

EDITORIAL

Welcome to issue 18 of ITF Coaches Review. In this issue we include more details on the 11th ITF Worldwide Workshop which will be held in Casablanca, Morocco from the 1st - 7th November 1999. Please see inside for more information including the tentative programme. We hope to see you there!

This is a monographic issue of Coaches Review dedicated to women's tennis. In future issues, we will be dealing with other important subjects. Please feel free to suggest any topics you think may be interesting to cover in the future.

The ITF has recently appointed two new Development Officers. Richard Phelipa, from the Netherland Antilles, is the new ITF Zonal Development Officer for the Caribbean. Richard previously worked as Director of Coaching at the Netherland Antilles Tennis Association. Luca Santilli from Italy, is the new ITF/ETA Development Officer for Europe and is based in Rome. Luca previously worked as the person responsible for Junior Events at the Italian Tennis Federation. Contact details for the new ITF Development Officers can be found inside.

Francesco Ricci Bitti was elected as President of the ITF in July at the ITF Annual General Meeting in Holland. We would like to congratulate him whilst also paying tribute to his predecessor Brian Tobin, whose support of Development during his 8 year Presidency saw over \$32 million invested in this area between 1991 and 1999.

For your information, the ITF Tennis Participation Workshop will be held at the University of Bath in the year 2000. Further details will be made available in a future issue and via your National Association.

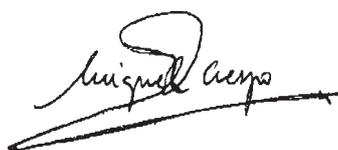
We hope that the articles in Coaches Review continue to generate a lot of discussion among coaches around the world. We would be happy to receive your comments on any of the articles and may decide to publish your letter in a future issue.

Once again we would like to thank all the coaches who have contributed articles for this issue of ITF Coaches Review. If you have any material that you deem relevant and worthy of inclusion in a future issue, please forward it to us for consideration.

We do hope you enjoy our 18th issue of Coaches Review.



Dave Miley
Executive Director, Development



Miguel Crespo
Research Officer, Development

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STRENGTHENING THE UPPER BACK IN TENNIS PLAYERS

by Todd S. Ellenbeker, Clinical Director, Physiotherapy Associates & Paul Roetert, Director of the American Sport Education Programme, a division of Human Kinetics (United States of America)

INTRODUCTION

One of the most common areas of weakness in both male and female tennis players is in the upper back. While research performed using sophisticated strength testing equipment has consistently demonstrated muscular weakness in this area, a lack of muscular development is often obvious through visual observation.

Figure 1 shows the muscles that span this region and support the upper back and shoulder blade (scapula). The primary muscles involved are the trapezius, rhomboids, levator scapulae, and serratus anterior. These muscles function to stabilize and rotate the scapula, and link the upper extremity to the spine. While it is common to see the dominant (tennis playing) shoulder be up to 1 to 2 inches (2-5cm.) lower than the non-racquet playing side, muscular weakness associated with this drooping shoulder is not desired.

Research has shown that tennis players typically have adequate strength in the front of the body (pectorals, deltoids, and bicep) but often lack proper strength in the upper back. Playing tennis helps to develop the muscles in the front of the body, but exercises to promote balance to the body are required and recommended to strengthen the upper back musculature. Adding these exercises to a player's training program is thought to not only prevent injury by promoting muscular balance, but also improve performance.

EXERCISE SPECIFICS

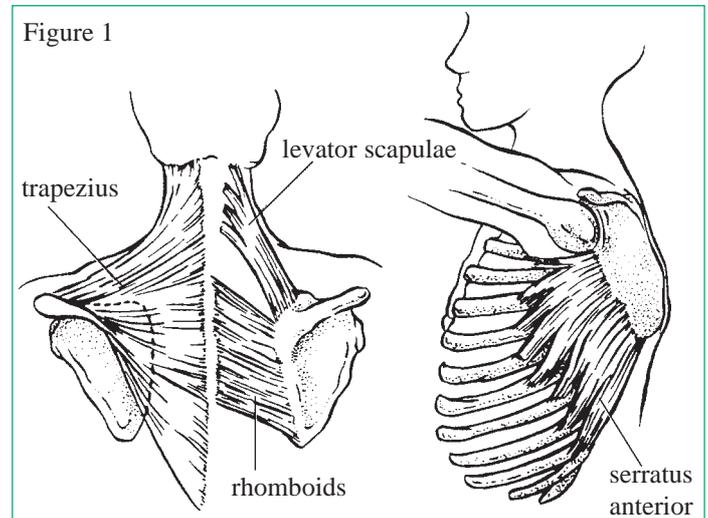
Adding these exercises to a player's training program can be implemented using either exercise equipment, light dumbbells, or rubber tubing. Emphasis should be placed on muscular endurance with these exercises, 2 to 3 sets of 15 repetitions being recommended. The exercises should be completed following tennis play or on days when lighter play or practice intensity is intended.

Exercise 1: Seated Row

Start position: Seated position at a machine or on the floor with arms extended out in front of the body grasping the resistance handles.

Action: Pull the arms backward towards the body while squeezing the shoulder blades together. Bring the hands back until they are about even with the sides of the body.

Note: You can do this exercise while seated on a Swiss ball to work additional trunk muscles during the exercise



Exercise 1



Exercise 2 Start position

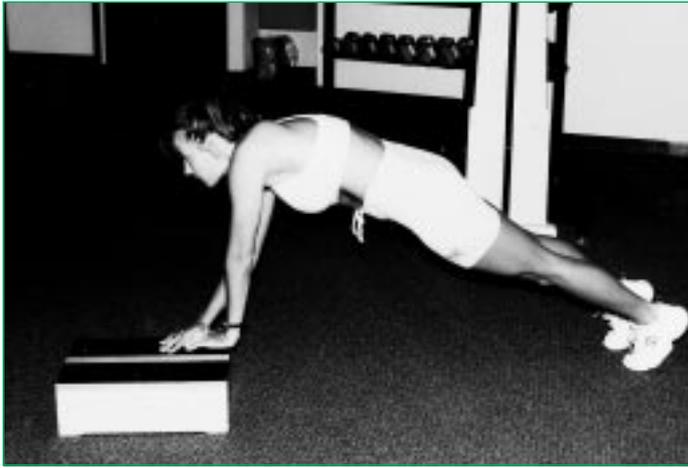


End position

Exercise 2: Prone Horizontal Abduction

Start Position: Lie on your stomach on a counter-top or bed with your arm hanging straight down and slightly off the edge of the supporting surface. Rotate the arm outward (point the thumb outward, away from your body).

Action: Raise the arm upward at a 90 degree angle (shoulder level) until it is almost parallel to the floor. It is not necessary to reach the arm up further, and if it is uncomfortable to go this high, utilise a shorter range of motion.



Exercise 3

Exercise 3: Step-ups

Starting Position: Assume a push-up type position next to a 6 inch step or box. Hands should be about shoulder width apart.

Action: Place your racquet arm up onto the step and press your body upward so that both arms can be placed on the top of the step. It is very important to round your shoulders outward (like a cat) during the stepping up portion of this exercise. Continue to step the hands down one at a time, and repeat the exercise moving toward the other direction.

Note: It may be necessary to start this exercise from the knees and progress to the toes as strength improves.

Exercise 4: Plyometric Wall Presses

Starting Position: Stand 2-3 feet from a wall with a partner behind you. Extend arms out in front of the body at shoulder level

Action: Partner pushes player toward the wall. Upon contacting the wall the player immediately pushes forcibly back away from the wall as quickly as possible.



Exercise 4

Exercise 5 Start position



End position



Exercise 5: Bent Over Rows

Starting Position: With a dumbbell placed in hand, bend forward at the waist 90 degrees with leg on bench or supportive surface as pictured.

Action: Pull hand and arm directly toward the side of the body until the weight is in line with the side of the body. Slowly return to the starting position.

Note: The hand and forearm position can be modified by alternating sets with the dumbbell in a vertical orientation (as pictured) or horizontal position.

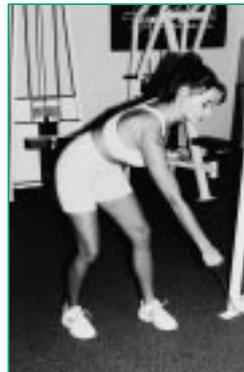
Exercise 6: Lawn Mower Pulls

Starting Position: Using a piece of rubber tubing secured under the leg of a couch or exercise machine (preferred) or a dumbbell in hand, stand with weight over left leg and hand placed on the outside of the knee as pictured. (Reverse for left arm exercise).

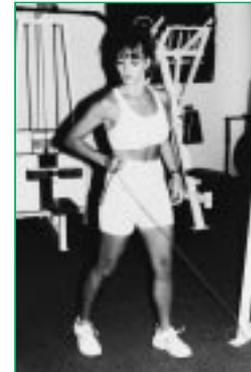
Action: Pull arm back while raising upward with your trunk and twisting toward the right. The exercising hand will be moving across the front of the stomach in a diagonal direction. Slowly return to starting position.

Note: This exercise is very much like the motion used when starting a lawn mower and works many muscles in the trunk and shoulder blade region.

Exercise 6



Start position



End position

Summary

The exercises will serve to strengthen the important muscles that stabilise the upper back and scapula and allow your shoulders and arm to function at the highest level. Exercises should be performed using the low weight-high repetition format to improve the endurance of the muscle. Hence, a burning or fatigue in the upper back and shoulder blade region should occur while performing these exercises. The exercises should not create pain in the shoulder joint. Discontinue any exercise that causes pain or discomfort rather than muscular fatigue. Adding the exercises to a complete training program for male and female tennis players will promote muscular balance and serve to prevent shoulder and arm injuries.

HOW IS YOUR FOOTWORK?

HOW CAN YOUR FEET ENHANCE YOUR PERFORMANCE ?

* Compiled by the Primary Health Care Providers of the WTA TOUR Sport Sciences & Medicine Department.*

- - **FOOTWEAR.** Choosing the correct shoe for your foot type and activity can be the difference between being plagued with injury and or being injury free. Orthotics can also help to improve the fit and performance of your shoes. Your sports medicine specialist can help you choose the correct shoe based on the latest technology and your foot type.
- Shoes have a significant affect on performance. Good, well fitting shoes can prevent injury and enhance performance. If shoes are ill-fitting or worn-out they can actually create injuries and obviously affect performance.

HOW DO YOU KNOW IF A SHOE IS RIGHT FOR YOU?

- KNOW YOUR:
 - ① **FOOT TYPE**
 - ② **ACTIVITY**
 - ③ **SHOE**

① FOOT TYPE - HOW DO YOU KNOW YOUR FOOT TYPE?

The best way to tell your foot type is to have a biomechanical evaluation by your physical therapist. Do this simple test to check for your foot type:

THE FOOT PRINT TEST:

Step in water and then on to a surface which shows up your foot print.

If your print is similar to this:



- You are a “supinator”
- You have a rigid foot and need more shock absorption from a shoe, especially in the heel and forefoot.

or similar to this:



- You are a “pronator”
- You have a flexible foot and need more stability/increased support from a shoe, especially in the heel and forefoot.

Most people fall between the two extremes of full pronator or supinator, your physical therapist/ athletic trainer will be able to tell you if you have a normal foot type that tends to pronate too much too little or for too long.

② ACTIVITY - DOES IT REALLY MATTER WHAT ACTIVITY I'M DOING?

Yes, shoes are designed especially for the type of activity that is going to be performed. Therefore, parts and features of a running shoe will be different from those of a tennis shoe, as will the features of a cross trainer. It is important to remember that you must wear the shoe appropriate to the activity that you will be doing in order to prevent injury, not only to the foot but also to the knee, hips and back. A cross trainer shoe will typically be heavier than a running shoe and wearing this for a long distance run could set you up for injury.

****Did you know that half an ounce [12g] of weight in a shoe translates to twelve pounds [6kg] of force at the hip???* ****

③ ANATOMY OF THE SHOE - WHAT DO I NEED TO KNOW ABOUT A SHOE?

If you know what a shoe is made up of and the various functions of its components, you will be able to make a sound judgement on the suitability of the shoe for your foot type and activity.

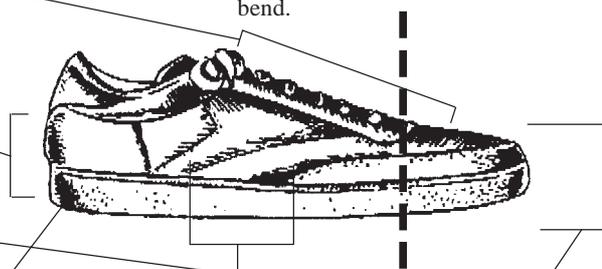
UPPER - covers the top of the foot, it is typically eye catching to attract the consumer.

HEEL COUNTER - provides stability to the rear foot, should be made of durable plastic. If broken down, shoe should be replaced.

MID SOLE - central cushion portion.

OUTSOLE - is the part of the shoe that comes in contact with the ground. It protects the midsole and improves traction. The material should be durable, flexible and lightweight. Outsole designs can influence stability, traction and weight.

FLEXPOINT - should bend in only one point, at the beginning of the toe box, where toes normally bend.

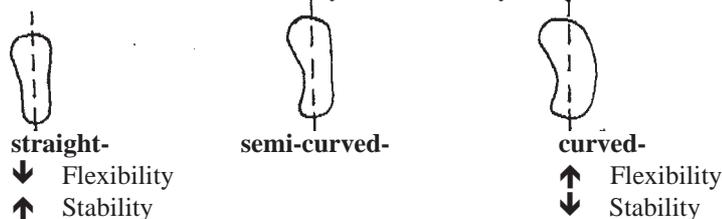


TOE BOX- the depth of the toe region is essential to prevent friction of the toes on the upper materials. At least 1/4 inch (8mm) of extra toe length should be allowed for.

- The Shoe Last

This refers to the mold on which the shoe is built and also the way the shoe is constructed.

A last will have three basic shapes which will affect the flexibility and/or stability:



A last will be constructed of three basic types [can be seen if you lift the removable insole] :



TRAINING WOMEN PLAYERS

by Edgar Giffenig (Mexico) Director of the High Performance Training Centre for the Mexican Tennis Federation

INTRODUCTION

The women's game has improved tremendously in the last decade. Day by day the training of tennis players has become more professional, resulting in more and better players. There are many coaches that feel that training male and female players is very different, but the fact is that the essence of training male and female players is the same. In both instances you are teaching someone to play tennis as well as they are capable of doing. However having said this it is important to note that there are certain differences between the sexes that have to be considered to make the training more effective. The goal of this article is to help coaches identify these differences.

SPECIAL CONSIDERATIONS

As a coach it is very important that in general terms one does not make a distinction between training women and men. The goal in both cases is the same. In both cases the players need to learn the same skills to be successful. However based on my experience of working with high level female players in Germany and the United States of America, I believe that the following aspects should be considered to make the training more effective.

THE MENTAL ASPECT

- Women tend to have more emotional ups and downs, which could lead to misunderstandings. Therefore it is essential that we have a good line of communication with the players so that the misunderstandings that could arise are resolved as soon as possible and do not affect the athletic development.
- Women look to form a more rounded relationship with their coaches. They expect their coaches to get involved in other aspects of their lives. Men on the other hand are content with having their coaches solely taking care of their tennis instruction. This could be a great advantage to the coach with the right personality. Once a good relationship is established it is easier for the coach to

understand what works best for their player and therefore target those areas.

- Women are more likely than men to have someone in their families protecting them and taking care of their needs which makes them more dependent than male players. It is very important that the coach encourages female players to take care of themselves and to develop greater independence. Tennis is an individual sport, and being too dependent on someone sooner or later will affect their development.
- As mentioned above, women are used to having someone taking care of them. This can cause problems in group situations as players tend to compete for the attention of the coach. However, there are some great examples of women working very well in groups, as is the case of the ITF travelling teams. Therefore it is very important that the coaches work with them in groups early on in order to get them used to this type of working environment which can have many benefits.
- Most women players tend to shun match practice because they don't like losing against a lower ranked player even in practice. When women are asked what they would like to do in practice, they will usually always answer, "Drill, I need rhythm". Men on the other hand will always answer, "Play, play, play". It is important to teach women players about the benefits of match play and encourage them to play practice matches from early on.

THE PHYSICAL ASPECT

- It is very important to pay attention to the athletic development of the female players and not have girls specialise solely on tennis at an early age. Girls need to learn to run, jump, throw and experiment athletically. Boys are more likely to engage in many different activities growing up and develop their athleticism on their own. Girls need to be guided more in that direction.

- Girls tend to develop sooner than boys and therefore are able to compete in professional events at an earlier age. However, there is no reason why girls could not follow a similar development process than men. More and more women on the tour are reaching their peak between the ages of 21 and 25 similarly to the men. Given this, it is important for coaches not to rush girls into playing the professional tour too soon. The junior circuit has many benefits over the pro tour and should be used as a stepping stone into the pros. Similarly, taking the girls out of school too soon is also a mistake as it may hamper their personal development.
- It is important to pay close attention to the weight problems that can arise with puberty. Girls tend to gain weight between the ages of 15 and 16. Education in the area of nutrition has to start early with girls and not once the weight problems are there. It is also important to be very sensitive when talking to the player about weight problems since it can greatly affect their self-esteem. Any type of dieting should be conducted under the supervision of an expert. Any suspicion about the existence of an eating disorder should be addressed as soon as possible.

DIFFERENCES IN THE WAY THE GAME IS PLAYED

- The serve is not as big of a weapon in the women's game, which makes the return very important. The return is usually the first opportunity to attack and should be developed accordingly. In addition the fact that it is much harder to win quick points with the serve makes the women's game more demanding mentally. Women need to be very tough mentally because they need to fight for every point and do not have the advantage of almost having the set won after they break serve.
- Women are slower than men which affects the game in the following ways:
 - It makes it possible to win playing solely from the baseline if the player is able to hit the ball hard enough. However it is very important that all aspects of the game are developed even if the players are very successful playing from the baseline.
 - It makes it harder to cover the net, which makes it difficult for a woman to be a true serve and volley player. Good women net players need to learn how to choose the right time to attack the net.

TYPICAL DEFICIENCIES IN THE WOMEN'S GAME

Having coached junior girls for several years I feel there are several aspects that need special consideration since they seem to occur over and over.

- Do not permit a one-dimensional game. Girls tend to lack variety in their games. It is important to make sure that women players feel comfortable changing the speed, the height and the spin of the ball. In addition women should work to develop all aspects of the game. Use the drills below to achieve this:
 - Have them rally hitting the following combination of shots keeping the racquet head speed constant:
 - Low over the net, higher, very high.
 - Short angle, longer angle, deep shot.
 - Flat, some spin, and a lot of spin.
 - Have them play points starting each point with a certain type of shot that you would like them to practice:
 - Starting with a defensive shot.

- Starting with an offensive shot from the service line.
- Starting with an angle, etc.
- Teach them patterns, eg down the line after an angle, using a high ball to get a short ball, etc.
- Teach them to hit good drop shots. Focus on the disguise.
- Use Mini tennis to improve their versatility and feel. Use all kinds of games in the short court (normal, in the air only, sharing a racquet, etc)
- Practice the spin serve, especially the kick serve. Most girls can hit a good slice serve, but have problems hitting a kick serve. Many serves tend to fade to the left (right handed players)
- Use throwing practice to improve the serve.
- Use different types of balls
- Play points throwing the ball instead of hitting it.
- Play points throwing instead of hitting, using different methods of catching: left hand, right hand, cap, cone, etc.
- Teach a one handed slice backhand as soon as possible. Most two handed players have problems with this shot. Practice different variations: long, short, angle, approach, defensive on the run, drop shot, etc.
- Work on a one handed backhand volley. Teach this shot early and include all types of volleys: high, low, fast, slow, backhand overhead, half volley.
- Overhead is a shot that is not practised enough. If you want your players to feel confident at the net, they have to be able to hit overheads. Practice all types of overheads: in the air, after a bounce, moving forward, backward, sideways, backhand overheads, etc.
- Develop a winning shot emphasising racquet head speed as soon as possible. Work on their technique of shoulder level shots and teach how to use the shot by working on patterns.
- Pay special attention to up and back movement. Most girls move much better sideways than up and back. Use following types of drills:
 - Long, short, long short, etc.
 - Alternating volleys close to the net and behind the service line.
 - Create the habit of playing the ball on one bounce.
 - Use volley overhead drills.
 - The cross court backhand seems to be more natural. Focus on developing a good aggressive down the line shot.
 - Teach technique from the basket.
 - Use angle down the line drills.
 - Practice a good down the line return.
 - Teach girls to play good doubles early on. This will improve their net game tremendously. Use all sorts of drills where they need to move forward.

SUMMARY

In general, a coach working with female players must have the same goals as a coach working with male players. However, the way in which a coach addresses these goals should be different. Coaches must be aware of and sensitive to the mental and physical differences between the sexes in order to make training more efficient and to maximise the female players potential.

WHAT TENNIS RESEARCH TELLS US ABOUT ... WOMEN'S TENNIS

compiled and summarised by Miguel Crespo (ITF)

A series of articles on the women's game which have appeared in sport scientific publications are summarised below. Coaches interested in obtaining more information from these articles can find them using the relevant references.

TECHNIQUE

TENNIS SERVE OF ADVANCED WOMEN PLAYERS

An analytical study of the tennis serve as hit by advanced women players was conducted. Each of the ten subjects hit 20 trial first services. The speed and placement of each serve was recorded, and a motion picture recording was made for selected trials. The results indicated that, for these players, there was no relationship between the speed and the accuracy of their serve. Certain differences observed in the serving movement used by the subjects appeared to be significantly related to their success, measured in terms of speed and accuracy of their serves. The degree of body rotation, backward bend and arm extension during impact was positively related to success in serving.

Johnson, J. (1957). Tennis serve of advanced women players. Research Quarterly for Exercise and Sport, 28, 123-131.

ONE-HANDED AND TWO-HANDED BACKHAND DRIVES OF HIGHLY SKILLED FEMALE COMPETITORS

This investigation was conducted to aid in the understanding of the mechanical differences between the one-handed and two-handed backhand drives and assist in the prediction of the optimal stroking method per individual. The purpose of this investigation was to study the backhand of 36 highly skilled female tennis players. The results showed that:

- a) The one-handed backhand is basically a multiple-segment motion in which the hips, trunk, arm, forearm, hand and racket move in an extremely co-ordinated fashion.
- b) The two-handed backhand was observed to be a two-segment motion where hips rotate, then the trunk and upper limbs rotate simultaneously.
- c) It was suggested that the multiple-segment co-ordination required by the one-handed backhand may explain why many beginners "lead the swing with their elbow" or "drop the hand and racket" just prior to impact to help propel the ball upward.

Groppel, J.L. (1978). A Kinematic Analysis of the tennis one-handed and two-handed backhand drives of highly skilled Female competitors. Doctoral Dissertation. The Florida State University.

PSYCHOLOGY

PERSONALITY OF FEMALE TENNIS PLAYERS

This study was undertaken to add to the understanding of the profile of the female athlete both psychologically and physiologically. Sixteen internationally ranked female professional tennis players were administered the Cattell 16PF Questionnaire. When age was controlled in the research design (under 27 vs. Over 28 years old), the younger players were significantly more intelligent and experimental than the older group. When rank was controlled (above 50, below 50), no significant results were reported. Compared to the norms for the general female population, the tennis pros were significantly more reserved, more intelligent, more suspicious, and less pretentious. More information is needed to study intragroup comparisons, as well as comparisons with non elite female athletes and elite male athletes.

Gondola, J.C. & Wughalter, E. (1991). The personality characteristics of internationally ranked female tennis players as measured by the Cattell 16 PF. Perceptual and motor skills. 73, n°3, 987-992.

FEMALE COACHING BEHAVIOUR

The purpose of the research was to analyse the behaviour of 3 female tennis coaches observed during three practice sessions. The results showed that:

- 1) There was no significant difference in the pattern of behaviour presented by each subject
- 2) It seems that behaviour becomes more consistent with experience
- 3) All three coaches interacted primarily with individual athletes
- 4) All three coaches made significantly more organisational comments than skill comments to the players
- 5) Each coach exhibited a more positive than negative tone in her comments
- 6) There was no significant difference in the number of comments spoken to the male and female players
- 7) Coaches used an a-gender approach to coaching
- 8) Comments were appropriate to the situation rather than to the gender of the recipient

9) Female coaches showed little leniency towards female athletes, rather they demanded optimal performance from both genders.

Harries-Jenkins, E. & Hughes, M. (1993). A computerised analysis of female coaching behaviour with male and female athletes. In T. Reilly, M. Hughes & A. Lees (Eds.) Science and racket sports, 238-243.

PSYCHOLOGICAL PROFILE OF FEMALE TENNIS PLAYERS

The present study tried to develop a psychological profile of 16 professional tennis players from five countries. Six mood states were measured: tension, depression, anger, vigour, fatigue and confusion. Results showed that:

- 1) Older female tennis players were less tense, depressed, fatigued and confused (positive mood state) than college age women,
- 2) Younger players showed a profile similar to that of the college-age students.

Wughalter, E. & Gondola, J.C. (1991). Mood states of professional female tennis players. Perceptual and motor skills. 73, n° 1, 187-190

MOOD STATES OF PROFESSIONAL TENNIS PLAYERS

This study investigated mood state and psychological skills of world ranked female tennis athletes, and the psychological differences between 47 top (1-65), middle (75-180) and bottom (200+) ranked tennis players of the WTA who participated in the research. The results showed that:

- 1) There was a trend for top-ranked players to exhibit greater concentration, and motivation, and less confidence and team emphasis than bottom-ranked ones
- 2) World ranked female tennis players exhibit mood state patterns and psychological skills similar to athletes in other sports.

Meyers, M., Sterling, J.C. et al. (1995). Mood and psychological skills of world ranked female tennis players. Journal of sport behaviour. 27 n° 3 September, 156-165.

CRITICAL SITUATIONS

The purpose of this investigation was to determine the effects of a critical situation on the tennis performance of males and females. Results showed that: 1) After losing the first set, males came back to win the match significantly more often than females,

2) The same results applied to singles and doubles, and juniors and professionals. This was explained. If females attribute the loss of the first set to lack of ability this would cause them to expect to lose the match since ability is a stable attribute. Whereas, if they attribute it to a lack of effort, as males do, they might try harder since effort is an unstable attribute.

Weinberg, R.S., Richardson, P.A., & Jackson, A.J. (1981). Effect of situation criticality on tennis performance of male and female. International Journal of sport Psychology, 12, 253-259.

COMING FROM BEHIND

The purpose of the study was two fold:

- 1) To determine if there are any differences in elite male and female tennis players in terms of their ability to come from behind to win a match after losing the first set
- 2) To determine if elite (top 20) male and female tennis players come from behind to win significantly more often than less elite (top 500) tennis players.

Results showed that:

- a) There was no difference between males and females in coming from behind
- b) Both elite males and females come from behind more often than less elite players
- c) Self-confidence appears to be one variable that consistently differentiated between successful and less successful tennis players.

Ransom, K. & Weinberg, R.S. (1985). Effect of situation criticality on performance of elite male and female tennis players. Journal of sport behaviour, 8, 144-148.

MOMENTUM

The purpose of this investigation was to determine the gender differences in the tennis players' ability to come from behind and win a match (reverse psychological momentum).

Results showed that:

- 1) Males were more likely to come from behind and win than females
- 2) However, female players appear to slowly increase their ability to reverse psychological momentum and come back to win a match after losing the first set
- 3) When looking at the categories, these differences are more prevalent at the junior level

Weinberg, R.S. & Jackson, A. (1989). The effects of psychological momentum on male and female tennis players revisited. Journal of sport behaviour. 12, n°3, 167-179

ACHIEVEMENT GOALS

The present study examined the perceived causes of success among elite adolescent tennis players and investigated the function of gender in the interdependence of goal orientation and beliefs concerning tennis achievement. 80 male and 41 female adolescents participated in the research.

Results showed that:

- 1) There were two conceptually coherent personal goal-belief dimensions in females:
 - a) Ego orientation and the beliefs that ability and maintaining a positive impression were the primary causes of success,
 - b) Task orientation coupled with the effort and a de-emphasis on external factors and deceptive tactics would lead to tennis accomplishment
- 2) Females held the belief that effort plays a key role in order to succeed in tennis more strongly than males.

Newton, M. & Duda, J.L. (1993). Elite adolescent athletes' achievement goals and beliefs concerning success in tennis. Journal of Sport and Exercise Psychology. 15, 437-448.

MINI TENNIS

THE CHILD COMES FIRST!

This article was first published in April 1999 in Tennis Info, the magazine of the French Tennis Federation.

When teaching, it is important to base one's approach on the singularities of the person you are addressing and mini-tennis is no exception to the rule. Consequently, the child has to be in the centre of the educational mechanism. His/her individuality, which evolves with time, must be taken into account in order to adapt the approach most effectively.

A child is not a little adult. His development is linked to certain fundamental needs, such as the need to move and play. These requirements were therefore laid down as basic principles when it came to establishing the teaching method of mini-tennis. By channelling the energy of the child through games and simple exercises and expanding his motor experiences, mini-tennis essentially tries to teach the child not only general psychomotor skills, but also skills which are specific to tennis (see below: motor skills specific to tennis).

The period when the child is aged 5-6 is decisive for his future development, because it is a period of full growth. At this stage, it is therefore necessary to offer him the opportunity to develop all possible motor skills. Otherwise, the technical learning that he will face in the next learning stage (introduction) may be more difficult for him.

LEARNING THROUGH DISCOVERY

During a person's evolution, some steps are inescapable. Many of them occur around this period. The chances are that a five-year-old child will not behave like a six-year old. Therefore, there is no point in trying to instil notions that will not be mastered by the child if the time is not right. This is the reason why the concept of 'learning through discovery', which is the basis of mini-tennis teaching, requires the taking into account of the child's individual differences. This has to be done according to his age and as a means of understanding why the child acts in a certain way or why he has difficulty in performing a given task.

It is by connecting the psychological information to its educational application that the teacher will manage to unlock all the potentialities of the child's mind and body. This will then provide the child with the ability required to play on an adults court.

The five-year-old child

MOTOR FUNCTION

The child is much more sparing of his movements than at the age of four. Without being able to analyse them, he can easily mimic other people's gestures. The maturation of his nervous system means that he is now capable of new motor performances.

In general, he is able to distinguish his right hand from his left hand (but is incapable of projection, he cannot

distinguish other people's right hand from their left hand). He can drop and kick a ball, walk in a straight line and maintain a good balance; use his hands well enough to throw or catch a ball; make gestures with no visual control such as touching the nose with his forefinger.

AFFECT

Gradually less egocentric, the child is interested in everything, amiable with other people and co-operative. He appreciates being given small responsibilities, maintains a close relationship with adults and is very anxious to please them. He is keen none the less on doing things his way and at his own speed. The child is also afraid of the unknown, cries and gets angry easily.

INTELLECT AND RELATIONSHIPS

The child loves achieving success in whatever he undertakes, showing a preference for things which he is familiar with, appreciating everything that is done for him. He likes to have fun and enjoys stories.

The six-year-old child

MOTOR FUNCTION

The child touches, grabs, explores everything that falls into his hands, moves all the time, wants to do and try everything. Measuring himself with others is a favourite game. Not very resistant, tiring quickly and does not know when to stop. It is important to accept the transitional feature of this excessive behaviour, verging on confusion, while emphasising cooling down periods. In general, the child can execute precise gestures (following a labyrinth or walking on a straight line) or complex ones (winding and unwinding a reel while walking...) act and react quickly; controlling the hands with success to achieve his aim.

AFFECT

While fully developing, the child is often indecisive, sensitive to criticism and displays an uneven temper. He can be disconcerting, expressing a desire for independence by doing only what he pleases.

INTELLECT AND RELATIONSHIPS

He is in the centre of his own world, striving to be number one in everything he does and is often reluctant to lend belongings.

Gradually feeling comfortable in small groups (2 to 4 children), the child expresses very marked feelings towards others, whether it be for friendship or exclusion. Although he is full of good will towards other people's suggestions, he can lose interest very quickly.

CONSTANT FEATURES OF THE CHILD

At the age of 5 and 6, there are basic needs without which the child cannot develop.

The need to be loved

The child constantly requires the help, approval and

affection of adults. He can only make progress in a climate of total confidence and safety.

The need to move

The child feels the need to move, run, and jump. These are not gratuitous actions. Unconsciously, the child seeks to develop his motor skills however he lacks dexterity and co-ordination.

The need to play

Play is the natural function through which the child shapes his personality and abilities.

The need to be with other children

If the child needs playmates and agrees to play, it is mainly to achieve individual ends. Although in the process of socialising, he is more interested in himself and what he does than anything else.

The need for simple and concrete things

The child does not use the same language as the adult. What he is told, a piece of advice, an instruction or an opinion, must be simple, precise and above all short so as not to confuse him.

Guidelines

When the child is 5 years old, it is advisable to:

- stress the emotional relationship,
- encourage him to experience new things,
- let him do things at his own speed.

When the child is 6 years old, it is a good thing to:

- make exercise situations more difficult as soon as he seems to have assimilated them because he will improve very quickly,
- devise a concrete evaluation tool for his actions (targets, scoring system...),
- facilitate his integration into the group by giving him the opportunity to cooperate (adapting the playing area, asking him to tidy things up...).

Motor skills specific to tennis

William Bothorel, mini-tennis coordinator at the French Tennis Federation:

‘When a child is of an age to play mini-tennis, he has everything to learn as far as motor skills are concerned. If the goal of this activity is of course to allow him to develop all of his qualities, one has to keep in mind that the ultimate purpose of mini-tennis remains to develop skills more specific to tennis, such as laterality or positioning on a tennis court in relation to the ball trajectory for example. Therefore, it is important that the teacher adapts the playing areas and game situations according to their benefits for the future player that lies in the child. If that approach is followed, the technical introduction period will then be easier and quicker.’

Note: Throughout this article the pronouns ‘he’, ‘him’ and ‘his’ have been used inclusively, and are intended to apply to both males and females.

ITF SCHOOL TENNIS INITIATIVE

When programming the tennis lessons at school it is important to structure them in a series of progressive skills that the students can achieve in order to be introduced to tennis.

On the following pages there are two examples of 2 one hour lessons at school. The first example is for children up to 8 years old approximately. It may be defined as a pre-tennis class. The second example is for children aged 8 to 12 years old approximately and can be defined as a mini-tennis class.

In the examples, the objective of the session is included so that the teacher or coach knows which is the most important aspect of each lesson. In addition, they also include some drills for skill improvement and a game of the specific objective of the lesson.

All the sessions should start with a warm up which is included in the examples below, and should finish with a cool down.

The objectives, warm-up exercises, drills for skill improvement and games shown in both “age-group” examples can be adapted so that the ones used for one age category maybe applied to the other one provided the coach or teacher adapts them appropriately.

The classes can vary in length from 30 minutes to 1 hour.

If lessons are 30 minutes the structure could be as follows:

- Warm up is 5 minutes approx.
- Main part is 20 minutes approx. (including drills and games)
- Cool down is 5 minutes approx.

If lessons are 1 hour the structure could be as follows:

- Warm up is 5-10 minutes approx.
- Main part is 40 minutes approx. (including drills and games)
- Cool down is 5-10 minutes approx.

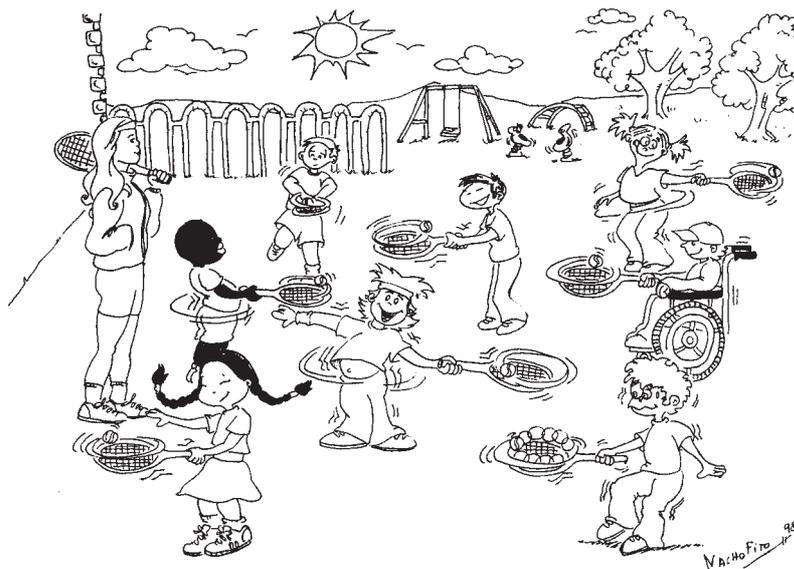
Note: Equipment needed:

- balls (soft and/or regular)
- rackets (mini-rackets, bats, etc)
- hoops, cones, walls, cords or nets, etc

For further lesson examples and information on this subject please refer to the **ITF School Tennis Initiative: Teacher’s Manual** written by Miguel Crespo and Dave Miley, International Tennis Federation 1998.

2 ONE HOUR LESSONS FOR CHILDREN AGED 5-8 YEARS OLD

LESSON 3	Theme: HANDLING BALL AND RACKET AND MOBILITY
Objective	To keep the ball on the racket.
Warm Up	<u>Tennis Draughts:</u> Students have to pick up balls from the ground, but they must first jump over the ball before picking it up. The student who picks up the most balls wins.
Games/Exercises	<u>Hula hoop racket and ball:</u> Each student places a ball on his racket strings. He has to move as if playing with a hula hoop and roll the ball around the racket face.
Variations	Balancing the ball on the racket, holding the racket with different hands, changing palm (grip) positions and changing body positions, moving the racket, rolling, while moving around, etc.

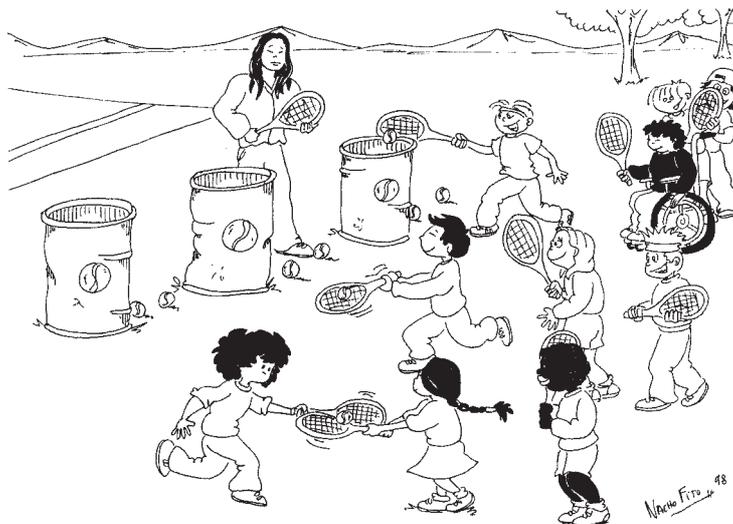


LESSON 4	Theme: HANDLING BALL AND RACKET AND MOBILITY
Objective	To roll the ball along the ground with the racket.
Warm Up	<u>Ball relay:</u> Teams of same number of students. Each team starts from the same line. On the signal a student of each team runs to a line with a ball balanced on his hand, he places it on the ground and runs back. Another team-mate then runs. The team with the most balls on the finish line wins.
Games/Exercises	<u>Bowling:</u> Students roll the ball with the racket to knock down tennis cans. Make teams and increase distance from cans.
Variations	Push the ball forward with the racket, holding the handle, moving, changing palm (grip) position, along the lines, round various obstacles etc.

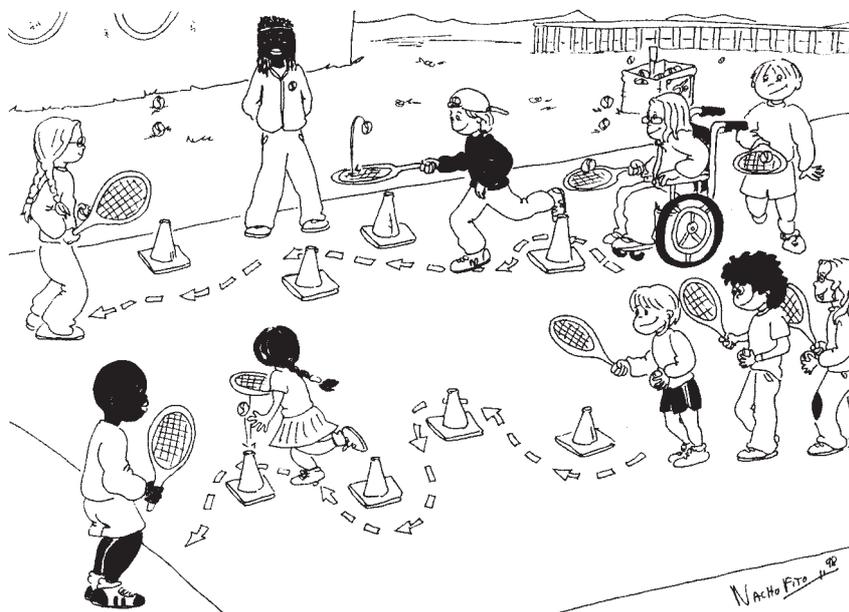


2 ONE HOUR LESSONS FOR CHILDREN AGED 8-10 YEARS OLD

LESSON 3	Theme: HANDLING: STANDING AND KEEPING THE BALL ON THE STRINGS
Objective	To establish the body position, to centre the ball in the racket face and to introduce the ball control objectives of direction and height.
Warm Up	<i>Catch between the legs:</i> in pairs one student throws the ball so that it lands in front of their partner. Their partner has to try to reach from behind their legs and catch the ball.
Games/Exercises	<i>The waiter:</i> Two teams. First team-mate from each team carries a ball on his racket and drops it into a bucket, picks up another ball from the ground and returns, passing ball to team-mate who then sets off. Winner is first team to complete rotation.
Variations	Standing and centring the ball on the racket strings, kneeling and centring the ball, movement and centring the ball, partner passes the ball, team member pass the ball, etc.



LESSON 4	Theme: RECEIVING WITH CO-OPERATION
Objective	To develop reception skills from different balls received and develop projection skills by varying the height, distance and direction of the ball.
Warm Up	<i>Spider tag:</i> One pair of students linking hands try to tag other students. When tagged, students join hands with the pair and continue to catch others and add to the web without breaking it.
Games/Exercises	<i>Ups and Downs team relay:</i> Cones are placed around the court. Students have to bounce and dribble the ball. First team to complete the circuit wins.
Variations	Hitting up only, hitting down only, hitting up and down, hitting up and down while walking.



WOMEN'S TENNIS ON THE WEB

by Miguel Crespo (ITF)

This article will provide you with some of the sites available on the internet which relate to women's tennis.

WTA Tour: www.wtatour.com

Features of this site include: Headliners, This week on the tour, In the news, Rankings, Tour Feature, Interviews, WTA Pool, Player Profile, 99 Schedule, Pro Shops, Statistics, Multimedia, Partners, Tennis Talk, WTA Tour Win of the Week, Information on seeded players, and an Injury update. You will also be able to access your own email and receive WTA Tour live information which will keep you informed of the latest results in the WTA Tour.

KB Fed Cup: www.itftennis.com

email: fedcup@itftennis.com

The worlds premier women's international team competition. Click on the Fed Cup icon. Features of this site include: The history, format, 1999 drawsheets of world group I and II, the sponsor and additional information on this event

ITF Women's Circuit: www.itftennis.com

email: womenstennis@itftennis.com

Click on the Women's icon. The circuit gives the up and coming players their first experience in professional tennis by offering some 280 tournaments in 61 countries worldwide and it has five prize money levels: US\$5,000, US\$10,000, US\$25,000, US\$50,000 and US\$75,000.

You can also find more information on women's tennis if you visit the following sites:

www.tennistrainer.com

This includes the Tennistrainer Magazine. This publication contains links to the WTA Tour rankings, ITF World Juniors, and Futures events. It includes specific sections on women's tennis

www.fortunecity.com

Here you will find information on 28 WTA Tour tournament sites as well as WTA Player Information and Fan Clubs such as: Advantage Tennis (WTA Player Photos), Future Stars of Professional Tennis, and The Women of Tennis: A Photo Gallery.

www.amazon.com

This is an excellent source for tennis books written on women's tennis which you can then purchase over the internet.

The website's mentioned above are only some of the many sites available on women's tennis. The best way for you to find out what is going on out there is for you to start surfing the web. Good luck!

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SPECIAL CHALLENGES - COACHING ADOLESCENTS

*by Carol Otis, M.D. (United States of America) Doctor of the USTA Fed Cup Team
and Medical Advisor of the WTA Tour*

INTRODUCTION

You remember puberty, don't you? That awkward time when your body, skin and emotions all seemed to change overnight - and none of them in the right direction. For anyone who is the coach of an adolescent tennis player, it can be one of the most challenging phases.

Girls and boys begin puberty at different times, girls starting their growth spurt about age 12, two years earlier than boys. Because of this earlier start, girls may be beating boys their same age. The hormones of puberty, (oestrogen in girls and testosterone in boys) cause a wide variety of physical and emotional changes (see chart). The greater muscle mass in boys makes them stronger while oestrogen can cause girls to gain fat. After puberty, boys are often told to bulk up in order to improve in sport while girls are usually told to lose weight, a difficult task when the reproductive hormones have dictated a body ready for reproduction.

Adolescence is also a time of developing socially and psychologically. Adolescents are struggling with developing their identity and are focused on their peer group and body image. Coaches may notice players struggling during these stages of development, in which adolescents strive for independence, define their peer group and seek its approval. Their orientation toward tennis is likely to change, sometimes on a daily basis! Adolescents can also be self-centred and needy for attention. Coaches can deal with the emotional ups and downs by listening to the athlete's concerns and points of view. Coaches need to be consistent, instil responsibility and set limits. When in doubt, check with the family and have a conference about limits and goal setting. Avoid being "one of the gang" or a surrogate parent.

Adolescent girls are already hypersensitive about their weight and body image. Coaches should avoid weighing female athletes, and avoid making any comments about weight or appearance. If weight is a concern, suggest that the family seek nutritional and medical advice about appropriate healthy weight and sports nutrition. Male coaches may be idolised by teenage girls who may have a crush on the coach. All coaches should absolutely avoid any sexual innuendoes, and physical contact including massages.

WARNING SIGNS

ATHLETE: COACH RELATIONSHIPS

- Attempts to control weight
- Attempts to control other aspects of life: friends, school
- Granting and withholding of affection
- Fostering dependency
- Overly involved in one athlete
- Sexual innuendoes, physical touching: rubdowns, massages

COACHING

DO'S

- Listen actively - treat comments seriously
- Be consistent
- Instil responsibility
- Set limits
- Consult with the family

COACHING

DON'TS

- Avoid being one of the gang
- Avoid being a surrogate parent
- Avoid comments about weight and appearance
- Avoid a power struggle
- Avoid sexual innuendoes or contact

INJURIES

Boys and girls go through puberty at different rates. Boys and girls can certainly train and play tennis together if they are matched for ability. Adolescents are prone to some injuries and medical problems. If a coach sees evidence of these, prompt referral to a sports medicine specialist should be made. The most common injuries are those of overuse: tendinitis at the site of muscle tendon imbalances which occur with rapid growth (for example, the knee cap tendon below the knee). Imbalances between inadequate flexibility and strength are common around the knees and shoulders, elbows and wrists. Injuries can be reduced or prevented with more attention to stretching and flexibility and also by adding a weight training programme specific for the demands of tennis.

ADOLESCENT GIRLS

Adolescent girls usually begin their menstruation by age 14. They may experience cramps and premenstrual bloating, both of which can impair training and competition. If a girl has not started menstruation by age 14 or is menstruating and having problems, the coach should suggest that the family seek medical attention. There is no evidence that training during any phase of the menstrual cycle is harmful. Girls are more likely to develop anaemia due to menstrual blood loss and lack of iron in the diet. If symptoms of fatigue are present, they should have a screening blood test to evaluate them for anaemia. If weight is an issue for her, she may engage in disordered eating practices such as frequent fasting or bingeing and purging which can harm her health, self-esteem and psychological development. Prompt recognition and referral are important to prevent serious problems from eating disorders.

Knowing about the changes of puberty, can prepare a coach to deal with the challenges of working with athletes during this special phase of life.

GROWTH SPURT

- Girls begin age 12
- Boys begin age 14
- Last 24-36 months
- Girls grow 2-5 inches
- Boys grow 2.5-6.5 inches
- Individual variation

WEIGHT GAIN

- Girls: Weight gain occurs 6-9 months after growth spurt
- Boys: Weight gain synchronous with growth spurt
- Girls gain fat and boys gain muscle
- 50% of adult weight is gained during adolescence

BODY COMPOSITION

- Girls go from 10-15% body fat to 20-26% body fat
- Boys go from 5-9% body fat to 11% body fat (15-20% when adult)
- Boys gain muscle (45-55% body mass is muscle in adult)
- Girls gain fat (35-45% body mass is muscle)

CONDITIONING AND MEDICAL ASPECTS ON THE FEMALE TENNIS PLAYER

by *Babette Pluim (Netherlands)*
Medical Advisor for the Dutch Tennis Federation

Should coaches approach males and females in a different way, because of their different physique? Women, in general, tend to play more from the baseline than men do, probably because they are shorter and have a weaker serve. But should tall and strong women be encouraged to play serve and volley? We know from studies that there are gender differences in injury pattern. For example, women tend to suffer more often from wrist tendinitis, shin splints, and anaemia than men do. What can we do, as coaches and doctors, to help female players prevent these injuries and illnesses? What sort of conditioning and strengthening exercises should women players do to improve their game? Do they have specific dietary requirements? This article is meant to give some insight into the how and why of some of the specific female problems and practical guidelines on how to approach the female tennis player.

THE WAY MOST WOMEN PLAY THE GAME

After having played for some time, every player develops a certain type of game. (S)he develops a preference for an offensive type of game like serve and volley (Jana Novotna) or power tennis (Mary Pierce), or a more defensive type of game with a lot of topspin from the baseline (Aranxa Sanchez-Vicario, particularly when under pressure), or more of an all court game (Monica Seles). Part of this is determined by character, part of this by physique, and part of this by that person's technical and tactical skills. Therefore, it is impossible to generalise for ALL women, because so many factors are involved.

Yes, it is true that the serve dominates more in men's tennis than in women's tennis, resulting in more serve and volley players among the men than among the women, and more breaks in women's tennis than in men's tennis. Part of this is due to the fact that men, on average, are 10 to 12 cm taller than women and twice as strong (in their upper body) as women. Due to a more favourable angle and their greater strength males are able to serve faster and with more precision than females. The fastest serve in the men's circuit is approximately 240 km per hour (Greg Rusedski), compared to 205 km per hour in the women's circuit (Venus Williams). It has also been suggested that females play from the baseline more often than males, because they are less aggressive, but there is no scientific evidence to back this up.

In general, there is a good chance that a strong person with a good service and good timing, who is reasonably tall and not very patient, may choose to play power tennis. A player who is patient and cautious, reads the ball well and has the legs and stamina to cover the court adequately may choose to stay back and try to win most points by playing from the baseline. The "average" serve and volley player is tall, likes to take risks, plays intuitively, need not be a good runner, but will tend to have a good serve and quick hands.

CONDITIONING

The average male value of $\dot{V}O_2$ max (maximal oxygen consumption, expressed in ml oxygen per kg bodyweight per

minute) is 10-25% higher than that of the female. Some of this is due to the higher fat content of the female body. When this is removed mathematically by expressing $\dot{V}O_2$ max relative to lean body mass (ml/kg lean body mass/min), the difference between the sexes range is approximately 10%. There are several factors that may account for gender differences in the ability to transport and utilise oxygen. The lower haemoglobin levels of women reduce the oxygen-carrying capacity of their blood to about 10% below male athletes. Even though maximal heart rates are the same for males and females, the male has a higher cardiac output than the female, because he has a 10 to 20% higher heart volume, relative to his bodyweight. Due to this greater heart volume, his maximal stroke volume is bigger. In addition, the male has a greater lung volume relative to his body size.

STRENGTH

On average, females are 10 kg lighter than males. Since females have a higher fat percentage than males (20-25% vs. 10-15%), the difference is mainly found in a smaller muscle mass (approximately 23kg vs. 35kg). The main differences are found in the upper body, where their overall strength is 54% that of men, as contrasted to 68% of male strength in the lower body. When body size is eliminated as a factor by relating strength to bodyweight or lean body mass, the sex difference in total strength decreases to about 20%. The male-female difference in strength is due primarily to the anabolic effect of testosterone on the male's musculature.

Although a lot of the velocity and acceleration of the strokes is a result of good co-ordination, extra strength on top of sound co-ordination does lead to more powerful strokes and more speed in the footwork. In addition, increased strength leads to a decreased injury risk. Therefore, inclusion of weight training as part of an athlete's conditioning programme is even more important for women than it is for men, with special emphasis on upper body strength.

Since the maturation of females is 2-3 years earlier than those of men, they can start weight training at an earlier age.

SPECIFIC MEDICAL PROBLEMS

Even though epidemiological studies in tennis players do show some variability, they all seem to identify a certain pattern of injury in reference to location and type of injury. Central injuries (back, neck, and groin) occur in roughly equal numbers with upper extremity problems (shoulder, elbow, and wrist). Overall, leg injuries (hamstrings, knee, calf, ankle and foot) occur approximately twice as often as the former. The most common types of injuries in the tennis player are those of overuse injuries, with acute (traumatic) injuries occurring less often.

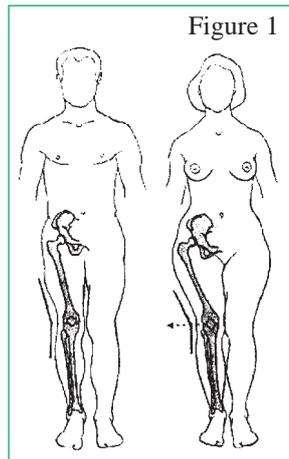
Do females suffer from the same types of injuries as males? Safran et al.(1999) studied possible gender differences in the injury pattern, incidence and prevalence in high level USTA competitors. From 1996 to 1998, all injuries that required physical or medical assistance were recorded for 14-16 year old participants at the USTA Girls 16's National Tennis

Championships (held in San Diego, CA) and USTA Boys' National Hardcourt Championships (held in Kalamazoo, Michigan). There was no significant difference in the overall rate of injury (new and recurrent) between boys and girls, but girls had a disproportionately higher percentage of lower extremity injuries. Boys had more upper extremity and central injuries. Girls sustained more injuries to the feet, leg/calf, and wrist, while boys sustained more injuries to the ankle, groin, and hand. Some of the more common injuries and afflictions in female tennis players are discussed below.

PATELLO-FEMORAL SYNDROME OF THE KNEE

A common complaint of female tennis players is pain around the kneecap, also called patello-femoral pain or runners knee. This will affect approximately 1 out of every 6 tennis players, females more often than males. Part of this is a result of the wider pelvis in females, resulting in an x-stand of the legs and an increased q-angle. The q- or quadriceps angle is the angle formed between a line through the rectus femoris muscle and a similar line through the patellar tendon. The larger the angle between the lower leg and the quadriceps, the more the kneecap is forced laterally when extending the leg (figure 1). Increased pronation of the feet, bad shoes, overweight, shortened and weak quadriceps muscles and knock knees may contribute to the condition.

Symptoms are widespread pain in the knee joint and behind the patella when playing, especially during low volleys, serving, intense left-right exercises, sprinting, starting, and stopping. The problems are accentuated when walking or running on hills and stairs, especially during descent. Pain and stiffness can be felt on rising from a sitting to a standing position. Stretching exercises for the upper leg muscles, stable shoes with good medial support, quadriceps strengthening and taping of the knee may decrease the complaints.



SHIN SPLINTS (MEDIAL TIBIAL STRESS SYNDROME)

Shin splints result from stress on the muscles and tendons that attach to the shin bone. It is not exactly known why it is more common in females than in males, although the more frequent x-stand of the knees in females may contribute to the problem. It can be triggered during periods of intensive hard training with a lot of running, jumping, and take-offs. Tennis players who spend most of their time on hard courts are particularly vulnerable. Symptoms are tenderness over the distal medial margin of the tibia, with the tenderness being especially pronounced over the lower half of the bone. A certain degree of irregularity can sometimes be felt along its edge, and swelling may be felt and seen. The pain ceases at rest but returns on renewed loading. Pain is triggered when the toes or the ankle joint are bent downwards. Treatment consists of rest and physical therapy. Shoes should be chosen carefully: they should absorb shock, control heel motion, and provide cushioning.

WRIST INJURIES

Wrist injuries in tennis are usually caused by the sudden

slowing of the ball as it hits the racket, resulting in a tendinitis. All tendons of the hand and wrist can be affected, but most often the tendon on the ulnar side of the hand is involved. The symptoms include a generalised pain radiating along the tendon to the point at which it joins the bone and sometimes even affecting the wrist joint itself. Studies have shown that girls have more wrist injuries than boys do in their mid-teens. It is not exactly known why, but suggested causes are lack of strength in their hand, and second, more flexibility in their joints.

STRESS FRACTURE OF THE FOOT OR LOWER LEG

A serious overuse injury in female tennis players is a stress fracture (also called fatigue or insufficiency fracture) of the skeleton. In tennis players, these fractures usually occur in the tibia (upper two-thirds), the fibula (5-7 cm above lateral malleolus), or the metatarsals (2nd or 3rd). Women who do not menstruate regularly or who have ceased menstruating are at a higher risk, because their lower estrogen levels may lead to decreased bone density.

In half of the cases the symptoms begin insidiously, in the remaining half acutely, without apparent injury. In the beginning, pain is felt during training, but not at rest. When the athlete continues to play, pain increases in intensity and eventually a dull ache persists after exercise. Local swelling and tenderness can be felt over the area. Because it is a hair fracture, only 40-50% of X-rays shows changes initially. The first indications may be the signs of healing (callus formation), which only occur after 3-4 weeks. It may therefore be advised to repeat the X-rays if the first X-ray is negative. Radio-isotope scanning may reveal abnormalities when other methods fail to do so. Treatment consists of rest for 4-8 weeks until the pain has resolved and healing can be seen on an X-ray. Bone density examination should be performed on all amenorrhoeic athletes. Orthotics may be required to control abnormal foot mechanics.

ANAEMIA

Iron plays an important role in the function of the red blood corpuscles and the oxygen transport. When there is an iron deficiency, this may lead to (iron deficiency) anaemia. It is a wise precaution to check young female athletes for iron status prior to the sports season and again if her performance deteriorates for no obvious reason during the season. Around 30% of female tennis players suffer of iron deficiency anaemia. Women lose approximately 1.5 mg iron per day, twice as much as men, and frequently fail to meet the recommended daily allowance of 18 mg of iron in their diet.

PRACTICAL GUIDELINES

It is hard to give guidelines that apply to everyone, because there are women who are strong and tall, just as there are men who are short and weak. In general, if the person you are coaching is strong and tall, and likes to play an offensive type of game, it is important to encourage her to play the net more. A technically sound serve with a lot of variety (speed, spin) should be taught at an early age. Playing a lot of double situations may help groove the serve- and volley game.

If the person you are coaching is short and has good legs, it may be more sensible to teach her to play well from the baseline. This includes spending more time on a good, offensive return, which takes away some of the pressure on the service games, and teaching her to play angled shots.

However, even to this there are exceptions, such as the short Amanda Coetzer playing very well at the net, and the tall, good-serving Venus Williams staying at the baseline!!

In general, since women seem to play less ball games at a young age than boys, some do not “read” the ball as well as boys do. Therefore, it is important for these women to do a lot of exercises involving spin and movement, starting at a young age. This may also help them to use a lot of variation (speed, spin) themselves.

Fit women are at a definite advantage to women who do not run very well. Co-ordination and running exercises should be practised from an early age, and should be done at least twice a week, even during competition. The training should be built-up gradually, because the biggest cause of typical female injuries such as shin splints and stress fractures is over-ambitious training. Tennis players are particularly prone to starting too fast early in the season or after return from injury. Instead of running exercises, biking, rowing, skating or the stairmaster may be part of the programme.

A lot of young girls seem to have wristy shots. This may be because they try to compensate for their shorter stature; by

trying to get more power into their shots they get into bad habits. The player should either be taught out of wristy shots or should pay special attention to wrist exercises, such as wrist curls and wrist extension. Other recommended exercises for females are rotator cuff exercises, because of their weaker upper body, and crunches.

The dietary requirements of women are slightly different from those of men, because of their increased risk of anaemia and increased bone loss. It is important to eat varied meals, which contain green vegetables, fruits, and nuts, because they are good iron supplies. Meat, fish, chicken and liver also contain a lot of iron. Vegetarians therefore run an extra risk and should have their haemoglobin level checked regularly. Vitamin C improves the iron uptake. A glass of orange juice at breakfast therefore not only tastes good, but is healthy as well. The iron uptake is hampered by coffee, tea and milk, and should be avoided by those who often suffer from anaemia. Calcium has been shown to be an important factor in maximising bone mass. Adolescents and young adults are advised to take 1000 mg per day. The recommended daily intake of hypo-estrogenic women is 1200-1500 mg per day.

THE NEW FORMAT FOR THE FED CUP

by Deborah Jevans (ITF)

Start Date	The Year 2000
New Format	One (1) World Group consisting of 13 nations All other nations will compete in Regional Qualifying
Number of Weeks	Two (2) weeks
Dates	Week I - week of 24 April 2000 Week II - to be confirmed after discussions with the WTA Tour
Week 1	Week 1 will consist of 12 nations participating in 3 Round Robin events in 3 different countries. These events will be hosted by the losing finalist and two losing semi-finalists of the previous year, ie, in 2000, three of the four following countries will host a first round Tie: Italy; Russia; Slovak Republic; USA. All matches will be the best of 3 matches (2 singles, 1 doubles) and the best of 3 sets.
Week 2	Week 2 will consist of the Champion Nation from the previous year and the three winners of the Round Robin events from Week 1. There will be two semi-finals, the best of 3 matches and a best of 5 matches Final.
Promotion / Relegation	The 3 nations who win their Regional Qualifying Events will automatically qualify for the World Group in the following year. The 3 nations who finish last in their Round Robin Events in Week 1 will automatically be relegated to Regional Qualifying the following year.
How do we get to the World Group in the Year 2000 from 1999?	<ul style="list-style-type: none"> • The 8 nations in the 1999 World Group I Croatia, France, Italy, Russia, Slovak Republic, Spain, Switzerland, United States • The 4 nations who win their 1999 World Group II 1st round Tie Austria, Belgium, Czech Republic, Germany • A Qualifying event was held during the week of 19 July 1999 between the 4 nations who lost their 1999 World Group II 1st round Tie and the 4 nations who won their Regional Qualifying Events, to determine the final nation in the 2000 World Group. Australia qualified.
Further Information	Deborah Jevans, Executive Director Fed Cup & Women’s Tennis Tel: 44 181 878 6464 Fax: 44 181 392 4751 / Email: Info@itftennis.com

DAVENPORTS DAZZLING SERVE

by Lynne Rolley (United States of America)
Director of Program Development USTA

(This article was first published in *Tennis Magazine*, August 1997)

Lindsay Davenport's serve has become a great weapon for her. Not only can she power it in, but she also has excellent placement and variety on the serve and uses it effectively to set up her outstanding groundstrokes. As the USTA Director of Coaching for Women, I've worked with Lindsay since she was 13. Long before her muscles were fully developed, allowing her to hit with power, we worked on establishing good rhythm and timing to develop one of the better serves in women's tennis.



As Lindsay starts her motion, she's somewhat hunched over. I would prefer her to have better posture. **I like where her hands are, and her weight is well forward, which is good, but I really think that she should be standing up straight. Bending over when beginning the serve can sometimes cause too much of a rocking motion of the upper body.** However, that's Lindsay's style, and she does a good job for straightening up as she transfers her weight to her back foot in the second photo. Her back is straight at that point, her back knee is bent and she has very good balance.

Then Lindsay drops the racquet head down (**second photo**). This can cause the racquet to be late through the hitting zone. **She gets her racquet up very quickly, but if the average player drops the racquet down like that and the toss goes up, the racquet often lags in the motion.** Again, this is something that Lindsay can get away with because of her impeccable timing, but the danger is that the racquet head won't get up in time.

I do like the way she rocks back on her front heel here. That move helps you feel your rhythm. The only thing that you have to be a little careful or when you rock is if you get your upper body rocking - that can throw your toss off quite a bit.

Note how well Lindsay places her toss in the third photo. It's forward and to her right, enabling her to see the ball well as it leaves her hand. The left hand is really extended as she lifts the ball up. And look at the position of her hand. She's not flipping the ball up with her fingers, but rather using her hand as a platform. **If you just flip the ball with your fingertips, it will spin, and spin will make the ball move one way or another, which means you**

won't be hitting it from a consistent location.

Lindsay's positioning in the fourth photo is excellent. She has a good knee bend, and she also has a very nice hip and shoulder rotation (note how her back is more to the camera than at the start). Her left arm is extending up, and the head of the racquet is in excellent position. **That left hand is a tremendous guide, helping her to sight her contact point.**

The serve starts from the ground, and you can see how Lindsay really uses her legs to push up into the ball (**fifth photo**). As she goes up, the hips and shoulders start to rotate forward, and at the last moment the racquet will come through. **That acceleration from the legs and the hips means that when she gets up to the ball, the racquet can really accelerate.** At contact, she snaps the wrist through, which generates even more racquet-head speed.

It's also important to point out how controlled Lindsay's left hand is. It's in a good position, particularly when she's making contact with the ball (**sixth photo**). **A lot of recreational players will pull the left hand down too early, and that pulls you off to the side. By controlling that arm, you maintain better balance.** You can see that when she finishes she's propelled straight into the court, not falling to the side.

Lindsay's left side leads her into the court - hips and shoulder uncoiling (**sixth photo**). That's a good indicator of a well-balanced serve. And, indeed, Lindsay is perfectly balanced as she finishes, landing well inside the court on her left leg, her finish providing her with a big first step toward the net.

(Photography by
Ron Angle)

RECOMMENDED BOOKS AND VIDEOS

BOOKS

The courtside coach

by **Bryce Young and Linda Bunker**

Year: 1997. Level: Advanced. Pages: 160. Language: English. This book is specifically designed to take onto the court during practice or match play. Its contents include the following: Pre-service routines, return of serve routines, positive emotions, positive self-talk, managing your emotions, controlling stress and tension, concentration, imagery, self confidence, super-thought in special situations, change over control, doubles, learning from your match, stroke assessment charts, performance learning analysis, scouting reports, training and competition calendars.

For more information contact: United States Tennis Association, 7310 Crandon Blvd., Key Biscayne, Florida 33149, T (1) 305 365 87 07, F (1) 305 365 87 00.

Price approx.: 12.95 USD.

Coaching tennis

by **Chuck Kriese**

Year: 1997. Level: Advanced. Pages: 305. Language: English. This book, formerly published as Total Tennis Training, is a recipe for total player development which gives players and coaches the competitive edge when it comes to understanding the complex sport of tennis.

Contents include: 1. The Physical Third: Train physically for a purpose, train for anaerobic endurance, train for strength and flexibility, speed and balance: the edge, develop your technical skills and stroke production, support your training with good nutrition, prevent and treat athletic injuries, 2. The Mental Third: Build your best game, concentrate on your pre-match preparation, the Wardlaw directionals, observe important checkpoints for match play, use the power of momentum to control match flow, take time to evaluate your match, 3. The emotional third: Use your ability, desire and opportunity, develop your motivational program, expect your best and understand pecking order, some tools for competition, 4. Individual and team coaching considerations: Build a team in an individual sport, use timely positive and negative feedback, train your team's doubles skills, use effective drills to sharpen your team skills, my favourite instructional tools, sportsmanship, interviews on tennis-coaching excellence. Bibliography.

For more information contact: Master Press. 2647 Waterfront Pkwy E. Drive, Suite 100. Indianapolis, IN. 46214. Price approx.: \$20.

Tennis: Planning (La programmation)

by **The French Tennis Federation**

Year: 1998. Level: Beginners. Pages: 178. Language: French. This book presents different models of tennis sessions for players up to 9 years old. It is addressed to coaches and P. E. Teachers. It includes the lessons with a progression of complexity in order to adapt the programme to the evolution of the players.

For more information contact: Fédération Française de Tennis, 2, Avenue Gordon Bennett, 75016 Paris, France. Tel: 33 1 47 43 48 00. Fax: 33 1 47 43 04 94.

Master in tennis

By **Andrés Gimeno**

Year: 1999. Level: Advanced. Pages: 206. Language: Spanish. This book covers all issues related to tennis from the experience of the author, French Open Champion. It is addressed to coaches, players, parents and officials.

The structure of the book is as follows: 1. History of tennis, 2. Major Tournaments, 3. Basic elements of the game, 4. Fundamentals of tennis technique, 5. Basic strokes, 6. Special strokes, 7. Doubles game, 8. Physical Conditioning, and 9. Strategy and psychology.

For more information contact: Editorial Martínez Roca, C/Enric Granados 84, 08008 Barcelona. Tel: 34 93 415 39 11. Fax: 34 93 415 36 89.

Price approx.: \$25.

1500 Drills for improving technique, speed and rhythm in tennis

by **Alessandro del Freato**

Year: 1998. Level: Advanced. Pages: 321. Language: Spanish. This is a complete drill book for players and coaches of all levels.

The structure of the book is as follows: 1. Forehand drills with variations, 2. Backhand drills with variations, 3. Volley drills with variations, 4. Volley drills combined with speed, 5. Basic Smash drills, 6. Advanced drills for smash, 7. Technical and tactical groundstroke drills, 8. Forehand and net game drills, 9. Backhand and net game drills, 10. All court drills

For more information contact: Editorial Paidotribo, C/ Consejo de Ciento, 245 bis 1º, 1ª, 08011 Barcelona. Tel: 34 93 323 33 11. Fax: 34 93 453 50 33.

Price approx.: \$25. E-mail: paidotribo@paidotribo.com

VIDEOS

Beginners Tennis: From the start to the organisation

(Initiation: de la démarche...à l'organisation. Fédération Française de Tennis. Shows how to organise tennis lessons for players aged 7-9 years old. William Bothorel, Rafaël Ferre Sentis, Julien Deshayes. Colour. Approx. 30 min. Available in French.

The kid first, the student second (L'enfant d'abord, l'élève

ensuite). Fédération Française de Tennis. Shows mini-tennis exercises and practices. Jean-Claude Marchon, Rafaël Ferre Sentis. Colour. Approx. 30 min.

Planning the sessions (La programmation).

Fédération Française de Tennis. Shows different session plans for players up to 9 years old. Jean-Claude Marchon, Rafaël Ferre Sentis. Colour. Approx. 30 min. For more information contact: Fédération Française de Tennis, 2, Avenue Gordon Bennett, 75016 Paris, France. Tel: 33 1 47 43 48 00. Fax: 33 1 47 43 04 94.

11th ITF WORLDWIDE COACHES WORKSHOP TENTATIVE PROGRAMME

1-7 November 1999, Casablanca, Morocco

DAY 1 Tuesday 2/11/99	DAY 2 Wednesday 3/11/99	DAY 3 Thursday 4/11/99	DAY 4 Friday 5/11/99	DAY 5 Saturday 6/11/99
0900-0915 (lecture room) Ismail El Shafei (ITF) President of RFMT Dave Miley (ITF) <i>Workshop Opening</i>	0900-1015 (lecture room) Tom Gullikson (USA) <i>Working with world class tennis players</i>	0900-1015 (on court) Franco Davin (ARG) <i>Training systems of the Argentinean junior teams</i>	0900-1015 Steve Green (UK) <i>Physical conditioning for top level tennis</i>	0900-1015 (on court) Doug MacCurdy (USA) <i>The challenges of succeeding in the world game</i>
0930-1030 (lecture room) Dave Miley (ITF) <i>ITF and Development</i>				
1030-1145 (lecture room) Ann Quinn (AUS) <i>Injury Prevention</i> 1200-1315 (lecture room) George Govan (FRA) <i>TBC</i>	1045-1300 (on court) <i>Either:</i> <i>Physical Conditioning</i> 1045-1145: Ivo van Aken (BEL) 1200-1300: E. Aspillaga (CHI) <i>or:</i> <i>Training systems (I)</i> 1045-1145: A. Ghissassi (MAR) 1200-1300: E. Giffenig (MEX)	1030-1145 (on court) Emilio Sánchez Vicario (ESP) <i>Working with top level players</i> 1200-1315 (lecture room) Richard Schonborn (GER) <i>Return of serve (I)</i>	1030-1300 <i>Either (lecture room):</i> 1045-1145: Joan Duda (USA) <i>Psychology</i> 1200-1300: Andrew Coe (ITF) <i>Technology in tennis</i> <i>Or (on court): Training systems (II)</i> 1045-1145: ITF Training Centres & Coaches 1200-1300: Jacques Hervet (ITF Team Coach)	1030-1145 (on court) Richard Schonborn (GER) <i>Return of serve (II)</i> 1200-1315 (lecture room) Joan Duda (USA) <i>Motivation in junior tennis</i>
Lunch, free time and films	Lunch, free time and films	Lunch, free time and films	Lunch, free time and films	Lunch, free time and films
1500-1615 (on court) Nick Saviano (USA) <i>Strategy and tactics for top junior players (TBC)</i>	1500-1615 (on court) Luis Bruguera (ESP) <i>Drills and training systems for top players</i>	Free afternoon and evening	1500-1615 (lecture room) Miguel Crespo (ITF) <i>TBC</i>	1500-1615 (on court) Carlos Kyrmayr (BRA) <i>From juniors to professionals</i>
1630-1700 (lecture room) ITF Coaches Commission <i>Report</i>	1630-1700 (lecture room) Juan Margets (Executive Vice-President, ITF) <i>Tennis 2000 - an ITF Perspective</i>		1630-1800 (lecture room) Jean-Claude Massias (ITF) <i>The advanced backhand technique (video)</i>	1630-1745 (on court) Louis Cayer (CAN) <i>Poaching in doubles</i>
1715-1830 (lecture room) Dr. Babette Pluim (NED) <i>Use of supplements and other substances for tennis performances</i>	1715-1830 (lecture room) Davis Cup and Fed Cup Captains <i>Important factors to being a successful non-playing captain</i>		1800-2000 (lecture room) <i>Display of National Association's Coaches Education Material</i>	1800 (on court) <i>Workshop Closing</i>
2000 Opening Dinner	2000 Davis Cup Centenary Dinner		Free evening	2000 Closing Dinner

Note

- All participants must be nominated by their National Association and the official entry form faxed to the ITF Development Department, fax: 44 181 392 4742
- Four places are available for Full Members Nations (this cannot include more than 3 males or 3 females)
- Two places are available for Associate Member Nations (this cannot include more than 1 male or 1 female)

The closing date for applications is Wednesday 1st September 1999.

GENERAL GUIDELINES FOR SUBMITTING ARTICLES TO COACHES REVIEW

Coaches Review is published 3 times per year by the ITF. If you wish to submit articles for consideration, the general guidelines are as follows:

Length: Short articles not more than 4 pages.

Author (s): Name, nationality, academic degree if any, position in an institution or organisation.

Topics: Latest tennis topics (technique, teaching methodology, tactics, psychology, physical conditioning, medicine, training, drills and games, development, etc.).

SUBMISSION OF ARTICLES:

By mail: To ITF Development Department, Bank Lane Roehampton, London SW15 5XZ (ATT. Miguel Crespo, Research Officer), or to Miguel Crespo, C/ Pérez Báyer, 11, 10-A, 46002 Valencia, España. Please attach a printed copy of the article and a floppy disk.

By e-mail: To Miguel Crespo <dualde@xpress.es>

Text: Use any word processor (Word 7.0 is preferable)

Font: 12 (any type)

Graphs: Use any graph software (Power Point is preferable).

Photos: 2 photos max. per article can be attached.

We hope this information will be useful to you. In case you may need any further details, please contact the ITF Development Department.



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