

Editorial

Welcome to issue 40 of the ITF Coaching and Sport Science Review, which is the final edition for 2006. This issue includes articles on a range of topics including long term coach development, coach burnout, working with elderly players, coaching teams and an investigation about the benefits of the consumption of a sports drink during tennis play.

In the final four months of this year, some of our readers attended our Regional Coaches' Conferences, which were held in conjunction with the respective Regional Tennis Associations and supported by Olympic Solidarity. In Panama, 136 coaches representing 14 nations from the region participated in the 4th Central American and Caribbean Coaches' Conference. Tennis Europe, together with the Swedish Tennis Association, organised its annual Coaches' Symposium in Stockholm, with 80 European coaches representing 33 nations in attendance. The 13th Asian Coaches' Conference was held during the third week of October in Bangkok, Thailand. One-hundred and fifty coaches from 17 nations took part. In South America, close to 300 coaches from 10 Nations absorbed the information on offer during the 11th South American Conference held in Barranquilla, Colombia. Approximately 70 coaches representing 11 nations also attended the 5th African Coaches' Conference held in Cairo, Egypt.

In summary, 2006 saw more than 750 coaches from 85 nations attend an ITF Regional Coaches' Conference, which is a 25% increase on 2004 participation levels. These biennial events provide a forum for coaches to discuss specific issues related to coaching in their regions, gain access to the latest information in tennis science and pedagogy, and to discover more about ITF programmes available to them and their National Associations. We want to thank those experts that acted as speakers at the conferences and we hope that those of you who attended a 2006 Coaches' Conference found it to be beneficial.

The month of September saw the first Level 3 Coaches Course for European coaches conducted in Valencia, Spain. The 12 day course which was attended by 9 coaches was a great success with all participants returning to their nations with increased levels of knowledge and enthusiasm.

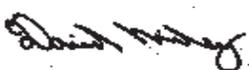
The International Tennis Federation launched a new online store in October which is designed to offer easy access to the full range of publications, clothing, DVDs, accessories and gifts currently sold by the ITF. The



Craig Tiley and Craig Morris presenting at the 13th Asian Coaches' Conference Bangkok, Thailand

ITF Store (<https://store.itftennis.com>, also available via the homepage of www.itftennis.com) enables new customers to make purchases using credit or debit cards and all information is available in three languages: English, French and Spanish. The ITF Coaching/Development Department offers a selection of coaching and development publications for tennis coaches including the new publication ITF Tennis Psychology which includes more than 200 on- and off-court practical drills and the latest research in the field.

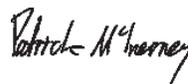
Finally, we hope you enjoy edition 40 of the Coaching and Sport Science Review.



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Long-Term Tennis Coach Development

By Miguel Crespo, Patrick McInerney (ITF Coaching / Development Department) and Machar Reid (The University of Western Australia)

INTRODUCTION

Tennis has experienced significant growth in the number of people playing the game worldwide. Coaches play a central role in the development of these players at all levels. In view of this fact, tennis, sports, and academic organisations have increased their efforts to provide better education to tennis coaches through the implementation of the most up-to-date coaching courses and the production of the highest quality educative resources possible.

The main goal of these coaches' education programmes (CEPs) is to improve the level of coaching, and as a consequence facilitate the development of more and better players (adapted from USTA, 2006). Research has consistently shown the positive influence of coach education programmes on coach confidence and efficacy (Brachlow & Sullivan, 2006; Malete & Feltz, 2000). In turn, access to appropriate coaching is considered one of the foremost contributors to the development of elite athletes (Ericsson & Charness, 1994).

In equipping coaches to operate effectively and ethically, coaches education programmes should be delivered in both practical (on- and off-court) and theoretical (scientific and non-scientific) contexts. The information presented should be relevant to their daily work and permanently supported by a strong Code of Ethics and Conduct designed to protect the safety, welfare and rights of all people involved (AEHESIS, 2006).

In many ways, the aforementioned growth in the game has coincided with the heightened, systematic integration of sport science. Subsequent training and coaching initiatives are geared towards improving both player performance and participation (USTA, 2006). The modern day coach is therefore challenged to keep abreast of these developments, and continue to enhance their coaching knowledge and expertise through coach education programmes.

Competency based training

In recent times, an increasing number of nations have invested time and resources into reviewing their coaches' education programmes with a view to developing more competent coaches (Way & O'Leary, 2006). For instance, Canada, Australia and select European nations, among others, are currently in the process of adapting their coaches' education programmes to so-called "competency based training" or CBT. The ITF, with its coaches' education programme which is used by more than 80 nations

worldwide, is also leading the charge (Crespo, et al., 2005).

CBT implies that the organisation and delivery of coach training is based around competencies which are established for the profession in general as well as the different coach occupations (coach of beginner, intermediate, advanced and professional players). Competencies can be defined as the combination of skills (application of experience and knowledge - how to do the job), knowledge (facts, feelings or experiences known by the coach - what to do in the job) and attitudes (interpersonal features - what the coach is) that coaches should possess to do their job well, meeting market and customer needs, and the standard performance required of their employment (Morris, 2006).

These competencies are precisely defined and are based on the activities that coaches have to perform (i.e. training, competition, management and education) and the tasks undertaken within each activity (i.e. plan, organise, conduct and evaluate) (AEHESIS, 2006). CBT structures the education courses in units of competence, with each unit consisting of learning outcomes that have a set of performance criteria on which coaches are assessed (i.e. required to provide evidence to demonstrate competence). Current competence of the coach is recognised if valid, sufficient, consistent, current, and authentic evidence is provided (Morris, 2006).

Development of coaching expertise

The daunting job of trying to first identify the competencies needed for tennis coaching and second structure tennis coaches' education programmes under the principles of CBT, revealed a crucial misrepresentation of coaching expertise in many current programmes. That is, the direct identification of coaching courses levels' (i.e. 1, 2, 3, etc.) with the standard occupations of the coaches (i.e. level 1= coach of beginner players, level 2= coach of intermediate/advanced players, and level 3= coach of elite players) implies that coaches' skills and knowledge increase incrementally with the standard of player that they coach.

This fallacy, previously highlighted by Roetert et al. (2000), ignores the fact that the coaches' roles will vary not just with their players' level of play but also with the coaches' career goals. Indeed, some coaches will assume mixed roles throughout their

careers (i.e. working with players of different age groups and playing levels), whereas others may specialise and work with players of the same level exclusively. In this latter scenario, coaches would likely develop their coaching expertise specific to that group of players (AEHESIS, 2006). Related to this, both science and experience have demonstrated that most CEPs leave the task of continuing education to the coaches themselves (Crespo et al., 2005a).

The purpose of this article is therefore to reflect on and elaborate a long-term tennis coach development (LTCD) model or career pathway. In the same vein as the long-term player and athlete development models propositioned by various authors (Balyi & Hamilton, 2003; Bloom, 1985; Côté & Hay, 2002; Ericsson & Charness, 1994; Monsaas, 1985), we will use relevant research where possible (AEHESIS, 2006; Way & O'Leary, 2006).

THE COACH AND THEIR LONG-TERM DEVELOPMENT OF EXPERTISE

Much has been written about the qualities of a good tennis coach (Hassan, 1997; Roetert, et al., 2002; Stojan, 1997), with research even comparing the behaviours of successful and non-successful coaches (Claxton, 1988; Crespo, 1995). Along the same lines, popular reading also details the coaching tips of top coaches and the training systems of the best tennis academies. However, comparatively less is known about how coaches actually develop their expertise throughout their career.

As above mentioned, researchers have developed long-term player development models or matrices that delineate typical career paths of players, specifying the when, why, what and how of skill development. Parallel intents in the coaching domain have been scarce (Côté, 2006; Gilbert, et al., 2006; Trudel, 2006).

Stages of coach development

Way and O'Leary (2006) presented a model of a coach's career pathway, involving four distinct mediums: 'at play' (the athlete's experiential pathway), 'at school' (the coach's educational pathway), 'on the sidelines' (the coach's experiential pathway), and 'in the office' (leadership development and on-going support). AEHESIS (2006), on the other hand, elaborated four coaching roles (apprentice or assistant coach, full coach, senior or expert coach, and master coach) that relate to the career path of the coach.

In combining these two different concepts, along with the model of LTAD proposed by Balyi and Hamilton (2003), Table 1 outlines an adapted Long-term coach development (LTCD) pathway for coaches.

Considerations on the stages of coach development

The stages outlined in table 1 should be considered as flexible and not prescriptive. The principal focus of the LTCD is for coaches

to possess the necessary competencies to perform activities, as appropriate, throughout their coaching development. The model is also underpinned by the understanding that coaches acquire these

| Coach's main role | Name of the stage | Main characteristics |
|-------------------------------|--|--|
| Apprentice or assistant coach | Fundamental (early development) | <p>Age: Throughout the playing career of the coach.</p> <p>Key skill: As a player (ability to contribute to the own coaching), as an assistant coach (ability to conduct training sessions).</p> <p>Knowledge: Main characteristics of tennis play (rules and regulations, training and competition routines, etc.).</p> <p>Attitudes: Love for the game, motivation, kindness, care, cheerfulness, and fun. Desire to acquire a deeper understanding of the coaching process.</p> <p>Comments:</p> <ul style="list-style-type: none"> In the event of limited or no playing career, this stage is covered throughout the involvement of the coach in the sport as a parent, official, fan, etc. Even though many great coaches have been reasonably good players, a good level of play is not an indispensable pre-requisite for being a coach, especially when coaching beginner players (Roetert et al., 2003). Where possible, this coach usually works under supervision and reports to other more experienced or qualified coaches. |
| Full coach | Learning to coach (middle development) | <p>Age: During, toward the end, or upon culmination of the coach's playing career (i.e. David Cup playing captain).</p> <p>Key skill: Ability to conduct and plan training sessions to help players improve their playing level.</p> <p>Knowledge: General principles of coaching for the level of players they are working with (i.e. sports science, teaching methodology, etc.).</p> <p>Attitudes: Same as above plus basic leadership behaviours.</p> <p>Comments:</p> <ul style="list-style-type: none"> In the event of limited or no playing career, this stage is covered during the first years of coaching, and can be combined with other roles such as parent or official. This coach may work under supervision and report to more qualified or expert coaches. |
| Senior coach | Training to coach (late development) | <p>Age: After a number of years of coaching players of any level of play (approx. 5 -10).</p> <p>Key skill: Ability to plan players' training and competitive seasons or careers. Supervise other coaches he may be in charge of.</p> <p>Knowledge: Specific principles of coaching for the level of players they are working with (i.e. sports science, teaching methodology, etc.).</p> <p>Attitudes: Same as above and strong work ethic.</p> <p>Comments:</p> <ul style="list-style-type: none"> Generally, this coach does not work under supervision but may report to other coaches in an organisation. When working with advanced players, these coaches usually are full-time professionals. Coaches working with beginner or intermediate players may combine their coaching role with others (i.e. school teacher). |
| Expert coach | Coaching to coach (innovation) | <p>Age: After a significant number of years of coaching players of any level of play (approx. 10+).</p> <p>Key skills: Ability to innovate in coaching (i.e. training systems , development programmes / plans, etc.). Supervise coaches, programmes, organisations, etc.</p> <p>Knowledge: As above plus general coaching and sport science principles applied to sports, not just tennis ; periodisation, etc.</p> <p>Attitudes: Same as above plus strong leadership and role-model behaviours.</p> <p>Comments:</p> <ul style="list-style-type: none"> Generally, these coaches assume full responsibility of the programmes or players that they are working with. The coaches' valuable experiences and knowledge can eventually enable them to mentor other coaches (coach of coaches). In some cases, these coaches may adopt new roles as administrators, managers, officials, etc. |
| Master coach | Retirement (retaining) | <p>Age: After the coach has retired from coaching permanently : often from 65 years on !</p> <p>Key skills: Ability to reflect on own coaching practice and how it can be of help to other coaches.</p> <p>Knowledge: All aspects of coaching practice.</p> <p>Attitudes: Same as above plus desire to share life experiences with others .</p> <p>Comments:</p> <ul style="list-style-type: none"> Generally these coaches can act as advisers to other fellow coaches, programmes or organisations. |

Table 1. Long-term coach development in tennis.

competencies and develop their expertise at different rates (i.e. depending on playing experience, educational pathway, job opportunities, and coaching experience). Indeed, these different stages may be carried out in a voluntary; part-time or full-time capacity, no matter the coach's expertise. In general however, coaches working with high performance players tend to be full-time paid professionals, while part-time voluntary coaching is more common among coaches working with beginner players. Differences will also exist in the nature of these roles between countries.

Interestingly, professional players may finish their playing careers and immediately assume a coaching role with another top player without any previous coaching experience or coaches' education qualification. Conversely, coaches with a basic or no previous playing experience will start coaching beginner players (children or adults) and do that for the rest of their lives after taking part, or not, in different coaches' education courses.

The time at which coaches participate in their first formal coaches education course is often subsequent to the start of their coaching career and thus does not generally conform with the traditional academic pathway (Way & O'Leary, 2006). So, where both Bloom (1995) and Côté and Hay (2002) point to coaches needing more sophisticated knowledge and advanced qualifications in working with players in the latter stages of their development, the reality is that, in tennis, most coaches working with top players are former players with little exposure to formal coaches education. Coaches working with beginner players, on the other hand, are those that typically take part in coaching courses. The message then becomes that coaches possessing different amounts of expertise, work with players across all skill levels, and that coaches' knowledge doesn't necessarily increase along with the playing standard of their students. That is, coaches working with beginner players are no less knowledgeable than those working with top players, but they do possess different types of knowledge.

Gilbert et al. (2006) have observed that successful coaches of various sports devote

very little time to formal coach education on an annual basis. The results reinforce the need to consider the coaching context when examining coach development and when designing CEPs.

Fundamental to Long Term Coach Development, therefore, are the following core principles. Tennis coach education and development should:

- adopt an individual-coach centred approach and not treat all coaches in the same way.
- place the learning environment of coaches into a larger conceptual framework to account for their variability of experiences (Côté, 2006).
- view coach development as a long term process (30+ years).
- focus on optimal training/education and experience ratios to enhance development and avoid burnout.

In line with the LTCD principles, the design of coach education programmes should recognise different types of learning (lifelong, informal, non-formal, and prior) and competence, promoting a philosophy of continuous improvement. In general, we can state that progress through the stages of coach development depends on the coach's experiences, job performance and education.

CONCLUSION

Many of the ideas underpinning LTCD are not new, yet we hope that they stimulate continued review of current coaching practice and CEPs. The application of such LTCD models will help improve the quality, consistency, transparency and relevance of future practice while also overcoming the language and cultural barriers to enhance understanding among coaches' education programmes.

Coaching tennis is an exciting and dynamic profession. Other leading global sports have assisted their coaching programmes evolve and tennis needs to follow the trend.

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Attending conferences plays an important role in Long Term Coach Development

Burnout: Coaches to be on the Alert

By Janet Young (Sports Psychologist, Australia)

Most coaches are aware that players who are over-trained, lacking motivation and stale are suspect to burnout. However, do coaches consider they might also be at risk of burnout in undertaking their own coaching duties? Research suggests coaches are prone to suffer significant degrees of burnout given the demands of their roles, including the ever-present challenges and pressures to communicate effectively with players (and parents, support persons, administrators, etc.) and guide players to improve and enjoy their tennis (Duda, et al., 2003). As the concept of burnout is often misunderstood, it is important to understand the nature of the condition in order to develop a basis for prevention or, if it does occur, its early detection.

Myth # 1: Burnout is a new excuse for coaches to avoid work

While burnout is a relatively new concept, first used by the psychoanalyst Herbert Freudenberger in 1974 to describe the stress responses exhibited by staff members in the mental health care field, it describes behaviour as old as the human race. Burnout is a level of psychological, physical and/or emotional exhaustion which results in an individual gradually, or sometimes suddenly stopping what were previously much sought-after and enjoyable activities. To assume all coaches use burnout as an excuse to avoid work is obviously erroneous. This myth does, however, highlight the possibility that coaches may be unable to work as efficiently and effectively as they would like if suffering from burnout.

Myth #2: As long as coaches enjoy their work, they can work hard for long hours and not experience burnout

No coach is immune from burnout. No matter



Burnout can be avoided, or its effects minimised, so that coaches can continue to undertake and enjoy their profession over many years.

how much a coach loves their work if it is continually stressful, with pressure, conflict or frustrations, burnout can occur. Burnout is not a reaction to occasional excessive stress, but a response to prolonged and chronic stress. In this context, stress occurs when a coach's perceived level of challenges/demands of a situation substantially outweigh their perceived resources and abilities to handle it over a period of time. Enjoying one's work does not therefore prevent burnout, however, doing so can act as a moderating factor. Indeed, a lack of, or decrease in enjoyment in one's work may well be a signal of dangers ahead!

Myth #3: Coaches know when they are burning out

Most coaches do not realise they are burning out, even in the final stages of the condition. Symptoms vary from individual to individual, but most notably a burned-out coach will experience fatigue, irritability and depression. Coaching is often no longer enjoyable or fun. The most usual physical signs are tiredness, headaches, sleeplessness, shortness of breath and weight loss. The behavioural symptoms include being easily angered and frustrated and loss of caring for others. Cognitively, there may be perceived overload, low accomplishment and helplessness in one's life.

Myth #4: Coaches who are physically and mentally strong are unlikely to suffer burnout

Research suggests that those coaches most prone to burnout are the overachievers, the perfectionists. Typically these coaches work too hard, long and intensely and are often obsessive in completing the detail of their duties (Kelley et al., 1999). While possessing physical and mental strengths can delay the onset, and lessen the effects of burnout, these attributes are not cures if a coach's overall ability to develop and implement coping strategies to reduce stress is inadequate. Some of these strategies are outlined in the following section.

Myth #5: Coaches can recover from burnout by taking a few days off work

Taking a few days off work may well be what is needed in cases of mild burnout, however more extensive treatment is frequently required. Potential treatment strategies require an individual approach, although an initial first step is often self-awareness when a coach constructively analyses and communicates their feelings to others (possibly to other coaches or family members). In these cases, burnout is less likely to occur or will be less severe.

In addition to self-awareness, other courses of action need to be tailored to the coach's individual circumstances and personality. These options may include the following:

- taking a holiday
- changing jobs or sports
- changing one's hours of work
- reevaluating one's expectations of work
- recalculating performance goals
- committing to an exercise program
- learning to say 'no' to excessive requests
- maintaining proper nutrition
- learning to relax more
- seeking professional help

It is, however, possible for a coach to suffer severe burnout and never be able to function again at a level that equated with their previous capacity.

Myth #6: Burnout is always work related

Each component of a coach's life - work, family, social and personal - needs to be addressed in assessing, preventing and treating burnout as each is inter-related and dependent on the other components. Stress in any of the four components is accumulative and potentially detrimental to a coach's well-being and happiness. Stress at work therefore should not be examined in isolation to the other areas of a coach's life.

CONCLUSION

Burnout is a reaction to chronic stress that manifests itself as a psychological, emotional and/or physical withdrawal from an activity which was previously enjoyed and completed efficiently. Coaches are prone to burnout as are athletes, administrators, sports trainers and other individuals involved in sport. As such, coaches need to be on the alert and equipped with coping strategies to prevent and combat this potentially debilitating condition. Coaches should develop their self-awareness and be attentive to changes in their responses to conditions at work and in other aspects of their life. Burnout can be avoided, or its effects minimised, so that coaches can continue to undertake and enjoy their profession over many years.

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Working With Elderly Players

By David Sanz Rivas

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INTRODUCTION

This proposed programme is aimed at the elderly, to offer them the possibility of practicing tennis, as a form of improving their health. This article is not attempting to set directives, but to offer guidelines to tennis coaches and professionals which may take the opportunity to work with this group.

We believe that at present the elderly form a social category which can not be ignored, due to the increase in numbers resulting from the continued aging of the population. In western countries, societies are progressively getting older. The increases in life expectancy together with the decrease in birth rate are the main causes of the proportional increase in the number of elderly people. In Spain, the population of people over 65 years of age increased from 3.1% in 1900 to 11.3% in 1985; it then increased a further ~5% between 1985 and the year 2000. Not all senior citizens, the majority of which are restricted to indoor activities, live this forced resting period in the same way. In reality, this period is a reflection of previous life experiences, work and educational background.

The aging process affects different systems: cardiovascular (arteriosclerosis, increase in blood pressure), respiratory (decrease in lung capacity, bronchitis, etc.), loco-motor and nervous system. These last two deserve special attention because of their direct implication on physical activity. Accordingly, we can highlight the following points concerning the loco-motor system:

- bone tissue difficulties in producing calcium, which results in bones becoming fragile and prone to fractures
- loss of joint elasticity
- degenerative processes appear in the joints (arthritis, muscle atrophy, pain, etc.)
- 90% of the people over 70 years of age have some sort of joint complaint
- intervertebral disc degeneration starts at the age of 60
- the loss of tissue exceeds fat deposits resulting in weight loss; for example, somebody who at 20 years old weighs 70kg will have 15% fat, and at 75 years will weigh 75kg and have 30% fat
- progressive "shrinking" of the body

Regarding the nervous system, it is important to note that the deterioration of the nervous system is just as significant as the degeneration of the loco-motor system due to aging. The deterioration of the nervous system will have a direct influence on the ability to complete physical activities, due to

the following:

- decrease in the weight of the brain
- slight atrophy of the brain (reduction in the number of neurons)
- deterioration of reflexes
- difficulty in coordination, balance, orientation, language and generally responding immediately to stimuli which arise
- due to the decrease in the blood flow to the brain, changes in behaviour may become apparent
- decrease in learning capacity
- memory loss and increased lack of concentration

The aforementioned factors should be taken into account when designing a tennis programme, adapted to the elderly.

A tennis programme should contribute to an increased quality of life for participants whilst providing them with the opportunity to learn and practice a sporting activity. The benefits which can be achieved through tennis, and this kind of sporting activity in general, are numerous, amongst which we can highlight the following:

- exercise favours heart strength and vigour
- it slows down muscle atrophy and delays decreases in strength, power and muscular tone
- it delays the appearance of postural problems and arthritis
- it prevents osteoporosis
- it helps fight lung disease
- increases vital abilities
- improves human relationships
- improves health, solidarity and happiness
- it improves the ability to socialise and peoples attitude to dealing with different situations
- it favours the performance of the CNS, stimulates reflexes, coordination and balance, as well as personal independence

One should also consider that physical activity and sports are not good for you just because you practice them, but rather, in order to gain the potential benefits, one must know how to perform them correctly.

When offering a specific physical activity programme for this age group, the programme should allow participants to achieve the following goals:

- maintain physical autonomy
- cultivate new social relationships

- have fun in a recreational environment which will lead to physical relaxation and the pleasure of physical movement
- learn specific sports techniques
- know how and possibly be able to play tennis

IMPLEMENTATION OF A TENNIS PROGRAMME

This proposed programme has been implemented as an annual tennis programme for the elderly with a local council in Spain. Prior to its implementation there was previously no specific tennis programme which took this group into consideration. Regarding the activities there are no specific recommendations of exercises that must be included in a tennis programme for the elderly. In fact tennis offers a wide range of possibilities, from familiarisation to the perfection of technique.

Accordingly, we decided to work on and develop a teaching-learning process adapted to the demands and requirements of this group. The main objective was to contribute to the improvement of health through participation in a recreational and fun activity, which in this case was tennis.

Objectives

Generally speaking, the objectives achieved by participants in the tennis programme were:

General Objectives

- improved health
- increased quality of life
- a lessening in the progressive deterioration of the body
- general physical improvement
- improved social integration
- improved socialisation and communication skills
- prevention of a sedentary lifestyle
- encouraged hygiene habits
- practiced a useful, recreational and gratifying physical activity

Specific Objectives

- improved nerve function as the base for intellectual processes
- improved coordinative abilities
- learnt tennis fundamentals
- accomplished the achievement of rallies
- optimised their ability to manage movement, time and space
- integrated opponent-partner rallies as a reference of success

Contents

The contents of the programme were:

1. Ball games
2. Racquet games
3. Ball and racquet games
4. Developing the ability to rally
5. Overcoming obstacles
6. Management of movement, space and time (own, opponent)

Methodology

Independently from the method applied (production-reproduction) other teaching methodologies and characteristics utilised included:

- activities were presented progressively
- well known exercises were performed first, moving onto other more difficult, less common exercises at a later stage.
- exercises progressed from easy exercises to more difficult ones, from simple ones to more complex ones
- few repetitions of the exercises were carried out
- exercises were varied
- activities were carried out gently, without much effort and without pain
- attention was paid to maintaining correct posture
- special attention was given to changes in posture
- time was dedicated to correcting, commenting and informing
- parallel activities were suggested for those who could not carry out the stipulated exercise
- training plan for each session was followed
- being authentic, being "oneself"
- patience

Outcomes

To summarise the outcomes of the programme in a few main points it can be concluded that:

- activity was well received
- staff satisfaction was high
- the elderly are an extremely gratifying group of people to work with
- it achieved the proposed objectives
- it increased demand for future campaigns
- people undertook independent practice, without the teacher's presence, once the course had finished

Recommendations

With respect to adjustments that should be taken into account during the intervention, from our experience we offer the following recommendations:

- reduce the size of the court
- emphasise the instructions clearly, using different communication channels if necessary (visual, auditory, kinesthetic, etc.)
- be very clear when giving safety instructions (space required, movement, execution, etc.)
- adjust the equipment (balls, racquets, net height, etc.)
- utilise activities that develop nerve functions as the biological basis of intellectual processes (observation, memory, attention, concentration)
- pay attention to the individualities of the group
- maintain a close teacher- student relationship
- use easily understood terms, refraining from technical jargon
- allow recreational aspects to dominate over "performance"
- maintain a flexible programme that adapts to individual needs

- plan the sessions to ensure success
- respect the principles of progression, simple to complex and from easy levels to more difficult
- utilise different pieces of equipment to vary exercises and situations
- promote working with others (pairs, groups, etc.)
- maintain a motivating and encouraging attitude

CONCLUSION

It is important when working with the elderly to focus on improving physical aspects in general, paying special attention to the state of their health and their mental development, helping them to view old age as a new vital condition, not an illness. By offering senior citizens a tennis programme, we can help them to enjoy a better quality of life.

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Coaching a Team

By Mark Bullock (ITF Wheelchair Tennis Development Officer)

THE ROLE OF THE COACH AT THE INVACARE WORLD TEAM CUP OR SIMILAR TEAM EVENT

The role of the coach at the Invacare World Team Cup is a vital one as it can have a great influence on the outcome of each tie. National Associations should carefully select the coach choosing a suitably qualified and experienced person with wheelchair tennis experience.

In some instances it is beneficial for the National Association to send a second coach. The role of the assistant will be minor, however the environment will provide them with many learning opportunities and it would be a great coach education exercise. Countries that have participants in the men's, women's, quad's and junior's events

could appoint a team of coaches who can work together to share their experience and knowledge.

TEAM SELECTION PRIOR TO THE EVENT

The team coach should be on the selection panel and their views should be considered carefully as they are responsible of the management and selection of the team during the event. Many nations have a structured selection process in place. This is recommended as both coach and players are fully aware of the selection process and what is required from a team member. The Invacare World Team Cup is a combination of singles and doubles so this should be taken into account when selecting the team. Furthermore, the ability of a player to

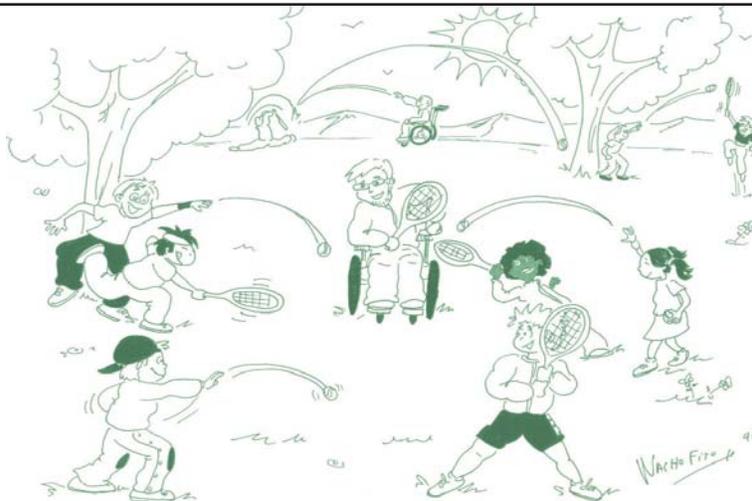
contribute to team spirit should be considered as should the number of players. Nations also need to consider whether to take three or four players as part of the team. The third and fourth players may not get the opportunity to play so consideration needs to be given to how they may react to this situation and what role they can play for the team off-court.

TRAINING OF THE TEAM

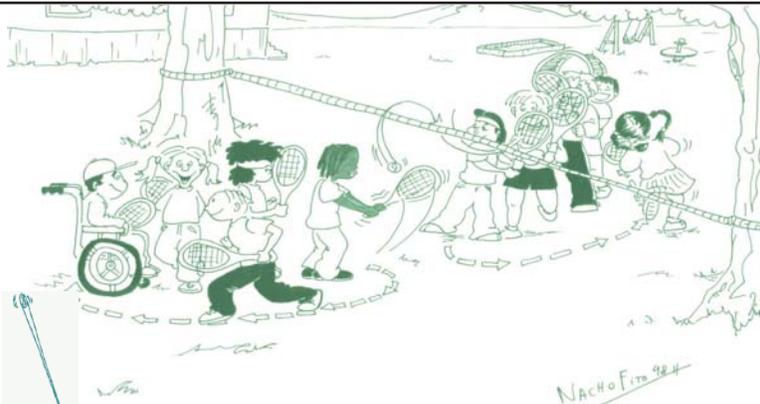
It is imperative that the team coach is involved in the training of the players prior to the event. The on-court coach-player interaction at the Invacare World Team Cup is extremely important. The player and coach must have built a good relationship before the event for the partnership to be

2 ONE HOUR LESSONS FOR CHILDREN 5 - 8 YRS OLD

| | |
|------------------------|---|
| LESSON 29 | Theme: RECEIVING, PROPELLING, COMPETING AND MOVING |
| Objective | To make it difficult for an opponent to return a ball tossed into his court. |
| Warm up | <u>Blocking on the fence:</u> Students form in pairs. One student lets the ball bounce and the other has to block it on the fence after the bounce. Try to block at different heights, etc. |
| Games/Exercises | <u>Move and hit:</u> Students are in 2's. One feeder and one hitter. The feeder has to feed the ball to the hitter making it difficult for him to return the ball within a given area. |
| Variations | Throwing the ball with hand, over an obstacle, varying the method of throwing, opponent uses the racket to return the ball, etc. |

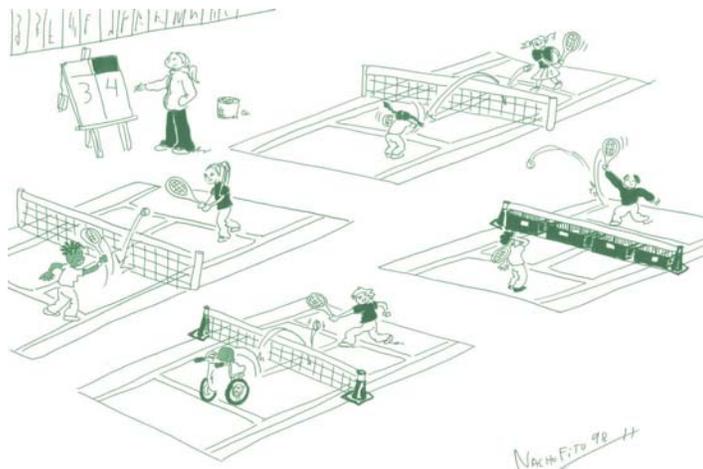


| | |
|------------------------|---|
| LESSON 30 | Theme: RECEIVING, PROPELLING, COMPETING AND MOVING |
| Objective | To make it difficult for an opponent to return a ball hit into his court. |
| Warm up | <u>The fountain:</u> Teacher has one ball on each hand with both arms extended. At a signal he releases one of both balls. A student who is facing the teacher has to touch the ball with his racket before it bounces twice. |
| Games/Exercises | <u>Around the world:</u> Students are divided into two teams. They play over the net or an obstacle. Each student hits once and runs to the other side of the court and goes back to the end of the line. |
| Variations | Throwing the ball with racket, over an obstacle, varying the method of throwing, opponent uses the racket to return the ball. Rally, etc. |

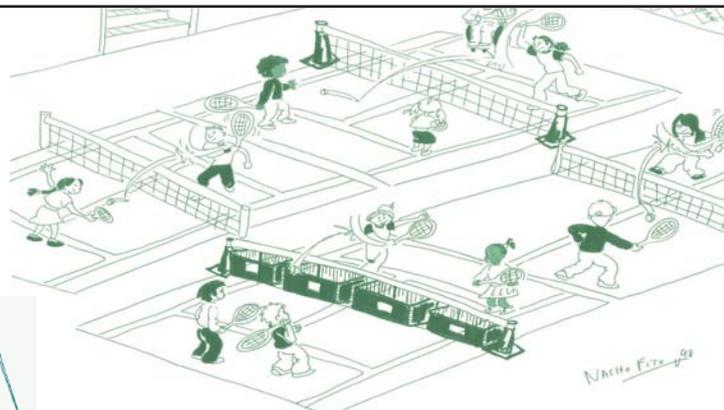


2 ONE HOUR LESSONS FOR CHILDREN 8 - 10 YRS OLD

| | |
|------------------------|---|
| LESSON 29 | Theme: SINGLES COMPETITION |
| Objective | To provide a fun oriented competitive activity for all students in the group. |
| Warm up | <u>Stretch:</u> Hands reach for the sky and then down to the toes, arms circles forward and backward, roll the neck left and right, circle wrists. |
| Games/Exercises | <u>Singles:</u> Students are divided in different teams. A competition is organised so that they have to play several singles matches. Total points earned by each team are added at the end. |
| Variations | While in a competitive setting: concentration, tolerance to error, sportsmanship, best personal effort, etc. |



| | |
|------------------------|--|
| LESSON 30 | Theme: SINGLES AND DOUBLES COMPETITION |
| Objective | To provide a fun oriented competitive activity for all students in the group. |
| Warm up | <u>Jog and stretch:</u> Jog around for 3 minutes, Standing circle arms backward and forward, Standing legs apart, body twists with arms held at shoulder level, Lunging each side, form ready position, lunge forward toward your left with your right foot (left foot remains stationary), knees bent, return to ready position, lunge forward toward your right with your left foot. |
| Games/Exercises | <u>Singles and doubles:</u> Students are divided in different teams. A competition is organised so that they have to play several singles and doubles matches. Total points earned by each team are added at the end. |
| Variations | While in a competitive setting: concentration, tolerance to error, sportsmanship, best personal effort, etc. |



successful. Furthermore, the training should be specific to the event with doubles training and practice matches being played with the team coach on court. Spectator participation and support is often vocal at the Invacare World Team Cup so players should practise with fellow team members applauding and cheering, for and against the players, to simulate the competition environment. It is also important that the team trains on the same court surface as the event.

TEAM BUILDING PRIOR TO, AND DURING, THE EVENT

Building team spirit prior to and during the event is central to the success of the team. A positive team spirit can be achieved in a number of ways. For example, certain teams always have the evening meal together during the event. It should also involve players supporting each others matches. This can be complex for nations that have teams where there are teams within teams, i.e. quad's, junior's, men's and women's teams making up a national team. All members of the team should understand what is required of them prior to the event and make a commitment to fulfil these requirements.

RECONNAISSANCE OF SITE ON ARRIVAL

On arrival at the venue the coach should find out which courts are for matches, which are for practice and how to book practice courts. Additionally, the coach should ascertain how the transport will function, where the repair station is, and whether there is a racket stringer on site. Some of these tasks can be delegated to the assistant coach or if there is no assistant to the 3rd and 4th players who may take on the role of the assistant coach depending on the situation.

The better prepared the coach and the team are the more energy they will have to focus on achieving the tennis related goals set for the event.

ACT AS TEAM MANAGER DURING THE EVENT

Nations sending a small team can utilise an experienced coach as a manager. This reduces the need to send an extra official and can help save the nation money. The coach can report back to the relevant parties on their return.

ATTEND MEETINGS

The coach should attend any meetings that are required in order to ensure the team is fully informed.

ATTENDING FUNCTIONS WITH OR ON BEHALF OF THE TEAM

Many events have official functions. It may be appropriate that the players relax in the evening so the coach is often the person who represents their nation at these events.

BOOKING TRANSPORT FOR THE TEAM

The coach should be familiar with the transport system to ensure that the team arrives early at the event or practice venue. Sometimes there is a continuous shuttle, sometimes there is a timetable and in other cases teams are required to book transport. Therefore, the coach should know which system is in place, the name of the person in charge their contact number.

ORGANISING PRACTICE DURING THE EVENT

It is important that the coach carefully plans the practice requirements of the team. Potential limitations encountered with regard to scheduling practice at the Invacare World Team Cup and similar events are:

- practice courts are often located at a different venue
- competing teams may share the match court immediately prior to the tie commencing in the morning
- practice on the match court is restricted to 30 minutes

DAILY TEAM SELECTION DURING THE EVENT

During the event the coach is responsible for selecting the team for a particular tie. At the Invacare World Team Cup this involves selecting two singles players and a doubles team.

ON-COURT ROLE DURING MATCHES

At the Invacare World Team Cup the coach sits on court and is able to give advice at change of ends, including between sets. To be effective the coach needs to understand the players very well. The coach can have a very positive influence and motivate a player to a great victory or a coach can in fact have the opposite influence if there is a lack of understanding between the player and coach.

ENSURE THAT PLAYERS ARE ENCOURAGED TO USE THEIR FREE TIME IN A CONSTRUCTIVE MANNER

During the event there can be a lot of dead time for the players. It is essential that the coach provides an environment where the players can relax and use their free time in a constructive way. Players should be encouraged to have MP3 players, hand held video games, books etc. While the coach can suggest activities for the players to complete they still need to respect that players like to relax in different ways.

UNDERTAKE A DEBRIEF AT THE END OF THE EVENT

To ensure that improvements are made for future competitions the coach should undertake a debrief with fellow coaches and players. This process should cover all aspects of the event including both positives and negatives related to:

- team selection
- team spirit during the event
- team and individual performance
- coach performance
- the facilities and running of the event including accommodation and transport, etc.

COMPILE A REPORT

After the debrief each coach should write a report for the National Association covering the aspects discussed in the debrief but giving their own personal opinion.

ANY OTHER DUTIES AS REQUIRED!

The role of the coach is a complex and varied one which may involve many duties. The Invacare World Team Cup is a great opportunity for coaches to learn and interact with other coaches. Coaches Workshops are held to give coaches a chance to increase their knowledge but of equal importance is the chance to interact with colleagues off the court.



To communicate effectively with players during the change-over the coach needs to understand the players very well.

Variations in Glucaeemia and Seric Electrolyte Levels When Consuming a High Energy Recovery Beverage During Tennis Matchplay

By M. González ^{1&2}, J. López², A. Martínez², A. Luque², M. L. Vidal³, J. Alemán^{1&4} and J.A. Villegas^{1&4} (1 Murcia Tennis Fed. 2 Dept. Ex. Physiology, Catholic Univ. S. Antonio. 3 Hero Spain. 4 Research & Eval. Centre for the Athletes' Health.)

INTRODUCTION

There are a number of factors that sports beverages attempt to control and/or assist with during and after exercise: 1) rehydration; 2) replenishment of ions; and 3) the ingestion of fast assimilation carbohydrates. Consequently, the goals of a sports beverage are to help: 1) overcome/prevent dehydration during exercise; 2) reduce the loss of ions (mainly sodium); and 3) maintain blood glucose levels.

The most unfavourable of the aforementioned factors for sports performance is dehydration since it can put the life of the athlete at risk (Murray, 1992). Sodium is the main extra-cellular cation (positive-ion) and the regulator of the osmotic pressure. Armstrong et al. (1987) reported that a normal diet does not provide enough sodium for the vast majority of athletes. The loss of sodium through sweat is very low and varies according to the level of acclimatisation. However, after several hours of this process, the elimination of sodium can be significant and become a potential danger.

Potassium is the more abundant cation in the intracellular space. During physical activity it increases in plasma and decreases in the intracellular space. Brotherhood (1984), analysed the mean values of potassium in sweat, and reported that sweating is not a possible cause of potassium deficit, but muscular injuries during intensive exercise can be. However, if we think of intense and repeated bouts of sweating, a potassium deficit caused by sweat could be possible.

It is well known that muscular fatigue caused during long duration intense exercise is caused mainly by the depletion of carbohydrates. Accordingly, the ingestion of carbohydrates during exercise should improve sports performance (Tsintzas & Williams, 1998). This improvement would be caused by the increase in circulating glucose and its intense oxidation when the muscle glycogen concentration has been reduced.

AIMS

The main aim of our research is to demonstrate that the ingestion of a high energy hydro-electrolytic recovery beverage during 90 minutes of tennis match play can maintain adequate blood glucose and seric electrolyte levels.

MATERIAL AND METHOD

Sample: 5 tennis players that compete in national and international competitions aged between 17 and 21 years.

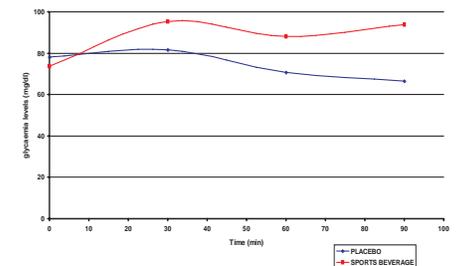
Method: Each player played 2 best of 3 set, un-official, matches with a maximum duration of 90 minutes and with 90 sec. rest during changeovers. Matches were played on clay courts with a 1-week interval between testing sessions in sunny conditions with temperatures around 21° C. In one match the player consumed the recovery beverage (table 1) and in the other match, the placebo. Immediately prior to the match players consumed 330 ml and then during match play they consumed the beverage at a rate of 330 ml each 20 minutes, which was distributed evenly during the changeovers (total consumption 1,650 ml). The beverage was consumed at a temperature of 14.0 + 1.3° C. Blood samples were taken (135 microlitres) from 2 capillaries (35 and 100 microlitres) in the ear lobe that were punctured with a blade, to study lactate levels, seric electrolytes (sodium, potassium, chlorine and calcium), pH and capillary glycaemia. The samples were taken at 0, ~30, ~60 and ~90 minutes, during the changeover so the match was not stopped.

| Ingredients | % |
|---------------------------------|---------|
| Water | 67.05 |
| Fruit (orange, mandarin, lemon) | 19.7 |
| Maltodextrin | 12.00 |
| Pectin | 0.36 |
| Trisodium Citrate dihydrate | 0.34 |
| Protein of lactic serum | 0.25 |
| Citric Acid | 0.12 |
| Sodium Chloride | 0.06 |
| Vitamin C | 0.04 |
| Sodium Cyclamate | 0.015 |
| Orange flavour | 0.012 |
| Sodium sacarin e | 0.0015 |
| Vitamin B1 | 0.00046 |
| Total (g) | 100 |

Table 1. Chemical composition of the high energy recovery beverage. It contains 15% carbohydrates, in the form of fruit (orange, mandarin and lemon) and maltodextrin, protein of lactic serum (0.3%), vitamin C (66% of RDD), vitamin B1 (15% of RDD), sweeteners and aroma.

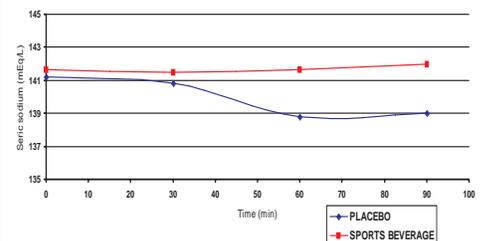
RESULTS

• **Glycaemia (graph 1):** an increase in the seric levels of glucose was produced with time ($p < 0.05$), when players consumed the recovery beverage. However, when players consumed the placebo beverage a significant decrease was shown ($p < 0.05$). In 40% of placebo trials glycaemia levels were lower than the physiological acceptable ranges at the end of the match. When comparing glycaemia levels between the 2 beverages significant differences were observed ($p < 0.01$) at 30, 60 and 90 minutes.



Graph 1: Evolution of the glycaemia levels with the consumption of different beverages (placebo or recovery) during match play.

• **Natraemia (graph 2):** when players consumed the recovery beverage no differences were observed in the temporal evolution but when consuming the placebo, a reduction of seric levels through time was observed ($p < 0.05$). When comparing differences between the two beverages, significant differences were observed at 60 and 90 minutes ($p < 0.03$).



Graph 2: Evolution of the levels of seric sodium with the consumption of different beverages (placebo or recovery beverage) during match play.

• **Potassemia, pH and lactate:** the seric levels of these metabolites do not show differences in the temporal evolution or in the comparison between beverages.

DISCUSSION

Tennis players are able to regulate body temperature through the evaporation of sweat which results in the loss of water and electrolytes (principally sodium). Bergeron and colleagues (1995) showed that when this loss is great, it can cause premature fatigue, reduce performance, and increase the potential danger of heat stress. These authors stated that all these problems can be minimised with the ingestion of recovery beverages during tennis match play or practice. They also recommended the consumption of carbohydrates during physical activity that is more than one hour in duration.

Bergeron (2003) concluded that sodium losses due to sweat loss during tennis match play in hot environmental conditions can be the most frequent cause of cramps suffered by tennis players. In our research, it was shown that the consumption of a recovery beverage during tennis match play can maintain the seric levels of sodium while minimising the losses due to sweat.

However, the literature does not justify the presence of potassium in recovery beverages unless the physical activity is longer than 3 hours (Murray, 1992; Gisolfi & Ducham, 1992). The beverage in our study contained only a minimal quantity of potassium as it was a fruit juice. We did not observe Kaliemia variations when our beverage was consumed, or differences to the placebo. Therefore, we can conclude that potassium was not required to maintain seric levels and that the low quantity of potassium provided by the beverage in our study does not modify the seric levels.

Many studies confirm the onset of hypoglycaemia during training or matchplay

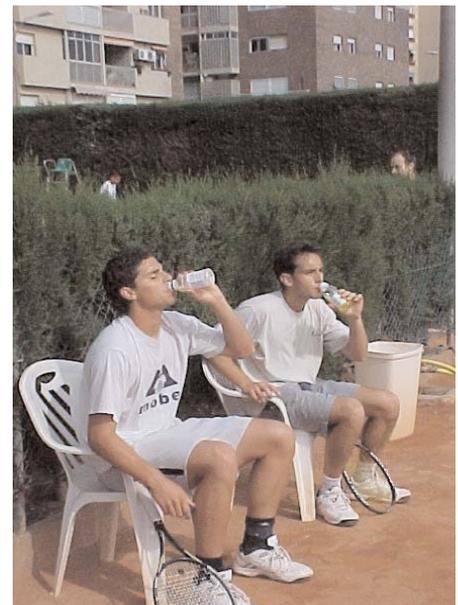
in players that do not consume recovery beverages (Ferrauti, et al., 2003). Maintenance of euglycaemia in matches longer than 2 hours is vital to maintain tennis performance. In shorter matches, there are no relevant studies that demonstrate an improvement in performance due to the consumption of carbohydrates during physical activity; however, studies do indicate that the consumption of these substances during exercise has a positive effect on blood borne parameters. In our study, the players did not only maintain levels of seric glucose when consuming the recovery beverage, but they actually increased them, which contrasts what occurred when the placebo was consumed resulting in a decrease in blood glucose causing the concurrent physiological compromise.

CONCLUSIONS

The consumption of a high energy beverage with adequate sodium levels during tennis match play contributes not only to the maintenance but to an increase of glycaemia levels, avoids the decrease of natremia and does not modify the pH, lactate and seric potassium levels.

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The consumption of a high energy beverage with adequate sodium levels during tennis match play is beneficial.

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Anatomy of a High Performance Warm-Up

By Carl Petersen

(Partner and Director of High Performance Training, City Sports and Physiotherapy Clinics, Canada)

A dynamic warm up for the upper core (torso and shoulders) and lower core (pelvis and hips) is important to allow for good stability and minimise the chance of injury. A dynamic warm up is the activity of choice before playing as it allows you to gradually warm up the body tissues in preparation for on court activities.

Tennis requires quick movements that pass through many planes of motion and use numerous joints and muscles at the same time. Warming the body up before beginning to play ensures the muscles are prepared for action and can adequately accelerate and decelerate your limbs. Whether you are training hard or just out for some fun

doubles, following the advice below will help you stay Fit to Play.

ALWAYS WARM UP TO PLAY OR PRACTICE, DON'T PLAY TO WARM UP

One of the main contributors to injury in the club player is the complete absence of any Pre-Play Warm-Up Routine (Petersen, 2006). Therefore, some form of general warm-up should be done before hitting a single ball. Slowly but methodically warming the body tissues helps prevent injuries that may be caused by going too hard, too fast, too soon with cold, un-lubricated muscles and joints. Start with an easy jog around the outside of the court and add in some crossovers and side shuffles.

LOWER CORE WARM-UP (LOW BACK, HIP & LEG)

As you jog around the court add in some high knees, high heels, skipping, crossovers and side shuffle steps to improve coordination and add to the warm-up. Stand tall and keep your core muscles activated at a low to moderate level while doing these exercises. Try doing 5-10 meters of each, 2-4 times.

UPPER CORE & SHOULDER WARM-UP

A proper warm-up prepares the muscles you will use in training and prepares the joints for movement and dynamic stability throughout a full range of motion. Tennis specific movements help improve the relaxation-contraction coordination of the joints' prime

movers and stabilisers leading to more efficient movement and performance.

Try doing 10 repetitions of shoulder shrugs, arm swings and thread the needle rotation exercises. These warm-ups will help to get the correct muscle sequence firing, stabilise the shoulder girdle and lubricate the joints.

Arm swings

Stand tall with shoulders relaxed and down. Do 1-2 sets of 6-10 repetitions of arm swings going both clockwise and counter clockwise to warm up the rotator cuff muscles and lubricate the shoulder joint. You can also add in a figure of 8 motion as well.

Thread the needle

Stand with feet shoulder width apart and knees bent, bend the torso forward and place one hand on your knee. Now take the opposite hand and place it through the opening between your arm and leg. Next rotate your arm and torso towards the sky. Do 1-2 sets of 6-10 repetitions each side to warm up the spinal muscles and joints.



Push-ups

Leaning against a solid support like a wall, umpire's chair or fence do some push ups. Do 2 sets of 6-10 repetitions with different hand positions. Try narrow, medium and wide hand positions to work different muscle groups.

Shoulder exercises with a stretch cord

To help improve the function and control of your upper core (scapula & shoulder) use your stretch cord and do 'shoulder alphabet' exercises by making your arms form the letters I, T & W.

Letter I

Stand next to the net or fence with feet shoulder width apart and knees slightly bent. Place a light stretch cord around a solid anchor and hold onto each end. Start with arms out in front and keep elbows straight and pull the stretch cord down until hands are by side of thighs and you look like the letter I.

Letter T

Stand next to the net or fence with feet shoulder width apart and knees slightly bent. Place a light stretch cord around a solid anchor and hold onto each end. Start with arms out in front and keep elbows straight and pull the stretch cord to the side below shoulder height until hands are in line with your torso and you look like the letter T.

Letter W

Stand next to the net or fence with feet shoulder width apart and knees slightly bent. Place a light stretch cord around a solid anchor and hold onto each end. Start with arms out and elbows at your side and pull the stretch cord to the side until hands are in line with your shoulders and you look like the letter W.



BALANCE WARM-UP (ANKLE, KNEE & HIP)

Hold onto the fence or net and further warm-up the lower core with leg swings front and back, side to side and figure of 8's. Try 5-10 repetitions of each.

SPEED WARM-UP

Here is a speed warm up that will help trigger your central nervous system (CNS). Do running on the spot 'sewing machines' for 6-8 seconds, 3 times at a medium tempo (60% of full speed). Follow these with 2-3 sets of 'sewing machine' with accelerations up to 80% of full speed.

MUSCLE TENDON WARM-UP

You need to warm up the muscles and tendons as well. One of the best ways of doing this is to combine ricochet jumps and alternating lunges.

Ricochet jumps are done on the spot as follows:

- 2 x 20 jumps at personal rhythm
- 2 x 20 as fast as possible (minimum ground contact time)

Alternating lunges are done on the spot. Gradually increase depth of lunge (don't go past 90 degrees), keep knee lined up over toes. Try 2-3 sets of 10 repetitions.

POST PLAY CONFORM STRETCHING

A dynamic warm-up is the best activity before playing. However, once you have finished playing you can do some gentle conform stretches to maintain muscle length or stretch out muscles that have tightened up. A recent study showed that static stretches prior to exercise did not prevent lower extremity overuse injuries, but additional stretches after training and before bed resulted in 50% fewer injuries (Hartig & Henderson, 1999). These types of stretches are not aggressive enough to tear tight muscle fibres. Hold the stretches for 15 - 20 seconds at the point of tension only (never pain).

Pectoral stretch

Stand next to a fence or wall with feet shoulder width apart and slightly knees bent. Place one elbow against fence at below shoulder height and push shoulder forward to get a stretch in the pectoral (chest) muscles. Do 2-3 per side holding each for 15-20 seconds.

Forearm stretch

Stand with feet shoulder width apart and knees slightly bent. Straighten the arm to be stretched out in front and point the thumb down to the ground. Grasp your hand below the wrist with opposite hand and apply pressure towards you to stretch the forearm extensor muscles. Do 2-3 per side holding each for 15-20 seconds.

Seated gluteal stretch

Sitting cross ankle over knee and lean forward until tension is felt in the buttock.



Quadriceps stretch

Stand tall holding onto something for balance with one foot up on a chair or bench behind you. Bend stance leg slightly until a stretch is felt in the quadriceps muscle.

COOL DOWN & RECOVERY WORKOUT

After you finish playing use a gradual cool down to take your body back to its resting state and clear lactic acid and other waste products from the muscles. Past research studies suggest that light aerobic exercise following anaerobic training, such as sprints, might facilitate recovery of force or speed/power by increasing lactic acid removal (Signorile, et al., 1993). Try going for a fast 15-20 minute walk, spinning on an exercise bike with no resistance or do a light pool workout.

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Tennis is a Mental Game - Part One

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"I was thinking of an important match last night. I visualised how that match was going to be and this helped me fall asleep. I had a court in my mind and I could see every point. I played the points in my mind exactly the way I wanted them to be the next day" (Chris Evert).

Players and experts are surprised with the fact that nearly 80% of playing time is spent on things other than just hitting the ball to win a point. A lot of time is taken up changing ends, in the intervals between games, between points and thinking. However, during training, players rarely use 70 or 80% of the time to mentally prepare themselves.

"The mental aspect of tennis is very important. I have worked a lot in this area and the results are starting to flourish" (Feliciano López, member of the Spanish Davis Cup Team).

Tennis is a complex sport, which does not only depend on talent and physical potential, as well as technical tactical skills, but also on psychological abilities such as emotional control and mental strength. The mental aspect of tennis is so important that Jimmy Connors once said that, at professional levels, tennis is 95% a mind game.

"I want to be number one at the end of the year. I know it's difficult, but I am preparing myself mentally and working hard" (Marat Safin).

When two players with similar potential and technical-tactical skills come up against each other, the result of the match is often determined by psychological factors such as self-confidence, determination, willpower and concentration.

"They all end up frustrated; they have difficulties on the court. It's a mental game. Two minds battling against each other" (Marat Safin).

Part of mental training consists of visualising, in an organised way, repeatedly and consciously, all motor skills, techniques and strategies, in order to improve two things: movements and situations. By movements we refer to the specific motor skills which are necessary for tennis (for example: the serve). By situations we are referring to the different tactics and strategies that occur during a match (for example: approaching the net).

"Carrying out psychological work is of fundamental importance, because if players do it during training, they will remember it

during the match" (Larri Pasos).

Here are some suggestions of mental routines which can be carried out before, during and after the matches:

1. Before the match (mental pre-game)

- Mental warm-up: Visualise strokes or images where you succeed.
- Come up with a strategic mental plan of the game ("mental game plan") analysing the opponent's strengths and weaknesses.

2. During the match (mental game)

- Observe and analyse the technical-tactical behaviour of your opponent (their strengths and weaknesses).
- Anticipate the strokes, movements and patterns of play of your opponent.
- Take the initiative and make fast and efficient decisions.
- Concentrate before each serve.

3. After the match (mental revision)

- Mentally evaluate the game in general: behaviour in certain situations, game strategies, emotional control, etc.
- Evaluate the opponent's strengths and weaknesses
- Evaluate one's own strengths and weaknesses and come up with a strategy to improve on any weaknesses.
- Reach important conclusions for mental aptitude training and for the next match, with the aim of optimising strategic thinking.

All these mental routines can be acquired and perfected through systematic mental training with the help of a sport's psychologist and in collaboration with a responsible trainer.

"If I don't train the way I should, then I won't play the way I know I can" (Ivan Lendl).

PSYCHOLOGICAL PROFILE OF A TENNIS PLAYER: BASIC PSYCHOLOGICAL ABILITIES AND SKILLS

Although we know that physical, technical and tactical factors are essential for the appropriate development of a great tennis player, we must not forget that the psychological aspect must be trained and perfected in the same way.

"It is not just about playing tennis, the mental part plays a very important role. Tennis is not just about hitting the ball over the net, serving or volleying; it is much more than that; you need to use your head" (Marat Safin).

A successful tennis player is born from the combination of these factors (physical, technical-tactical and mental) in conjunction with natural talent. In the same way as with the development of the other factors previously mentioned, the capacity of understanding and learning mental skills varies from one player to another.

Here are some fundamental skills which characterise a winning tennis player.

Anticipation: is the ability to plan objectives, foresee actions (technical and tactical), results and consequences. Tennis is not only a game of reaction but mainly of anticipation and intelligence. Players must learn to anticipate their opponent's movements, strokes and game play (by reading their body language). Depending on this, the player can also better anticipate and initiate their own actions.

Attention: generally understood as a selective, active, intensive and directed state of one's own perceptions. The main objective is to attend to relevant stimuli and block out any negative thoughts. In tennis, relevant stimuli, amongst others, are: game strategy, opponent's positioning and movements, keeping visual control of the ball and situations in which decisions need to be taken (for example: tie-breaks). A tennis specific attention characteristic is that of being able to maintain one's concentration on the relevant stimuli during the appropriate amount of time.

Positive attitude/Winning attitude: is directly related to self-confidence. It is based on expectations, beliefs, thoughts and positive images, which are manifested through positive behaviour such as: gestures, posture, verbalisation, expression, positive body language, etc. A winner always walks onto the tennis court with a winning attitude and always believes in his own victory.

Self-confidence: is a player's conviction that he can do things well in whatever situation and at anytime. It is defined by: confidence in one's own talent and potential, strokes, physical condition, mental strength, determination, persistence, etc.

Self-motivation: is the ability of motivating oneself and positively reinforcing oneself during training and matches, and being able to overcome difficult situations. There are different methods of self-motivation (Samulski, 2002): 1) cognitive techniques: self-motivation through mental processes

such as perception, visualisation and memorising, 2) motor skill techniques: self-activation through movement, exercise and behaviours, 3) emotional techniques: self-stimulation through positive emotions like happiness and pleasure, the "flow" and the sensation of winning.

Self-verbalisation: is the ability to control behaviour during the match through verbal instructions (Come on!!), remain focused by means of talking to oneself (I must attack my opponent's weaknesses!!). It has two functions: helping to motivate the player during the match (for example: in a difficult situation) or to calm down and remain composed throughout the match.

Communication: is essential when exchanging information with coaches and communicating effectively with your doubles partner. Interpersonal relationships are established due to the sharing of attitudes, thoughts, objectives, strategies and behaviours. During a doubles match, communication can be verbal (e.g., verbal

instructions and conversation) and non verbal (e.g. gestures, body language and behaviour).

Concentration: is the ability to focus on a specific object (tennis ball, racquet, etc.) or action (serve, attacking strategy). In tennis, the player needs to learn to concentrate on the actual moment, on the action that needs to be carried out, blocking out any other external stimuli which may intervene in the execution of the action required (for example: the public's influence or the climate). This ability entails three basic skills: the ability of selecting the right stimulus in order to remain focused on it (the relevant stimulus), the ability of changing one's attention according to the situation (adaptation) and the ability of keeping one's attention and concentration (maintenance / endurance).

Emotional control: is the psychological ability of playing whilst keeping mental and emotional thoughts under control. The player must learn self-control techniques in order to

regulate his levels of anxiety and stress during the match and maintain an appropriate emotional balance at all times, especially when having to take important decisions. The tennis player must be able to deal efficiently with internal (demanding too much of oneself) and external (the pressure of winning on for coaches, sponsors, press, family, etc.) pressures.

Creativity: is the ability of a player to produce or come up with original, innovative and surprising technical-tactical techniques. Some of these characteristics can be trained, but exceptional players such as Kuerten, Federer and Nadal are extremely talented, with creativity and smart play being some of their distinctive traits.

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(To be continued in 2007)

New ITF Publication - Tennis Psychology: 200 + practical drills and the latest research

The ITF Tennis Development/Coaching Department announces the publication of its book ITF Tennis Psychology. Written by Miguel Crespo, Machar Reid and Ann Quinn, the publication covers the most important issues relating to the mental side of the game. Through a combination of sport science research and practical application in the field, the authors provide an insight into the psychological implications of tennis for players, coaches, parents and officials at all levels of the game.

ITF Tennis Psychology provides a detailed analysis of the mental challenges of the game. Complete with theoretical information and practical examples, this ITF publication reflects the ITFs ongoing role in making available the most up-to-date tennis-specific training information to players and coaches worldwide. Included are more than 200 on- and off- court practical drills and the latest research in the field.

"I think I may use some of the psych drills in this book!"

Marat Safin, former world number 1, Australian and US Open champion and 2 time Davis Cup winner.

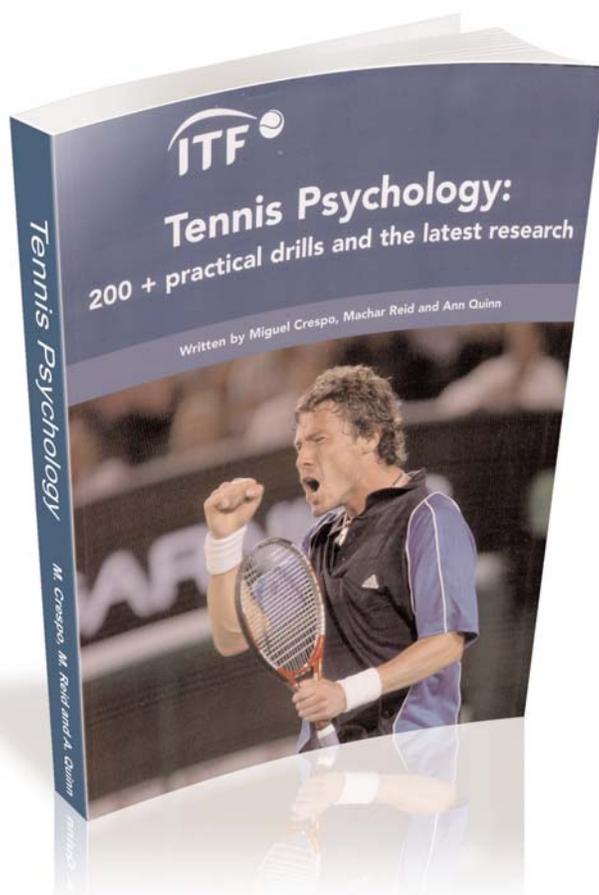
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Craig Tiley, Director of Player Development, Tennis Australia.

"The book does an excellent job of covering all the major areas of tennis psychology, integrating the latest research findings. Key points and coaching tips are highlighted throughout the text including drills and activities to incorporate in practices."

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