

Editorial

Welcome to issue 39 of the ITF Coaching and Sport Science Review. This is a monographic issue of Coaches Review, which is devoted to talent identification and the development of talented players. Authors for this edition were invited to submit an article as we believe they are amongst the elite in their field. Articles topics include a discussion of research findings related to talent identification in tennis, the organisation of a national talent identification programme and an article on the factors that need to be considered when coaching talented players. Some of the tennis experts who have contributed to Issue 39 include:

- Troy Ayres (Head of Talent Identification, Tennis Australia)
- Kenneth Bastieans (Physical Preparation Specialist, Belgium)
- Paul Lubbers (Director of Coaching Education, USTA Player Development)
- Babette Pluim (Doctor of the Royal NLTA, Member of the ITF Sport Science and Medicine Commission)
- E. Paul Roetert (Managing Director USTA High Performance)
- David Sanz Rivas (Coaches Education Director & Member of the Technical Team for the Women's Tennis Project, RFET, Spain)
- Piotr Unierzyski (Tennis Professor, University School of Physical Education, Poznan, Poland)
- Janet Young (Sports Psychologist and Former Fed Cup Player, Australia)

We would like to extend our gratitude to them for their help with this issue. Furthermore, we hope that these articles generate a great amount of discussion between coaches, academies and federations around the world and that they can serve as a reference point for the future development of talent identification and development programmes the world over.

The second half of 2006 will see the staging of the 5 ITF Regional Coaches Conferences. All dates and locations have been finalised for these events and entry deadlines for attendance application can be found on the ITF Coaching homepage. Preliminary programmes and presentation summaries will also be made available on the ITF Coaching weblet. We hope to see you there.

The ITF is also pleased to announce that the 15th ITF Worldwide Coaches Conference will be hosted by the Paraguay Tennis Association (Asociación Paraguaya de Tenis) at the Hotel Yacht & Golf Club, Asunción, Paraguay (www.hotelyacht.com.py) from October 22 -28, 2007. More information about this conference will be made available in early 2007.


Since the previous edition of Coaches Review 5 new eLearning Presentations in English have been produced by the following people, Mark Bullock, Kathy Martin, Suresh Menon and Luca Santilli. This takes the total number of presentations in English to 18. In addition to this May saw the launching of eLearning Presentations in Spanish. There are currently 8 presentations available in Spanish including:



- Differences between working with Male and Female Players by Pancho Alvaríno
- Game Styles by Juan Carlos Andrade
- How to Motivate a Player in a Tennis Academy by Eva Borrás
- The Importance of Hydration in Tennis by Pilar Doñono Cuevas
- Planning of the General Preparation Phase in the Equelite Tennis Academy by Samuel López
- Musculoskeletal adaptations of the shoulder in professional tennis players by Juan Reque
- Technical Fundamentals for Wheelchair Tennis by David Sanz Rivas

We hope you continue to take advantage of the resources provided on the weblet (<http://www.itftennis.com/coaching/>) and that you enjoy the 39th issue of the ITF Coaching Sport Science Review.

There are now over 20 eLearning Presentations available on the ITF Coaching webpage.



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Contents

TALENT IDENTIFICATION AND DEVELOPMENT IN TENNIS Miguel Crespo & Patrick McInerney (ITF)	2
FOUNDATIONS FOR TALENT IDENTIFICATION AND PLAYER DEVELOPMENT PROGRAMMES Piotr Unierzyski (POL)	3
MEDICAL CONSIDERATIONS WHEN IDENTIFYING TALENT? Babette Pluim (NED)	6
PSYCHOLOGICAL PROFILES OF CHAMPIONS Paul Lubbers (USA)	7
PHYSICAL CONSIDERATIONS AND TESTS FOR A TALENT IDENTIFICATION PROGRAMME Kenneth Bastieans (BEL)	8
TENNIS AUSTRALIA - "TALENT SEARCH" PROGRAMME Troy Ayres (AUS)	9
SELECTION OF TALENTED TENNIS PLAYERS: THE RFET WOMEN'S TENNIS PROJECT David Sanz Rivas (ESP)	11
PARENTING TENNIS TALENT: A DEVELOPMENTAL APPROACH Janet Young (AUS)	13
COACHING TALENTED PLAYERS E. Paul Roetert & Rodney Harmon (USA)	15
RECOMMENDED BOOKS AND DVDS	16

Talent Identification and Development in Tennis

By Miguel Crespo and Patrick McInerney (Development / Coaching Department, ITF)

INTRODUCTION

Almost everybody involved in tennis - players, coaches, parents, officials, media, fans - would like to see themselves, their players, children or compatriots experience success in the game at the professional level. However, only an exclusive group of players that have a numerous set of specific features required by the game and can display them at their best in competition achieve this. These players are called "talents".

Due to the "open-skill" nature of tennis, the process of detecting, identifying, selecting and then developing "talents" is an enormous and difficult challenge that has long been discussed by National Associations, coaches and sport science experts among others (Schönborn, 1984; Stojan, 1984).

HISTORICAL BACKGROUND

The search for "talents" is as old as life itself. In sport, systematic talent identification (TI) programmes started in the former Eastern block countries around the 1960's and 1970's and were responsible for a great part of their Olympic success. These programmes have been adapted in countries such as China and Cuba with the results also being good (Malina, 1997).

Traditionally tennis has used process of natural selection, however in recent years sport science based tennis TI projects have seen researchers trying to determine the specific characteristics that tennis demands for young talents to become top players (Müller, 1990).

Currently, the majority of the highly developed tennis nations have TI programmes in place, with all having several similar fundamental characteristics and a varying input from sport science. However, it seems difficult to differentiate the success of these programmes from the overall effectiveness of their player development programmes (training and competitive system).

With regard to identifying "talents" in tennis, one of the key issues to consider is the degree to which tennis performance can be measured. Physical and physiological features seem much easier to evaluate than mental or technical-tactical features. And, since in tennis, skill and decision-making

components have a substantial influence on high level performance, the predictive power of the different tests is relatively low and it is more complicated to predict future performance.

MODELS

Principally two TI models can be identified; a natural selection/performance model (in which players are introduced to tennis, develop their skills, progress, become more involved, practice everyday, compete gradually in higher level events and end up becoming a professional) or scientifically based models (in which sport science tennis principles are used to help in the process). Within the scientific model, the emphasis is generally on several specific sport science areas such as anthropometry, physiology, or psychology. Although historically the 2 methods have been considered as opposites, recent trends both in research and practice tend to suggest that a combination of both models works best with respect to identifying and developing talented players.

ADVANTAGES

The implementation of TI programmes can provide many benefits (Hoare, 2001; Stojanovic, 2006):

- In **general**, TI programmes provide talented players with the opportunity to develop their tennis skills, enhance their performance in the most receptive periods, and help them achieve tennis success thus stimulating participation, enjoyment, well-being and self-confidence. TI programmes can also attract players to tennis further broadening the participation base.
- **Natural selection** models use the participation base of current tennis players and emphasise a "winning spirit" from early on. In these models, the input from coaches is taken into account since criteria are mostly based on the "eye of the coach" and the results of the players.
- **Scientific-based** models use research results to produce batteries of tennis-specific tests. The results from these tests have a high level of reliability and validity and can help reduce the time taken to find talented players.

DISADVANTAGES

- In **general**, several problems with TI programmes have been identified (Malina, 2003). These include the **adaptations** of the

talented player to the physical, social and emotional demands of the coaches, training programmes, and competitions, the degree of **decision making** from players and parents in the process, the **elimination** of players (survival of the fittest), the possible **economic discrimination** (resource allocation), and the discrimination according to **maturation stages** (influence of the month of birth).

- **Natural selection** models rely on the coincidence that the talented player may begin to play tennis. Therefore, the selection base may be reduced and some important years for talent development may be missed.
- **Scientific models** may not take into account the "intangible" elements that influence talent as well as the social implications needed for developing talented tennis players.
- Research tends to indicate that individual features (e.g. genes) and environmental conditions (e.g. parents, training) closely interact in the player development process and even though genetic determinants play their role, the context of player development seems to have a higher relevance.
- Studies have concluded that skills and aptitudes shown at a young age do not automatically translate into talent development and performance, and that talent is not always apparent by observation alone.

FACTORS TO BE CONSIDERED WHEN CREATING A TI PROGRAMME

We strongly recommend that all national associations (NA) should have in place a TI programme as part of their general player development programme. Countries that have a "small" tennis playing population (reduced base of the pyramid of opportunity) in which the "talent pool" or participation base is quite reduced need to identify talents in an efficient manner (LTA, 1996). Those countries with a large playing base need to implement talent selection programmes to select the correct talents from their "large pool". In general, talent programmes have a faster and more substantial impact on countries with reduced participation base (Hoare, 2001). To organise such a TI programme several factors need to be considered:

- **NA situation:** A SWOT analysis will help if it includes, among others, the following elements: **Rankings** (How many professional

male and female players do you have with ATP/WTA rankings? How many juniors with ITF JWR?), **population** (How many people live in your country? How many of them play tennis regularly...and competitively?), **culture** (Do sport and tennis play a significant role in the culture and society of your country?), **history** (Does your country have a successful tennis history?), **participation and retention** (What is the tennis participation level in your country? Is tennis part of the school curriculum? Do many players drop-out of tennis each year?), **resources** (Do your players have access to enough facilities, financial help, etc.), **competition** (Does your country provide the necessary competition level and variation for players to develop?), **training** (Does your country provide the necessary training resources -coaches and sport science- for players to develop?).

- **NA goals:** The NA has to indicate the path the TI programme has to follow: **Direction** (Where do we want to go?), **players** (Who are we looking for? Males and / or females? Which ages?), **international trends** (Where is the game heading to? Experts participating in the TI programme should have a good knowledge and understanding of the demands of modern international tennis), **model** (How are we going to set up the TI programme? It is recommended to use a combination of natural selection and sport-science based models), **financial and staff implications** (How much is going to cost? Who can conduct it?).

- **TI programme:** Some features of a possible TI programme are: **Combination and flexibility** (use a holistic approach considering performance criteria, data provided by sport sciences, learning and skill development features, and social background), **joint venture** (involve schools, public facilities, private clubs, etc.), **share best practice** (use information available from other NAs and in sport science tennis specific literature), **adaptation** (adapt the TI programme to the needs and characteristics

of the NA), **records** (keep a database record of all participants), **linking** (relate the TI programme to the player development programme in order to conduct TI at the different stages of the player development), **participation** (do not forget about players that drop-out early from the performance strand, and provide opportunities for them to re-join or continue playing tennis at a participation level), **education** (consider that coaches may need better education and training to identify talents).

- **Follow up of the TI programme:** The NA should have a clear picture in mind of what will be the future development of the talented players identified and selected. Enough resources need to be allocated to ensure that these players will be provided with adequate opportunities for their talent not to be wasted. This should be part of the player development programme of the NA.

CONCLUSION

Identifying talent in tennis is more of an art than science and therefore a flexible approach is recommended (LTA, 1996). The fact is that the long-term player development path is a complex process that should continuously involve some degree of identification and selection (natural or formal) of talented players at virtually all stages. This process should be a joint venture that will facilitate the combined work of coaches and sport scientists in order to fully benefit from the experience and knowledge accumulated in tennis.

In closing, due to the inherent difficulties of the TI process with beginner level players and the fact that the testing of these players does not ensure very accurate results, recent research on the development of expertise in young players and the years of practical on-court dedication required suggest that the terms talent identification, detection and selection are surpassed by the principle of long-term player development. This broader concept includes the nurturing of tennis

expertise by creating the necessary conditions for talent development in all stages of the process. Several models of talent development have been presented in the sports literature (Balyi & Hamilton, 2003; Bloom, 1985; Côté, 1999). These models consider different stages of development from the initial exposure of the child to the sport to the retirement of the player, and are being applied by National Tennis Associations with the intention of providing talented players the best opportunities possible to develop their potential.

TI should not be used to discriminate against the less able but should assist coaches and NAs to design training and competition programmes to maximise potential and participation of all players (Rowley, 1993).

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Foundations for Talent Identification and Player Development Programmes

By Piotr Unierzyski (University School of Physical Education, Tennis Department, Poznan, Poland)

INTRODUCTION

The early identification of talented players is an important consideration for coaches, researchers, federations, parents, sponsors, etc. Once talented individuals have been detected, it allows the involved persons to optimally arrange the resources required. Therefore, it is extremely important to firstly

recognise talent with a high level of success and secondly to organise the proper support and training which will help them achieve their full potential.

Talent identification is widely practiced by coaches, managers and parents but quite often it is based on instinct and experience

and little or no support comes from sport science. Because of the lack of involvement of sport science there are many generalised statements such as "late developers show up well", and additionally there are not many models of talent identification which are globally accepted (not just in tennis). Talent identification in tennis is practically

"unresearched" (Müller, 1990) and therefore in many countries it is based on tournament results achieved at a young age. Generally federations and sponsors do not want to invest time or money on players without good results "on court" at a young age. Because of this many talented players, who do not achieve good results early on are lost from the sport of tennis. Research has shown (Reilly et al., 2000; Williams & Reilly, 2000) that "objective data collected by sports scientists can help confirm practitioners' initial intuition with regard to players' strengths and weaknesses" and that the retrospective analysis of the development of talented players provides the best data for the construction of an "ideal" player development system (MacCurdy, 2006).

When discussing the concept of talent identification programmes there are several basic terms that need to be understood:

- **Detection:** refers to non-participants.
- **Selection:** choosing those who have a "chance to make it" and rejecting those who do not have this chance, usually done at an early age. Furthermore, talent selection can be used in the short term, for example; the selection of a team that will compete in a tournament next month (MacCurdy, 2006). This approach was typically used by former communist block countries and, I hope, that its use is now history.
- **Identification:** refers to the process of recognising current participants with the potential to become elite players. It entails predicting performance over time by measuring physical, physiological, psychological and sociological attributes as well as technical abilities, either alone or in combination (Regnier et al., 1993).
- **Development:** provision of an optimal learning and training environment for the realisation of talent.

WHAT RESEARCH HAS SHOWN

Previous publications by numerous authors have shown that (Schönborn 1984; Elliott et. al., 1989, 1990; Müller, 1989; Reilly et. al. 2000; Unierzyski, 2003; Unierzyski & Madella, 2004; MacCurdy, 2006):

- Talent has a complex (multidimensional) nature and the identification of talent is difficult, time consuming, and ongoing.
- There is no globally accepted model for talent identification in tennis.
- There is a need to give coaches and federations a simple and effective tool which will support their "experienced eyes" and enhance development programmes.
- Any process of talent identification should detect factors affecting performance in competitive tennis, but not just at a junior level. Additionally, every programme should

predict the potential of future performance with a high probability.

- Recognising environmental factors (family, friends and school) should form a part of every talent identification programme.
- Talent identification programmes must be looked upon as a process and not an event which requires constant updating. Talent identification programmes should have an ongoing longitudinal character (considering changes together with a time) with an interdisciplinary approach with the support of academics/sport scientists but with coaches playing the dominant role.
- Standardisation/Profiling (mixture of tests and judgement of coaches/experts) is the best tool to collect and analyse the data.
- Talented players should not have big "gaps" in their profile. For example, if a player is very slow at age 12, he might still be a champion. However, a slow player at 20 years of age cannot be a champion.
- On court results before puberty cannot be used as "predictors"; even good results at the junior level (e.g. ITF Ranking) do not guarantee achievements in the professional tennis (on average approximately 50% of the top 10 ITF ranked juniors achieve a top 100 ATP ranking (Reid et al., 2005). Therefore, talented identification cannot be based on results although a player should reach a minimal level in each stage of

development/age group.

- The analysis should be based not only on results but also on criteria such as: level of motor abilities; features of body structure; and psychological properties. It is crucial to consider individual differences in growth and maturation (e.g. biological and emotional age).
- Procedures should support a player's development programme, e.g. answer if sensitive periods/windows of opportunity were utilised properly. Therefore, major (more scientific) screening and decisions should be taken at end of each stage of a players' development. That is why there are two age groups, 10-11 and 15-16, that are particularly good times to test for talent. This is because at these ages the greatest changes in mobility take place. Therefore extreme decisions before 16 years old should not be taken.
- Retrospective analysis of talent development and assessing mainly stable features (having inborn or permanent character) supplies the best data for the construction of an "ideal" development programme.
- The "Ideal" parameters to measure are listed on the following page while table 1 shows the ideal stage of development to measure each parameter:

TRAINING STAGE (approximate age)	DESIRED INFORMATION	MAJOR TESTS
Talent Detection Beginning of training (5-7)	Should the child be encouraged to practice tennis?	Basic motor abilities (simple motor tests e.g. 20m, shuttle run, broad jump, tennis ball throw-and-catch against the wall) combined with observation of the child's behaviour (e.g. are they clever, competitive etc.)
General Talent Identification After a Mini/Midi-tennis size court (9-10)	Does the child have a chance to become a tennis player?	General motor abilities, tennis-specific skills, incl. technical/tactical development, (is the general tennis technique well developed?) Main stable mental features (achievement motivation, temperament, emotional stability, intelligence).
Specific Talent Identification before puberty starts (11-12 girls 12-13 boys)	Does the player have a chance to become a serious tennis player?	Specific development technique & tactics (all round game style, all major shots), mental and physical (more specific motor tests), anthropometrical, social.
Game-Type Specific Talent Identification After main phase of puberty (15-16 girls, 16-17 boys)	Does the player have a (good) chance to become a professional (top 200) tennis player?	Specific development technique & tactics (own game style), mental and (detailed) physical, anthropometrical, social.

Table 1. Describes the major tests that should be performed during the different stages of development.

- Anthropometrical data, (including biological development)
- Motor abilities
- Psychological characteristics
- Technical and tactical skills
- Developmental and social background
- Training/learning ability
- Performance in tournaments

METHODS OF CONDUCTING A TALENT IDENTIFICATION PROGRAMME

While the above mentioned information, which is research based, identifies some key factors related to talent identification programmes, this process in the "real world" has generally occurred through the use of 2 'classical' types of talent identification.

1. Natural: whereby an athlete starts a sport and is selected or developed due to competition performance or subjective identification by (one) coach. Experience shows that using only "the coach's eye", even a very experienced one, gives a very good chance for.....a mistake.

2. Scientific: the athlete is selected because they possess the inherent physical and mental capabilities for a given sport. Experience also shows that using only a "scientific" approach, without looking at a player as a human being and not taking into consideration factors, which are difficult to measure, often does not work for multidimensional sports like tennis.

However, because neither of these 'classical' methods are perfectly suited to tennis there is a need for new programmes and methods. Currently in tennis a mixture of the two, above mentioned, should be considered as



The use of physical tests in talent identification programmes is highly recommended.

the best option. Sport science (e.g. tests) gives objective and measurable data. This information should then be interpreted and discussed with the opinions of ~3 experienced coaches and all procedures should be performed according to a detailed plan. Such a procedure is called an "expert method".

PRACTICAL IMPLEMENTATION OF A TALENT IDENTIFICATION PROGRAMME

While the "expert method" is theoretically considered the best it should be taken into account that sports scientists are not always available and that each country is different. Therefore, a practical solution is required. MacCurdy (2006) in his recommendations for the Chinese Tennis Federation suggests that the following points be considered in preparing such a practical solution.

- Talented players should be scouted and invited to participate in programmes but everybody should have a chance to participate in programmes and competitions. By encouraging this there will be a relatively large number of potential champions playing tennis which is better than selecting from only a small number at the young age.

- Initially the criteria are "broad" (range of acceptability) but they should become more specific as the age and the stages of development progress.

- Depending on age and potential, players should be invited to be part of a club (C), state/regional (B), or national (A) system. Individualised (or at least semi-individualised) programmes should be offered to more talented children.

- In parallel to the "A" system (national), good, but not outstanding players should be involved in training in a "B" (state/regional) or even "C" (club) system. It will keep them in the game and give them a chance of further development as no one knows that they won't develop and reach the "A" level in the future.

- All players in group "B", for example, should be able to join the "A" group when/if they fulfil certain criteria/conditions (fitness level, results etc.).

- Regardless of the current level everyone should follow a similar general year round training and competition plan. (See issue 36 of the ITF Coaching & Sport Science Review).

CONCLUSION

Due to the variety of factors that a tennis player should have to reach an elite level it is very difficult, probably impossible, to recognise ("smell") talent based on a single observation by one person during a single testing/identification event. Therefore it is important for each National Tennis Association to develop and use its own talent

identification programme and to link it with player development and coaches education systems, which should act together as one integrated body.

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Medical Considerations when Identifying Talent?

By Babette Pluim

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INTRODUCTION

Talent has been defined as "an aptitude or ability in one direction, above the normal average (MacCurdy, 2006)." Talent identification is the process of detecting of young players that have the potential/abilities to achieve success at a national or international level. There are four important aspects that should be taken into account during the process of talent identification: technical, tactical, mental (psychological) and physical.

Talent identification in tennis is very difficult because it is an "Open" sport, which requires constant decision making, response organisation, spatial awareness, in addition to a wide range of mental, physical, technical and tactical abilities (MacCurdy, 2006). It is therefore much harder to determine the most important and indispensable parameters for tennis, and talent identification, in comparison to a "Closed" sport that is repetitive in nature, such as rowing, cycling, swimming or weightlifting.

Talent identification in tennis is usually the task of tennis coaches, who try to find that one player with the abilities of a champion. However, when it is undertaken by a National Association the focus is generally on players of 12 years or less, and will commonly include tests to evaluate the following characteristics:

- Tennis skills - technical and tactical
- Physical capacities - running, jumping, throwing, catching, co-ordination, speed, agility, power, flexibility, and endurance
- Psychological abilities - mental strength and weaknesses, concentration, emotional control

BUT WHAT ABOUT MEDICAL TESTS?

Are they useful for talent identification and if so, which tests?

The answer to the above question is that they generally do not play an important role in the selection of talented players. Pre-participation medical examinations are carried out by many National Associations because they provide useful information which can be used to guide the training process and identify possible problem areas (e.g. muscle imbalance, postural disorders, leg length discrepancy, anaemia, asthma,

unhealthy diet) at an early stage, in order to correct and/or treat the problem and help reduce injury risk. The standardised pre-participation examination performed by a medical doctor may include the following areas: Ear, nose, and throat; Skin, Cardiovascular; Chest; Spirometry (Lung capacity); Abdomen; Excessive joint mobility or hypermobility; Neurological examination; Tanner stages of development; Pathology; and Marfanoid feature (Reid, Quinn & Crespo, 2003). It is important to remember that someone with asthma can become a great tennis player and a player with knock knees, inlays and unstable ankles can still become a Wimbledon Champion. Therefore, the results of a medical/physical examination are not very useful for predicting a future champion.

What about height?

Height is generally considered an advantage in tennis, but caution should be exercised before using it as a selection criterion. Obvious examples that demonstrate that height is not a limiting factor in relation to performance are Olivier Rochus (165 cm, highest ATP ranking 30) and Amanda Coetzer (158 cm, highest WTA ranking 3). Additionally, the younger the player is, the greater the margin of error of the height prediction with the average error for children under 12 being +/- 10 cm. One of the limitations in the prediction of adult height is the need to account for an individual's biological maturity at the time of the measurement. Early maturing individuals are obviously closer to their adult height than, average and late maturing individuals of the same chronological age. An x-ray of the wrist can be used to determine skeletal age, but this does not solve the problem in very young players.

What about exercise testing?

A maximal exercise test can be used to determine maximum oxygen uptake (VO₂ max), maximum heart rate and lactate threshold. This is a useful test in order to determine a player's endurance capacity. However, field tests can be used for this purpose as well, such as the shuttle run test (beep test), 12-minute run or ball machine test. It should also be taken into account that endurance is just one aspect of fitness, which

is not directly related to tennis ability, and only weakly related to tennis performance (Reid, Quinn, & Crespo, 2003).

How important is vision screening?

Vision is important, and determination of visual acuity, depth perception, colour vision, peripheral vision and eye dominance are generally included in the pre-participation screening. If a player lacks depth perception because they have only one functional eye, this may be a problem for tennis. But having perfect eyesight does not necessarily mean the person will become a great player. Furthermore, predicting the exact landing location of the ball, the height of the bounce, the speed and spin of the ball and anticipating the movements of the opponent are not so much related to the eyes as to the brain, and is therefore very difficult to measure (Knudson & Kluka, 1997).

CONCLUSION

In conclusion, the role of the physician in tennis is very important, but the focus of the physician is the prevention and treatment of medical problems and ensuring an optimal development of the player, once the talent has been identified and the player has been selected. From our experience the skill and experience of the coach are far more important in talent identification than any currently existing medical test.

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Psychological Profiles of Champions

By Paul Lubbers (Director of Coaching Education, USTA Player Development)

Recently I was working with a group of 14 and under boys helping them to identify and develop psychological behaviors needed for success on the tennis court. I asked them to identify 10 characteristics that champion tennis players possess. The list they developed was both surprising and insightful. Some of the characteristics and behaviors they listed were; the ability to concentrate, intensity, good preparation, confident, intelligent, hard workers, love of competition, controlled emotions and good decisions. I then asked them to list them and then rate themselves from 1-10 with 10 being a behavior they completely possess, and 1 being a behavior they do not possess.

As you can imagine the scores fell somewhere in the middle with many scores being 5-8. I then asked them why they did not have scores of 10 in each area. There answers varied but one player said that "they were just 14 years old and that many of the behaviors on the list were things that they needed to continue to learn and develop." I thought that this was a great answer and a point that we as coaches need to remember regarding the progressive development of our players as it relates to the development of characteristics of champions. Remember that when discussing psychological characteristics of champions we are identifying adult behaviors and then asking adolescents to display the behaviors. Some of the behaviors they may not have yet mastered and some behaviors, due to growth

and developmental issues, they may actually not be able to perform. The question that then begs answering is "Should coaches expect and continue to teach such characteristics as concentration, focus, intensity and appropriate professional on court behavior? The answer is absolutely! Some of the areas that coaches need to teach and expect from their players include:

- Practice intensity
- Personal motivation
- Imagery skills
- Mistake management
- Positive self talk
- Positive body language
- Confidence and composure
- Concentration
- Routines
- Stress management and arousal control
- Sportsmanship
- Pre-match preparation
- Competitive skills

So what does it mentally take to become a champion and how close did the group of 14 and under boys do with their list of characteristics of champions as compared to what science tells us?

Sport science researchers have completed some interesting scientific studies on the issue and have identified some key psychological characteristics of champions. In a 2001 study Williams and Krane identified psychological characteristics of highly successful athletes. Some of the characteristics identified in this study were self-regulation of arousal, better concentration and focus, positive self talk and imagery, high determination and commitment and high confidence. Gould et al (2001) found similar results when examining U.S. Olympic Champions. The important attributes that emerged from this study were high motivation and commitment, optimistic and positive, positive perfectionists, ability to intensely focus, the ability to handle stress and cope with adversity, mental toughness and sport intelligence.

As you look at the list of characteristics think about the athletes you coach. Do they possess these characteristics?

Are these characteristics innate or are they learned and developed? Both experience and science tells us that these are developed over time. The progressive development of a world-class performer is a long-term process which research has suggested takes a minimum of 10 years or 10,000 hours (Ericsson & Charness, 1994). Further research shows that world-class performers go through distinct phases of talent development. According to Bloom (1985) and Gibbons (1998), elite athlete development is broken into the following three stages.

- **Stage 1: Introduction/Foundation.** Having fun and developing a love of the game characterise this phase.
- **Stage 2: Refinement/Transitional.** During this phase the athlete evolves into a "serious" player.
- **Stage 3: World Class Performance.** This phase is marked by many hours of practice and the honing of technical skills and expertise into personal excellence while competing at the highest level of competition.

As your players traverse these stages both positive and negative psychological characteristics and on-court behaviors will begin to emerge. As this happens it is a coach's job to have a clear understanding of what characteristics and behaviors are needed for success and which ones can create a barrier for success. Perhaps you should begin this process by asking your players what psychological characteristics champion tennis players possess. You, too, may be surprised at what your players know about the subject and in the process have a clearer picture for further development of their own championship attributes.

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Teaching imagery and concentration skills during practice is important for junior players.

Physical Considerations and Tests for a Talent Identification Programme

By Kenneth Bastieans (Belgium)

THE COMPLEXITY OF TALENT IDENTIFICATION

Worldwide and in all sports, talent identification is a hot topic. Every federation, tennis included, that has a programme for elite athletes wants to spend their resources (time, money, energy) on those athletes who have the most chance of achieving success at the international level. However, the current search for defining, measuring, scoring and evaluating the important characteristics that indicate the potential ability of a tennis athlete, is far from finished.

The key to talent identification is to determine how much of the performance outcome can be measured (Hoare, 2001). In order to achieve this, the three following issues should be considered.

1. As tennis is a relatively "open" skilled sport, which includes among others decision making, sensory-motor, response organisation, spatial awareness as well as a wide range of psychological, physical and technical skills (Stojanovic 2006), it is difficult to identify and define objective performance measurements that can be used to determine which player has the potential to be superior. Furthermore, there is not only one 'recipe for success'. When comparing the elite performers in modern tennis, we find many different types of players with a wide range of characteristics. Therefore, the question is what do these elite players have in common?

2. The characteristics measured or searched for, are subject to uncontrollable factors such as maturation, social influence, psychological changes, response to training, the requirements of the future game, etc. which makes it impossible to draw conclusions from a one time observation/screening. Therefore a follow up approach (process of talent selection) is indispensable to discover talent.

3. Finally, from a practical point of view, talent identification and selection has to be relatively simple. Straightforward measurements should be carried out so that a lot of children can be tested in a short time. The results, when compared to reference data of talented players who reached the top, should allow you to get a good/fairly accurate indication of the potential talent. However, it is important to remember, that tennis performance will never be determined by scientific data and prediction of future

success will not be covered by a single battery of tests. That is why the appreciation/observation of talent by an experienced coach is and will always be essential in the identification and selection process.

THE ROLE OF PHYSICAL TESTS IN THE PROCESS OF TALENT IDENTIFICATION

To a large extent physical profiling plays an important role in the search for talent. I argue that elite performance in our sport is highly dependent on physical qualities, a factor which is sometimes underestimated. Nevertheless, many matches are not won by the fitter, faster, stronger or bigger player. Therefore, when selecting and developing talented players we have to discern this ambiguous position of physical performance capacities.

By introducing two concepts it is possible to cope (to a certain extent) with this complicated situation and explain how the testing of relevant physical performance characteristics could be utilised and organised. Firstly, a distinction should be made between 'qualifying' and 'differentiating' physical characteristics. The 'qualifying characteristics' embrace those physical qualities that are necessary, but alone are not sufficient, to have a chance for reaching the top. They are the minimum characteristics a player should have in order to be successful. For example, one of these criteria is explosive power which is much related to inherited traits. 'Differentiating characteristics' are factors that make one player better than the other. Such physical qualities are desirable, but not all are necessary as they compensate in the absence of a qualifier characteristic. An example of this is seen in the production of stroke power, where extremely good muscular co-ordination could partially compensate for a lack of intrinsic muscle speed qualities.

When talent detection is the goal, identifying the 'qualifiers' should be the basis for the selection of players. The test battery must be simple, highly reliable and valid, and differentiate players based on inherited traits that cannot be modified with training. The tests should reveal those traits that are relevant to perform at an elite level in tennis. As tennis demands an early participation, these factors should be initially identified around the age of 7 to 10 years old. To control for possible fluctuations due to maturation and development, a regular check up every 1 or 2 years is needed. To date, there is no evidence that anthropometric variables (body size and shape) should be used as a selection criterion when searching for talent. For example on the ATP tour we saw Olivier Rochus, who is 165cm tall, beating Marat Safin, who is 193cm tall, in Dubai. Medical screenings however are valuable in the detection of contra-indicators for high intensive sports training and anatomical predispositions to severe (overuse) injuries.

The trainability of speed (quickness) is limited by genetic neurological factors (Siff &



The use of different jump tests are very useful in the process of Talent Identification.

Verkhoshansky, 1998) and muscle fibre distribution. Therefore, the measuring and scoring of basic speed abilities should be implemented. The use of a plate tapping test, different parameters of the jump test battery and a reaction speed test could be of some significance in this area. Co-coordinative abilities (movement and ball skills) are also subject to inherited factors and should be taken into consideration. Unfortunately, these abilities are very difficult to measure and the motor tests that could help are highly trainable due to the plasticity of the neural system. For tennis, the skill level of the overhead throw could be used as an indicator of the general motor development of a child.

As mentioned previously, identifying talent is impossible without a process of long term talent selection. This approach is needed to map the 'differentiators'. With regard to the physical domain, talents can differ from others in two ways. They either have an exceptional advantage for a certain physical element in an (relatively) untrained status, and/or they show an extremely high rate of improvement when exposed to training. In the end and in both cases, talents will consistently differ from the normal population in some aspects. In order to observe this distinction, a series of field tests that cover all the relevant (sub) factors to tennis is required. These tests should be repeated on a regular basis during the

development of a player, taking into account the (biological) age, the trainability of the (sub) factor that is measured, and the training plan (periodisation) of the athlete.

When profiling a player for talent identification, the test results for both the 'qualifying' and 'differentiating' characteristics are necessary. A player's results should be evaluated both absolutely (in relation to former personal results) and relatively (in relation to other players of the same biological age and/or sport specific level) over time in order to attain an objective idea of their progression and indirectly their potential. Doing this provides a tool that serves two extremely important purposes:

1. It allows you to make more profound decisions concerning talent (re)selection
2. It helps you to define new training goals

CONCLUSION

The concept of talent identification is currently not operational, at least in Belgium. Future evidence based research in the field is needed to develop this tool. Firstly, relevant sport performance determining 'qualifiers' and 'differentiators' should be identified and the correct tests selected. Secondly, a large amount of data should be gathered to create for each (biological) age group and/or level (ITN number) a set of normative data. In addition to this further, factor analysis

should be used to reduce the test battery to the most relevant tests. Finally, a physical profile and progression evaluation should be made up in reference to normative data. In combination with the findings and information in other domains (sport specific technical and tactical qualities and psychological factors), this tool can be used to draw some justified and well-considered conclusions with respect to talent identification.

I believe that an international umbrella organisation is in the ideal position to develop a solid and justified detection and selection tool to predict long-term success in young tennis players.

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Tennis Australia - "Talent Search" Programme

By Troy Ayres (Head of Talent Identification, Tennis Australia)

INTRODUCTION

Tennis Australia, including the area of Player Development, has recently undergone a major restructure. Craig Tiley is the new Director of Player Development and under his guidance a new role specifically designed to drive, organise and control talent identification in Australia was created.

Prior to the establishment of the current talent identification programmes, we undertook an analysis of the unique qualities that world class players such as Lleyton Hewitt and Roger Federer possess. We discovered that many of the qualities, that make them champions now, existed in these players when they were adolescents or even pre-adolescents. The major qualities that were noted existed in the following areas:

1. Psychological abilities
2. Physical abilities

3. Tactical awareness/decision making
4. Technical execution.

CHARACTERISTICS OF THE PROGRAMME

Tennis Australia's new "Talent Search" programme incorporates searching for, identifying and evaluating athletes from tennis and non-tennis backgrounds. Due to the fact that tennis is an open skilled sport and that a broad range of abilities/skills are required to be successful, the process of talent identification is very challenging. This is further complicated by the fact that the programme is targeting children between the ages of 6 - 11 years and at this age many children may not have played and racquet sports let alone tennis.

With the programme in its infancy, first year, Tennis Australia has decided to view talent identification as a sorting process which is inclusive. Accordingly, every athlete who is

observed, attends a talent search day, is directed into a development pathway suitable to their individual needs. The Talent Search programme caters for both boys and girls, however for the purpose of this article it will be the identification/evaluation process of the boys that is focused on.

Briefly, Tennis Australia is searching for boys who are very athletic, who have a good head on their shoulders (i.e. they are intelligent, sensible and honest among other things) and a big heart (i.e. they have a never give up attitude). The assessment procedure which looks for and monitors these qualities begins in phase 1 of our Talent Search programme and continues during the following years as the athletes are observed by the experienced eyes of our Talent Scouts and State/National Selectors. By lengthening the identification process and ensuring it is inclusive rather than exclusive, it creates multiple entry and



Modified jump tests allow for the observation of explosiveness, power and coordination.

exit points whilst also allowing the staff a greater opportunity to better understand each athlete.

From an athletic point of view, each boy is evaluated in the areas of speed, agility, throwing and jumping. Each of these tests has objective and subjective measures. The objective measures are the easiest to determine and record as they use time and/or distance to evaluate performance. The subjective measures are harder to quantify and are less accurate, however with the use of experienced staff, each boy is assessed on their ability to perform certain descriptors/technical qualities described for each characteristic/physical test.

The qualities which are subjectively rated include the boys ability to control his body whilst moving at high speed or changing direction in the agility exercise. The speed and agility exercises also allow for the observation/evaluation of acceleration, deceleration and overall efficiency of movement. With respect to throwing activities, their ability to coordinate an overhead throw, a side-arm rotational throw and their ability to use/control all body segments to generate force while performing these throws are evaluated.

Once quantitative measures with regard to physical abilities have been established, the next area of assessment is that of "game smarts". Athletes are placed in small teams and a put through a series of game based activities away from the tennis court. Games used included 'Keepings Off' (in this game the 2 teams try to gain possession of a ball which must be constantly passed) and 'Dodge Ball' (players try to avoid being struck by a soft ball), with each game focusing on different areas of perception, strategy, movement, spatial awareness, etc. The

purpose of these games is to assess each boy's competitive drive, their desire to compete/win and their ability to understand the various strategies required to play the game and then their ability to grow or change the strategy if required.

Following the game based activities the boys return to the tennis court where experienced coaches observe each boy's serve, forehand and backhand as well as their ability to rally and stroke precision. As an objective assessment of tennis ability is very difficult

to perform, the focus is on evaluating the boy's ability to produce a technique that is: 1. Simple; 2. Efficient; and 3. Produces racquet head speed. The boys that have not played tennis before are taught some simple swings by experienced coaches and are evaluated on their ability to understand the instructions and perform the technique.

The last component in phase 1 of the Talent Search programme involves looking at each boy's family background. Prior to attending the Talent Search day, the boys were requested to complete an athlete profile form, which includes questions about their experience in tennis and other sports including the level of competition they may have played or achieved. It is also requested that all other family members, parents and siblings, provide similar information about their sporting history and prowess. In addition to sporting information we also ask for the height of the parents. This profile has

been very useful in getting an idea of the potential genetic make up of the boy as well as the family's empathy and commitment to sport, which is shown by their past experiences.

Once all of the activities have been completed, the coaches and additional staff meet to discuss each and every athlete. The observations and results that each staff member has recorded are discussed and a list of boys to be invited back to phase 2 of the talent identification programme is created. In phase 2 each boy selected will attend one of the 5 National High Performance Academies (NHPA) which are located in Australia's largest catchment areas (Melbourne, Sydney, Brisbane, Perth, and Adelaide). When they attend a NHPA they are involved in the normal training activities, will complete further physical tests under the guidance of the physical conditioning staff and sports scientists, and be involved in an educational programme that covers the various pathways for coaching and competition.

CONCLUSION

By using talent identification as a sorting mechanism, with regard to the various pathways and multiple entry and exit points, Tennis Australia is well established to give every boy a chance to achieve their own goals. As time progresses, each of these boys will have a significant historical profile which will give us even better understanding of athlete development in the future. In closing, the most important ingredients in a successful talent identification programme include using experienced and passionate coaches, having a quality coaching and competition pathway for your players and looking for athletes with a good head on their shoulders and with a "big heart".



Ball games involving movement, throwing, catching and teamwork allow for the observation of perception, spatial awareness, communication skills, etc.

Selection of Talented Tennis Players: The RFET Women's Tennis Project

By David Sanz Rivas

(Director of the RFET Education and Research Department & Member of the Technical Team for the Women's Tennis Project)

INTRODUCTION

Definition

In sport, when we speak about the selection of talent, we refer to the identification and detection of athletes based on certain criteria.

Being talented at sport according to Hann (1998) is to be more capable than the average person and to have the desire to achieve a high level of performance in that sport. To have talent is to have a "natural aptitude or a developed one to do something" and it is dependant upon each persons ability, motivation and social environment. Furthermore, the individual must not only be discovered, but also encouraged and trained correctly (Lopez Bedoya, 1999).

Factors and components

A series of factors can be evaluated to determine if an individual has the predisposition to be better than average, these include: Genetic (morphologic and anthropometric), physical, psychological and environmental factors. Recent investigations have shown that the answer to the common cliché "Is a champion born or made?" is that both proposals are valid. For an athlete, to obtain a high level of performance, they need a considerable amount of natural talent; however this is not enough it also requires persistent hard work and careful planning (Sanchez Bañuelos, 2003). Having the ability is not the only important thing; being able to do this, that is to say, having the willpower and being in the right social environment, is vital.

Martin et al. (2004) outlined three components that should coincide in talented athletes:

- Individual talent: having the specific genetic predisposition which can be seen from a very early age.
- Personality traits: including an understanding that success will come in the long term with patience, practice and training.
- Training conditions: competent coaches and an environment that provides encouragement and support.

The effective selection of athletes requires a combination of the coaches' experience and

the use of sport science testing (Moreno 2001). This combination also provides a higher level of work efficiency, due to the use of better prepared and higher skilled people.

THE ROYAL SPANISH TENNIS FEDERATION (RFET) PROGRAMME

Objectives and characteristics

The RFET organised the women's tennis project to select a group of talented players with the aim of eventually increasing the level of performance at a national and international level.

Our system for the development of a high level of sporting performance is of the "Selective-Intensive" type (Sanchez Bañuelos, 2003) and is based on:

- The selection of a group as numerous as possible
- The selection of a prospective personality based on relevant parameters
- A selection that avoids rewarding precociousness
- Long term planning with progressive stages
- Maximum control over the intervening variables
- Maintaining control over the athletes within the system by continually assessing them and their results

We begin our process with the selection of athletes with capacities that we consider most relevant to good performance in tennis. We have considered morphological, motor/perceptual, psychological and environmental characteristics, as predictable variables of performance (Bouchard et al. 1973; Carter, 1970; Tanner, 1962; Salmela and Regnier, 1983). To measure these, we use tests which register certain variables according to the criteria of Brill (cited in Tschiene, 1989):

1. Qualities of genetic characteristics: Anatomical, physiological, neuromuscular and cardiopulmonary characteristics.
2. Attitude and tennis talent in general.
3. Specific tennis ability, from a technical and tactical perspective

Several tennis studies have related certain variables with performance. Birrer et al. (1986) demonstrated the importance of

technique as a factor that contributes to the level of performance by showing a positive correlation between the number of tournaments played and the quality of the backhand, forehand, volley smash and movement. Moderate correlations were shown between the number of tournaments played and two on-court sprint tests. Finally, no significant correlation was found between the number of tournaments and other tests (jumps, throwing the medicine-ball, 10 metre and 30 metre sprint).

Selection Criteria

A programme was devised to select a group of players that would be specifically monitored and given assistance, coaching, financial, travel, etc., to help optimise their performance. The intention of the RFET is to create a group of female players that could be a reference point and provide an incentive for other national level female players, in addition to increasing the level and number of female tennis players in Spain.

The specific selection criteria were:

- Genetic characteristics:
 - Body composition
 - Physical capacities
- Attitude and tennis talent in general:
 - Psychological tests
 - Attitude during competition (Competitiveness, response to errors, etc...)
- Specific tennis abilities
 - Technical repertoire
 - Consistency
 - Specific tennis stroke production skills

Qualitative observation charts were used to record the technical and tactical actions, values were recorded on an ordinary scale so comparison could be made more objectively, both in training and competition. The technical evaluation was completed in training during controlled player-player exercises, whilst the tactical charts were completed during competitions.

The physical capabilities measured were adapted from Muller (1990), Roetert and Ellenbecker (1998), and Unierzyski (1994) and involved testing joint movement, strength, power, speed and endurance. All

tests were carried out on court, and can therefore be easily reproduced.

The Psychological tests used were: the Perceived Motivational Climate Sports Questionnaire (PMCSQ-2), the Sports Climate Questionnaire (SCQ), scales to measure autonomy items (Need Satisfaction at Work Scale), perceived competitiveness (Intrinsic Motivation Inventory), relation (Subscale of acceptance of the Need for Relatedness Scale) and self-determination (Scale of Motivation in Sports). The self-esteem scale of the Self-Description Questionnaire III and the Scale of Subjective Vitality and the List of Satisfaction in Sports were used to evaluate their psychological well-being. Additionally, the relationship with their coach, the climate the parents created, the social support they received and the establishment of long, medium and short term goals at a qualitative level were analysed.



Players completed a numerous psychological tests as a part of the selection process.



Members of the RFET Technical Team and the Regional Federations worked together during the selection phase.

The biological measurements that were taken included a descriptive and quantification study of the physical characteristics of the athletes, as well as, an examination of the cardio respiratory system, the digestive organs and the musculoskeletal system; following the protocol of the RFET medical services.

Phases

Once the criteria was defined and the age of the players decided, ages 9 to 11, a programme was designed to sample the maximal number of players possible. In the Regional Federations, testing involved local schools, regional centres and clubs with the most outstanding players being chosen, based on the established criteria. This phase identified approximately 600 female players. Following this, three phases of selection were devised. The first one was carried out in the 19 regional federations where the RFET coaches, based on technical-tactical criteria and attitude, selected 100 players from the whole of Spain.

The second and more specific phase divided Spain into four areas: North: Gijon, South: Seville, Centre: Madrid and the Northeast: Barcelona. In each area, two days of testing took place. The RFET team (coaches, physical trainers, doctors and psychologists) travelled to all areas to carry out the tests. The first day consisted of technical, medical and physical tests and the second of physical and psychological tests as well as match play to observe the tactical variables.

Following this, 16 players were chosen to participate in the project. They had to agree to be supervised by the RFET (training and competition plan, etc.), work to achieve a higher level of performance and have the support of their parents and personal coach. The RFET objective is that these players train in their own environment and are close to their family, but also have a very clear and individualised plan regarding their training.

The final phase of this project, which is still developing, is about monitoring the selected

athletes in order to guide and help them in the planning of their training and competition. Economic help is also provided so that players can participate in the relevant national and international tournaments. Further stages of this project are still to be carried out to and will involve the assessing and monitoring of their progress.

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Parenting Tennis Talent: A Developmental Approach

By Janet Young (Australia)

"My dad was my best friend and greatest role model, and I will miss him deeply. I'm overwhelmed when I think of all the great things he accomplished in his life. He was an amazing dad, coach, mentor, soldier, husband and friend. I wouldn't be where I am today without him, and I am honoured to continue his legacy of sharing and caring". (Tiger Woods)

What a wonderful tribute to the late Earl Woods who died on 3 May 2006 after battling cancer; this is a recognition and appreciation many parents would dream of from their children. In this particular instance, the heartfelt words come from a legend of golf, Tiger Woods, however such sentiments are not necessarily exclusive to this extraordinary sporting talent. Many elite athletes give tremendous credit to the supportive role of parents in their journey to sporting excellence (Bloom, 1995; Cote, 1999; Monsaas, 1995). This being the case; what can tennis parents do to optimise their chances of such a positive endorsement from their talented children? To begin to answer this question let's review the term talent and the key determinants of talent development within a framework of developmental stages.

WHAT IS TALENT?

A child who is "talented" is thought to show promise, is "gifted" and possesses innate

abilities with the potential to excel (Ericsson, Krampe & Tesch-Romer, 1993). Interestingly, it is usually parents, in encouraging participation in activities and monitoring performances in the early years, who identify the first signs of talent in their children (Bloom, 1985). In these instances, parents believe their children to somehow be special and capable of success in a specific field of endeavour.

KEY DETERMINANTS OF TALENT DEVELOPMENT IN SPORT

A combination of several factors, rather than any one factor, is thought to be important for the development of sporting talent. Key influencing factors include the following (Baker et al., 2003 and Bloom, 1985):

- Opportunities for the individual to learn and compete
- Minimum of 10 years of intensive quality training
- Highly motivated & extremely competitive individual who enjoys the many facets of their sport and journey to excellence
- Exceptional support & encouragement from parent and coach
- The importance a country or society places on a particular sport

These factors are thought to interact, with the significance of each dependent on an

individual's unique set of circumstances. It can also be understood that the development of sporting talent is dependent on what happens in an individual's life and that possessing innate abilities will not guarantee fulfilment of one's potential. Furthermore, a lack of opportunities, years of preparation and perseverance with a single-minded approach are limiting factors ruling out the achievement of sporting excellence.

MODEL OF TALENT DEVELOPMENT

It is useful to think of talent development in terms of stages or phases through which a child progresses. Cote and Hay's (2002) sport-specific model of talent development is particularly applicable to tennis and highlights helpful guidelines for parents to nurture and monitor their children's development.

Cote and Hay's (2002) model proposes that children progress through four stages throughout their career: the sampling, specialising, investment and maintenance years. This framework is further extended with a fifth stage (labelled here as Contributory/Repayment) to accommodate exceptional expertise (Ericsson, Krampe & Tesch-Romer, 1993). Descriptions of all stages, and the role of parents in each, are illustrated in Table 1.

Stages	Description of Stage	Key Parental Roles
Sampling (approx. age 3 – 8, average age to start tennis 6.5 years [Monsaas,1985])	Initial involvement of child across a range of activities where the ability to play, explore and experiment is important.	Leadership Provide opportunities for the child to enjoy sport and develop fundamental motor skills at child's own pace.
Specialising (approx. age 8-13)	Child focuses on 1 or 2 sports and gradually decreases their involvement in extra curricular activities. Child is motivated to work harder and more seriously.	Facilitative Provide moral, financial and time support for the child to remain in sport, develop sport-specific skills and pursue high levels of performance. Daily family lives (including meals) start to revolve around the child's tennis lessons, practice, training and tournaments. Involves considerable financial and time sacrifices for parents. Family holidays spent at tournaments and camps. Relocation for some families to facilitate tennis needs of children.
Investment (approx. age 13-15 [Wolfenden and Holt, 2005])	Individual becomes committed to a single sport, is focused on achieving an elite standard and builds close relationship with coach. Child realises tennis is "no longer just a game" and is prepared to "develop their potential".	Supportive & Facilitative Provide continued moral and emotional support, including comfort and security in times of stress, a 'balanced' home environment and facilitation of schooling. Financial assistance to fund training/coaching (often at Academies and Training Centres) and tournaments.
Maintenance (approx. age 20 and over)	Player reaches pinnacle of sport and is challenged to repeat extraordinary performances and continue to improve.	Supportive/Follower Provide understanding ('be there for them') if required in times of setbacks which could include injury, fatigue, pressure and possible lack of motivation. Also share successes with child.
Contributory/ 'Repayment' (typically over 30 years)	Player makes a unique contribution to sport often (but not necessarily) after retiring from competition (e.g. Evonne Goolagong Cawley in her work with young indigenous talent).	Supportive & Resource Provide emotional support, positive feedback and other required support (e.g. sourcing family records for biographies, documentaries).

Table 1. Model of Talent Development in Stages. Adapted from Cote and Hay (2002), Ericsson et al. (1993) and Wolfenden and Holt (2005).

Considerations from Table 1 include:

- Parents have a changing but important role to play in all stages that span many years.
- No stage can be 'skipped over', although there are individual differences as to the chronological ages a child enters and leaves each stage and the fifth stage is optional.
- The role for many parents is critical during the early years when children are most dependent. The majority of children are introduced to tennis as a result of their parent's own interests and encouragement (Bloom, 1985). Following this initiation stage, substantial funds (Leand, 1988) and time (taking to lessons, training and tournaments) are required from parents to allow their child to pursue tennis during the specialising and investment years.
- The role of parents is not limited to stimulating, directing and facilitating their child's interests in tennis. Perhaps a parent's most important contribution is in shaping their children's character and teaching certain values, especially that of honesty (Csikszentmihalyi, 1997). Monsaas (1985) demonstrated in her study of elite tennis players that those who reach the top come from families who highly regard tennis, and sport, in general and uphold the values of hard work, fair play, giving one's best and never giving up in pursuit of a worthwhile goal.

GUIDELINES FOR PARENTS

The talent developmental model suggests there are a number of guidelines to adopt in 'parenting the talented child'. These include:

- Given parents are typically the most significant role models for their child, parents should embrace this responsibility by living their lives, and dealing with others, in the manner they would like your child to follow.
- Parents should encourage and develop open communications with their child, no matter what the circumstances or outcome of matches. This involves:
 - Finding ways to let the child know they genuinely care about them as an individual and respect what they have to say and how they feel
 - Making the time to continually reinforce their child's needs is their priority and they will support (as required) the journey to the top but ultimately this is for the child to take responsibility for and enjoy!
- Parents may adopt the dual roles of parent and coach (e.g. Nick Philippoussis/Mark Philippoussis and Melanie Molitor/Martina Hingis). The challenge here is for parents to establish (and gain acceptance from their child as to)

boundaries between the roles, to be able to maintain these boundaries and not to attempt the coaching role without the appropriate technical knowledge and other appropriate qualifications.

- Parents should prioritise the development of a good working relationship with their child's tennis coach (assuming they are not undertaking this role). To achieve this, parents should meet regularly with the coach to discuss and monitor how best they can best contribute to the support team of the child. Situations to avoid will undoubtedly include those of putting undue pressure on the child for match victories and living out the parent's dream for a Wimbledon title through the child if this is not the dream of the child.
- In families with a number of siblings parents need to be mindful to allocate their time, attention and finances to make each child (not just the talented tennis child) feel uniquely special. All children can rightly expect parental love and support whatever their interests and abilities. If parents can adequately meet this challenge, siblings have the chance to form a strong and harmonious support group for each other.

IMPLICATIONS FOR COACHES

The talent development model suggests there are important roles for both coaches and parents to adopt. Their contribution to talent development will be far greater if they work as a team, rather than act independently. To this end, it is in everyone's best interests if coaches and parents can develop an understanding as to how best they can complement each others roles. Only regular and open communication between coach and parents, with the child's interest at the forefront, can achieve this.

CONCLUSION

There is no doubt parenting a talented child can be a most rewarding experience. Parents have a significant role to play in all stages of talent development extending over many years. While a talent development model has been proposed to describe key roles of parents throughout the journey to sporting excellence, it should be remembered that, at all times, 'parents should be parents' - that is, they need to let their children know of their unconditional love and care for their children's

well-being, safety and happiness. In this context, parent's genuine and unfaltering belief in their children's talents can forge a relationship similar to the one described by Tiger Woods in recalling what his late father meant to him.

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When parents adopt dual roles of parent and coach it is important to establish boundaries between the 2 roles.

Coaching Talented Players

By E. Paul Roetert and Rodney Harmon (USTA High Performance Department)

As we travel around the world, we see coaches from many different countries working with players of different backgrounds, ages, sizes and talent levels. For many coaches the goal is to work with a talented player and although not every coach has the opportunity to coach talented players exclusively, hopefully many of us will have the chance to coach one or more talented players at some point in time. When this opportunity arises it is important to know how to guide a talented player properly so that they can reach their maximum potential. Even though there is no "one way" to develop a talented player, here are some key components that cannot be overlooked.

RECOGNISING TALENT

Identifying talent in tennis is not an easy task. There is currently more information than ever about the physical and psychological characteristics of elite players, however in our opinion the best way to recognise talent is still a "coach's trained eye". Unlike gymnastics, basketball or rowing where a specific body type is optimal for high level performance, tennis is a sport in which players of many different body types/sizes can be successful. Similarly, it has been shown that attempting to predict success in tennis solely based on physical fitness variables is not appropriate (Roetert & Riewald, 2003). Further research, from this research group, demonstrated that in young tennis players the only physical fitness component with a significant correlation to tennis skill was "speed and agility" (Roetert et al., 1992). Good "speed and agility" allows a player not only to get to the ball quickly but also to set up in a well balanced position for each shot. Apart from the physical qualities required to play at the elite level, the desire of a player to use their natural abilities and their willingness to complete the countless

hours of training and match play to improve is very important. In fact, it requires as many as 10,000 hours or 10 years of practice to achieve mastery in tennis (Ericsson & Charness, 1994). Additionally, having an experienced coach with knowledge about the latest training techniques is invaluable to the development of a talented player. The following paragraphs will outline some of the more important factors a coach should consider in the process of guiding a talented player towards a successful tennis career.

TECHNIQUE AND GAME STYLE

Focusing on correct technique of all strokes at an early age is critical. It is crucial not to be misled by good ball striking skills or physical ability. Coaches should focus on developing a solid technical base which is taught in the framework of tactical situations. Furthermore, the use of different tactical situations allows practice sessions to remain challenging, exciting and fun, and will prevent players from becoming stale or bored. This is especially important with talented players. Basic principles, for groundstrokes, should include the development of consistency, depth, placement, spin and power. It is generally accepted that correct technique should be developed by age 14 for boys and 12-13 for girls. Additionally, at this point in time work should begin on the development of a particular game style. Player and coach should be in agreement as to the best game style for future success. Game styles can be described in several different ways, but we usually categorise the four basic styles as (USTA, 1996):

- Counter-puncher
- Aggressive baseliner
- All court player
- Serve and volleyer

having just one game style exclusively. Federer and Henin-Hardenne are excellent examples of current players who have developed good variety in their game.

CONSISTENCY AND MOVEMENT

Developing consistent penetrating strokes and having a good understanding of shot tolerance based on the court surface are important elements in the success of any player hoping to reach the ATP or WTA Tour. Given that tennis even at the highest levels is based on limiting unforced errors, especially from the baseline and on the return of serve, developing consistent groundstrokes is vital. At young ages, these skills can most easily be coached on slower court surfaces. Additionally, the majority of matches on the pro tour are played on slow hard court or clay court surfaces. These slower courts require players to have the ability to rally, return serve consistently and construct points properly. The transition from offence to defence and vice versa is another benefit of training on slower courts at a young age. Clay courts in particular, also allow players to develop lower body strength, balance and the ability to work on a solid aerobic base. Finally, these skills can all be transferred to successful movement on other surfaces.

CONCLUSION

As mentioned above, there is not just one way to develop a talented player, however there are some key things you as a coach can do to help your player maximise their chance of achieving success. If you feel that you, as a coach, may not have all the skills necessary, you should talk/check/discuss with other knowledgeable coaches in your area. Very often a fresh perspective on how to develop a player can be quite helpful to both you and the player.

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Focusing on correct technique of all strokes at an early age is critical.

Since the mastery of a stroke or particular style takes years of practice, it is imperative to begin the process as early as possible keeping in mind each player's level of physical and mental maturity. Allow talented players to develop a wide variety of shots so they have some variation and don't get limited to

Recommended Books and DVD

BOOKS

El Entrenador de Tenis de Alto Rendimiento: Un Estudio sobre su Formación Inicial y Permanente (The High Performance Tennis Coach: A Study about their Inicial and Ongoing Development) Author: Juan Pedro Fuentes García and Fernando del Villar Álvarez



Year: 2004 **Language:** Spanish **Pages:** 265 **Level:** Advanced **ISBN:** 84-688-9034-0

This book was written with the aim of providing a resource that specifically defined the principles of high performance tennis coaches. The book is structured in the form of a piece of scientific research or thesis and includes an introduction to the problem (what is the development path of a high performance tennis coach), the research design, method, results, etc. and conclusions regarding the personal development path taken by high performance tennis coaches.

This book provides interesting reading for those interested in becoming a high performance coach and those who are interested in tennis research.

For more information visit: www.dip-badajoz.es/

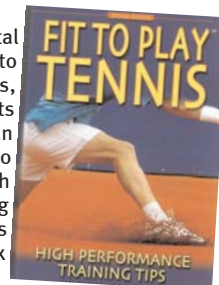
Fit to Play Tennis: High Performance Training Tips, Second Edition. Author: Carl Petersen and Nina Nittinger. **Year:** 2006 **Language:** English **Pages:** 424 **Level:** All levels **ISBN:** 0-9722759-5-9

This physical and mental training book aims to provide athletes, coaches, parents, sports scientists and players an easy to follow guide to designing a high performance training programme. The book is based around the six S's of training:

- Structured training and practice
- Structured yearly planning and periodisation
- Structured environment
- Structured mental training
- Structured physical and medical assessments
- Structured recovery and injury prevention

A very interesting book about the physical and mental training required for sporting performance.

For more information visit: www.racquettech.com



Wheelchair Tennis - Doubles Author: Louis Lamontagne-Müller **Year:** 2006 **Pages:** 112 **Language:** English **Level:** All levels

This book is divided into two main sections: 1. Building the team and 2. Training the team. The first section includes 3 chapters: 1. "Basic styles" of wheelchair doubles teams; 2. "Picking a style" which helps guide teams to making decisions about which style and positioning will bring success; and 3. "Communication" which discusses the importance of routines including communication strategies before, during and after matches.

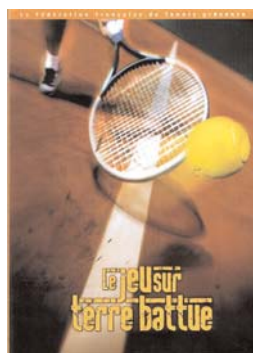
The second section which focuses on "Training the team" also includes 3 chapters which are: 1. Implementing the given style and positioning; 2. Taking or Regaining Control of the Point; and 3. Last Thoughts. In conclusion with the information, photos and diagrams this book contains it is an excellent resource for all coaches working with wheelchair tennis players.



For more information visit: www.tenniscanada.ca

DVDS

Le Jeu Sur Terre Battue (Clay Court Tennis) Author: French Tennis Federation **Year:** 2006 **Duration:** 56 minutes **Language:** French **Level:** All levels



This DVD begins with an overview of the history of clay court tennis and the French Open. It then provides a detailed description of how to be successful on a clay court. It includes a vast amount of tactical information and uses numerous examples from the French Open to demonstrate the importance of shot selection on clay. It also has information about how the male and female game has evolved in the last 30 years.

This DVD also includes two 10 minute supplements which discuss the keys to success in both men's and women's tennis. This is an excellent DVD for players and coaches who want to increase their knowledge about clay court tennis play.

For more information visit: www.fft.fr

14th ITF Worldwide Coaches Workshop - Turkey, October 18 - 22, 2005. Author: Tennis Canada. **Year:** 2006. **Language:** English. **Level:** All levels.

Tennis Canada has produced a 14 DVD set which contains the presentations of almost all the main speakers from the 2005 workshop. In total there are 19 presentations with 15 of these being on-court. Speakers include: Louis Cayer, Miguel Crespo, Eliot Teltscher, Machar Reid & Bruce Elliot, Antoni Girod, Alex Ferrauti and many more.

The presentations in this DVD set are by some of the world's best tennis coaches, strength and conditioning experts, biomechanists and psychologists.

For more information visit: www.tenniscanada.ca



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