by some studies (Wei et al., 2006). This precaution is particularly important for amateur tennis players, who have been shown to incorrectly maintain a tight grip both during ball impact and throughout the follow-through phase. In

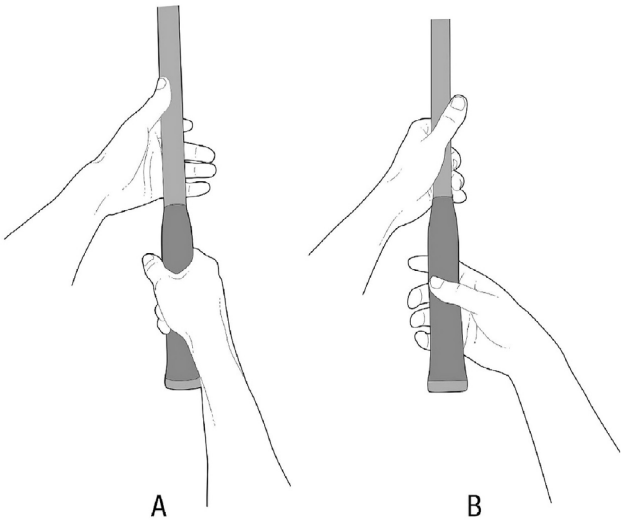

Figure 7. *In the professional tennis player, the tensions generated by isometric contractions, although notable, are partially dampened by the coordinative activity of the agonist-antagonist muscle pair.*

contrast, experienced players apply a firm grip at impact but then quickly relax their grip during the follow-through (Wei et al., 2006).

2) If an amateur has already suffered from lateral epicondylitis and wants to return to play, we recommend using multifilament strings at a low tension. Edberg himself, but almost all the greatest "serve and volley tennis players" uses strings with a very low tension. However, it is suggested to use a tension 1.5/ 2,5 kg lower than usually used.

3) It is preferable to use new balls, with intact felt. Felt, in fact, plays a peculiar role in absorbing the contact between the ball and the racket strings but also in facilitating the rotations of the ball itself.

4) Incorrect grip size of the racquet handle influences the impact forces transmitted to the forearm extensor muscles and increases harmful force transmission to the elbow (Rossi et al., 2014). It is suggested to find a "personal balance point" within a not too wide range. If diameters that are too small may require an excessive grip, diameters that are too large on the contrary end up influencing the other basic movements of the hand-wrist-forearm complex. There is an empirical methodology simple and quick: take tennis racquet and, after holding the handle with a tennis forehand grip, place the index finger of the free hand in the space delimited by the tip and the palm of the dominant hand. If the index finger fits comfortably, the choice is correct.

5) It is undeniable that emulation and motor observation significantly accelerate the acquisition of fundamental technical skills in each sport. In tennis, it has been reported that athletes' physical performance improves following action observation training (Atienza, Balaguer & García-Merita, 1998). This consideration applies not only to young tennis players but also to amateurs. However, we believe that emulation often focuses less on a champion's motor and technical abilities and more on the aspects regarding his equipment. It is therefore not uncommon to see tennis players at local clubs arriving on the court dressed like the current star athlete, using the same brand of tennis racquet and wearing similar outfits. Customizing a tennis racquet is important and should be based on your physical characteristics and skill level, rather than the latest trends.

CONFLICT OF INTEREST AND FINANCING

No conflicts of interest are to be declared for this study, which received no funding.

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ITF International Tennis Federation
COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 18-19
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.730

LTA tennis foundation grant making programme is helping people to manage anxiety, build confidence and get physically active

Sophie Colwell

LTA Tennis Foundation, Great Britain.

ABSTRACT

The LTA Tennis Foundation is the LTA's official charity, with a mission to improve lives through tennis. Its ambition is that every child, young person and adult can have access to the unique and life-changing benefits that tennis offers. This article discusses how the 'Feel Good Tennis' programme, an LTA Tennis Foundation supported venue in the England, delivers both physical and mental wellbeing opportunities for children and adults helping them to manage anxiety issues, build confidence and get physically active.

Key words: Mental health, anxiety, confidence, participation programmes.

Received: 14 July 2025

Accepted: 31 August 2025

Corresponding author: Sophie.Colwell@LTA.org.uk

INTRODUCTION

The LTA Tennis Foundation is the LTA's official charity, with a mission to improve lives through tennis. Its ambition is that every child, young person and adult can have access to the unique and life-changing benefits that tennis offers. One of the ways the LTA Tennis Foundation achieves this is through its grant-making programme. As a grant and loan giving charity, its ambition is that every child, young person and adult can have access to the unique and life-changing benefits that tennis offers (LTA Tennis Foundation, 2025). This is achieved in three ways:

1. Supporting organisations - financially supporting and collaborating with charities and organisations embedded within their communities, who use tennis as a force for good.
2. Enabling communities and schools - funding expertise and equipment to make tennis accessible to all.
3. Developing facilities - improving access to tennis by developing, often neglected, facilities and courts.

FEEL GOOD TENNIS: A CASE STUDY WITH HINKLEY TENNIS CLUB

Under strand 2 and 3 above, LTA Tennis Foundation recently supported a Tennis Club in Hinkley, England, who are delivering a programme that changes the perception of what tennis means to participants (ClubSpark, 2025). The programme utilises tennis to support the mental and physical wellbeing of people within the community. The name of the programme is Feel Good Tennis (LTA, 2025).

Feel Good Tennis delivers both physical and mental wellbeing opportunities for children and adults helping them to manage anxiety issues, build confidence and get physically active.

Since the pandemic, there has been a 39% rise in referrals for NHS mental health treatment for under-18s, to more than a million

in 2021/22 (NHS, 2025). The number of adults experiencing some sort of depression has doubled (Metro News, 2020). With statistics like these, it makes the need for programmes like Feel Good Tennis even greater.

Designing the programme

LTA Tennis Foundation colleagues met with the programme lead from Hinkley Town Tennis Club, who is one of the people driving this initiative, and asked her what their inspiration for the programme was; "I was sat chatting with a committee member and the club chair on a Saturday morning, discussing the current state of the world post covid, and how the key NHS workers were still experiencing a lot of stresses and strains. In addition to this, how children and young people's development had been highly impacted by the lockdowns. We felt as a community organisation, there must be more we could do."

After the initial discussions, it was decided that they would develop a 6-week programme which would have two focusses that worked in harmony – Tennis Skills and Mindfulness. In recent years, mindfulness-based interventions have been widely applied in sport with respect to both performance and mental health

promotion (Yan et al., 2023). The next step in the programme development was to speak with professionals in each area to develop what the sessions would look like for participants.

Programme & Session structure

Each session starts with an introduction to tennis skills, starting in week one with the basics and building up to feeling confident enough to play in a fun double's tournament by week 6.

Following the weekly tennis skills session, the group transitions into the wellbeing element, designed to relax the mind and ensure quality time to rest and relax.

At each session there is a topic for discussion facilitated by the class leader. These include managing stress, building self-compassion, and creating positive routines, all designed to support individuals with the issues we face in the modern fast paced world (Robin et al., 2025).

RESULTS AND SESSION OUTCOMES

The goal is, that at the end of the 6 weeks, individuals feel they have the skills to manage how they feel in stressful situations and for some, have been introduced to tennis for the first time, which we all know comes with heaps of benefits such as improved physical health (Pluim et al., 2007). But, in addition to this, a community where they feel safe to talk and supported (Legg et al., 2017).

The hope is that individuals will also transition into longer term players of the game, so they can continue enjoying the benefits that tennis has to offer (Allen et al., 2021). One participant said, "I have attended 5 of the 6 sessions so far and have enjoyed every single one. Both the tennis and meditation sessions were equally fun and relaxing. Although I have never played tennis before, the tennis sessions have really made me realise how much I have missed being active and playing sports. I will certainly be joining a tennis club soon, which I am looking forward to.

Generally, attending these sessions has helped me improve my wellbeing, both physically and mentally. Meeting new people and enjoying the sessions with fun members and staff has been a bonus."

School based delivery for children

The sessions look slightly different for children with them being delivered in a school. The Feel Good Tennis team take over a lesson and adapt the session to be suitable for children. They start by getting them moving and then again, move on to exploring how things make them feel, and supporting them to build a toolkit to help them manage their emotions.

One teacher, whose class took part in the sessions said: "The impact of covid has been far reaching with a number of children dealing with emotional based issues. After these sessions, one of the students was able to describe that they felt angry and could recognise it because of how their body felt. Such huge progress for that child and there are many similar stories."

CONCLUSION AND SUMMARY

The LTA Tennis Foundation dedicates its funding to organisations who are passionate about improving lives through tennis. Neil, one of the Founders of Feel Good Tennis said: "The grant that Hinckley Town Tennis Club has received from the LTA Tennis Foundation has made a massive difference. It has enabled us to take what started out as a germ of an idea and turn it into a fully-fledged programme. It has allowed us to employ highly skilled wellbeing professionals to deliver impactful tailor-made wellbeing sessions. Working with schools has been so rewarding,

as we have taken tennis to them, whilst giving the school some much needed support for children's mental health. The impact we are seeing on those that have completed the programme has been substantial and we can't wait to deliver it into more school settings and wider groups across our community."

CONFLICT OF INTEREST AND FUNDING

There is no conflict of interest related to this study. This research required no external funding.

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COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 20-24
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.731

Tennis for Life: An Analysis of the AAT's Advocacy Strategy

Pedro Fermanelli, Gastón Brum & Federico García

Argentine Tennis Association

ABSTRACT

This article examines the comprehensive promotion and marketing strategy implemented by the Argentine Tennis Association (AAT) in recent years, with the aim of positioning tennis as the ideal sport for all stages of life. The plan has been effectively articulated around the following four pillars: health and longevity, inherent to tennis practice; the aspiration to belong to the tennis ecosystem, embracing its culture and values; and the deep passion that the practice of sport generates. Through the analysis of the "Tennis is Beautiful" campaign, the visibility strategy of the Seniors circuit, the proactive communication of health benefits and adult initiation initiatives, it is demonstrated how tennis transcends mere competition to become an enriching lifestyle. This new narrative has contributed to expanding the base of practitioners, strengthening fans' emotional connection with the sport and consolidating the AAT as a promoter of well-being and personal development through tennis in Argentina.

Key words: Health, longevity, aspiration, passion, well-being.

Received: 15 de julio 2025

Accepted: 31 de agosto 2025

Corresponding author: pedro.fermanelli@aat.com.ar

INTRODUCTION: ARGENTINE TENNIS RESTS ON FOUR KEY PILLARS

Tennis, with its rich history and cultural roots in Argentina, has traditionally been associated with iconic figures of high competition and achievements in the major events of the men's and women's international circuits. However, for a modern federation like the Argentine Tennis Association (AAT), the challenge transcends the formation of great champions; It involves building a solid base of practitioners and a sports culture that integrates tennis as a lifelong activity. All this, within the framework of a global scenario where the promotion of physical activity and well-being are a priority, but where competition for leisure time is fierce.

The validity of any sport is based on its ability to integrate society, offering tangible values and benefits that match the aspirations and needs of people at all stages of their lives. With that premise, the AAT has redefined the tennis narrative on four key pillars: health, longevity, aspiration and passion. And, mainly, on a simple idea that became the naming of a powerful campaign: Tennis is beautiful.

This study aims to analyse in depth this comprehensive approach to AAT. It will explore how the campaign, launched in mid-November 2024, acts as the emotional axis of the AAT's institutional communication, integrating the concept of a sport for life and without barriers. The strategic visibility of the Seniors circuit will be examined as a living testimony of active longevity and unwavering passion. Subsequently, the proactive communication of the benefits of tennis for health will be analysed, key to attracting these new audiences attentive to the search for well-being, as well as the promotion of initiation into adulthood. Finally, if tennis is experiencing a remarkable "cultural renaissance", the aspiration to belong to its world becomes the perfect excuse to bring out its beauty, its history and its icons.

THEORETICAL FRAMEWORK: MUCH MORE THAN A GAME

Sports brands can connect with people's emotional and aspirational needs, while helping to forge a cultural and personal identity. It is noteworthy that some of the most successful branding projects have managed to intertwine several of these four pillars (Hoye et al, 2015).

In this framework, sport is conceived not only as entertainment or competition, but as an engine of personal and community development, directly impacting the quality of life of individuals. It is here that concepts such as health, longevity, aspiration, and passion acquire a fundamental strategic relevance for institutions such as the AAT (Gonsalves et al., 2016).

Health is positioned as a primary benefit of physical activity, with tennis being recognized for its positive impact on the cardiovascular system, bone density, coordination, and mental health (Schnohr et al., 2018). The promotion of longevity, understood not only as an extension of life but as a friendly safeguard of an active and full life in old age, becomes a powerful differentiator, as it is a low-impact sport in its recreational and socially integrating versions.

The aspiration to belong to the culture of tennis is one of the reasons that drive adults to practice tennis (Sheldon & Eccles, 2005). The status that the discipline offers, its aesthetic symbology and networking make tennis stand out from other disciplines with much less history and identity values.

Finally, passion is the driving force behind sustained practice and loyalty to the sport. It's the feeling of enjoyment, the connection to the competition, the camaraderie and identity that tennis provides. With this strategy, the AAT has sought not only to attract new players, but also to ignite and maintain this passion at every stage of an individual's life, from the first contact with the racket to participation in the Seniors or Interclubs circuit, the longest-running circuit of the century-old institution (Thompson et al., 2014).

The effective implementation of these dimensions – health, longevity, aspiration, and passion – is fundamentally supported by content marketing and storytelling (Crespo-Dualde et al., 2025), understanding that organizations must transcend the mere promotion of events to build narratives that deeply connect with the audience, based on valuable and relevant content that not only informs, but also informs. but also to inspire and mobilize action (Gori & Slongo, 2019). AAT has worked on these principles to build a powerful and transformative narrative.

"TENNIS IS BEAUTIFUL": A CULTURAL RENAISSANCE

The "Tennis is Beautiful" (ETEH) campaign forms the emotional backbone of the AAT's communication strategy, acting as a beacon that illuminates the essence of sport from a holistic perspective. Its strength lies in its ability to go beyond mere competition, inviting the audience to connect with tennis through passion and aspiration, with a careful visual aesthetic designed for tennis lovers and those who have never practiced the sport (see the manifesto at the end of the article).

The objectives of the campaign could be summarized as:

- That more people consume tennis in general.
- Make tennis the first option to consider when someone is looking to play a new sport.
- Tennis should be the first option to consider for consuming sports on television.
- Make tennis the first choice when considering attending sporting events.

The campaign is based on the hypothesis that "more people consume tennis; more people play tennis". And a substantial advantage over other disciplines that have experienced recent and accelerated growth, but without solid long-term projections, since tennis has, weighs and boasts of at least ten assets that its competition lacks:

1. Global stars
2. National heroes
3. Emblematic scenarios
4. Beauty
5. Magic
6. Epic
7. Show
8. Traditions
9. History
10. Glory

At its launch, the AAT presented an audiovisual piece that mixes images of historical figures of Argentine tennis with those of amateur players, and carries the unmistakable voice of Ricardo Darín, not only one of the most recognized actors in national cinema, but also a fervent admirer of tennis and an enthusiastic practitioner. The video registers about 350,000 views only counting the official accounts of the institution; that is, without considering the statistics of the media that replicated it.

From that moment on, a disruptive journey has begun in the digital communication of the AAT, with periodic publications on official accounts, especially Instagram, whose growth underlines the positive impact of the campaign. Since its launch on November 15, 2024, and covering a period of almost eight months to date (July 2025), a total of 276,000 interactions has been recorded. This volume represents a growth of 10.4% compared to the same period of the previous year (mid-November 2023 to July 2024), with 250,000 interactions. Even more remarkable is the evolution in views: in the period analysed, they have doubled, from 9.63 million to 18.33 million (Figure 1).

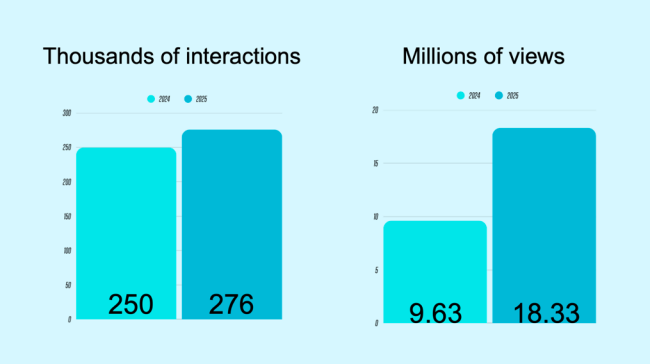

Figure 1. Instagram impact of the campaign in thousands of interactions and views.

Historical images of great champions and unforgettable conquests, special photographic productions that enhance the aesthetic beauty of tennis and outstanding triumphs of Albiceleste tennis players in real time have laid the pillars of the campaign, which boasts its own visual identity and an unmistakable slogan: Tennis is beautiful.

In a second stage, coinciding with Argentina's first participation in the 2025 Davis Cup, the 'Beautiful' concept has been expanded with the aim of revaluing the most beautiful things that tennis has, with all the elements and situations that distinguish our sport from its "competition". The slogan has been personalized to incorporate the names of the players of the Argentine team and extend it to various situations and aspects of the life of the tennis player and the fan, to say, for example: "Your drive is beautiful", "The friends of tennis are beautiful", "Playing all your life is beautiful" or "The fashion of tennis is beautiful". The message has even transcended borders to bring global figures such as Rafael Nadal ("Rafa

you are beautiful", as part of his tribute at Roland Garros), the so-called "Big Four" and the two great protagonists of the current circuit, Jannik Sinner and Carlos Alcaraz, to the forefront: "This final was beautiful", alluding to the definition of Paris 2025.

Outside the digital environment, the AAT has designed and manufactured allusive merchandising to disseminate it in activations to its stakeholders. Visors and printed t-shirts to give to new members, presence on the court during official competitions (surface position and court tarpaulins, press backdrop, fly banners), stickers and a special stand at the last edition of the Argentina Open have raised the campaign to new levels of visibility and emotional connection with the national tennis community.

All this built based on a premise that extends the horizon of growth of Argentine tennis: tennis is no longer only a sport, but also an aspirational lifestyle. Tennis is immersed in our culture and the momentum of adjacent phenomena such as the movie "Challengers" and the explosion of "tenniscore" in fashion. Tennis has overflowed its traditional boundaries of clubs and Grand Slam broadcasts, sneaking onto fashion runways, social media feeds in and even the streets of big cities around the world. Tennis has become cinematic, photogenic, iconic, and probably the most aesthetically beautiful sport out there. "Tennis is beautiful" is a direct expression of the intrinsic passion that sport generates, as well as a powerful vehicle for aspiration to be a part of it.

TENNIS AND WELLNESS: AWARENESS AND ATTRACTION STRATEGIES

The AAT has capitalized on the growing awareness of the importance of health and the pursuit of longevity as fundamental pillars to attract and retain players. Strategic communication of the scientifically proven benefits of tennis has become a powerful marketing tool.

The recent (and already cited) research indicating that tennis players live, on average, 10 years longer than those who do not engage in physical activity, has become a campaign platform to spread the message in the media – through articles published in general interest newspapers, columns by specialists in audiovisual channels and posts by health influencers on social networks (Figures 2 and 3) – and in connection direct with sports professionals, always with the aim of disseminating the different benefits:

- Physical: Cardiovascular improvement, bone strengthening, coordination, agility, endurance and flexibility. It is emphasized that tennis is a comprehensive exercise that works the whole body.
- Mental: Stress reduction, improved concentration, sharpening cognitive functions (planning, quick decision-making), and combating depression and anxiety. The mental health aspect is crucial to quality of life and, therefore, longevity.
- Social: Interaction with peers and rivals fosters social connection, reduced isolation, and the development of interpersonal skills, vital elements for a full and long life.

Figure 2. Most viewed posts.

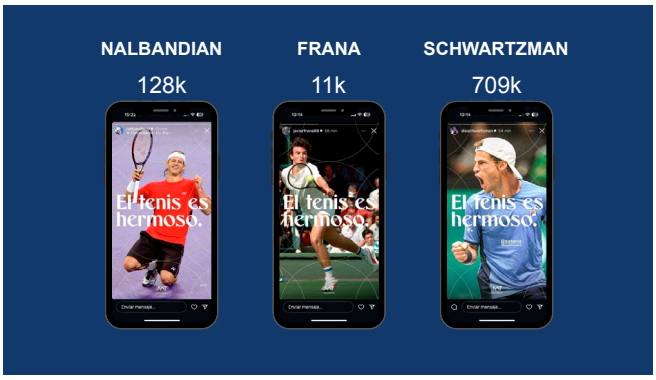

Figure 3. Posts by tennis players.

A separate chapter is written by the AAT Community program, developed in conjunction with the International Tennis Federation (ITF), through different initiation actions in adulthood carried out by the Department of Initiation and Promotion, under the idea that "it is never too late to start" and eliminating preconceptions such as the difficulty imposed by learning tennis, which have functioned as a limiting barrier. According to our own surveys, so far in 2025 and throughout 35 actions carried out at strategic points on the Atlantic Coast, the Metropolitan Area of Buenos Aires and the province of Córdoba, a total of 1,216 adults have had a first positive experience with tennis.

The revaluation of health and longevity benefits acts as a powerful magnet for those who are not yet tennis players, awakening in them a new desire: that of improving their well-being through a fun sport. And, for those who already practice it, it reinforces their passion by adding a component of purpose and self-care. It is a strategy that not only attracts but justifies the investment of time and effort in tennis from a quality of life perspective.

LONGEVITY AND PASSION: PROMINENCE AND CONSOLIDATION

The Seniors circuit is, par excellence, the terrain where active longevity in tennis is evident and the purest manifestation of the passion for the sport sustained over the years. The AAT's communication strategy for this segment has been instrumental in transforming a niche into an inspiring testament to "sport for life".

Storytelling has been a key ally in this process (Crespo-Dualde, 2023). Telling the stories of long-lived tennis players who continue to compete and enjoy, whether to celebrate holidays (Mother's Day or Friend's Day, to name two cases), their outstanding performances on the ITF World Tennis Masters Tour or, simply, to turn them into a source of inspiration for younger amateur players, has been a sustained work over the last five years made visible through the official accounts of the institution. The stories are contagious and show that tennis is not just a hobby, but an investment in the future of one's life.

This healthy idea of durability is also based on the names that marked the history of Argentine tennis and that continued to embrace it far beyond their careers in high performance. From pioneers such as Norma Baylon and Enrique Morea, who continued with the social practice of tennis in old age; through Guillermo Vilas and Gabriela Sabatini, the two main figures in history who have clung to tennis for long years after professional retirement, either from recreational play, teaching or participation in official exhibitions such as those still enjoyed by the 1990 US Open champion, both in the Legends version of the Grand Slam and in different initiatives around the world. Their examples have been a stimulating mirror for many adult fans.

The prosumer, writes George Ritzer, is not a new type of consumer, but the result of the consumer's growing participation in the production of what he consumes, facilitated by new technologies (Ritzer & Jurgenson, 2010). Along these lines, the AAT has decided to decentralize the communication of the circuit in a specific Instagram channel where the main results and news of the department are disseminated, and in albums of high-quality photographs published on the Flickr platform, where each of the participants of the G1 tournaments organized by the AAT can be found, Download their image and become a promoter of sport and their personal development. In these competitions, in turn, all those registered take participation gifts and enjoy a cocktail on the epilogue of the competition. That each of them feels special is a commitment assumed by the mother entity of Argentine tennis.

By raising the profile of the Seniors circuit, the AAT not only honours its veterans, but delivers a powerful narrative of longevity and cross-cutting passion to all generations. It works as an incentive for young people to stay in the sport, and for adults to resume or start, envisioning a possible future in tennis. Seniors become, in this way, the most authentic ambassadors of "sport for life".

The results of this statement can be measured in numbers: the growth of registrations in official AAT competitions in the Seniors categories since 2019 has grown 148%, reaching 12,804 in 2024. This trend is accompanied by the increase in registrations in the adult categories of Interclubs (+19 years old) which, for the same period, was 213%.

CONCLUSIONS: THE FUTURE OF TENNIS FROM A COMPREHENSIVE PERSPECTIVE

The AAT's promotion and marketing strategy, in its quest to position tennis as a sport for life, has achieved a deep connection between the four pillars analysed: health, longevity, aspiration and passion. Tennis as a lifestyle, a set of values and a promise of lasting well-being explain the basis of the growth of a community that currently reaches 4.5 million people and sows the ground to meet the goal proposed by the Argentine Tennis Association for 2030: to have 5.5 million tennis players in the country.

Synergy of the strategic pillars

- The "Tennis is Beautiful" campaign acts as the central narrative that amalgamates the intrinsic passion of the game with the aspiration to belong to a special environment with its own values.
- The Seniors circuit provides irrefutable evidence of the active longevity that tennis allows, fuelled by an unwavering passion that the AAT storytelling builds daily from its marketing and communication departments, following the guidelines of its Board of Directors and executive management.
- The communication of health benefits becomes the most powerful rational argument, attracting new audiences who find extra motivation when it comes to improving their well-being through a new passion.
- Initiation actions in adulthood are the gateway to this experience, allowing passion to ignite at any stage of life, leading to improved health, the aspiration to generate new bonds and a quality lifestyle, and to chart prospects for longevity.

Strengths of a general approach

- Expanded relevance: By focusing on health and longevity, tennis transcends its sporting niche and inserts itself into society's wellness agenda.
- Deep connection: By appealing to passion and aspiration, AAT builds a longer-lasting emotional relationship with its audiences.
- Generational inclusion: The strategy demonstrates that tennis is truly for everyone, from the youngest to the elderly, promoting social integration.
- Arguments for growth: By focusing on retention and initiation into adulthood, the foundation is laid for sustained growth of the practitioner base.

A hopeful future

In conclusion, the Argentine Tennis Association has implemented a promotion and marketing strategy that is a model to follow in the field of sport. By conceptually integrating the central pillars, AAT has not only managed to reposition tennis as a sport for life but has enriched its meaning and impact on Argentine society, guaranteeing its vitality and long-term growth.

MANIFIEST "TENNIS IS BEAUTIFUL"

Tennis is beautiful.

Playing tennis is beautiful. Beautiful as Delpo's drive,

Gaby's backhand, or Maestro Guillermo's Gran Willy. Beautiful as we are, poor mortals,

that we try to imitate their shots to the point of exhaustion, even if ours end up in the net,

on the fence, or on the field next door.

Tennis is beautiful.

Like pre-match coffee. Like the loaded post.

Like those endless tennis debates in which we put the same passion

that we put on the field

Beautiful like the nicknames that tennis gives you: Peque, Mecha, Batata, Negra, Nachu, Yacaré. Beautiful like the friends you made for life. And the ones you're still to do.

Beautiful those days when your ball comes out clean

and, for a millisecond, you feel like Roger. Beautiful, too, are the days when you can't shoot a single one inside the club, because even on those days, being on the pitch is beautiful.

Beautiful as sharing the court with your children. Or your parents. Or your grandchildren.

Beautiful to hold the racket when you grow up,

A beautiful excuse to get together with those you love.

Beautiful because you can look spectacular off the pitch even though, sometimes, you don't look so spectacular on the pitch.

You may not have the tennis, but you can look good. Beautiful as victory.

Against a friend, in an interclub, or a victory like the one in Zagreb. Beautiful even in defeat, because you know that there is revenge.

Beautiful to leave the field dead, knowing that you are more alive than ever.

Beautiful to look at.

Beautiful to play.

Beautiful day to grab the racket, isn't it?

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COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 25-31
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.713

Making tennis a sport for life in marginalized communities in the Global South: the need for an integrated sport development and sport for development approach

Bas Rijnen

Namibia

ABSTRACT

This paper explores how a sport for development (SfD) approach can be integrated into a tennis development programme in marginalized communities in the Global South to increase participation and development and to make tennis a sport for life. Using a constructivist epistemology, a case study analysis on sport and SfD practices was done in Windhoek, Namibia. Based on findings from this study an integrated SfD approach was piloted and evaluated. The study consisted of document analysis, interviews, and participant observation. Key findings show that the context is an important factor in how tennis development in marginalized communities should be structured. Integration of the SfD approach into tennis development has a positive impact on participation and development. Optimal delivery takes into consideration the non-sporting needs of the players as they are critical for success. Findings also showed that tennis activities can best be implemented in a hybridized organizational framework that combines sport and SfD within a larger stakeholder configuration, including civil society stakeholders and developmental agencies. This also has a positive impact on resource mobilization and sustainability, leading to a holistic development of the tennis player and making tennis a sport for life, particularly in under-resourced and marginalized communities.

Key words: Sport for development; sport development; community, Namibia.

Received: 6 June 2025

Accepted: 17 July 2025

Corresponding author: Bas Rijnen, basrijnen@hotmail.com

INTRODUCTION

The International Tennis Federation (ITF) set an ambitious goal in 2019 to increase the number of tennis players globally by 30 million, from 84.4 million players in 2019 to 114.4 million by 2030 (ITF, 2019). The ITF Global Tennis Report of 2024 shows that in 2024 this number has already increased to 106 million players, a rise of 21.6 million or 25.6% with six years remaining before the new decade (ITF Global Report, 2024). The ITF therefore seems to be on track to reach its goal.

The ITF Report not only provides a global overview of numbers of tennis players, but it also contains data per continent and per country. Analysing data at both continental and country levels shows a large disparity, as 99% of tennis players are from 33 countries (ITF, 2024). North America, Europe, and Asia have 88.5% of the global tennis players, leaving South America with 8.3%, Oceania 1.7%, Africa 0.8%, and Central America and Caribbean with 0.6%, far behind numbers in the Global North and Asia. Closer examination reveals that tennis participation per continent correlates positively with the GDP per continent. Europe, North America and Asia have a much higher GDP than Oceania, Africa, Central America,

and the Caribbean, and these regions also have the highest concentration of tennis players (International Monetary Fund, 2024).

The disparity within continents is also striking. Africa, for instance, has 0.8% of the global players of which 0.7% are in South Africa, leaving 0.1% players in the remaining countries in Africa (ITF, 2024). If one subtracts the number of players

in South Africa, this leaves roughly 100,000 tennis players for the remaining African continent. There is a substantial market potential to increase tennis participation in Africa, which has 19% of the global population. That is, Africa is in a unique position to help in meeting the ITF's global goal of 114.4 million tennis players by 2030. Nevertheless, this will be challenging. Around 36% of Africa's people live in poverty (United Nations Development Programme, 2023). Increasing tennis participation in impoverished communities and making it the sport of choice will require a much deeper understanding of tennis participation and development in resource-restricted countries, and possibly a different approach, as well as investment and support from local organizations.

The sport for development (SfD) approach has the potential to introduce tennis within a wide range of under-resourced contexts. SfD refers to "the intentional use of sport, physical activity and play to attain specific development and peace objectives" uplifted in the Sustainable Development Goals (United Nations, 2024). The approach is based on the conviction that sport-based initiatives can be powerful, practical, and cost-effective instruments for achieving development objectives, such as good health and well-being, quality education and gender equality. Sport for these purposes includes all forms of physical activity that contribute to physical and mental well-being and social interaction, such as play, recreation, organized or competitive sport, and indigenous sports and games.

SfD seeks to promote various sports as a tool for positive youth development, education and the adoption of a healthy lifestyle. Therefore, it promotes infrastructure and local capacity development. This includes the training and development of sports coaches and other significant actors who can implement programmes and develop strategies for sustainability. This requires social, cultural and economic conditions in local communities and contexts to be taken into account. The ultimate aim is to transfer responsibility for implementing the programmes, the associated continuing training of coaches, and maintenance of sports grounds and equipment to local partners.

Aim of the study

This article provides insight in tennis development and participation in Namibia, a country in Southern Africa, with an intricate past characterised by 150 years of struggle, resistance, genocide, and a legacy of Apartheid (Becker, 2018; Katjavivi, 1988; Melber, 2020). The tennis programme is implemented in Katutura, a community in the capital Windhoek, characterized by marginalization and high levels of poverty. The youth in Katutura, as in many other urban areas in developing countries, face various issues. The youth unemployment rate (the share of the labor force ages 15-24 years without work but available for and seeking employment) in Namibia is high with 44% in 2023 (Namibia Statistics Agency, 2024). The school dropout rate in Namibia is also high, with 21% of children of secondary school age (14-18) in urban areas dropping out of school (FHI 360, 2018).

Marginalized communities are harsh environments in which youth grow up. They must deal with issues of poverty, a high level of use of drugs and alcohol, HIV and AIDS infections, and violence. Girls are specifically in a vulnerable position. Teenage pregnancy is a considerable issue as about one in four girls in Namibia will become pregnant before they turn 20 (FHI 360, 2018). Many young women also experience gender-based violence. According to the Namibia Demographic and Health Survey of 2013, 35 percent of women aged 20-24 experienced gender-based violence since the age of 15 (NDHS, 2013).

The family composition in these communities is often one of a single parent, where in many cases the children are raised by another family member, such as an aunt or a grandmother. Striking is the frequent absence of father figures. There is often no safe haven at home for the children and in some cases, there is an abusive environment. This all affects the children in many ways: crime, high levels of mental stress and suicidal thoughts. In this environment there are not many chances for youth to empower themselves and move up.

By looking at tennis development in This specific setting, the study aimed to get a better understanding of tennis development in resource-restricted settings to provide recommendations to increase participation and development. At the same time the study explores how the function of tennis as a sport for life in resource-restricted settings can be strengthened by integrating the SfD approach.

LITERATURE REVIEW

The establishment of the United Nations (UN) Inter-Agency Task Force on Sport for Development and Peace (SDP) in 2001 was a milestone in the field of SfD (United Nations, 2003). International Aid followed and was channelled through sport-related stakeholders, particularly civil society actors, to constitute a social movement (Kidd, 2008). Multiple global organisations engaged in SfD and found similar policy direction and inspiration to tackle global problems and deliver on the post 2015 UN Agenda directed by the Sustainable Development Goals (United Nations, 2024). With a direct partnership between global sport, represented by the International Olympic Committee, and the UN, the sport sector and sport development became inevitably linked to broader societal outcomes (United Nations, 2009). This led to the implementation of many SfD programmes all over the world, specifically in the Global South.

International sport bodies, such as the International Paralympic Committee (IPC), Fédération Internationale de Football Association (FIFA), and the International Association of Athletics Federations (IAAF) became more and more active in the field of SfD. For example, the FIFA launched Football for Hope in 2005 (FIFA, 2008), which focuses on football as a tool for social development.

SfD has also become a field of scientific enquiry. Scholars have made claims about the value of SfD. Sport participation brings fun and attracts young participants to be part of an organisation through which other life skills can be included. Sport strengthens developmental outcomes such team building, discipline, leadership, change of mindset, and becoming role models for others (Burnett, 2014; Collison et al., 2020; Kay, 2009; Lindsey, 2008; Schulenkorf et al., 2016; UNICEF, 2021). Many SfD projects have used sport as a tool to address a wide range of developmental outcomes, especially outcomes that lead towards significant levels of positive social and community change (Burnett, 2014; Collison, Darnell, Giulianoti et al., 2020; Kay, 2009; Lindsey, 2008; Schulenkorf, Sherry & Rowe, 2016; UNICEF, 2021).

Coalter (2007; 2013), states that most SfD programmes are using either plus-sport or sport-plus approaches. A sport-plus approach emphasises traditional sport development objectives such as increasing participation in sport and building sport knowledge and skills, but ads other activities so that participants learn information and strategies to help them cope with challenges faced in their everyday lives. On the other hand, a plus-sport approach is used by non-sport organisations that offer sport participation as a means of recruiting, retaining, and motivating people in the primary activities of the organisation, whether they are educational, religious, economic, or political (Coakley, 2011: 313-314). As such, the focus of plus-sport activities is much more geared towards development and social change.

Overall, SfD approaches are aided by the fact that sport is globally and locally acknowledged as a catalyst for development (Commonwealth, 2023). Sugden (2010) argues that sport is intrinsically value neutral and under carefully managed circumstances, it can make a positive, if modest, contribution to peace building that has 'ripple effects' in society. Sport participation alone is insufficient to address the diverse needs of individuals, and that integrating non-sporting activities (such as tutoring, life skills building and psycho-social support) is vital (Australian Government, 2019; Raw et al, 2022). These non-sporting activities seem to strengthen the developmental outcomes of SfD programmes. Sport development therefore could be meaningfully integrated in a wider and holistic developmental approach that would benefit marginalised community members and lead to positive community-level change (Australian Government, 2019; Raw et al, 2022). Effective change at the community level requires organized investment and cannot rely only on individual efforts that spread informally at the individual level rippled to others. A structured, intentional, and coordinated approach is needed focusing on their broader well-being also helps them to perform better on the sports field. Marginalised communities must be invested in the process.

Scholars assert that this holistic approach should lead to a hybrid SfD organization that combines sport and SfD and attracts resources and capabilities from across multiple sectors of society such as sport, health and education as a means of promoting sport and social development (Australian Government, 2019; Dixon & Svensson, 2019; Raw et al, 2022; Svensson, 2017). This "hybrid" model seems to be the most sustainable entity to operate in the community and is a compelling concept as it leverages the multi-layered strengths and needs of several stakeholders such as youth, community organizations, development partners and government. However, research on SFD hybridity has been limited.

METHODOLOGY

This paper is partly based on a comprehensive study (Rijnen, 2023) as part of a PhD and, in addition to this, includes the evaluation of a pilot project based on the findings of the comprehensive study.

A constructivist epistemology guided the study which assumes a relativist ontology. Such an approach recognises the dynamic and emergent nature of not only the findings, but also the process of research. The constructivist paradigm is linked to qualitative methods, which are well-suited for exploring the phenomena of interest in this research, primarily the continuum of sport related programme delivery in Namibia.

The study included document analysis, participant observation, and interviews. In this study, five sport and SfD cases (including tennis) were reviewed, focusing on sport and youth development in Windhoek, Namibia. The research took place in Katutura, a marginalized community that was considered a "black township" during the Apartheid era. Managers of each of the selected organisations were approached to gauge their interest in this study and their willingness to participate. Once permission was received, an appointment was made to discuss what the research entails. After that interviews were scheduled and conducted with programme representatives.

A total of 44 people were interviewed, including 21 representatives of SfD organisations (48%), 17 youth participating in the activities of the SfD organisations (39%), and six external stakeholders (14%). A small majority of the respondents was male (59%) and females (41%). The interviews were semi-structured, leaving space for further questioning on interesting topics. The interviews were transcribed verbatim. Atlas.Ti, a software for Qualitative and Mixed Methods Data Analysis was used. The findings of the comprehensive study were used to set up and pilot a new tennis project in a marginalized community in Namibia. This paper combines the findings of the study and with a review of the pilot project.

FINDINGS

Tennis in Namibia, as in most of the world, has historically been a sport for the elite. Especially in the days of Apartheid (1948-1991). During those days, tennis was a White sport, mostly played by more affluent participants of European descent, with a considerable number of players and large-scale tournaments. Post-Apartheid (1991) the number of tennis players has slowly been dwindling. There are 14 tennis clubs in Namibia registered under the Namibia Tennis Association (NTA), the governing body of tennis in Namibia, and six are based in the capital city, Windhoek (NSC, 2023). There are around 465 registered tennis players (juniors, seniors, and veterans) in Namibia, of which the majority are young players. There are 260 players registered in Windhoek and 120 players registered at the coastal towns of Swakopmund and Walvis Bay, which is 82% of the total registered NTA players in the whole country. The gender balance between male and female is estimated to be 2:1 (NSC, 2023). Most of the tennis facilities are in the capital city and the coastal urban areas.

To put a halt to the decline in tennis participation, the NTA decided to try to reposition tennis and promote tennis among other ethnicities and other social classes in Namibian society and making it a sport for all. For this reason, a talent development programme was set up. This was initiated in the beginning of this Millennium but was intensified around 2012-2013 through financial support from the private sector. The objectives of the programme were in alignment with national development imperatives such as the NDPs and Vision 2030 that also stresses activities to overcome historical inequalities and focus on development for all Namibians (National Planning Commission, 2004, 2007, 2017). The programme in Namibia was supported by the Junior Tennis Initiative (JTI), ITF's global national junior development programme for 14-year-olds, which aims to provide opportunities across the world for increased participation by junior tennis players, while also identifying the most talented individuals for focused development within a country (ITF, 2025). In Namibia JTI targets the youth from marginalised communities, and youth from middle-class schools in marginalized communities.

The NTA talent development programme was mostly active in Katutura. It ran for a couple of years and was especially successful with boys. This has resulted in youngsters making it to the National team and/or becoming professional tennis coaches. Nevertheless, parental involvement was a huge issue in sustaining the programme. The normal development triangle between coach, player, and parent was not functioning. One coach provided an example of this:

When my daughter plays a tennis match, I am there to encourage her, to celebrate with her when she wins and to give her emotional support when she loses. This support is critical. Most development players, however, lacked this support. (Tennis coach)

The reason parents from Katutura were not there, however, was proximity to the tennis courts at the National Training Center in Olympia where the players were training and playing matches and tournaments. These courts were on the other side of Windhoek. Initially the programme conducted outreach activities in the Katutura community, but it was then decided to move the activities to the National Training Centre where the infrastructure was better. Tennis players had to come with taxis or public transport to the training.

Parents were not able to come and attend training and matches. Community involvement and alignment and influx of new players was therefore also limited, which limited the longer-term impact and sustainability of the programme. This was reflected in a higher number of girls dropping out of the programme. When the private sector funding ended, the programme only continued in a very limited shape.

Although the tennis development programme had made good strides towards repositioning tennis and making it a sport for all, this was exemplified by a small number of success stories. Overall, it had not been fully successful. It had not been able to make tennis accessible to all, particularly youth and their parents in Katutura, and there was not a substantial increase in tennis players from all communities. The programme however had provided insight and tools for further development.

Katutura Tennis Club (KTC)

Based on the findings of the comprehensive study, it was decided that tennis needs to be much more anchored in the community itself (Rijnen, 2023). Therefore, a new tennis club was set up and piloted in Katutura. As community ownership and alignment is an important factor for sustainability and access for all, it is important that the tennis activities are strongly rooted in the community.

As the youth in marginalized communities have more needs than tennis, it is also important that tennis is embedded in a larger set of activities that will support the youth. The tennis club was therefore linked to the Church Alliance For Orphans (CAFO), a community-based organization focusing on assisting the orphans and vulnerable children in the community. CAFO is strongly rooted in the community through various programmes, such as feeding programmes, early childhood development, school readiness programmes, and a balanced educational programme, which supports and supplements the Namibian school curriculum. There are additional classes offered in music, dance, sports, drama, and visual arts. There are group and individual counselling sessions for emotional and psychological support as well.

Using a SfD approach that develops tennis and provides life skills enabled the project to attract funds outside of the sports sector. The club received seed-funding from a foreign development partner, the German Agency for International Cooperation (GIZ), to set up the club and integrate SfD in the approach. The club further received in-kind support, such as advise and equipment, use of tennis courts, etc., from the NTA who was very supportive in starting a sustainable tennis club in the community.

With the start of the project, CAFO, the implementing organization, recruited an experienced tennis coach with good knowledge of the local community. The coach and management of CAFO was trained in implementing SfD in tennis through a series of workshops. The coach started to introduce tennis to the children at CAFO's after-school programme as well as in the wider community. In the morning hours on weekdays, the coach did tennis outreach to the schools in close vicinity of the project to teach the youth the basics of tennis and introduced them to the game. In the afternoons, tennis training was conducted for the more advanced youth at the two tennis courts that the National Tennis Association (NTA) generously made freely available for the project. The tennis courts are at a walking distance from CAFO headquarters and are the only two tennis courts available in Katutura. Tennis lessons and practice was scheduled between 14h00 and 17h00. Extra training sessions were held on Saturday mornings.

During 2024, the first year the KTC was successful in increasing tennis development and participation. A total of 850 children, of which at least 51% were girls, participated in tennis 4 development (T4D) activities at the schools. During the year some of the children advanced to a level in which they were eligible to participate in competitive tennis. Forty-five children, of which 53% were girls, participated in national tournaments and the National School's League tennis competitions. Some teams eventually even won the finals of the Schools League. Besides tennis, the youth also made use of the other activities that were offered (tutoring, psychosocial support et cetera). The period was however too short to show significant developmental outcomes for the youth other than sports related.

DISCUSSION

The comprehensive study shows that using the traditional tennis development approach for youth in marginalized communities can lead to the development of successful tennis players. It however also shows that there are limitations in terms of sustainability as it does not address the many issues that youth must deal with in these communities. Using the SfD approach connects tennis more with the realities of life in these settings and the core needs of the youth. Tennis embedded in a holistic approach can serve as a tool for life skills building and social mobility.

The role of a tennis coach in a holistic SfD approach is also different. The coach strives to equip young people with the physical, mental, technical and tactical skills that will make them good players. but he/she also strives to develop well rounded individuals who will become positive role models in their communities and lead healthy and productive lives. In the latter the coach is somewhat substituting the mother/father role as primary (yet) secondary significant other. Dealing with life issues and providing advice, guidance, and sometimes having to speak with parents, are all embedded in the role of "coach" in the SfD framework.

This study also shows that for working in a marginalized community using a 'hybrid' organizational model that combines sport development with SfD will be most impactful and sustainable. Working with or through a community-based organization will bring in the necessary bottom-up community approach where sustainable relationships with stakeholders are built. It will make it possible to tap into other sources of funding. The funding provided by the development partner for KTC is an example of this. It will help the organisation to access the formal non-sporting structures in the country and give the organisation the ability to bridge with other sectors, for instance the health sector or the education sector. The sport development element will also help organisations tap into the formal sport sector which provides a pathway for individual athletes to develop their talents and links capital to formal (international) sports organisations.

CONCLUSIONS

KTC has only been in existence for one year, which is a short time to confirm the findings of the comprehensive study and draw conclusions about the lasting success of the approach. It, however, does provide a pathway for increasing tennis participation amongst youth in marginalized communities, making tennis a sport for life. It presents various arguments for a hybrid delivery of tennis development programmes in the context of marginalised communities. Through strong anchoring in sport development a blended or hybrid approach can tap into the formal sport sector on a national and international level and try to access structural funding. A hybrid approach can access various formal sectors on the national level, such as health, sport, and gender resources, and tap into these networks. Through the hybrid approach, programmes can also build a strong relationship with the community and be community driven. Participants are drawn from the community stakeholders and have a passionate interest in the success of programmes because they have helped to create them. Stakeholders are then also more invested in attracting local resources, albeit in-kind or financial. This paper extends current examinations of SFD hybridity (Dixon & Svensson, 2019; Raw et al., 2019; Svensson, 2017) and defines the hybrid combination of SD and SfD as a community-based sport club grounded on a holistic integrated approach. In this model SD can co-exist with development as it is part of a full package where sport is a catalyst for youth development and community development.

The research provided insights for the implementation of a sustainable multi-sectoral stakeholder framework for sustainable sport-related development in Namibia and Africa and offers recommendations for aligned structural arrangements and practices. Besides focusing on current happenings and dynamics within each practice, emphasis needs to be paid on understanding the situatedness of programmes responsive of contextual realities and needs for sport and sport-for-development practices.

Recommendations

- The ITF should consider integrating the SfD approach in their work in marginalized communities where, besides tennis development, providing life skills to the young players is integrated and making tennis a sport for life.
- The ITF should consider expanding the stakeholder framework and find like-minded entities, create synergies, and start collaborating with national and international development partners to ensure a holistic approach to the tennis player and also increase resources and sustainability/ownership of the tennis practices. This will create opportunities and pathways for competitive tennis for youth from hard-to-reach communities.
- Under the umbrella of the ITF, National associations should start to engage with civil society organizations to explore the possibility of collaboration on tennis development, set up relationships and formalize these to set up a hybrid model in marginalized communities.
- Coaches working in marginalized communities need to be upskilled to include the SfD approach in their work. A training programme should be set up and manuals should be developed. This should contain an element of psycho-social support and referral.

Integration of SfD in tennis development with a holistic approach using a hybrid model has the potential to increase tennis participation in marginalized communities and have a positive impact on the lives of the tennis players.

ACKNOWLEDGEMENTS

We sincerely thank the research participants who took the time to collaborate the dissertation and the development of the KTC and share their stories, images, and experiences. Any opinion, findings, conclusions, or recommendations expressed in this material are those of the author.

DECLARATION OF INTEREST STATEMENT

This research poses no conflict of interest for the authors.

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COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 32-38
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.733

Tennis as Platform for Life Skills Development

Caio Corrêa Cortela, Maísa Costa Feital, Vinicius Zeilmann Brasil, Thiago Carvalho Eloi & Michel Milistetd

Brazilian Tennis Confederation.

ABSTRACT

Sports, and tennis more specifically, can be transformed into excellent platforms for personal development. To increase impact as a coach, we need to bring purpose and intentionality to the pedagogical process, integrating life skills into daily coaching and monitoring their application beyond the court. In this essay, we briefly conceptualize different approaches to learning life skills and introduce an applied example of how life skills can be intentionally taught in training sessions.

Key words: Tennis, Psychosocial development, Coaching.

Received: 30 July 2025

Accepted: 31 August 2025

Corresponding author: Caio Corrêa Cortela, capacitacao@cbtenis.com.br

INTRODUCTION

Sports development is a comprehensive process aimed at both athletic progression and the holistic preparation of athletes. According to the International Charter of Physical Education, Physical Activity, and Sport by UNESCO (1978), sport, as a human right, is fundamental for the holistic development of individuals, promoting physical health, emotional well-being, and meaningful social relationships. Whether practised recreationally or to develop high-performance athletes, sports programmes should concentrate on three primary objectives: the enhancement of sports competence, ongoing participation in lifelong activities, and the development of psychosocial skills (Côté & Fraser-Thomas, 2007; Côté & Vierimaa, 2014). To achieve these objectives, sports programmes should encourage healthy practices, respecting the stages of human and sports development in children and youth, with support from stakeholders such as family and community, while fostering positive relationships in the training environment with coaches and peers (Bergeron et al., 2015).

Organised sport not only promotes norms of social conduct and fosters a sense of belonging to a group but also encourages human assets such as proactivity and decision-making, factors that drive lasting positive changes (Holt, 2016). Thus, sport can be viewed as a "school for life," particularly when activities are explicitly aimed at developing essential life skills (LK)(Gould and Carlson, 2008; Kendellen & Camiré, 2017).

In tennis, numerous examples highlight the sport's potential for career development beyond the courts. Rafael Nadal, for instance, not only distinguished himself as one of the greatest tennis players of all time but also became a successful entrepreneur, investing in the audiovisual industry, tennis academies, and real estate sectors (Sanz, 2025 – Majorca Daily Bulletin). His capacity to transition between sport and business demonstrates how the skills acquired in tennis, such as discipline and strategy, are applicable in business ventures. Likewise, Venus Williams, in addition to her success on the courts, founded companies such as the sportswear line EleVen and the interior design firm VStarr, leveraging her influence and skills gained in sport to prosper in business (Ahuja, 2020 - Forbes). Maria Sharapova, in turn, launched the candy brand Sugarpova and invested in various sectors, transforming her competitive mindset into a driving force for her entrepreneurial career (Mr. Business Magazine, 2025). These tennis players exemplify how sport can serve as a platform for the development of LK, positively influencing society after their careers as professional athletes.

Despite sport offering numerous opportunities for personal and professional development, it can also present challenges and negative impacts. A recent example is Naomi Osaka, who faced difficulties related to mental health due to the intense pressure of the professional circuit. In 2021, Osaka drew global attention by withdrawing from the French Open, citing concerns over her mental health and anxiety caused by media obligations (Futterman, 2021 - The New York Times). Another recent example is Simona Halep, who was suspended from tennis for four years due to violations of anti-doping rules (WTA, 2023). These cases highlight the pressures and ethical challenges athletes may face, underscoring the high demands of professional sport. While tennis can be a vehicle for success and social development, it is crucial to address and mitigate the challenges and pressures it may bring, ensuring the well-being and integrity of athletes at all levels.

In light of these opportunities and challenges, the aim of this essay is to present Tennis as a promising modality for the development of LK. It will highlight specific strategies that coaches can adopt to train young athletes in pursuit of a balanced and healthy environment that fosters the holistic development of individuals

THE SETTING OR CONTEXT

Tennis is a sport that provides a significant environment for the development of LK due to its unique characteristics. The unpredictability of opponents' actions and the diversity of possible responses make the game complex, requiring players not only to enhance their motor and cognitive skills but also to strengthen the psychosocial competencies necessary for consistent performance in training and competitions (Zakrajsek et al., 2017).

Considered an open skill sport, each point in tennis can change rapidly due to the opponent's actions or external conditions, such as the type of court surface. This unpredictability compels players to be flexible and adaptable, cultivating the ability to handle variable circumstances (Zakrajsek et al., 2017). The randomness in actions leads to a variety of decisions that combine technical precision, strategic planning, and psychological acuity, creating an environment conducive to the cultivation of LK.

In a study conducted by Jones and Lavallee (2009), a 22-year-old tennis player highlighted that tennis taught her the importance of hard work and stress management, associating these skills with the development of communication and relationships. She also emphasized the need for planning and setting realistic goals. The transfer of these skills to other contexts, such as university, was facilitated by the confidence in applying them in different situations, reinforcing the idea that tennis contributed to her academic success. Another stud by Sacket and Gano-Overway (2017) examined the work of a tennis coach who used the sport to teach LK in a high school program. The focus was on the explicit development of personal responsibility, leadership, emotional control, and hard work. Among the coach's strategies was establishing clear expectations and holding athletes accountable, which included creating formal and informal rules for team behavior. He also encouraged players to support each other during competitions, promoting responsibility towards others. Additionally, the coach used discussions to identify and develop LK, such as when he helped partners in doubles understand the importance of emotionally supporting each other during matches.

Given these inherent characteristics of tennis, the sport itself demonstrates a context of high demand for the development of psychosocial competencies (Gould et al., 2019). Among the potential of the modality and its unique characteristics to explore LK, we can highlight some, such as adaptability, resilience, focus, decision-making, and emotional control. However, these skills only become LK when they are transferred to other contexts of the athletes' lives (Pierce et al., 2017). Therefore, it is essential that sports programs guide this structuring for greater utilization by athletes (Santos et al., 2024).

IMPLICIT AND EXPLICIT APPROACHES TO LIFE SKILLS

According to the research on LK development, there are two main approaches to promoting human development through sport: the implicit and the explicit approaches (Turnnidge, Cote, & Hancock, 2014). While these approaches may seem like opposed paths, they complement each other, differing in how the coach conducts training and presents LK in the training routine (Kramers et al., 2022).

The implicit approach suggests that LK develop naturally through an athlete's engagement in a positive environment, supported by nurturing relationships and a coach serving as a role model. It is believed that individuals will transfer these LK at some point in their lives when needed (Bean et al., 2018). The behaviors exhibited by coaches, which young athletes observe in various settings, can influence their actions—whether these examples are positive or negative—and may be replicated in the future (Agans et al., 2016). Therefore, coaches need to be mindful of their behavior, both on and off the court, and to strive to increase the number of positive examples they set. Indeed, coaches are important mentors for young athletes, and the relationship they establish in the sports environment is fundamental for learning LK. In addition to being role models, coaches should seek to develop a close and meaningful relationship with their athletes, promoting a psychologically safe environment (Santos et al., 2024). This relationship can be fostered by the coaches' interest in the athletes' lives beyond sports, individualized attention, and intellectual stimulation, according to athlete-centered approaches (Pill, 2018).

Training and competition experiences provide unique opportunities that require athletes to develop psychosocial competencies. Coaches can leverage these experiences to foster LK, often referred to as "teachable moments" (Camiré, Trudel, & Forneris, 2012). For instance, in a challenging match where defeat seemed inevitable, if a player demonstrates resilience and manages to change the outcome, the coach can use this experience to discuss the skill of resilience with the player. The coach can also provide examples of how this skill can be applied to the athlete's study habits and personal life. The learning potential of these moments may be enhanced by the emotional aspects of the experience, contributing to meaningful learning (Ciampolini et al., 2023).

The explicit approach advocates for the intentional teaching of LK, highlighting specific moments for discussing and practicing these skills (Turnnidge, Côté, & Hancock, 2014). This requires coaches to integrate LK into the planning, execution, and evaluation of training sessions. To facilitate this intentional planning, Bean et al. (2018) proposed the Implicit-Explicit Continuum of Life Skills Development, which consists of six levels: (1) structuring the sports context, (2) facilitating a positive climate, (3) discussing LK, (4) practicing LK, (5) discussing transfer, and (6) practicing transfer. The first two levels establish the foundation for a structured approach.

Without a solid implicit foundation, structured strategies may lose their effectiveness (Kramers et al., 2022). The explicit approach starts with the stage "Discussing LK." At this point, coaches intentionally incorporate LK into their training sessions. They select the skills they deem necessary and present the relevant conceptual knowledge to participants, often utilizing specific situations during sports activities (Bean & Forneris, 2017; Bean et al., 2018). The next level, "Practicing LK," builds on the previously established conceptual knowledge by promoting situations in the sports environment that allow participants to practice these skills (Bean et al., 2018). Coaches can implement rules that encourage skill practice, provide feedback, and require participants to reflect on the values they are practicing, helping them recognize the benefits of these LK (Bean et al., 2018; Camiré et al., 2011).

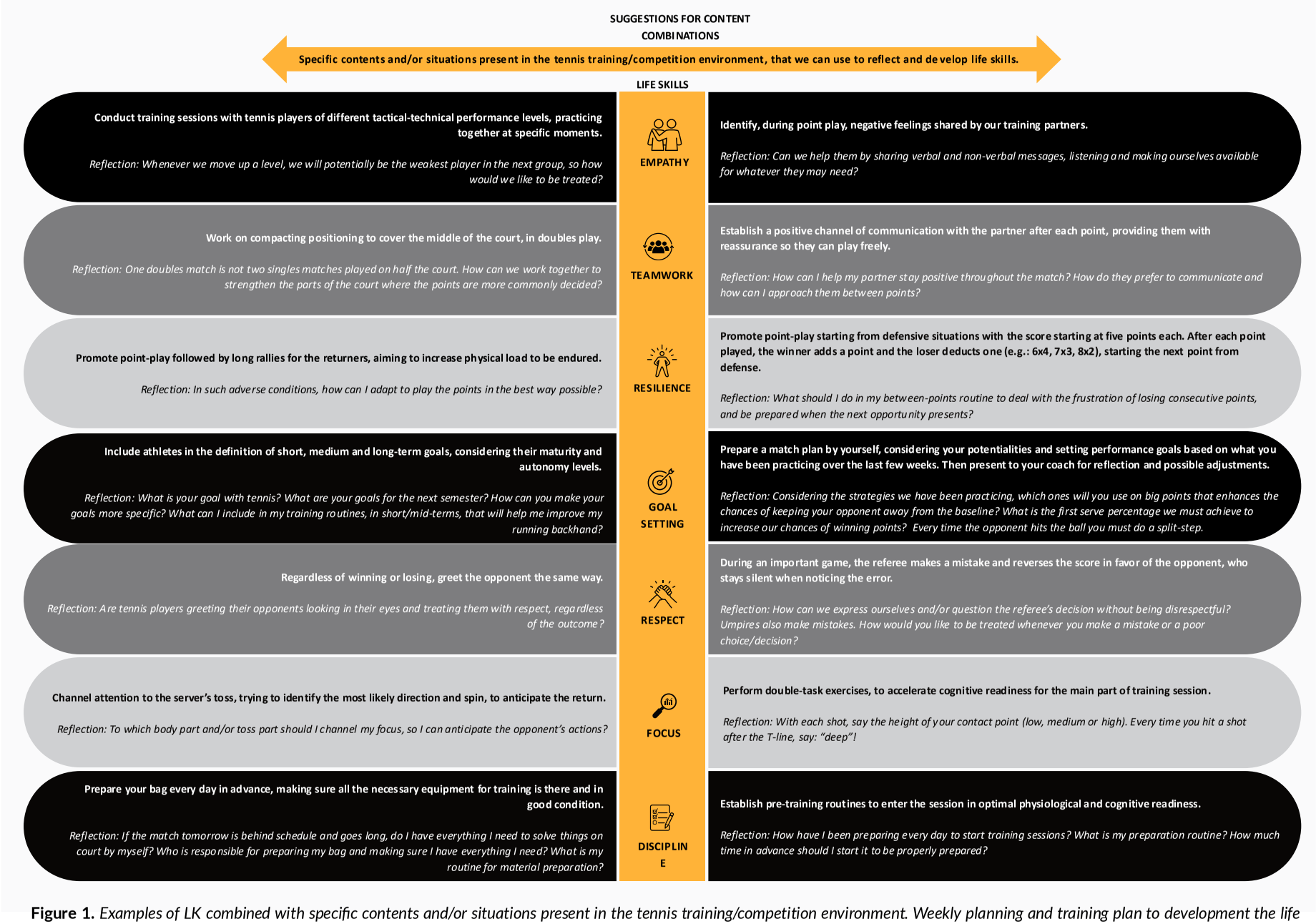

Figure 1. *Examples of LK combined with specific contents and/or situations present in the tennis training/competition environment. Weekly planning and training plan to development the life skill determination. Based on the implicit-explicit continuum for life skill development by Bean et al. (2018), and the PCA Cycle guidelines (Milistetd, Tozetto & Cortela, 2021), we present below a suggestion for a weekly plan and the design of a specific training session, covering LK linked to specific tactical-technical contents.*

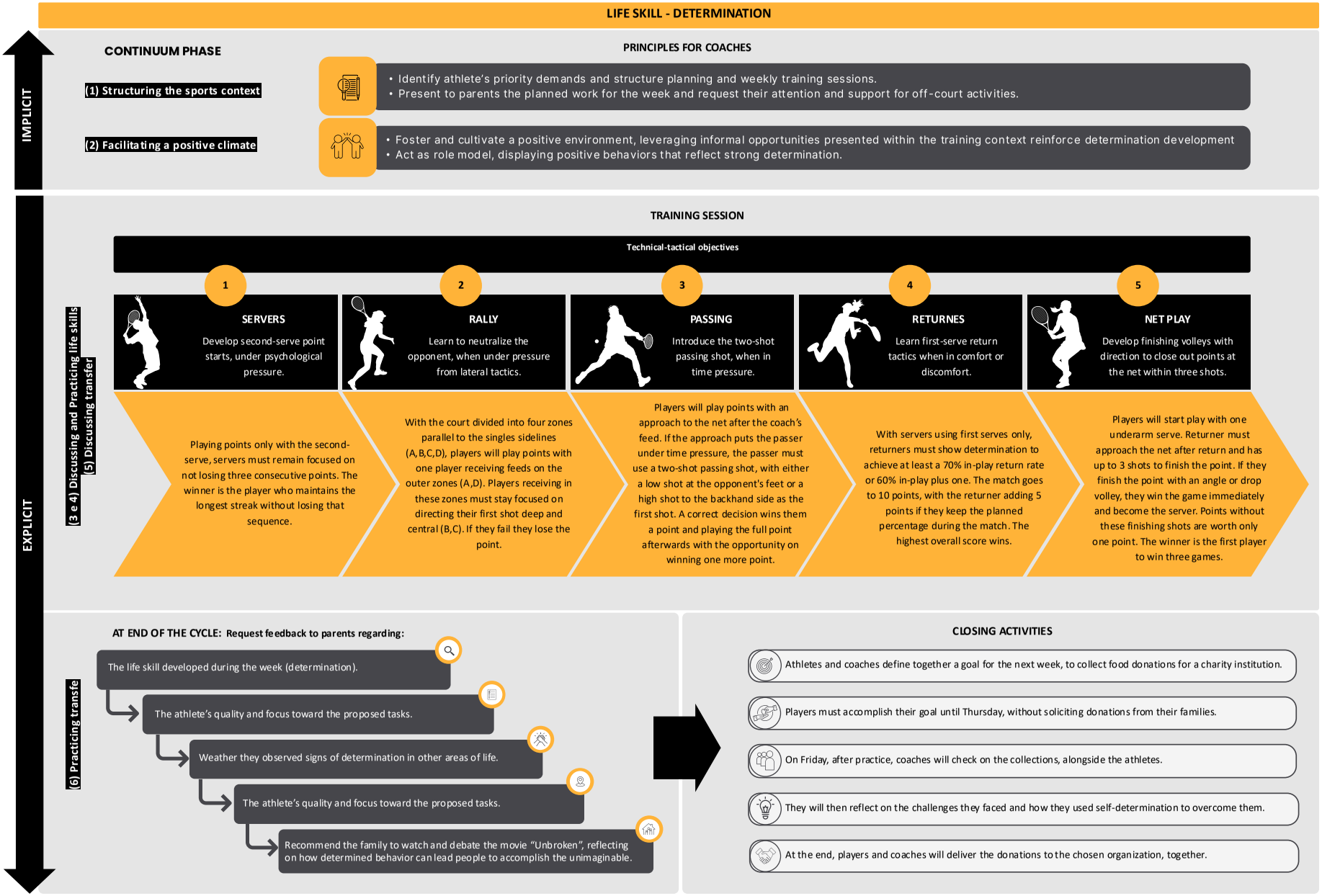

Figure 2. *Weekly plan of five training sessions for development of the life skill Determination, associated with specific tactical-technical contents.*

Figure 3. *Training session plan for the development of the life skill Determination, associated with specific tactical-technical contents. Training session designed for four intermediate-level tennis players, with a total duration of 60 minutes.*

In the "Discussing Transfer" stage, coaches clarify the importance of applying these skills in other contexts, such as school, family, and community (Bean et al., 2018). Children and adolescents often recognize LK within sports but may not understand how they can be applied outside of that environment. Finally, the "Practicing Transfer" level provides concrete opportunities for participants to practice these skills outside of sports. To achieve this, coaches should engage with parents, teachers, and community members, making them aware of the objectives of developing LK and promoting shared responsibility for the quality of this process (Bean et al., 2018; Pierce, Gould, & Camiré, 2017).

In summary, combining both implicit and explicit approaches creates a comprehensive and effective pathway for integrating LK development into tennis training, ultimately preparing young athletes to face challenges both on and off the court.

DEVELOPING LIFE SKILLS IN PRACTICE

As coaches, we can actively influence the process of acquiring LK. By using even implicit approaches, our intentionality and proactivity in selecting tasks, as well as building a positive environment for youth development, can enhance incidental learning in athletes (Greco et al., 2020).

Just as it is done for technical, tactical, physical and mental contents, the implementation of LK into the training routine should follow the premises inherent to planning, conduction and evaluation of sessions, referred to as the PCA Cycle (Milistetd, Tozetto & Cortela, 2021). This bidirectional process, established between planning and evaluation, is key to defining the training contents to be focused on the upcoming development cycles.

According to Afonso et al. (2023), the emergent nature of training environments requires planning and training plans to be flexible, allowing adjustments whenever the evaluation or the practice context provides inputs that may enhance pedagogical quality of the work to be developed.

For coaches working daily on court, one of the biggest challenges in explicitly develop LK is to integrate them into the training plan as specific content, without interfering with training volume or conflicting with sport-specific abilities, especially tactical and technical skills (Ciampolini et al., 2020). To assist this work, Figure 1 presents a few examples of LK and combines them with contents and/or situations found in tennis that may be used as opportunities for the explicit development of these skills.

The dynamic nature of training environments requires an open-minded approach to the development process. Instead of following a predetermined sequence of content, this approach prioritizes the individual and their responses to the presented stimuli as key factors in deciding what, how, and when material will be taught (Afonso et al., 2023). It becomes even more relevant when LK are addressed, in which the definition of what will be developed has an even stronger relation of dependency and proximity with individual, timing and contextual factors (Milistetd et al., 2020).

CONCLUSION

When starting a development process with children on the tennis court, it is common to not have clarity regarding their expectations about the sport. In this context, it becomes essential to structure the pedagogical approach in a way to keep multiple possibilities open, allowing well-informed future decisions.

For those pursuing high-level sport, it is desirable that the initial phases of learning provide the development of a broad and diverse motor repertoire, favoring further specialization and maximizing their athletic potential. On the other hand, for those who do not manifest that competitive interest, their experience in the sports environment should be significant enough to foster ties with the tennis community, contributing to the spread of the sport's culture and its practice for leisure and health.

At last, for those who choose to practice other sports or to devote themselves to different areas of life, the time dedicated to tennis must leave more than just good forehand and backhand techniques. As in the cases of players making a difference off the courts mentioned at the beginning of the essay, it is expected that a well-structured pedagogical process with tennis as a platform, contributes to the development of LK that can be transferred and applied to other contexts beyond the sporting environment.

ACKNOWLEDGEMENTS

No funding was received for this work.

CONFLICT OF INTEREST

The authors declare no conflict of interest

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ITF International Tennis Federation
COACHING & SPORT SCIENCE REVIEW

International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 39-44
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.719

Tennis for Life: A Strategic Framework from the Portuguese Coaches Education Department

Paulo Figueiredo[1,2], Rui Machado[1], Hugo Vieira Pereira[2,3], Raquel Barreto[2]

[1]Federação Portuguesa de Ténis. [2]CIDEFES – Universidade Lusófona & CIFI2D – Universidade do Porto. [3]Hospital da Luz, Lisboa.

ABSTRACT

This article presents a strategic framework for promoting tennis as a sport for life, developed by the Education Department of the Portuguese Tennis Federation (FPT). Drawing on national experience, scientific literature, and evidence-based principles, the paper explores the foundational role of coach education, school-based programs, health-oriented initiatives, and inclusive development pathways. It highlights how structured training, lifelong learning opportunities, and collaboration with academic institutions have strengthened the relevance of tennis across different life stages and population groups. Special emphasis is placed on the design and implementation of school-based workshops, training for physical education teachers, the adoption of blended learning methodologies, and the role of tennis in supporting active ageing and public health. This contribution provides a practical roadmap for federations aiming to expand the social and health impact of tennis, grounded in applied practice and aligned with international recommendations for lifelong physical activity.

Key words: Tennis for Life, Coach Education, Strategic Development, Public Health

Received: 30 June 2025

Accepted: 4 August 2025

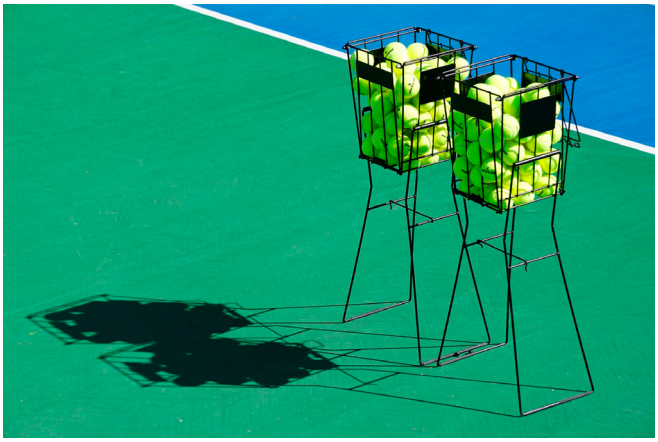
Corresponding author: Paulo Figueiredo, paulofigueiredo@fptenis.pt

INTRODUCTION

Tennis is increasingly recognized as an inclusive sport suitable for all ages, providing various physical, mental, and social benefits. Its adaptability facilitates participation regardless of age or skill level, exemplifying the concept of a "sport for life." This inclusiveness supports public health objectives aimed at enhancing physical activity among diverse populations (Jackson et al., 2019; Roetert et al., 2016; Spring et al., 2020).

Engaging in tennis enhances cardiovascular health, aids weight management, and improves overall fitness (Jackson et al., 2019). Regular participation is associated with improved body composition, enhanced metabolic health, and a reduced risk of chronic diseases, including cardiovascular issues and type 2 diabetes (Oja et al., 2024; Li et al., 2021). Tennis's variable intensity offers both aerobic and anaerobic training, crucial for sustaining physical activity as individuals age (Jackson et al., 2019).

Mental health benefits associated with tennis are significant. Systematic reviews indicate that regular physical activity leads to reduced anxiety and depression (Rebar et al., 2015). The social aspect of tennis fosters community connections, enhancing motivation and enjoyment. This social interaction is vital, particularly for older adults, as it combats isolation (Rebar et al., 2015). Participation in competitive environments also develops mental resilience, contributing to psychological well-being (Rebar et al., 2015).



Modified equipment and flexible formats (singles, doubles, mixed) enhance accessibility, allowing broader participation (Roetert et al., 2016). This versatility promotes public health interventions focused on lifelong physical literacy (Roetert et al., 2016).

Tennis's comprehensive physical and mental health benefits, along with its accommodating nature, underscore its effectiveness as a lifelong sport. It aligns with public health strategies advocating for lifelong activity, emphasizing social connection, physical engagement, and mental well-being, thereby reinforcing its designation as a sport for life. This

article outlines a strategic framework for promoting tennis as a lifelong sport, drawing on ongoing initiatives led by the Coaches Education Department as a practical case study. By combining international research with national-level implementation, we aim to develop an evidence-based and replicable model that other organizations can adopt.

In recent years, there has been a growing emphasis on the role of sports, particularly tennis, in promoting health, social integration, and overall well-being across all age groups. Research indicates that tennis fulfils key criteria for sustained participation in physical activity, including accessibility, skill development, social interaction, enjoyment, and challenges for physical and mental fitness (Roetert et al., 2016; Dombrowski & Hanson, 2021). As a lifelong sport, tennis offers unique opportunities for continuous physical activity.

Studies from various countries, including Australia, the UK, and the US, have revealed a correlation between tennis participation and elevated levels of physical activity, resulting in health benefits such as improved cardiovascular health and a decreased mortality risk (Roetert et al., 2016; Dombrowski & Hanson, 2021). A systematic review found that tennis players exhibit superior cardiovascular fitness and health markers, underscoring the advantages of tennis for long-term health (Jackson et al., 2019). This highlights tennis's dual role in skill development and health promotion.

Additionally, participation in tennis offers significant mental health benefits, linked to reductions in anxiety and depression, while fostering a sense of community among players (Dombrowski & Hanson, 2021). Research indicates that social interactions through tennis enhance psychological well-being, reinforcing its dual function as physical activity and a facilitator of social health (Dombrowski & Hanson, 2021). These findings support the inclusion of tennis in public health initiatives that promote active lifestyles across demographics, emphasizing its effectiveness in promoting long-term health and well-being. The evidence substantiates the argument that tennis is an optimal candidate for health-promotion strategies, contributing to physical fitness, mental acuity, and social connectivity, thereby fostering an active lifestyle from childhood to old age.

As well as health benefits, tennis also acts as a powerful tool for education, social inclusion, and personal growth. The use of tennis in therapeutic and rehabilitation settings has also increased, with mounting evidence backing its role in adapted physical activity for people with physical or cognitive disabilities (Bull et al., 2020; Eime et al., 2013).

Drawing on the initiatives of the Coaches Education Department and its collaboration with academic and local partners, we explore current initiatives and identify areas for future development. This approach emphasizes the importance of structured coach education, early promotion through schools, social inclusion strategies, and synergies with public health policies. The article is not limited to scientific evidence alone but also reflects the operational vision of a national coaching organization dedicated to increasing participation and enhancing the quality of life through tennis.

Methodological Note

This article does not follow a traditional empirical research design. Instead, it adopts a descriptive and strategic perspective based on the experience of the FPT, particularly through the work developed by its Education Department. The content reflects real programs and initiatives implemented over the last decade, supported by scientific literature, institutional documentation, coach education curricula, and collaborative academic projects. As such, the article presents a conceptual framework rooted in practice and aligned with international recommendations for lifelong physical activity and coaching development.

COACH EDUCATION AND LIFELONG LEARNING

Promoting tennis as a lifelong sport necessitates coaches who are trained not only in technical and tactical aspects but also in psychosocial, pedagogical, and health-related dimensions. Coaches must be equipped to work across different life stages and adapt their strategies to the needs of diverse populations, including children, recreational players, older adults, and people with disabilities (Côté & Gilbert, 2009; Cushion et al., 2010; Lyle, 2002). This signals a global shift towards recognizing the coach's interpersonal 'soft skills'—such as empathy, communication, and relationship-building—as equally significant as their technical knowledge in fostering lifelong participation.

The national Coaches Education Department has been striving to establish a comprehensive coach education system aligned with international best practices and the guidelines of the International Tennis Federation (ITF) and the Instituto Português do Desporto e Juventude (IPDJ). This system encompasses the development of national coaching certifications (Levels I to III and IV, to be introduced in the near future), as well as ongoing professional development initiatives, including seminars, workshops, and online courses. These programmes cover topics such as adapted tennis, youth coaching, beach tennis, physical literacy, and athlete monitoring.

Moreover, the integration of digital learning platforms, including the ITF Academy and blended learning models, will enable the Department to broaden access to coach education. Coaches can benefit from both asynchronous and synchronous learning opportunities that reflect the complexity of modern coaching, emphasizing not only performance outcomes but also player well-being, long-term development, and inclusive practice (Nelson et al., 2006; Trudel & Gilbert, 2006). In addition to formal education, the Department encourages reflective practice and peer learning as fundamental components of coach development.

Key Takeaways for Organizations & Coach Educators:

- Embrace Blended Learning: Combine online modules with in-person workshops to increase reach and flexibility, especially for coaches in remote areas.
- Diversify CPD Content: Offer continuous professional development (CPD) that goes beyond tactics, covering topics like adapted tennis, healthy aging, and interpersonal "soft skills".
- Foster Reflective Practice: Create formal and informal opportunities for coaches to share experiences and learn from one another, building a culture of continuous improvement.

EARLY PROMOTION THROUGH SCHOOLS AND PHYSICAL EDUCATION

One of the most effective ways to position tennis as a lifelong sport is to integrate it early within the educational system. Introducing tennis during childhood, particularly in physical education (PE) classes, can play a vital role in shaping positive motor experiences and lifelong physical activity habits (Bailey et al., 2009; Kirk, 2005). The early years are crucial for the development of fundamental movement skills, which are strongly linked to long-term engagement in sport and health-promoting behaviors (Lubans et al., 2010).

The Coaches Education Department has developed the "Workshops de Ténis Escolar" (School Tennis Workshops), a national initiative aimed at promoting tennis in schools through collaboration with Regional Tennis Associations, schools, and the Ministry of Education. These workshops offer PE teachers didactic resources and tennis equipment, along with basic pedagogical training based on the ITF's Play & Stay methodology. In addition to traditional tennis, the workshops include specific modules for beach tennis and adapted tennis, ensuring that inclusivity and accessibility are central from the beginning.

Embedding tennis into the formal physical education (PE) curriculum helps democratize access to the sport, breaking away from historical associations with exclusivity and enabling children to experience tennis without financial or logistical constraints. This contributes to more equitable opportunities in physical activity and talent identification (Hardman & Green, 2011).

INTEGRATION WITH PUBLIC HEALTH POLICIES AND ACTIVE AGEING

As societies confront the challenges of aging populations and sedentary lifestyles, tennis can play a meaningful role in addressing public health priorities. Its versatility, adaptability, and social nature make it particularly well-suited to support healthy aging, mental well-being, and community cohesion (World Health Organisation [WHO], 2018).

In Portugal, the potential of tennis as a health-promotion tool is increasingly recognized. Several international studies have shown that regular tennis participation is associated with reduced risk of cardiovascular disease, improved metabolic function, better bone density, and enhanced cognitive health in older adults (Booth et al., 2012; Kovacs et al., 2021). The intermittent nature of tennis allows for intensity modulation, making it suitable for individuals with different functional levels (Fernández-Fernández et al., 2009).

Social engagement is also a key factor in adherence to physical activity programs for older adults (Eime et al., 2013). By developing partnerships with local governments and health promotion entities, national tennis organizations can contribute to broader public health goals. This positions tennis clubs as ideal partners for emerging public health initiatives, such as 'social prescribing', where healthcare providers formally refer patients to community-based activities to improve well-being and combat non-communicable diseases (Husk et al., 2020).

DIGITAL INNOVATION AND INCREASED ACCESS TO EDUCATION

Digital transformation is reshaping the delivery of sports education and development globally (Kirk et al., 2016; Padilha et al., 2021). The Coaches Education Department has embraced these innovations progressively. Coach education has been enhanced through blended learning (B-Learning), which combines in-person training with e-learning components. Additionally, the ITF Academy has the potential to become a cornerstone resource for tennis professionals at all levels.

Digital tools are also playing an increasingly significant role in athlete monitoring, with initiatives involving collaborations with universities opening new possibilities for applying wearable technologies and workload monitoring. The shift to digital has also led to greater interactivity in learning, with online quizzes, video feedback, and discussion forums encouraging engagement and reflective practice (Salmon, 2013). This has enabled the Department to design and deliver continuous education programs for certified coaches, aligning with international trends that emphasize lifelong learning and evidence-informed coaching (Côté & Gilbert, 2009).

SOCIAL INCLUSION AND COMMUNITY IMPACT THROUGH TENNIS

Sport has long been recognized as a powerful tool for social inclusion and community development (Coalter, 2007; Schulenkorf et al., 2011). The Coaches Education Department has made social inclusion one of its priorities and will work with municipalities, schools, and social solidarity institutions to introduce tennis to communities that may otherwise face barriers to participation.

One of the initiatives has been the delivery of adapted tennis programs for individuals with disabilities, aligning with broader goals to make sport more accessible (European Commission, 2020). At a broader level, tennis clubs are increasingly viewed as community hubs. Although systematic data on long-term impact is still being gathered, early feedback suggests these efforts foster a sense of belonging and empowerment. To build on this, the Department plans to systematically measure the impact of these programs through annual surveys on participant well-being and tracking retention rates over three-year periods.

Key Takeaways for Organizations & Clubs:

- Partner Beyond Sport: Collaborate with local health units, disability organizations, and social solidarity institutions to reach new participants.
- Train for Inclusion: Provide specific training for coaches on adapted tennis and inclusive methodologies to ensure a welcoming environment for all.
- Act as a Community Hub: Encourage clubs to host social events, health screenings, or educational workshops to strengthen their role in the local community.

SUSTAINABILITY AND SOCIAL RESPONSIBILITY IN CLUBS

The modern sports club is increasingly called upon to assume responsibilities beyond athletic development, including environmental sustainability and ethical governance (Doherty et al., 2014). The Coaches Education Department has identified sustainability and social responsibility as strategic areas for future development. While these actions are currently dispersed, the vision is to build a culture of responsibility across the entire coaching system. Resources such as club certification schemes and training modules are instrumental in scaling these efforts (Trendafilova et al., 2013).

To accelerate this shift, the Department could develop "sustainability toolkits" for clubs, inspired by the high-profile initiatives of Grand Slam tournaments, such as Wimbledon's commitment to eliminating single-use plastics or the Australian Open's focus on renewable energy. This provides clubs with a clear, scalable roadmap. Empowering clubs to become agents of sustainability and social cohesion is essential to securing the sport's future relevance in a rapidly changing world.

PHYSIOLOGICAL AND PSYCHOSOCIAL BENEFITS ACROSS THE LIFESPAN

Research has greatly expanded our understanding of tennis's lifespan-wide impact. Large-scale studies have shown that regular participation is linked to lower all-cause mortality (Oja et al., 2015). The sport's intermittent nature improves cardiovascular function (Bailey et al., 2017), muscular strength (Fernandez-Fernandez et al., 2009), bone density (Vlachopoulos et al., 2018), and balance (Gomes et al., 2022).

Beyond the physical, tennis stimulates executive functioning (Zhu et al., 2022) and provides emotional benefits, including stress relief and improved mood (Chodzko-Zajko et al., 2009). The sport also fosters a strong sense of identity and continuity, contributing to a positive self-concept and a sense of belonging throughout the aging process (Stenner et al., 2019). Recent public health perspectives emphasize tennis as a tool for active aging and inclusive wellness programming (Kirk & Rhodes, 2020).

UNIVERSITY PARTNERSHIPS AND KNOWLEDGE TRANSFER

The Coaches Education Department has actively pursued collaboration with academic institutions, recognizing that partnerships with universities represent a strategic asset for innovation and evidence-based practice. Universities such as the Faculty of Human Kinetics (FMH), Universidade Lusófona in Lisbon, and the University of Porto play a significant role in educating future tennis coaches (Correia et al., 2022).

Several collaborative research projects have emerged, addressing themes such as training load monitoring and heart rate variability (HRV) in youth tennis players (Figueiredo et al., 2025). The Department acts as a conduit between research and practice. A recent prime example of this synergy was a high-profile webinar on the Constraints-Led Approach, co-hosted by the FPT, the ITF, and leading researchers from the Faculdade de Motricidade Humana (Araújo et al., 2024), making cutting-edge pedagogical science accessible to the national coaching community. This model of Federation, University, and coaching organization synergy provides a replicable structure for other national coaching entities seeking to bridge the gap between science and practice.

Key Takeaways for Organizations & Researchers:

- Establish Formal MoUs: Create formal Memorandums of Understanding with university sports science departments to structure collaboration.
- Facilitate Knowledge Transfer: Organize regular seminars where researchers and PhD students present practical, accessible findings to national and club-level coaches.
- Co-Develop Resources: Work with academic partners to create evidence-based coaching manuals, online modules, and educational materials.

LIMITATIONS AND FUTURE DIRECTIONS

This article reflects the strategic direction and initiatives led by the Education Department of FPT in promoting tennis as a lifelong sport. While it provides a structured overview grounded in current practice, it does not represent an

Table 1
The FPT Education Department's 10-Part Strategic Framework for Promoting Tennis for Life.

	Strategic Area	Key Focus
1	Coach Education	National certifications, continuous professional development, blended learning, ITF Academy
2	School-Based Promotion	PE teacher training, curriculum resources, early access in schools
3	Health & Active Ageing	Programs aligned with WHO, promoting lifelong physical activity
4	Inclusive Development	Adapted tennis, coach education on disability inclusion
5	Digital Innovation	Online learning tools, remote education, monitoring (emerging)
6	Sustainability & Responsibility	Ethical club practices, sustainability awareness
7	University Partnerships	Joint research, academic integration, scientific events
8	Public Health Integration	Tennis in national health strategy, preventive health value
9	Community Engagement	Club outreach, local partnerships, access in underserved areas
10	Strategic Vision	Long-term planning, program integration, global replicability

exhaustive account of all FPT initiatives or those of other departments, such as Technical and Development. The perspective presented here is intentionally focused on coach education, school-based promotion, and lifelong learning.

As the FPT continues to grow its tennis-for-life strategy, future work will benefit from closer integration with data monitoring systems, long-term participant tracking, and broader interdepartmental collaboration. Ongoing academic partnerships will play a key role in strengthening the evidence base and guiding implementation. Further exploration of outcomes related to retention, public health impact, and inclusive participation will enhance the strategic roadmap presented in this article.

CONCLUSION

The Coaches Education Department is increasingly committed to developing tennis as a lifelong sport. This article has outlined a realistic and strategic pathway that integrates early promotion, inclusive coach education, and evidence-based practice through strong academic and community partnerships. Rather than presenting a static snapshot, this contribution reflects a dynamic, evolving model of national sports governance related to coaching. The synergy between the Coaches Education Department, academia, and local communities is central to this process. As the challenges of physical inactivity and social fragmentation continue to grow, the Portuguese experience suggests that a national tennis coaches' education department, when supported by sound policy and academic partnerships, can lead transformative change for individual and public well-being.

CONFLICT OF INTEREST AND FUNDING

The authors declare that they have no conflict of interest and did not receive any funding to conduct the research.

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International Tennis Federation
COACHING & SPORT SCIENCE REVIEW
International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 45-48
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.729

Tennis and mental health II: Debunking myths

Lucía Jiménez Almendros
Spain.

ABSTRACT
During the last Wimbledon, allusions to the mental health of the players were recurrent, either because they were immersed in a difficult situation, or because they had overcome it and were in a much more favourable position, as in the case of Anisimova, recent finalist. Although interest in mental health has grown significantly in society, there are still many erroneous beliefs and myths around it, which only generate an idea of rejection or distance. This article exposes and dismantles, based on scientific articles, some of these myths that do so much damage to those who listen to them. Specific actions and possible interventions to be implemented from the player's immediate environment are also offered.

Key words: Mental health, awareness, training, myths.
Received: 15 June 2025
Accepted: 10 August 2025
Corresponding author: Lucía Jiménez, luciajalmendros@gmail.com

INTRODUCTION

> *"I feel very alone on the court. I have problems on a mental level. I'm trying to find ways out of this hole, but I fall back (...) I've never felt this emptiness before. Not even when I win do I feel that happiness and motivation to go out. I go to sleep with no motivation to get up the next day."*
>
> **(Alexander Zverev, ATP No. 3)**

Mental health does not understand status, positions in the ranking or the thousands/millions of euros that are held in the bank. When Alexander Zverev commented at Wimbledon (2025) that he felt alone in life and that he was invaded by a deep feeling of emptiness, a great debate was generated around the legitimacy of his emotions, as if from the outside we had the power to discredit a person who says he is going through a bad time; as if their social, sporting or economic position shielded them against emotional difficulties; as if mental health established a criterion for who is able to deal with it, or not.

When Zverev injured his ankle at Roland Garros 2022, it did not occur to anyone to criticize or question him for the time he would need for his recovery, however, when he declares that he feels in a very difficult moment on a psychological level, a division is generated, with followers and detractors... It seems as if physical injuries, visible and much more obvious, have more credibility and more weight than "emotional injuries". This is but a sample of the lack of knowledge that still exists in the sports context in reference to mental health, its indicators, its repercussions, and the real difficulties faced by a person who is going through it.

Zverev has not been the only one who, in addition to acknowledging the problems he is going through, has undergone public debate about whether it is legitimate to feel this way or not. Recall that Naomi Osaka was in the eye of the hurricane when she refused to attend the press conference after her first-round match at Roland Garros 2021 and finally decided to retire arguing the care of her emotional health. Paula Badosa, Benoit Paire, Robert Soderling, Mardy Fish and even Anisimova herself, a recent Wimbledon finalist, have gone through mental health problems that have directly affected their sports career, and that fortunately they have made public, thus favouring awareness and knowledge of what it means to go through a difficulty of these characteristics.

However, there are still many myths that give rise to preconceived and erroneous ideas about mental health, emotional regulation, sports, success and fame. We are going to try to dismantle some of them in the next section.

MYTHS ABOUT MENTAL HEALTH IN TENNIS

Myth 1:
"Talking about mental health is a sign of weakness"

It is common for players to come to the clinic who say that they had previously thought about working on a psychological level but who felt that, if they talked about it, they would seem mentally weak or their fears would become greater and would become -surely- reality, as if by not expressing them, they did not exist, or they were going to magically disappear... However, nothing could be further from the truth, what is not expressed, what is not worked on, what is not attended to, ends up gaining ground and permeating what we do, how we do it and the decisions we make. It is said that "The body speaks what the mind is silent", therefore, what is not expressed, ends up coming out through our body, either in the form of injury, illness, tiredness...

Let's take an example: the case of a junior player at ITF J30 and 60 level, who is afraid to admit that he is very nervous playing in his region, because he feels that he is obliged to do well, says he wants to "show his true level and be proud of him...". That player, who is good at international tournaments and feels comfortable, but for whom regional tournaments are a real nightmare, tends to lean towards a calendar of tournaments in which he must travel a lot, to go even to countries with difficult access where he feels he can enter more easily and where there will be no one he knows. What we would call an "avoidant calendar". This player, until he works on this fear/block of competing in his country/region, will be making him grow, which may lead him to doubt his level or his ability to win matches in certain scenarios.

Let's take another example: a player who is recurrently haunted by injuries, and who the week before playing, curiously, always has some kind of discomfort, pain or inability to play. In some cases, it will be predominantly physical, of course, but if it happens on a regular basis, it will be necessary to at least assess the possibility that they are somatising their tension, doubts or anxiety, even more so knowing the importance of coping skills in the evolution and improvement of injuries (Doreste et al., 2020).

Sometimes it is not the players who show doubts, but the environment itself, family or coaches, who believe that going to the psychologist is a weakness. What would happen if they thought the same thing on a physical level...?

Different studies tell us that there are still numerous barriers around psychological work and mental health. In the systematic review by Gulliver, Griffiths & Christensen (2012) it is mentioned how adolescents perceive shame and stigma when recognizing their symptoms. Interestingly, one of the main conclusions of this study was that these same young people perceive psychological help and social support as very beneficial. Similarly, the research by Sebbens et al (2016) highlights the social stigma of the environment, attributed to the lack of knowledge about basic aspects related to mental health and emotional well-being. In this research, an intervention is carried out with 166 coaches, who receive training in symptomatology and basic accompaniment in mental health problems and who, after this training, stated that they felt much more sensitive to these symptoms and with much more capacity to intervene and offer help. And what is unknown, is ignored more out of fear than indifference.

Myth 2:
"As long as you have good results, you don't need to go to the psychologist"

It is true that a player should not go to a psychologist either out of fashion, or obligation, or inertia, but if we exclusively relate going to the psychologist to good or bad sports results, we will be favouring totally counterproductive beliefs, such as believing that problems can be solved through magical solutions instead of understanding that it is continuous work that helps to create habits and positive inertia that allow training and competing better. This myth also shows that preferring to intervene when there is already a problem rather than promoting prevention. Specific interventions are effective when there has been groundwork that has allowed positive habits to be created, if not, let us remember that continuous work is recommended for the consolidation of certain habits and a minimum of between 6 and 12 sessions to perceive relevant changes (Harvey et al., 2022; Hecht et al., 2023).

Myth 3:
"If my child does not compete at a high level, he or she does not need to train on a psychological level"

As I mentioned before, it is not that everyone should go to the psychologist, far from it. What is proposed is that, if you compete, whatever the level, the experience you have at an early age is emotionally very intense and is perceived with the same magnitude regardless of the sporting level (Jiménez, 2017); In many cases, situations arise for which the youngest are not maturely prepared. The fact of receiving notions of intelligence and emotional regulation will create an excellent base that allows them to face the difficulties that arise with greater knowledge and sensitivity, beyond the tennis context (Casañas & Lalucat, 2018; Jorm, 2012).

Myth 4:
"Boys are less emotional than girls"

There is no conclusive, consistent, and universal evidence establishing biological differences in emotional regulation in men and women. Research shows that differences are fundamentally due to cultural, social, or personality aspects (Brody & Hall, 2008). There may be differences in the way emotions are regulated (Kaiseler, Polman, & Nicholls, 2013; Zimmermann & Iwanski, 2014), but not in the biological disposition to regulate better or worse. In the tennis context it occurs in a similar way, there is also a lot of research that shows that these differences do not exist or are inconsistent (e.g. Jiménez, 2017; Madrigal, Gill & Willse, 2017). The fact of dismantling this myth totally opens the door for both boys and girls, to openly express their emotions, without being branded as weird or weak. Examples such as Zverev, Mardy Fish or Kyrgios himself, open the door for the children who admire them to also express their difficulties without fear of being judged. And what is more important, it opens the door to learning to regulate emotions from a very young age, being able to be much more effective both in sports and personally, without having to wait until you have a serious problem to act or ask for help. Let us remember that prevention is always more effective and efficient than intervention.

Myth 5:
"Only those who have a diagnosed disorder need psychological support"

This myth implies that going to the psychologist is relegated to people with a disease, offering a purely medical and pathologized view of psychology. We need to understand that sports psychology has a role like that of training any other technical, tactical or physical quality, that is, it needs time and daily practice to master it. And it is that we start from two fundamental notions to carry out a psychological process: Conscience and Responsibility. The player must be aware of what is happening to him or her to be able to act accordingly and responsibly. There is an essential part of (self) observation, to later act in a precise way. And this requires time and action and putting in place different tools that allow you to address the difficulty in question.

PRACTICAL CONSIDERATIONS:

Clubs and federations:

1. Implement awareness programs for coaches, players and families.
2. Make sports psychologists available to players and coaches.

Trainers:

3. Complement their knowledge with basic psychological training in mental health and emotional regulation.
4. Create communication spaces in which players can express themselves without fear of being judged or criticised.
5. Generate a culture of understanding, care and affection among their players (teammates vs. rivals).
6. Act if they perceive that a player may be experiencing a difficult personal or tennis situation.

Families:

7. Maintain their role as a parent above the sports results. That their conversations focus on improving their family bond beyond sporting gain. Never subordinate affection or material rewards to sporting results.
8. Respect the vital moment of their children in time and space (many of them are adolescents).

Players:

9. Ask for help if they perceive difficulties that limit them for a prolonged period of time, or if they perceive that a classmate has them.
10. Offer support to a classmate who is going through a difficult time, since social support has a direct impact on improvement.

CONCLUSIONS

According to the World Health Organization, one in four people will have a mental disorder in their lifetime, 50% of mental health problems begin before the age of 14, and 75% before the age of 18 (CSME, 2024). This means that practically all of us are exposed to going through one of these psychological difficulties throughout our lives, and that these are not born from one day to the next, but that they are developed over time and that if they are not treated in time they can lead to a more serious mental health problem.

For this reason, and for many others that have been exposed in this article, it is important that we pay attention to the emotional well-being and mental health of the players with whom we train. This article has tried to dismantle some of the ideas that are most frequently heard and that represent a limitation in the emotional development of boys and girls and even of adults themselves. As discussed in the 2023 article (Jiménez, 2023), mental health is a social responsibility, since, ultimately, we are all society, and all of us who are involved in one way or another in the athlete's environment, have the responsibility to attend to and care for such a fundamental delicate part of their development, and ours.

CONFLICTS OF INTEREST

The author declares that she has no conflict of interest.

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International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 49-54
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.677

The effect of self-perception on performance perfectionism behaviours in young tennis players: the case of Turkey

Şeniz Karagöz[1] & Elif Bozyigit[2]

[1]Afyon Kocatepe University, Turkey. [2]Pamukkale University, Turkey.

ABSTRACT

Perfectionism in sport is a multidimensional construct influenced by various psychological factors, including athletes' self-perception. This study aimed to examine the influence of self-perception on performance perfectionism among elite young tennis players. A total of 163 elite athletes (n = 105 female, n = 58 male, AgeMean=14.13±1.02 years), aged between 13 and 16, voluntarily participated in the study. Quantitative research methods were employed, and data were collected using the Elite Athlete Self-Perception Inventory (EASPI) and the Perfectionism in Sport Scale (PPS-S). Descriptive statistics, reliability analyses, Pearson correlation, and multiple linear regression analyses were conducted. A low-level negative correlation was found between age and all sub-dimensions of self-perception ($p < .05$, $r = -.17$ to $-.28$). However, regression analysis revealed that self-perception had a very limited explanatory power for performance perfectionism and did not form a statistically significant model ($R^2 = .03$, $p > .05$). These findings suggest that enhancing young tennis players' performance requires not only the development of physical skills but also the reinforcement of motivational and social support structures. Developing holistic training programs that account for individual differences may help manage perfectionism levels in a healthier way.

Key words: Elite tennis players, Self-perception, Performance perfectionism.

Received: 2 February 2025

Accepted: 24 April 2025

Corresponding author:
senizkaragoz@gmail.com

INTRODUCTION

Tennis is a complex, dynamic, and open-skill sport that demands the harmonious integration of physical, mental, technical, and strategic skills (Cui, 2018; Kovacs, 2006; Torres-Luque, 2018). It also involves high levels of psychological adaptability due to constantly changing environmental and competitive conditions. Understanding the psychological components that influence individual performance is critical for supporting athlete development and sustaining high-level performance behaviours (Torres-Luque, 2018; Yoo, 2003). Among these psychological components, performance perfectionism is recognized as a multidimensional construct involving the tendency to set excessively high standards and to evaluate oneself critically following performance (Flett & Hewitt, 2005; Jowett et al., 2016). In tennis, a sport requiring rapid decision-making and intense focus, perfectionism can both enhance and hinder performance depending on its interaction with other psychological traits such as motivation, anxiety, and self-perception (De Muynck et al., 2021; Hollowell et al., 2019).

Self-perception, defined as individuals' beliefs about their skills, physical competence, and overall performance capabilities, plays a key role in shaping an athlete's confidence and behavioural outcomes (Çağlar et al., 2017; Kramer et al., 2017). During adolescence, self-perception undergoes significant development as young athletes face heightened self-awareness, social comparisons, and performance pressures (Harter, 2012; Kolman et al., 2021). The 13–16 age range represents a transitional phase in which cognitive and emotional maturation intersects with escalating competitive demands in tennis (Gullich et al., 2022). This developmental period is marked by increased vulnerability to external feedback and internalized expectations, making it a critical phase for investigating how self-perception influences perfectionistic tendencies (Madigan et al., 2016). Particularly during adolescence, a developmental period marked by increased self-awareness and performance pressure, self-perception may influence how young players internalize success and respond to challenges (Kolman et al., 2021). This is especially relevant for young elite tennis players, whose engagement in competitive environments from an early age often demands not only physical and technical readiness, but also strong mental and emotional control (Baturkina & Budyakova, 2019; Seang-Leol & Calderon Jr., 2018).

Although self-perception and perfectionism have been individually explored in various sports contexts, there is a lack of focused research investigating their interrelationship in

adolescent tennis players. Given the sport's unique cognitive, emotional, and physical demands, such an investigation could provide valuable insights into how young athletes interpret performance expectations and shape their athletic identity. As Young (2010) emphasized, striving for perfection is common in elite tennis environments, but demanding flawlessness can impair motivation and confidence.

Therefore, the primary aim of this study is to examine the relationship between self-perception and performance perfectionism behaviours in young elite tennis players aged 13–16. By identifying the psychological factors that underpin perfectionistic tendencies in youth tennis, this study aims to inform coaches, sports psychologists, and practitioners about targeted strategies to foster adaptive performance traits. By identifying the psychological factors that underpin perfectionistic tendencies in youth tennis, this study aims to inform coaches, sports psychologists, and practitioners about targeted strategies that foster adaptive performance traits and support long-term success. Moreover, the findings are expected to support the long-term performance sustainability of competitive junior athletes transitioning to elite levels.

In this context, the primary aim of the study is to examine the relationship between perfectionistic behaviours and the sub-dimensions of self-perception among young elite tennis players, and to reveal how the age variable interacts with these psychological constructs. Accordingly, the following hypotheses were tested:

H_1: All sub-dimensions of self-perception significantly predict excellent performance behaviours among young tennis players aged 13–16.

H_2: The age variable is significantly associated with excellent performance behaviours and the sub-dimensions of self-perception.

METHODS AND PROCEDURES

Research Model

In this research, source documents were examined, and quantitative research methods were used (Karasar, 2012). This research was conducted with permission from Afyon Kocatepe University Social and Human Sciences Publication Ethics and Research Board with the decision numbered 2023/174 dated 16.05.2023. Prior to participation in the research, informed consent and permission were obtained from the athletes' coaches or families. The model of the research can be seen in Figure 1.

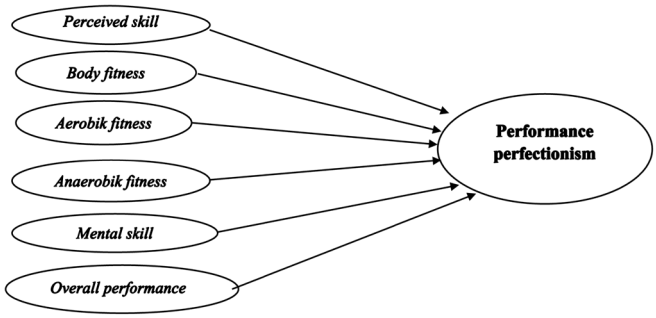

Figure 1. *Peffect of all sub-factors of self-perception (independent variables) on performance perfectionism (dependent variable).*

Participants Group

The study group consisted of 163 tennis players (female n=105, male n=58) between the ages of 13 and 16 (Mage=14.13±1.02 years) who played at least six national tournaments per year. Data were collected from official national tournaments organized by the Turkish Tennis Federation and from players of tennis clubs registered by the federation through face-to-face interviews by the researchers between June and October 2023. The average height of the tennis players was 166 ± 7 cm for females and 170 ± 10.4 cm for males, and the average body weight was 53 ± 7.4 kg for females and 59 ± 10.3 kg for males.

All participants were classified as “elite youth tennis players” based on multiple performance and participation criteria, aligned with definitions provided in the literature (Swann et al., 2015; Vaeyens et al., 2009).

Measurement tools used in the research

“Personal Information Form”, “Performance Perfectionism Scale for Sport” and “Elite Athlete Self-Perception Inventory” were used as data collection tools.

Personal Information Form

The Personal Information Form is a form prepared by researchers to determine the personal characteristics of the participants and to create independent variables. This form includes questions about age, gender, training age, weekly training frequency and duration.

Elite Athlete Self-Perception Inventory (EASPI)

The inventory used to determine the athlete self-perception of tennis players, “Elite Athlete Self-Perception Inventory (ESBAE),” developed by Marsh et al. in 1997 and adapted into Turkish by Çağlar et al. (2017), interprets the physical and mental fitness athletes to need to be aware of themselves to achieve success in sports. The elite athlete self-perception inventory consists of 29 items and six sub-dimensions. The inventory is answered on a 6-point Likert scale (1. Completely False to 6. Completely True).

Performance Perfectionism Scale for Sport (PPS-S)

The scale, which was analysed for Turkish validity and reliability by Esentaş et al. (2020) for child athletes, consists of a single sub-dimension of 5 items. A 7-point Likert-type rating system was used: (1) strongly disagree, (2) disagree, (3) partially disagree, (4) undecided, (5) partially agree, (6) agree, (7) strongly agree.

Data Analysis

The skewness-kurtosis values, Mahalanobis distance, and Levene test results of the data obtained from the variables were examined, and it was concluded that the data were normally distributed. The reliability of the scales was tested by calculating Cronbach Alpha internal consistency coefficients. Multiple linear regression analysis was performed to test the main problem. All data were analysed using SPSS statistical software (v.26.0); p-value less than 0.05 was deemed statistically significant.

RESULTS

Table 1
Descriptive Statistics and Reliability Analysis Values (n=163).

Measurement Tools	Item	Score Mean ± Sd	Skewness	Kurtosis	Cronbach α
Performance perfectionism	5	2.92 ± .81	.314	-.906	.616
Self-perception	29	4.10±.91	.916	-.101	.958
Perceived skill	5	3.86 ± 1.14	-.327	-.377	.891
Body fitness	4	4.15 ± 1.15	-.423	-.073	.872
Aerobic fitness	4	4.13 ± 1.13	-.659	.072	.869
Anaerobic fitness	5	4.06 ± 1.09	-.603	.094	.889
Mental skill	5	4.25 ± 1.09	-.587	-.050	.859
Overall performance	6	4.13 ± 1.13	-.442	-.505	.908

Descriptive statistics and internal consistency values of the measurement tools used in the study are presented in Table 1. The mean score of the Performance Perfectionism Scale for Sport (PPS-S) was 2.92 (SD = .81), with a Cronbach's alpha value of .616, indicating moderate internal consistency. For the Elite Athlete Self-Perception Inventory, the overall mean score was 4.10 (SD = .91), with excellent internal consistency (α = .958). Among the subdimensions, the highest reliability coefficients were observed for overall performance (α = .908) and perceived skill (α = .891).

Table 2
Distribution of scores obtained by tennis players from the scales (n=163).

Variables			Scales						
			PPS-S	Self-Perception					
				A	B	C	D	E	F
		n	$\bar{x}$±ss	$\bar{x}$±ss	$\bar{x}$±ss	$\bar{x}$±ss	$\bar{x}$±ss	$\bar{x}$±ss	$\bar{x}$±ss
Gender	Female	105	2.89±.77	3.84±1.15	4.21±1.17	4.13±1.18	4.08±1.08	4.35±1.08	4.23±1.12
	Male	58	2.96±.89	3.89±1.16	4.07±1.12	4.14±1.05	4.02±1.13	4.09±1.12	3.96±1.15
Training age (years)	3-7 y	59	3.13±.80	3.75±1.22	4.07±1.27	3.87±1.29	3.94±1.28	4.03±1.22	4.02±1.17
	7+ y	104	2.80±.80	3.91±1.10	4.20±1.07	4.28±1.01	4.12±.97	4.38±1.01	4.20±1.10
Training day/hour	3+days/over 6h	41	2.95±.77	3.43±1.17	3.79±1.28	3.69±1.26	3.58±1.34	4.05±1.31	3.89±1.17
	4-5 d/8-10h	33	2.99±.94	3.93±1.21	3.98±1.28	4.12±1.10	4.15±1.03	4.38±1.09	4.23±1.26
	6+ d/over 12h	89	2.89±.80	4.03±1.07	4.40±.98	4.35±1.02	4.25±.92	4.31±.99	4.22±1.06

PPS-S: Performance perfectionism Scale for Sport, A: perceived skill, B: body fitness, C: aerobic fitness, D: anaerobic fitness, E: mental skill, F: overall performance, y: Year, d: Day, h: Hour

As presented in Table 2, female athletes exhibited slightly higher scores than males across most self-perception sub-dimensions, particularly in mental skill and overall performance, while performance perfectionism scores remained similar between genders. Athletes with 3–7 years of training experience demonstrated higher levels of performance perfectionism compared to those with more than 7 years of experience. Furthermore, individuals training 6 or more days per week for over 12 hours showed the highest self-perception scores across all dimensions, indicating a potential positive association between training volume and perceived performance.

Table 3
Correlation values between age, performance perfectionism and self-perception (n=163).

	Performance perfectionism	Perceived skill	Body fitness	Aerobic fitness	Anaerobic fitness	Mental skill	Overall performance
r	-0,002	-.186*	-.171*	-.280**	-.184*	-.160*	-.219**
p	0,976	.017	.029	.000	.019	.041	.005

*p<.05 **p<.01

As presented in Table 3, no significant relationship was found between age and performance perfectionism (p > .05). However, a low-level negative correlation was observed between performance perfectionism and all subdimensions of self-perception: perceived skill (r = -.186, p < .05), body fitness (r = -.171, p < .05), aerobic fitness (r = -.280, p < .01), anaerobic fitness (r = -.184, p < .05), mental skill (r = -.160, p < .05), and overall performance (r = -.219, p < .01). These findings indicate that higher levels of self-perception are associated with lower levels of performance perfectionism among elite tennis players.

Table 4
Correlation values for multicollinearity (n=163).

			Self-perception					
		PPS-S	A	B	C	D	E	F
A. Perceived skill	r	.067	1.000					
	p	.199	.					
B. Body fitness	r	.075	.582	1.000				
	p	.171	.000	.				
C. Aerobic fitness	r	-.006	.674	.673	1.000			
	p	.470	.000	.000	.			
D. Anaerobic fitness	r	.054	.666	.679	.786	1.000		
	p	.247	.000	.000	.000	.		
E. Mental skill	r	-.052	.531	.390	.473	.462	1.000	
	p	.256	.000	.000	.000	.000	.	
F. Overall performance	r	.006	.705	.503	.575	.552	.664	1.000
	p	.471	.000	.000	.000	.000	.000	.

r<.080, PPS-S; performance perfectionism scale

It was determined that the correlations (r<.80) between the independent variables (A, B, C, D, E, F) did not create a multicollinearity problem (Berry & Feldman, 1985) and that the performance perfectionism scores were linearly related to all independent variables. Multivariate linear regression analysis was performed to determine whether the factors that constitute self-perception explained the performance perfectionism. It was observed that the tolerance values were below .2 (Field, 2013), the VIF values were below 5 (Craney & Surles, 2002), and the Mahalanobis distance value was .470 (α=.001), and the Durbin-Watson test value was 2.011. It was determined that the errors were normally distributed, and it was observed that the independent variables created a homoscedastic structure in the dependent variable.

Table 5
The results of elite athlete self-perception values predicting excellent performance.

	Unstandardized Coefficients		Standardized Coefficients				
Variable	B	SE_B	β	t	P	Tolerance	VIF
Constant	2.897	.307		9.447	.000		
Perceived skill	.096	.093	.134	1.031	.304	.370	2.706
Body fitness	.074	.081	.104	.911	.363	.474	2.109
Aerobic fitness	-.129	.102	-.179	-1.272	.205	.316	3.162
Anaerobic fitness	.071	.104	.095	.682	.496	.320	3.124
Mental skill	-.083	.080	-.112	-1.045	.298	.543	1.843
Overall performance	-.012	.093	-.017	-.130	.897	.379	2.641

R = .17 R^2 = .03 $F_{(4\text{-}162)}$ = .77
*p<.05 **p< .01 ***p< .001

The regression model revealed that the six subdimensions of self-perception did not significantly predict performance perfectionism behaviour (R = .17, R^2 = .03, F(6, 156) = .77, p > .05). None of the predictor variables, including perceived skill (β = .134, p = .304), body fitness (β = .104, p = .363), and mental skill (β = -.112, p = .298), showed statistically significant effects on performance perfectionism.

DISCUSSION

This study examined the relationship between self-perception sub-dimensions and performance perfectionism in tennis players aged 13–16 using correlation and regression analyses. Correlation results revealed a statistically significant negative relationship between performance perfectionism and all subdimensions of self-perception, including perceived skill, body fitness, aerobic fitness, anaerobic fitness, mental skill, and overall performance. These findings suggest that as athletes' self-perception improves, their tendency toward performance perfectionism decreases. However, multiple regression analysis demonstrated that none of the self-perception sub-dimensions significantly predicted performance perfectionism. The regression model was not statistically significant, indicating that these variables collectively explained only a small proportion of the variance in performance perfectionism.

As presented in Table 3, our findings revealed that age was not significantly correlated with performance perfectionism (r = –.002, p > .05), suggesting that older and younger elite tennis players exhibit similar levels of perfectionist tendencies related to their performance. This finding contrasts with some previous research indicating that younger athletes may display higher levels of perfectionism due to increased competitive pressure and developmental factors (Appleton et al., 2009; Gotwals, 2011). However, it is consistent with studies reporting no significant age-based variation in perfectionism among high-performing athletes, possibly due to the standardizing effect of elite sports environments that cultivate similar psychological traits regardless of age (Stoeber, 2011; Madigan et al., 2016). Thus, it can be inferred that at the elite level, age may not play a decisive role in shaping or maintaining perfectionist attitudes.

In contrast, low-level but significant negative correlations were found between age and all sub-dimensions of self-perception. This suggests that as elite tennis players grow older, they tend to develop a more realistic perception of their physical and mental attributes. While younger athletes may hold more optimistic or inflated self-perceptions, older players might become increasingly aware of the demands and constraints imposed by the sport, leading to more tempered evaluations of their capabilities. This age-related shift in self-awareness reflects a cognitive and emotional maturation process that is common in long-term athletic engagement. These findings are supported by studies emphasizing the influence of age-related differences in performance on athletes' self-concepts and psychological outlook (Barnett et al., 2013; Caniklitemel & Ağralı, 2024).

Another significant finding of our study is that the sub-dimensions of self-perception were found not to significantly explain performance perfectionism. This suggests that performance perfectionism has a more complex structure, influenced not only by individual factors but also by the interaction of multiple variables. Similar studies in the literature indicate that performance is affected by a broader range of variables, such as motivation, environmental support, and stress management (Aydoğdu et al., 2018; Crespo & Reid, 2007; Kolman et al., 2021; Kramer et al., 2017; Robin et al., 2023). Additionally, the limitations of the measurement tools and the fact that the sample group consisted of young athletes may also explain this result. These findings highlight the need for tennis players to adopt holistic approaches that focus not only on improving their self-perception but also on developing motivational and social support structures.

CONCLUSION AND RECOMMENDATIONS

This study demonstrated that the effects of all sub-dimensions of self-perception on excellent performance behaviours among tennis players were limited, and no significant relationship was found between the age variable and performance perfectionism. However, the results revealed a negative correlation between age and all sub-dimensions of self-perception.

For future research, it is recommended to investigate more comprehensive models that also consider psychosocial and environmental factors affecting tennis players. Moreover, the findings of this study provide valuable insights for tennis coaches, sports scientists, mental coaches, and sports psychologists. To enhance tennis players' performance, it is essential not only to focus on physical skills but also to strengthen motivational and social support structures. In this regard, holistic approaches that consider individual differences should be adopted.

CONFLICTS OF INTEREST AND FUNDING

The authors declare that they have no conflict of interest, nor have they received any funding related to the development of this study

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International Tennis Federation
COACHING & SPORT SCIENCE REVIEW
International Tennis Federation
www.itfcoachingreview.com
August 2025. 33th Year. Issue 96. 55-61
ISSN 2225-4757
https://doi.org/10.52383/itfcoaching.v33i96.665

Psychological Support Using the Breakthrough Self-Assessment Worksheet: A Practical Study on Japanese College Tennis Players

Kazuki Hioki[1] & Shion Hotta[1,2]

[1]Keio University, Japan. [2]The University of Tokyo

ABSTRACT

The authors conducted an exploratory study to identify factors enabling "breakthroughs"—a dramatic improvement in competition results at some point—in tennis. Building on the findings from the initial study, this research proceeded in two stages: first, the "Breakthrough Self-Assessment Worksheet" was developed; second, a psychological support program using the worksheet was implemented with ten Japanese college tennis players over six months to examine its effects. Specifically, the study investigated (1) whether players' self-assessment scores improved through the program and (2) what kinds of experiences the program provided for the players. As a result, the intervention group showed statistically significant improvement in self-assessment scores before and after the program, while the control group did not, suggesting the program's effectiveness in enhancing self-assessment scores. Furthermore, qualitative analysis of open-ended responses from player surveys revealed five themes: (1) Gained insights that cannot be obtained solely through on-court practice, (2) Recognized strengths and weaknesses and engaged in efforts to improve them, (3) Reflected on how to achieve goals after failing to achieve them, (4) Provided an opportunity to feel personal growth, and (5) Learned and were inspired by their teammates' thoughts.

Key words: Breakthrough, tennis, psychological support, college sports.

Received: 16 December 2025

Accepted: 24 April 2025

Corresponding author: Kazuki Hioki, kazukihioki@keio.jp

INTRODUCTION

In this study, we developed the "Breakthrough Self-Assessment Worksheet" based on the findings of Hioki et al. (2024), which identified factors that enable breakthroughs in tennis. Then, we implemented a psychological support program using the worksheet with ten Japanese college tennis players over six months, to examine its effects.

The concept of a "breakthrough," meaning "a dramatic improvement in competition results at some point," has become a significant keyword in the sports world, exemplified by the "Breakthrough of the Year" at the Laureus World Sports Awards (Laureus, n.d.). However, "breakthrough" was a concept that had not been explored academically. Insights from the field of expertise research, as represented by Ericsson et al. (1993) and Ericsson (1996), which focuses on "how to improve skills," may provide important factors for achieving "breakthroughs". However, an improvement in skill does not necessarily equate to improved competitive results. Even when athletes enhance their physical and technical abilities, psychological factors such as anxiety or pressure may prevent them from demonstrating their full potential in actual matches (Woodman & Hardy, 2003). Therefore, breakthroughs should be studied from a comprehensive perspective that includes not only the development of skill but also the psychological and contextual factors that affect performance outcomes in competition.

Therefore, the authors conducted a study focusing on tennis, exploring the factors that enable "breakthroughs." Tennis was selected as the context for this initial investigation because it is an individual sport in which players are generally not allowed to receive coaching during matches. This structural feature allows for a clearer observation and analysis of personal breakthrough experiences, with minimal influence from social or team-based dynamics that typically characterize team sports. The study involved semi-structured interviews with eight Japanese elite college tennis players who had achieved a top eight finish or higher at national championships and had experienced "breakthroughs" in their careers. A qualitative inductive analysis was conducted on the players' verbal data, extracting common factors shared across the experiences of these athletes.

As a result, the following three findings were revealed in enabling "breakthroughs" in tennis: "maintaining high motivation," "achieving continuous growth," and "demonstrating high performance during games." These findings suggest that, in addition to improving competitive skills, players need strong motivation to sustain their daily practice and training. Moreover, it is crucial for players to fully demonstrate their cultivated skills in matches, which are distinct from regular practice environments. To achieve these elements, specific practices and strategies used by players were identified and categorized into 13 subcategories (Table 1).

Table 1
List of categories and subcategories.

Category	Subcategory
maintaining high motivation	setting achievable goals
	setting goals related to the skill
	having a reason
	observing games
continuous growth	increasing practice
	practicing with better players
	recognizing own strengths and weaknesses
	trying new ideas
	escaping from mistaken beliefs
high performance during games	game emulation
	game repetition
	focusing on what should be done
	taking it easy

Therefore, in this study, we developed the Breakthrough Self-Assessment Worksheet to support athletes' competitive activities by applying the findings of our previous research. A key challenge is that coaches often find it difficult to apply the content of scientific papers directly to their practice due to the abstract nature of such publications (Santos et al., 2022). To address this issue, we translated the research findings into a practical worksheet format to facilitate their application in real coaching settings. The worksheet was created using Microsoft Excel.

This worksheet emphasizes the importance of implementing the PDCA (Plan-Do-Check-Action) cycle to facilitate behavioral changes in players. Specifically, players begin by self-assessing how well they are practicing each of the 13 subcategories on a five-point scale (1 = Not practicing at all, 5 = Practicing very well). Based on their self-assessment, a radar chart is generated that visually displays their level of practice (Figure 1). Next, players select a subcategory they identify as a challenge and set process goals to improve their scores in that area (Plan). They then work to implement these process goals (Do). After a certain period, players evaluate how well they achieved the process goals on a five-point scale (1 = Not achieved at all, 5 = Fully achieved). Subsequently, they reflect on how they implemented the goals, what actions they took, and the insights or lessons they gained from the experience (Check). Following this, players reassess their performance in the 13 subcategories using the same five-point scale, observe score changes, and set new process goals (Action).

In this study, a psychological support program using the worksheet was implemented with ten Japanese college tennis players over approximately six months. The purpose of the study was to examine the effects of this program on the players. Specifically, the study aimed to investigate: (1) whether the players' self-assessment scores improved through the program, and (2) what kind of experiences the program provided for the players.

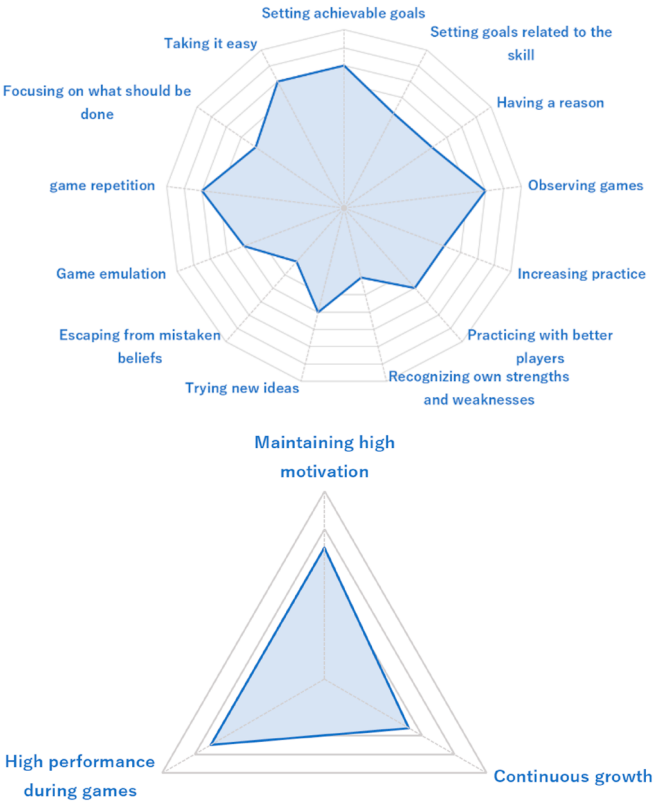

Figure 1. *Radar charts visualizing practice levels.*

POSITIONING OF THE PROGRAM IN SPORTS PSYCHOLOGICAL SUPPORT

Activities providing psychological assistance to athletes are referred to as psychological support. Specifically, this includes practices such as sports mental training and sports counseling.

Psychological support can be broadly divided into two approaches: the educational approach and the clinical approach (Sekiya, 2016). The educational approach aims to enhance psychological skills for improving performance and realizing potential. In contrast, the clinical approach focuses on individuals dealing with mental health issues, such as mental illnesses, to resolve psychological challenges. While clinical approaches are often conducted on a one-on-one basis, educational approaches are frequently delivered to groups.

This program is positioned as an educational approach aimed at enhancing psychological skills in groups. Dohme et al. (2017) defined psychological skills as athletes' ability to use learned psychological strategies (e.g., self-talk) to regulate and facilitate the enhancement of psychological characteristics. Psychological skills include techniques such as imagery, self-control, and positive thinking. Among these, this program can be specifically positioned as one designed to enhance the psychological skill of goal setting.

In psychological support programs aimed at enhancing goal-setting skills, frameworks and principles such as the SMART model (Doran, 1981), types of goals (Kingston & Hardy, 1997), and goal proximity (Butt & Weinberg, 2020) are frequently utilized (e.g., Filby et al., 1999; O'Brien et al., 2009; Vidic & Burton, 2010). These programs tend to emphasize how goals should be set, rather than what specific goals should be established. Accordingly, the content of the goals is typically left to the discretion of the individual. Consequently, there is no guarantee that pursuing self-set goals will lead to improvements in competitive results.

In this program, while incorporating goal-setting frameworks, we also draw on the research findings of Hioki et al. (2024) to support athletes in setting high quality goals. This approach provides moderate guidance on the content of the goals themselves. By doing so, it is expected that pursuing these goals will contribute to improved competitive results.

METHODS AND PROCEDURES

Participants

This study adopted a quasi-experimental design due to practical constraints related to the existing team structure. At the time of the study, College A had 46 members on its tennis team, divided into four groups (Teams A to D) based on competitive level. The intervention group consisted of 10 players (8 male, 2 female) from Team A, while the control group comprised 8 players (6 male, 2 female) from Team B who did not participate in the program. Only those who provided informed consent were included in the study.

The average age of the intervention group was 19.60 ± 0.49 years, with an average of 9.30 ± 2.37 years of tennis experience. Before entering college, one participant had reached the round of 16 in regional tournaments, one had done so in prefectural tournaments, and the remaining eight had competed at the prefectural level. None had experience in national tournaments.

The control group had an average age of 19.25 ± 0.43 years and an average tennis experience of 6.50 ± 4.09 years. In terms of pre-college competitive level, one participant had reached the round of 16 in prefectural tournaments, while the others had competed at the prefectural level. As with the intervention group, none had participated in national tournaments.

Ethical Considerations

For ethical considerations, the research objectives, the right to refuse participation, the handling of personal information, and measures to ensure anonymity were explained to the participants in both the intervention and control groups. The program and survey were conducted only after obtaining informed consent from all participants.

Program Content and Schedule

This program was structured based on Gould's (2001) suggestion that a successful intervention should include three phases: planning, meetings, and follow-up/evaluation. It consisted of a total of four meetings, as well as feedback on the process goals that participants set and reminders to reinforce these goals (Figure 2). Meetings were conducted using the online video conferencing platform Zoom, while feedback and reminders were provided via text messages.

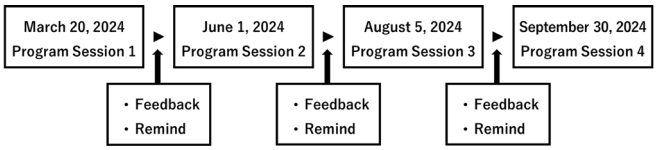

Figure 2. *Program structure.*

At the first meeting, the first author gave a lecture on the results of the foundational study by Hioki et al. (2024), which is the basis of this program. The lecture included detailed explanations of each category and subcategory. Following the lecture, participants conducted self-assessments for each subcategory and reviewed their results individually. These results were then shared in groups of five. Participants then selected subcategories to work on until the next meeting and individually set process goals for achieving improvement in those subcategories. Finally, they shared their process goals with their group, marking the end of the session.

In the second through fourth sessions, participants first reflected on the process goals they had set in the previous session. They recorded their self-assessment scores and wrote free-text reflections on their progress. Participants then revisited the 13 subcategories and conducted self-assessments again to review changes in their scores individually. They shared their reflections on the progress of their previous process goals and the observed changes in their self-assessment scores with their groups. Subsequently, they selected subcategories to focus on for the next session and set individual process goals to address them. Finally, participants shared these new process goals with their groups, marking the end of the session.

Between meetings, the first author provided feedback and reminders to the participants regarding their process goals. Feedback on the process goals was provided in written form after the conclusion of each meeting. Specifically, the first author sent questions to prompt the participants to make their process goals more concrete and provided advice for implementation.

As for the reminders, one month after each meeting, the first author individually sent written reminders to the participants about the content of the goals they had set. This aimed to help them reacknowledge their goals and maintain focus on achieving them.

Research Content and Analytical Methods

This study investigated two research questions. The first question focused on whether players' self-assessment scores improved through the program. To address this, self-assessment scores for the level of practice in 13 subcategories were collected over four meetings for the intervention group. For the control group, players were provided with a recording of the initial lecture covering the categories and subcategories. They completed self-assessments at two-time points: the first and last sessions of the program, mirroring the timeline of the intervention group. These data sets were used to assess any changes in practice levels. To analyze the data, mean scores were compared before and after the program. Given the small sample size (n=10 for the intervention group and n=8 for the control group), the Wilcoxon signed-rank test was used for statistical analysis. IBM SPSS Statistics (IBM Corporation, Armonk, NY, USA) was used for the analysis with a significance level of 5%.

The second question explored what kind of experience the program provided for the players. To investigate this, qualitative data was collected through open-ended questionnaires. After each program meeting, participants were asked to describe their thoughts, learnings, and insights. After the completion of the program, they were asked to reflect on the impact of the program on their competitive activities and to describe, as specifically as possible, the insights or learnings they had gained. All questionnaires were administered anonymously to encourage participants to express their honest opinions.

Based on the diverse responses collected from players, a qualitative inductive analysis was conducted to examine the impact of the program on the players. The open-ended responses were divided into meaningful units, and each unit was assigned a corresponding code. Subsequently, similar codes were grouped to form subcategories, with each subcategory assigned a descriptive label. Further, subcategories with comparable content were aggregated to create broader categories, which were also labeled to encapsulate their overarching themes. This systematic approach aimed to identify shared themes across players' reflections, providing insight into how the program influenced their experiences and competitive activities.

RESULTS AND DISCUSSIONS

Whether players' self-assessment scores improved through the program

Wilcoxon signed-rank tests were conducted to analyze the pre- and post-program self-assessment scores for both the intervention and control groups. For the intervention group, the results indicated a significant difference with a test statistic of Z = -2.752, p = .006 (r = -.615, 95% CI [-.820, -.272]). In contrast, the control group showed no significant difference, with a test statistic of Z = -0.070, p = .944 (r = -.018, 95% CI [-.468, .440]).

The results for both groups are illustrated in Figure 3, which shows changes in self-assessment scores before and after the program. These findings suggest that the intervention implemented through this program may have contributed to improving the self-assessment scores. On the other hand, the lack of improvement in the control group, which watched the same lecture video and engaged in regular tennis practice, raises questions about why their scores did not increase.

This is likely related to the program's design, which involved declaring goals to others and monitoring progress. Hollenbeck et al. (1989) indicated that committing to goals publicly, rather than privately, enhances commitment levels. Additionally, McCalley et al. (2011) emphasized that simply setting goals is not enough to ensure their achievement; monitoring progress toward goals is a critical step. Such program elements may have contributed to the improvement in self-assessment scores.

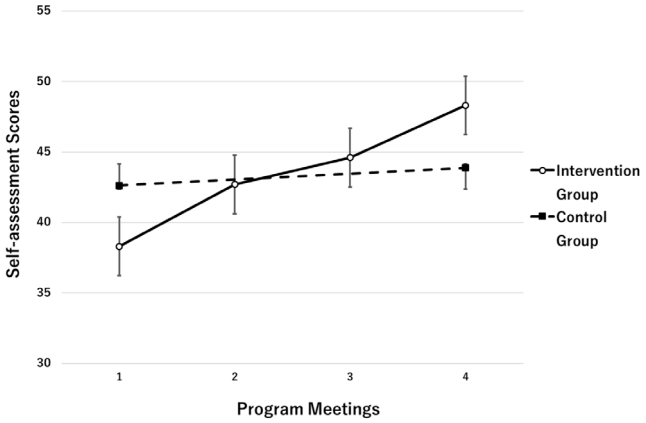

Figure 2. *Changes in self-assessment scores before and after the program for intervention and control groups.*

What kind of experience the program provided for the players

Table 2 presents the results of the qualitative inductive analysis of players' survey responses. The findings were categorized into five main themes: (1) Gained insights that cannot be obtained solely through on-court practice, (2) Recognized strengths and weaknesses and engaged in efforts to improve them, (3) Reflected on how to achieve goals after failing to achieve them, (4) Provided an opportunity to feel personal growth, and (5) Learned and were inspired by their teammates' thoughts. The results and discussion for each category are described below.

In the "Gained insights that cannot be obtained solely through on-court practice" category, participants expressed that the program provided a fresh experience and served as an opportunity for new realizations. Two subcategories emerged within this category: "Recognized the importance of analyzing and planning approaches to competition" and "Noticed things that had not been consciously recognized before." Participants had previously focused solely on on-court practice and training without taking the opportunity to reflect on how they approached these activities. For these participants, the program offered a novel and meaningful opportunity to gain valuable insights.

One example from the subcategory "Recognized the importance of analyzing and planning approaches to competition" included statements such as, "I had never set specific goals or consciously thought about goals before practice, but through this program, I was able to establish concrete goals." Similarly, in the subcategory "Noticed things that had not been consciously recognized before," participants commented, "I realized that there were many things I had never been aware of before."

These findings suggest that the lack of previous opportunities for participants to receive psychological support may have contributed to the impact of this program. Tsuruhara (2016) pointed out that although many athletes recognize the importance of psychological aspects in competition, the proportion of athletes who receive psychological training is significantly lower than technical and physical training. As the participants in this study had never previously received psychological support, this may help explain why they gained so many new insights.

Table 1
Results of qualitative inductive analysis of open-ended responses.

Category	Subcategory	e.g.
Gained insights that cannot be obtained solely through on-court practice	Recognized the importance of analyzing and planning approaches to competition.	It was a great opportunity as I had never analyzed methods for improving tennis techniques or the mental aspects of competition.
	Noticed things that had not been consciously recognized before	Things that I usually don't think about were verbalized, and I felt it would help improve my competitive skills in the future.
Recognized strengths and weaknesses and engaged in efforts to improve them	Clearly identified strengths and weaknesses	I was able to understand what strengths I should continue to develop.
	Clarified what needs to be done moving forward	By quantifying my current state, I understood what I need to do now.
	Lived each day with awareness of what needs to be done	I was able to regularly review my goals and incorporate them into my practice
Reflected on how to achieve goals after failing to achieve them	Failed to achieve the goals set	Even though I had set goals two months ago, I could not achieve them at all, so I aim to accomplish all of them in the next two months.
	Considered concrete ways to achieve goals	While I felt the difficulty of sustaining efforts, I also learned that goal specificity is crucial for achievement.
Provided an opportunity to feel personal growth	Felt growth through changes in numerical evaluations	Even though it was gradual, I realized that the scores in all areas had improved.
	Attributed performance improvements to identifiable causes	Recently, I've been praised for improving, and I think it's because the program helped me clearly recognize what I needed to do and allowed me to make improvements.
Learned and were inspired by their teammates' thoughts	Learned about other players' challenges and issues	It was very valuable and stimulating to understand what others are thinking about when participating in practice.
	Gained inspiration from other players' perspectives	Listening to other members' presentations, I felt that strong players in the club can analyze themselves well and clearly identify their issues.

In the "Recognized strengths and weaknesses and engaged in efforts to improve them" category, participants indicated that the program clarified the tasks they needed to address and enabled them to take concrete actions. This category included three subcategories: "Clearly identified strengths and weaknesses," "Clarified what needs to be done moving forward," and "Lived each day with awareness of what needs to be done." In other words, through self-assessment within the program, participants came to recognize their own strengths and weaknesses. Based on this awareness, they set goals to enhance their strengths or improve their weaknesses and took actions to carry them out.

Regarding "Clearly identified strengths and weaknesses," participants responded such as, "Through this program, I realized that I might struggle to perform under pressure, not just in tennis but also in academics and daily life." For the subcategory "Clarified what needs to be done moving forward," comments included, "My thoughts became organized, and I clearly understood what I needed to do before the next competition." Lastly, in the subcategory "Lived each day with awareness of what needs to be done," participants shared statements such as, "During both practice and matches, I was able to recall my set goals and refocus on what I needed to do. For example, I remembered to return as many balls as possible, which helped me win a match."

These outcomes may be attributed to the opportunity for self-assessment provided in the program, which helped participants recognize their strengths and weaknesses from an objective perspective. McMillan and Hearn (2008) highlighted that self-assessment, as a process of evaluating the quality of one's thoughts and actions, helps identify areas needing improvement and supports the development of strategies to enhance skills. Furthermore, the process of setting concrete process goals within the program may have also contributed to the execution of their actions. According to goal-setting theory (Locke & Latham, 1990), specific goals that include measurable targets and deadlines lead to higher performance than vague goals such as "do your best."

In the category "Reflected on how to achieve goals after failing to achieve them," participants expressed the challenges of achieving their process goals while considering strategies and practices to overcome these difficulties. For example, as for "Failed to achieve the goals set," responses included statements such as, "I realized once again how difficult it is to stay focused on goals consistently for two months." Meanwhile, in relation to "Considered concrete ways to achieve goals," participants shared insights such as, "I realized the importance of checking my future schedule while setting goals, considering the varying amount of time I can devote to tennis."

First, the difficulty of maintaining goal focus over two months was evident. In this study, the program sessions were held approximately once every two months. Therefore, although participants may have been highly conscious of their process goals immediately after each session, their awareness could have gradually diminished over time. Altmann and Trafton (2022) suggest that while goal activation peaks immediately after goals are set, activation naturally diminishes over time, increasing the risk that goals will be forgotten.

On the other hand, participants seemed to learn from the experience about effective goal-setting methods. For example, responses such as "I learned that specificity is crucial for achieving goals" and "I felt the need to set goals while confirming my future schedule" align with Locke and Latham's (1990) goal-setting theory. These responses demonstrate an understanding of the importance of goal specificity and realism, reflecting the core principles of effective goal setting.

In the category "Provided an opportunity to feel personal growth," participants shared that they were able to perceive changes and improvements in themselves through the program. This category is composed of two subcategories: "Felt growth through changes in numerical evaluations" and "Attributed performance improvements to identifiable causes."

Under "Felt growth through changes in numerical evaluations," responses included statements such as, "I felt a noticeable increase in motivation-related items as the competition approached." Regarding "Attributed performance improvements to identifiable causes," participants remarked, "Lately, I've been receiving comments from others that I've become stronger, and I think this is largely due to my ability to act on the goals set during the program."

These outcomes are likely due to the continuous self-assessment conducted throughout the program, enabling participants to observe changes over time. Baleghizadeh and Masoun (2013) also point out that self-mastery derived from self-assessment contributes to the development of self-efficacy.

Moreover, the comments on attribution suggest that this program may have encouraged participants to attribute their improved competitive performance to their own efforts and strategies. Attribution refers to how individuals explain the causes of success or failure. Learners with a fixed mindset—believing that abilities are static—tend to attribute failure to a lack of ability and success to external factors such as luck. In contrast, those with a growth mindset—believing that abilities can be developed—tend to attribute failure to ineffective learning strategies and success to effort and the use of effective strategies (Hong et al., 1999). In this program, participants were regularly provided with opportunities for self-assessment, reflecting on whether they had successfully implemented the process goals they had set. This may have helped them recognize that their personal growth was due to their efforts to carry out those goals. In fact, Nussbaum and Dweck (2008) showed that regular self-assessment can help learners with a fixed mindset develop a growth mindset.

In the category "Learned and were inspired by their teammates' thoughts," participants shared that hearing the perspectives of other players during the program provided them with valuable stimuli that contributed to their personal growth. This category consists of two subcategories: "Learned about other players' challenges and issues" and "Gained inspiration from other players' perspectives."

For instance, in terms of "Learned about other players' challenges and issues," participants expressed, "It was fascinating to learn what other members felt they were lacking. Sharing this could be an opportunity for mutual improvement." With respect to "Gained inspiration from other players' perspectives," responses included comments such as, "Feeling the unity of everyone striving for a team championship in practice motivated me to work even harder."

These outcomes can be attributed to the inclusion of group work in the program. Dickinson and McIntyre (1997) highlight that "monitoring"—the process of understanding the challenges and progress of other team members—is crucial for enhancing teamwork. Accordingly, opportunities to share challenges and goals within the program likely contributed not only to individual practice changes but also to team building.

Additionally, gaining insight into the thoughts of the team's top players is not something easily achieved through regular tennis practice. However, during the group work component of the program, these players shared what they usually think and how they act in their daily routines. This opportunity likely enhanced participants' motivation. Bandura's (1977) self-efficacy theory underscores the importance of "vicarious experiences," wherein observing the behaviors and thoughts of successful individuals in the same environment can significantly enhance one's self-efficacy.

CONCLUSION

In this study, the "Breakthrough Self-Assessment Worksheet" was developed to support players' competitive activities based on the findings of Hioki et al. (2024), which identified factors that enable "breakthroughs" in tennis. The worksheet was then used in a psychological support program conducted with ten Japanese college tennis players over six months. The purpose of this study was to examine the effects of this program on the players. Specifically, the research sought to investigate: (1) whether players' self-assessment scores improved through the program, and (2) what kinds of experiences the program provided for the players.

Regarding the self-assessment scores, statistical analysis revealed a statistically significant improvement in self-assessment scores for the intervention group before and after the program. On the other hand, the control group did not show any improvement in their self-assessment scores, suggesting that the program intervention may have contributed to the enhancement of self-assessment scores.

To explore the experiences of the players, a qualitative inductive analysis was conducted on the free-text responses from a questionnaire survey. The analysis identified five themes: (1) Gained insights that cannot be obtained solely through on-court practice, (2) Recognized strengths and weaknesses and engaged in efforts to improve them, (3) Reflected on how to achieve goals after failing to achieve them, (4) Provided an opportunity to feel personal growth, and (5) Learned and were inspired by their teammates' thoughts.

Finally, we discuss the limitations of this study and suggest directions for future research. First, this study focused on a single Japanese college tennis team, and caution is needed in generalizing the results. In the future, it will be important to implement the program with athletes of different backgrounds and to continue examining its effects over time. In terms of implementation format, this study adopted a group-based intervention conducted over six months. However, other formats, such as individualized interventions over a longer period, are also conceivable. Therefore, based on this study, it is expected that implementation formats will be designed to fit the specific conditions of each practice setting. In doing so, it would be desirable to investigate correlations and causal relationships between the program and players' performance or competitive results.

ACKNOWLEDGEMENTS

We would like to express our deepest gratitude to all of the college tennis players who contributed to this study. We also thank Azusa Koizumi from Monash University for her careful advice on writing throughout this paper.

CONFLICT OF INTEREST AND FUNDING

The authors declare that they do not have any conflict of interest and that they did not receive any funding to conduct the research.

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