

COACHES REVIEW



6th year, Issue 15 AUGUST 1998

SPECIAL ISSUE: 10TH ITF WORLDWIDE COACHES WORKSHOP (cont.)

WELCOME TO COACHES REVIEW!

Welcome to issue 15 of ITF Coaches Review which features articles from Argentina, Belgium, Dominican Republic, France, Great Britain, Holland, Mexico and Poland. The subjects covered include a contribution from Jean-Claude Massias of France on a charter for players on national teams. There is also a practical article by Babette Pluim of Holland on ten ways to improve psychological skills on court. Nick Jones of Great Britain writes on the importance of corner to corner movement drills while Gustavo Granitto, Nicolas Guizar and Marcial Mota from the ITF Training Centre in Panama illustrate some drills to improve reception and projection of the ball. We also include an article by Piotr Unierzyski, Ewa Szczepanowska and Tomasz Schefke of Poland on training methods for improving endurance and a contribution from Ivo van Aken, of Belgium, containing a programme for maintaining fitness during tournaments.

Our section on "What tennis research tell us about...?" is dedicated to the biomechanics of the groundstrokes. Many of the results obtained in these studies have a direct application to daily training.

The section "Tennis on the Internet" covers the global presence of tennis on the internet with an article that includes new web sites related to tennis. Additional new sources of tennis specific material are also listed in "Recommended books and videos".

Many of our readers will be interested to know the dates and venues for the 1998 ITF Regional Coaches Workshops. Workshops will be held in Africa and Central America in September, in Asia in October and in South America in November. Further details can be found inside. In addition to these ITF Workshops, the European Tennis Association Coaches Workshop will be held in Cyprus from the 4 - 8 October 1998.

You may also be interested to learn that the ITF Advanced Coaching Manual, which is currently being used for Level II Coaches Courses, is now available in English. Spanish and French versions will be available later this year. The ITF is also producing a new Teacher's Manual for the Schools Tennis Initiative, which includes over 50 practical sessions for introducing mini-tennis at school level.

Finally, a reminder that on April 7th the International Tennis Federation moved from its previous offices at the Queens Club and is now located at the Bank of England Club (also the venue each year for the Wimbledon qualifying event). Our new address is ITF Ltd, Bank Lane, Roehampton, London, SW15 5XZ, England - Tel: 44 181 878 64 64, Fax: 44 181 878 77 99. E-mail: itf@itftennis.com

We hope that the articles in Coaches Review continue to generate a lot of discussion among coaches around the world. If some of our readers are interested in commenting on any of the articles published in Coaches Review, we would be happy to receive your letters and if we feel your comments are of interest, we 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 15th issue of Coaches Review.

Dave Miley

Executive Director, Development

Miguel Crespo Development Research Officer

CHARTER FOR PLAYERS ON NATIONAL TEAMS

by Jean-Claude Massias (France)

This is a Charter which each player who trains in one of our national training centres should fill out. This document is very simple, but it gives the opportunity for the coaches to discuss each point with the players.

CHARTER FOR PLAYERS ON NATIONAL TEAMS
I, surname:
 to represent my country, my league, my club, in the events for which I shall be selected to show determination and fighting spirit either in training or in competition to adopt model behaviour on and off court to lead a healthy life at all times and never take drugs or performance enhancing products to respect the rules of the Federation's training programme to respect the people who govern the game, the coaches, the officials, the organisers and the players to abide by the yearly training program and the competition planned by my coaches and in no case change it without notify them to speak positively about the national training system when dealing with the media to wear on the sleeves of a shirt or track suit the Federation sponsor's logos during official competitions or camps organised by the Federation
I understand that if I break any of the articles of the charter, I could lose the advantages that are offered to me through my Federation.
Date:
Read and approved,
Signature:
Parents: Player:

TEN WAYS TO IMPROVE PSYCHOLOGICAL SKILLS ON COURT

by Babette Pluim (Holland)

Tennis is often thought to be one of the psychologically most challenging sports. Why? There are two reasons:

First is the connection between the pace of the game and psychological fatigue. Good players must be quick both on their feet and in their heads. They must move, while at the same time making numerous decisions about direction and pace of the shot. A player who is not in good shape will become physically tired and then mentally tired.

Second is the stop-and-go nature of the game. In a typical match, players spend less than 1/3 of their time actually playing and more than 2/3 between points and changeovers. This "dead time" gives them ample time to think about past mistakes

and future plans, and to become either discouraged or pumped up. Players sitting on a chair during a changeover are trying to relax physically, but are they also trying to relax mentally?

- 1. Routines: Good players usually have small rituals that they perform both before and during a match. The goal before is to minimise nervousness and build confidence. Some players eat certain foods, others stretch in regular sequences, others warm up in predictable patterns, others carry "good luck" charms in their racket bags. There are no "rights" or "wrongs". Each player should be flexible and do whatever makes him/her feel good. During a match, the goal is to remain composed and concentrated. Many good players have rituals before they serve or before they receive. Some bounce the ball, others take three balls from the ballboy and return one, others have characteristic foot or head movements. For the club player, common rituals include taking a deep breath or thinking of particular "cue words".
- 2. Breathing: Good breathing habits on court can bring both physical and psychological benefits. The former are obvious. After a long point, the breath of even a player in peak condition can become short and shallow. A deep breath helps to restore normal rhythms, as well as relax shoulder and neck muscles. Exhaling decreases muscle tension, which is why most good players have learned to co-ordinate breathing out with hitting the ball ("grunting"). Less obvious are the psychological benefits of good breathing habits. Many club players actually hold their breaths or inhale as they hit the ball, with the result that their muscle tension does not decrease, and they actually become more tense as the match progresses. The goal is to relax. During changeovers, regular and deep breathing will help.
- **3. Goal setting:** Good players set goals, both for particular points and for particular games. A goal helps a player remain focused, as well as providing a sense of satisfaction when it is achieved. Some players begin a point with the goal of hitting three deep balls before going on the offensive, or hitting two balls to the backhand corner before coming to the net. They may begin a game with the goal of hitting an approach shot after every short ball, hitting the second serve with more spin, or of not making any unforced errors. The substance of the goals is not as important as the process of setting them.
- 4. Concentrating: Everyone talks about the importance of concentration, but on what? There are lots of possible targets. The ball, the tactics of your opponent, your own tactics, the next point, stroke production, breathing, mental attitude? Good players are aware of the need to pay disciplined attention to all these subjects. One way of trying to improve concentration is to practice in environments with distractions, so that one learns to shut them out. Another way is to focus on the seams of the ball or to use "cue words" such as "move forward" or "step in". Between points and during changeovers are more appropriate times to focus internally, on your breathing or on your strategy. An effective way is to have a short "checklist" to run through. Each player will have his/her own checklists and these checklists should change during the course of a match. The critical thing is to have them.



5. Self-talk: Self-talk can be a two-edged sword. Self-talk that is irrational, negative, and focuses on past mistakes is counter-productive and may increase anxiety. Players who use this are not helping themselves, but are instead often helping their opponents. A good player may mutter and shout after blowing a lead, a double-fault, or after losing a big point, but he/she does not dwell on it during the next

point. He/she may use positive self-talk to remain in the present ("next point"), to sustain effort ("come on, you can do it"), to initiate action and to focus on what to do instead of what not to do. Instead of freaking out completely, positive self-talk helps the player to stay calm, alert and play the best tennis he/she possibly can.

- **6. Looking Good:** The issue here is the "body language". How you move between points is a signal not only to your opponent but to yourself. Good players are careful not to give opponents encouragement by looking "down" or "beaten". A positive walk and racket position says "I'm ready" and "I'm fighting".
- 7. Coping With Mistakes: Good players are comfortable with mistakes. They do not like them, but they know they have made a lot of mistakes in the past and they will make a lot more in the future. A missed backhand is just one point. A double fault can be balanced with an ace. They have learned that it is better to remember the good shots than to dwell on the bad ones.
- 8. Visualising: Visualisation is performing the stroke in your mind, like a perfect serve or a powerful backhand passing shot. It has been shown that during visualisation, activity occcurs in the nerves of the muscles you normally use to make the shot. The mental picture of the stroke is like a blueprint of the ideal movement and helps to perform the stroke well even in pressure situations. For example, players may use visualisation at difficult moments during the match, after they have just missed a couple of service returns in a row or after having hit a double fault. Imaging the mental picture of the ideal stroke helps to get the right feeling back again and to break the string of bad strokes.
- 9. No Choke! No guts, no glory! In pressure situations, timid players seldom succeed. The fear results in loss of coordination and flexibility, impaired strategy and in so-called choking. Good players, however, have learned how to cope with pressure and know they have to go for their shots. They do not take unnecessary risks, but do try a winner off a second serve at game point, hit with both power and spin when serving for the match and do try to put away an overhead to win an important game. The goal should be to play to win, not to play to avoid losing. The additional effect of going for the shots at important points is that it builds self-confidence and demoralises the opponent.

10. Congratulating oneself: Research has shown that confidence is positively related to muscular strength and endurance. The player who thinks he/she is doing well will continue playing longer at a high level than the player who

thinks he/she is failing. This effect of increasing selfconfidence and better performance is called "the power of positive thinking".

MOVEMENT DRILLS

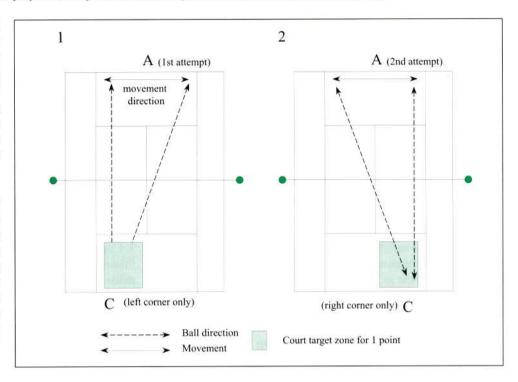
by Nick Jones (Great Britain)

INTRODUCTION

A crucial aspect of tennis involves conditioning players in movement and court coverage for point situations. It is also important to work on recovery in order to help the player develop a sense of anticipation, tempo and rhythm of the point.

The corner to corner movement drill allows a coach to hit alternative corners enabling player A to move and to have a stationary player acting as a control-hitter. This drill demands recovery when selecting a shot. This will help develop the linkage between a steady recovery shot and superior positioning for the next shot.

If player A fails to adjust to the requirements, the coach can expose a poorly selected shot by reducing the recovery time and replying with a difficult shot to the following corner. This should have the effect of making player A consider the change of pace and spin variations to assist recovery for the next shot position.



POINT SCORING

The player scores 1 point each time the ball lands between the service line and baseline in the coaches' corner. A shot in the net is penalised -2 points, and depending on the ability of the player, a -1 point deduction is optional if the ball lands between the service line and the net in the coaches' corner. The player must score 20 points to complete the exercise (try to encourage completion with less than 3 mistakes).

When completed, then have player B or the coach (if up for it!) do the drill while player A plays in the stationary corner or rests. The points can be reduced to 10 or 15 points for completion if necessary. Adequate rest to maintain quality of drill should be allowed.

DRILL PROGRESSION

The same exercise can be repeated, but change the stationary corner to encourage variations in shot direction.

Include the introduction of wrong-footing shots and short balls with the addition of +2 points for winning shots and points won at the net. The size of the target zone can be varied to include a bonus point for a deep zone (use old plastic cans for zoning).

SUMMARY

Corner to corner drills (with stationary control) encourages movement and shot selection, initially in a defensive mode, which can latter involve a progression into a counter-offensive mode.

This drill encourages the use of slice and topspin and the ability to vary the type of ball hit thus facilitating positional play. The player cannot expect to hit out and achieve 20 points without errors, therefore changes of pace accompanies the use of spin.

Use this exercise when your player needs:

- To add spin and speed variation to shots
- · To structure points, be patient and wait for an opening
- To facilitate the player's understanding of the association of shot selection and recovery; increases spatial awareness and anticipation
- To gain consistency and base level of performance
- To feel the benefits of consistant rallying and changing the direction of the balls.

DRILLS FOR IMPROVING RECEPTION AND PROJECTION OF THE BALL

by Gustavo Granitto, Nicolás Guizar, Marcial Mota (ITF Regional Training Centre, Panamá)

INTRODUCTION

A common problem of some junior players is identifying the type of ball sent by the opponent (reception) and knowing what shot to respond with so as to adequately deal with its characteristics (projection).

The causes of this problem can be summarised as follows:

- Lack of knowledge
- Lack of ability or competence
- Focusing on only the outcome
- Lack of practice

In addition to these factors, we think that the main reason lies in the fact that the training systems and the specific methods used to familiarise the player with the interpretation, learning and execution of the reception-projection sequence should be used more often and more efficiently during training sessions.

PRACTICAL ASPECTS

Below, we present a methodological proposal based on our positive experience with junior players, which we believe improves these abilities.

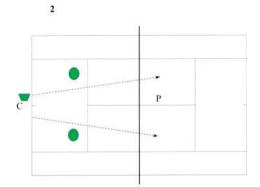
Drill 1

Purpose: Neuro-muscular activation.

Description: Perform different drills of mobility and reaction using the tennis ball as a visual stimulus. Drills start in "slow motion" and progressively increase in speed but always try to maintain the quality of the movement by adjusting the duration and intensity of the drills.

Drill 2

Purpose:
Perceptive
awareness. To
perceive the
ball at the
moment in
which it is
coming off the
opponent's
racket.



Description:

Coach with basket on the baseline and player at the net on the other side of the court. Two cones are placed 2 metres in front of the coach on the right and left. Coach feeds balls very fast to the forehand and backhand sides of the player. The player has to move to the correct side before the ball feed has passed the cones and then he has to volley the ball. The ultimate goal is not the volley, but to perceive the ball in the instant it is leaving the coach's racket.

Variations: The player may try to touch the net before the ball passes the cones. Multiple variations can be done from any court position. Use "cue" words, "left" and "right" to aid perception.

Developing this ability, enables the player to react with more time to execute the shot. By "reading and decoding" the body and racket movements of the opponent, the player will anticipate the ball earlier.

Note: This drill is based on one proposed by Louis Cayer.

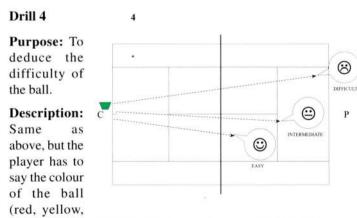
Purpose: To perceive different tennis balls through colours. Description: The player has to identify the difficulty

of the ball according the colours of the traffic light eg.

- red = difficult
- yellow = intermediate
- green = easy

The drill progression is started by using the basket. First, the coach tells the player the direction of the ball, next the coach does not tell the direction, and finally the drill progresses to a rally situation.

Note: This drill is based on one proposed by Gundars Tilmanis.



green) or the word (difficult, inter-mediate, easy) before hitting it. Progression is the same as for the previous drill.

Drill 5

Purpose: To execute the shot according to the characteristics of the ball.

Description: Same as above, but the player has to hit the ball according to its characteristics eg:

- difficult ball: pass it over the net
- intermediate ball: build up the point
- easy ball: attack or win the point

If the player doesn't hit the ball accordingly it is usually due to a failure to identify its characteristics and, thus, the coach has to start again from the beginning of the progression to ensure that the player recognises the ball correctly.

Variations: The coach may create all desired variations in order to help the player create a "data bank" in his mind. One of the most common variations is having the player feed balls of different degrees of difficulty to his peers. The progression starts with the basket and leads up to a rally situation.

The intensity and load of the drills depend on the abilities previously acquired by the player.

Drill 6

Purpose: Awareness of ball characteristics and court positioning.

Description: Awareness of the characteristics of the on-coming ball is also related to court positioning. It is important, from a mental point of view, to help the player recognise which court

zone more is most comfortable for him and develop his game style accordingly.

This awareness can be applied by using the following drill:

The coach feeds balls to the player who has to recognise the zone of the court in which he is positioned and hit the ball accordingly:

- green: move into the court as fast as possible and reduce the contact time with the ball.
- yellow: rally from 1 metre behind the baseline.
- red: generally when the player is positioned between 1 and 2 metres behind the baseline.

The most important point is to create a situation which allows the player to have sufficient time to recover to the ideal position in the court.

The teaching methodology used for the drills may include problem solving, guided discovery and "sandwich" strategies.

CONCLUSIONS

By using this methodology, the player can improve two elements: his awareness of the ball and his familiarity with space. Players may have different degrees of perception of the ball or the court zones, since they react to pressure according to their game styles and their emotions.

Coaches should help players to apply criteria that minimise the unforced errors, by always trying to keep the ball in play and to take the initiative in the game whenever possible.

TRAINING METHODS FOR IMPROVING ENDURANCE

by Piotr Unierzyski (Ph.D.), Ewa Szczepanowska (Ph.D.) and Tomasz Schefke (MA) (University School of Physical Education, Poznan, Poland)

1. INTRODUCTION

Endurance training methods for tennis can be divided into 3 groups:

(*) - all-round

(**) - semi-specific

(***) - tennis specific

There are many kinds of training methods suitable for endurance practice for tennis players. A vast majority of them may be used both on and off court. Outline below are only some of them but we hope that you will find them useful in your work.

2. CONTINUOUS METHODS (*)

- Develop mostly aerobic base for future more specific training
- Longterm training effect (it takes quite a long time to improve endurance but when one reaches a good level this level can be maintained for a long time)
- Used mainly during preparation periods but can also be practised during/after tournaments
- . Steady or mixed intensity depending on the method

There are no breaks between exercises if more drills are used

2.1. Extensive endurance training

- Designated for less trained players (12-13 yeas of age) but can be used by good athletes e.g. at the beginning of the preparation period or as a form of active rest
- Develops or improves basic (aerobic) endurance and resistance to fatigue
- Typically involves an aerobic kind of exercise steady run (or cycling, rowing etc.), pulse rate around 130-160 beats per minute, lactate 2-3 mmol/l (lactic acid per litre)
- Typical program for tennis player should last for around 6 weeks, usually 2-4 sessions per week during transition period and 1st preparatory period, then other methods should be used
- Training should not exceed a period of 6 weeks because of possible changes of FT to ST (fast fibres into slow fibres) which will reduce speed abilities.

Example of off-court endurance training (*)

 Load (eg. continuous run or other long lasting exercise) should be increased on every second session. During the first 2-3 weeks (1st mesocycle) the length of time for the run should increase steadily from 20 - 40 minutes. During next 3-4 weeks (2nd mesocycle) the intensity (eg. speed of a run) should increase without increasing the time.

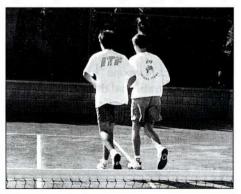
Examples of on-court endurance training (**)

- The load should be the same as for off-court example.
- During first 2-3 weeks (1st mesocycle) up to 3-4 times per week: 20 minutes of forehands with a partner, against the wall or with a ball machine (16-18 strokes per minute, 2-3 meters of run to each shot) at the end of technical practice. On next practice the same but 20 minutes of backhands instead.
- Next 3-4 weeks (2nd mesocycle) up to 3-4 times per week: 20 minutes of forehands-backhands (left-right,) with a ball machine (between 16-18 and 20-22 strokes per minute, 4-5 meters run to each shot).

It is possible to use both types of training (off and on-court) during the same period (microcycle or mesocycle).

2.2. Fartlek (**)

- More specific and more intensive than continuous running (exercises can be more tennis-specific)
- Main goals: versatile development, complementing other training methods and/or preparation for further, bigger loads (e.g. interval training)
- Develops aerobic and anaerobic endurance, anaerobic threshold and resistance to fatigue
- Performed as a continuous run mixed with co-ordination exercises, sprints, multi-jumps etc.
- Should be practised by more experienced players (over 13/14 yrs)
- Usually should be used during preparation period together with continuous running and other methods (eg. once per week) but also can be performed between tournaments
- Lactate should be around 2-5mmol/l LA, immediately after intense exercises this can increase to 6-8 mmol/l
- Fartlek usually consists of 3-4 parts:
- Warm up; mobility, co-ordination and agility (or footwork) exercises during jogging.
- Power and speed exercises while running (each one should be performed for up to 5-10 seconds, sometimes 15 seconds, over a distance of 10-30 meters, 4-8 repetitions, jogging during breaks) eg: skipping, multiple jumps,



- running with changes in direction, 10-15 metre sprints, skipping, 4-6 multiple jumps with 5 metre dash, running up a hill (20-30 metres).
- 3. Mixed run: 150-300m fast, 300m jogging (4-6 repetitions).
- 4. Jogging for 20 minutes.
- 5. Cool down, stretching

3. INTERRUPTED METHODS

3.1. Repetitive method with full recovery (**)

- Can be done off or on-court
- Typically anaerobic alactacid work eg. sprints with a duration up to 8-12 seconds, 6-8 repetitions, 2-4 minutes break to full recovery after each run
- Always to be done at full speed
- Improves anaerobic sources of energy speed and anaerobic alactacid endurance training should be stopped if athlete slows down performance of a drill (if he does not perform at full speed).

Examples of exercises (after warm up and stretching):

- 1. Off-court: multi-jumps on one leg, multi-jumps on other leg, skipping, dashes down a hill, skipping (different types), sprinting after 2-4 multi-jumps.
- 2. On-court (coach feeds balls which are almost impossible to reach so a player has to run with 100% speed): 1 ball for each player, 2 balls (eg. first drop shot, then lob-smashing not permitted), 3 balls (eg. wide ball to the forehand, second to the backhand, then a drop shot). Player must at least touch each ball.

3. 2. Method of sub-maximal speed (**)

- Very tiring but very effective in short period short training effect
- Drills can be very similar to drills used by H. Hopman
- Can be done on-court but not fully tennis-specific because of long lasting exercises
- Improves anaerobic sources of energy and partly speedendurance
- Cannot be used with young (under 15) and not very well trained players.

Example of drill

A coach stays in one corner of a court and plays left-right for 3-5 minutes, the player should try to run and hit every ball back to the coach (if he misses, the coach immediately feeds another ball so there are no breaks during these 3-5 minutes). Break for 1 minute after each set, 2-4 sets are recommended.

3.3. Interval training (***)

There are many different methods of interval training.
The purpose is to improve discipline oriented abilities
eg. speed endurance. The goal is to repeat several (usually
intense) exercises with breaks which are insufficient to
fully recover. We do not recommend classical interval

training taken straight from track-and-field because they are not tennis specific. So it is advised to use more specific interval training eg. model interval training.

- Model interval training was designed specially for the needs of tennis. The main idea is to adjust load, time of exercises, number of repetition and breaks so that they will be very specific to the game.
- Can be done on and off court
- · Should imitate the rhythm of a tennis match
- The exercises should be performed at maximum speed (eg. with time control or as competition)
- Should not be used with young (under 15) or with not very well trained players
- This kind of training improves mostly anaerobic endurance (speed endurance) but also improves resistance of nervous system and motivation
- Each exercise should last up to 10-25 (sometimes 30) seconds with 20-25 seconds of breaks, 6-8 repetitions of each exercise are recommended

Example of model interval training:

Side runs (left-right) in pairs at full speed throwing 2 kg medicine ball (25 seconds with 20 seconds break), change direction and throw medecine ball after side-stepping for 3 meters, multi-jumps (7-10 seconds work / 20 seconds rest), run - 3 steps forward, 2 steps backward (20 seconds with 30 seconds break), skip over obstacles (10 seconds work / 20 seconds rest), side throws of 2 kg medicine ball (forehand, backhand movement) (20 seconds work / 20 seconds rest).

4. STARTING METHODS ***

The rule is to keep the circumstances similar to a match but with much greater intensity and load. Examples: playing with shorter breaks than usual between rallies (eg. 10 seconds), facing much better opponent, playing on a court including alleys, playing 3-4 sets, each set being against a different opponent.

5. REST (biological recovery)

The goal is to regain endurance potential. It is worth remembering that sometimes it is better to rest than to practice. Types:

- 1. Passive
- 2. Active removing lactate with exercise of very low intensity

6. EXAMPLE OF PLANNING OF ENDURANCE TRAINING

a. Preparatory phase:

- al. All-round preparation sub-phase (usually with one mesocycle):
- the task: building up an aerobic base
- methods: continuous (continuous run and fartlek) one mesocycle lasts usually 3 to 5 weeks.
- a2. Tennis-specific preparation sub-phase with one or two mesocycle:
- the task: building up tennis-specific (anaerobic) endurance
- methods: mostly interrupted (usually method of submaximal speed, fartlek or model interval training), this phase lasts usually 3-6 weeks.

b. Pre-competitive phase:

- the task: to "direct" established fitness into tennisspecific fitness
- methods: method of sub-maximal speed, model interval training, complex and starting methods

c. Competitive phase:

- the task: to maintain tennis-specific fitness
- methods: method of sub-maximal speed, model interval training, and starting methods (all these methods usually not more than once per week), continuous running and jogging, rest.

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MAINTAINING FITNESS DURING TOURNAMENTS

by Ivo Van Aken (Technical Director of The Flemish Tennis Federation)

1. INTRODUCTION

It's obvious that being physically fit is very important because of it's influence on the mental, tactical and technical side of the game.

Professionals today don't have too much time for periods of preparation because of the number of tournaments they play.

Most of the players just have one "big" period of preparation before leaving for Australia and this period of preparation is seldom more than five weeks. Knowing that an eight week programme is ideal for maximum efficiency, it is important that players have good programmes for the short periods of training (2 - 3 weeks) after 3-4 weeks of tournaments and for maintaining fitness during tournaments.

2. WHAT YOU HEAR AND SEE ON THE TOUR ABOUT MAINTAINING FITNESS

Today, more and more players are working on optimising their physical abilities. But still, one can notice that they don't use all their opportunities. Not doing enough fitness training, not doing it the exact way and even not doing fitness training at all to stay fit and fresh during the tournament are just some of the examples which in the end will lead to poor results. As players are not always travelling with a coach and as the scheduling of matches is unpredictable, it is important for players to have a clear programme on which they can fall back during tournaments.

3. A SYSTEMATIC APPROACH STARTING DURING THE 14 & UNDER TOURNAMENTS

Juniors start travelling much more from the age of 14. The fact that the body is ready for fitness training and that the players are always accompanied by a coach, makes this age group an ideal time to prepare players to work with individualised programmes for physical training.

Therefore, players need to have a basic knowledge of endurance, strength and speed training. They have to know:

- why they need all these characteristics
- how to train in the correct way
- · how not to lose the profit they gained by training
- how to be motivated to work on maintaining fitness during tournaments.

Simple rules, such as:

- twice a week endurance training will maintain their present fitness level
- no endurance training for two weeks will mean a large decrease in aerobic endurance
- if you go ten weeks without endurance training, all the effect of the training is lost.
- one strength training session every two weeks is the minimum to keep your level.

These are some of the basic rules that juniors have to know in order to get them motivated for fitness programmes during tournaments.

Of course, coaches have to adapt the basic programme which appears in this article to the individual needs of each player. One player may need more endurance work, another may need more strength or speed training. If the individual has orthopaedic weaknesses, the training should reflect those needs.

4. PROBLEMS WITH MAINTAINING FITNESS DURING TOURNAMENTS

The order of play is usually announced late in the day for the following day's play. This necessitates having a system which

the player can use on a day to day basis while they are still playing the tournament.

Once a player is out of the tournament, they need a programme according to the number of days until their next tournament begins.

As you will see in the following programmes, the optimum use of time is very important to maintain their fitness level. Being ready to work after a match is only one of the examples which are very important to staying fit. This doesn't mean that we have to kill players by sticking to the programme, but rather that we shouldn't be too soft.

5. PROGRAMME OF MAINTAINING FITNESS ON THE TOUR

In this article, I have only given a rough outline of the amount of practice which should be done if possible. The workload is quite high, but experience tells us that players during successful tournament weeks are not able to do the whole programme, so a tough programme is needed for the weeks in which they are out of the tournament early, in order to guarantee their fitness level.

It is up to the coach to make a detailed individual training programme for each training unit.

6. FINALLY

The willingness of the player to work with such a programme will depend on the motivational qualities of the coach.

Giving enough attention to the player's diary so that the coach can find out how much the player was practising, having weekly contact with players about the workout and correct testing to find out if the workouts really were done, will determine the motivation of the player.

Programme for players on the ATP/WTA tours:

Key:

Flex:	Flexibility training
Co-ord:	Co-ordination training
Speed-react:	Speed/Reaction speed
Endurance:	Endurance training
Strength:	Strength training
Interval training:	30 seconds explosive, change of direction, running at 85% of maximum heart rate, followed by 30 seconds active rest, etc.
Recuperative run:	run at 50% of maximum heart rate
Extended run:	run at 60-65% of maximum heart rate

1 day in between tournaments

- · beginning of the week of an ATP/WTA tournament
- end of the week: programme depends on contents of the rest of the week

	Last day of competition	Day 1
	Competition	
Flexibility	25 mins	25 mins
Co-ordination		19
Speed-reaction		20 mins
Endurance	(5 mins extended run + 7 mins interval training) x 3 or 30 mins Recuperative Run	
Strength		

2 days in between tournaments

	Last day of competition	Day 1	Day 2	Next day of competition
	Competition			12 20
Flexibility	25 mins.	25 mins	25 mins	25 mins
Co-ordination				
Speed-reaction		30 mins	30 mins	
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run	(5 mins extended run + 7 mins interval training) x 3 or 30 mins Recuperative Run		
Strength		30 mins		

Or

	Last day of competition	Day 1	Day 2	Next day of competition
and the state of the same	Competition	Rest		
Flexibility	25 mins.		25 mins	25 mins
Co-ordination				
Speed-reaction			30 mins	
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run			
Strength	30 mins			

3 DAYS	Last day of competition	Day 1	Day 2	Day 3
	Competition			
Flexibility	25 mins.	25 mins	25 mins	25 mins
Co-ordination			20 mins	
Speed-reaction		30 mins		20 mins
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run		(4 mins extended run + 7 mins interval training) x 3	
Strength		40 mins		

Or

3 DAYS	Last day of competition	Day 1	Day 2	Day 3
white the base	Competition	Rest		10.00
Flexibility	25 mins.		25 mins	25 mins
Co-ordination				
Speed-reaction	Nº .			20 mins
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run		(4 mins extended run + 7 mins interval training) x 3	×
Strength	30 mins or day 2		30 mins or last day comp	

4 DAYS	Last day of competition	Day 1	Day 2	Day 3	Day 4
	Competition	Rest		1000	
Flexibility	25 mins.		25 mins	25 mins	25 mins
Co-ordination	14		20 mins	20 mins	
Speed-reaction				30 mins	20 mins
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run		(5 mins extended run + 8 mins interval training) x 3		
Strength			40 mins		

5 DAYS	Last day of competition	Day 1	Day 2	Day 3	Day 4	Day 5
continue in the	Competition	Rest				
Flexibility	25 mins.		25 mins	25 mins	25 mins	25 mins
Co-ordination				20 mins		20 mins
Speed-reaction				30 mins		20 mins
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run		(5 mins extended run + 8 mins interval training) x 3		(4 mins extended run + 7 mins interval training) x 3	
Strength			40 mins		30 mins	

6 DAYS	Last day of comp	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
and the state of t	Competition	Rest					
Flexibility	25 mins.		25 mins	25 mins	25 mins	25 mins	25 mins
Co-ordination				20 mins		20 mins	
Speed-reaction				30 mins		20 mins	15 mins
Endurance	(5 mins extended run + 8 mins interval training) x 3 or 30 mins Recuperative Run		(5 mins extended run + 8 mins interval training) x 3		(5 mins extended run + 8 mins interval training) x 3		
Strength			40 mins	40 mins			

7 DAYS	Last day of comp	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Distribution for the control	Competition	Rest		53.07	5000			
Flexibility	25 mins.		25 mins	25 mins	25 mins	25 mins	25 mins	25 mins
Co-ordination				20 mins		20 mins		
Speed-reaction				30 mins		20 mins		15 mins
Endurance			(5 mins extended run + 8 mins interval training) x 3		(4 mins extended run + 8 mins interval training) x 3		(4 mins extended run + 8 mins interval training) x 3	
Strength			40 mins	40 mins				

WHAT TENNIS RESEARCH TELLS US ABOUT... BIOMECHANICS OF GROUNDSTROKES

compiled and summarised by Miguel Crespo (ITF)

A series of articles on the biomechanics of groundstrokes 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.

WRIST KINEMATICS IN THE BACKHAND STROKE

In this study the authors investigated the wrist kinematics (flexion/extension), grip pressures and wrist muscle electromyographic (EMG) activity in novice and expert tennis players performing the backhand stroke. Results showed that: expert players hit the backhand with the wrist extended (neutral alignment of the forearm and hand dorsum) and that their wrist was moving into extension at impact. In contrast, novice players struck the ball with the wrist more flexed while moving their wrist further into flexion. Expert players also displayed greater wrist extension in the follow through. Novice players eccentrically contracted their wrist extensor muscles during impact which may contribute to lateral tennis elbow.

Blackwell, J. R.. & Cole, K.J. (1994). Wrist kinematics differ in expert and novice tennis players performing the backhand stroke: implications for tennis elbow. **Journal of Biomechanics**, 27, 5, 509-516.

ACCURACY IN THE FOREHAND DRIVE: CINEMATOGRAPHIC ANALYSIS

The study was designed to determine the method or methods used by highly skilled right handed players to direct the ball to the right (down the line) and to the left (cross court). The measurements made included drive direction, racket angle, wrist angle, forearm line, elbow angle, shoulder angle, foot direction, step direction and ball-body relationships. The results showed that:

- a) Racket angles at impact for right drives were closer (72°-80°) than for left drives (93°-102°).
- b) Balls hit to the left were contacted earlier in their flight towards the player than balls directed towards the right.
- c) Balls hit to the right were contacted approximately opposite the right shoulder while balls hit to the left were contacted before the ball reached the left shoulder.
- d) Players pointed the foot more towards the center of the net (180°) for balls hit to the left than for balls hit to the right.

Blievernicht, J.G. (1966). Accuracy in the tennis forehand drive: cinematographic analysis. Research Quarterly, 39, 3, 776-779.

THE TOPSPIN BACKHAND DRIVE IN TENNIS: A BIOMECHANICAL ANALYSIS

Three-dimensional high speed photography was used to record

stationary down the line, cross court and running down the line backhand drives of elite tennis players. Results showed that:

- No significant differences were recorded in the three different backhands at the completion of the backswing phase.
- b) At impact, a smaller shoulder joint angle, a more acute shoulder alignment, a larger wrist angle and a racket inclined further forward was recorded for cross court backhands when compared to down the line ones.
- c) The running backhand reported a more vertical trunk at impact when compared to the two stationary strokes.

Elliott, B.C., Marsh, A. P. & Overheu, P.R. (1989). The topspin backhand drive in tennis: A biomechanical analysis. **Journal of Human movement**, 16, 1-16.

THE MECHANICS OF THE LENDL AND CONVENTIONAL TENNIS FOREHANDS: A COACH'S PERSPECTIVE

High speed photography was used to record stationary down the line, cross court and running down the line forehand drives of elite tennis players. Results showed that:

- a) The strokes began with flexion of the knees and hips accelerating the body down towards the court. Deceleration of the body then applied stretch to the muscles which resulted in the subsequent storage of elastic energy in muscles.
- b) This stored energy was then partially used to assist the lower limb drive in moving the player to the ball.
- c) The players then stepped towards the sideline with the back foot such that it landed parallel with the baseline.
- d) This was followed by a step to the ball with the front limb creating a semi-open stance at impact which allowed full rotation of the hips and shoulders as well as forward weight transfer.
- e) Players used two methods of backswing:
 - conventional one (moving the racket back in synchrony with the shoulder turn and rotating the whole racket limb about the shoulder), and
 - 2) leading with the elbow (rotating the forearm and racket about the elbow)
- f) Irrespective of the type of backswing used, it was characterised by a loop in all forehands which produces a more fluent stroke and allows the racket to accelerate over a larger distance.
- g) The position of the racket at the completion of the backswing was similar for the two styles of backswing.

- h) At the end of the backswing the racket was taken further back than the often recommended "pointed at the back fence" position which increases the length of the forward swing and provides greater distance over which to accelerate the racket.
- At the commencement of the forward swing the racket dropped to a position below the level of the approaching ball.
- Both knees and hip extension raise the hitting shoulder and assist the low to high racket trajectory.
- Rotation of the trunk and low limb drive increased racket velocity.
- The elbow joint extended during the early forward swing, but prior to impact it began to flex.
- m) Racket velocity is higher just before impact than at impact, and "leading with the elbow" forehands produced higher racket and ball velocities than "Conventional" ones.

Elliott, B.C., Marsh, A. P. & Overheu, P.R. (1987). The mechanics of the Lendl and conventional tennis forehands: A coach's perspective. Sports Coach, October-December, 4-8. Also in Elliott, B.C., Marsh, A. P. & Overheu, P.R. (1989). A Biomechanical comparison of the Multisegment and single unit topspin forehand drives in tennis. International Journal of Sport Biomechanics, 5, 350-364.

THE SLICE BACKHAND IN TENNIS

High speed photography was used to record slice backhand drives of right handed elite tennis players. Results showed that:

- a) Players used Eastern Backhand or Continental grips, although they were also able to hit using the "wrist behind the handle" grip.
- b) The shot began with the flexion of the knees and hips, and the "unit turn" (pivot of the left foot, backward movement of the racket and trunk rotation).
- For the high slice backhand, the initial flexion of the knees was not so evident.
- d) During the backswing the players used their free-hand to assist the backward movement of the racket in two ways:
 - Racket-hand is taken back in an almost straight line and then lifted to shoulder height
 - Hand is almost immediately lifted to shoulder height in a more looped backswing. This second technique is considered as the preferred one in preparation for the slice backhand.
- e) Then players stepped toward the ball and adopted a closed stance more for low than for high bouncing slice backhands.
- f) At the completion of the backswing the racket was above the level of the shoulders.
- g) Players, with respect to trunk rotation, prepare for slice and topspin backhands in a similar manner.

- h) Racket was rotated so that it was almost parallel with the back fence in both impact situations.
- Players approached the high bouncing ball with a flatter trajectory than occurred for the lower impact.
- At impact, the racket face was more open for the lower stroke than for the higher one.
- As the impact height increases, coaches should emphasise a lesser downward trajectory and a more vertical racket face.
- In the slice backhand, the ball is impacted closer to the body than in the topspin or flat backhand.
- m) The elbow joint is not fully extended at impact as this will increase the potential for injury.
- The weight is predominantly on the front limb at impact and the trunk is leaning in the direction of the net.
- The trunk is stable at impact for both high and low slice backhands.
- p) Forward rotation of the upper arm followed by extension of the forearm at the elbow joint are the key movements during the backhand forward swing.

Elliott, B.C., & Christmass, M. (1993). The slice backhand in tennis. Sports Coach, July-September, 16-20.

TEACHING ONE AND TWO HANDED BACKHAND DRIVES

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, and hand and racket move in an extremely co-ordinated fashion.
- b) The two-handed backhand was observed to be a twosegment 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. (1983). Teaching one and two handed backhand drives. **JOPERD** n°38.23-26.

Other articles on this topic

Elliott, B.C., Takahashi, K., Noffal, G., J. (1997). The influence of grip position on upper limb contributions to racket head velocity in a tennis forehand. **Journal of Applied Biomechanics**, 13, 182-196.

TENNIS ON THE INTERNET - Associations, Organisations and more

by Miguel Crespo (ITF)

Since our last article on tennis on the internet, the global presence of our sport on the web has increased dramatically. International, National and Regional Tennis Organisations, Associations, Business Companies, Clubs, Tennis Academies, Fans, etc., all over the world are increasingly joining the internet.



Below are some of the more recent new web sites related to tennis including tennis clubs, regional associations and international organisations.

Some of the most famous tennis web sites include the following:

- ☐ The ITF's web site is on www.itftennis.com
- ☐ The United States Tennis Association has its web site on www.usta.com
- ☐ The French Tennis Federation has its web site at: www.fft.fr/
- Tennis Australia has its web site at: www.tennis-aus.com.au/
- ☐ The Lawn Tennis Association of Great Britain has his web site at: www. lta.org.uk
- ☐ The German Tennis Association has its web site at: www. deutschertennisbund.com
- ☐ The ATP tour is in www.atptour.com
- ☐ The Corel WTA Tour has its web site at www. corelwtatour.com

Tournaments also have their web sites.

As we wrote in our previous article, the Davis Cup by NEC has its official web site at www.daviscup.org/

- ☐ The KB Fed Cup has its site at www.itftennis.com/events/fedcup.html
- ☐ Wimbledon has also its web site at www.wimbledon.org
- ☐ The US Open has also its web site at www.usopen.org
- □ The Australian Open has its web site at www.ausopen.org
 □ The French Open had its site on www.rolandgarros.org
- ☐ The Masters has its web site at www.masters.org

Several regional, sectional or county tennis Associations have also their web site:

- ☐ The USTA Southern Section is at www.usta-sta.com
- ☐ The Texas Tennis Association is at www.onr.com.txtennis/
- ☐ The Suffolk Lawn Tennis Association is at www. suffolkweb.co.uk/sport/tennis/index.htm
- ☐ The Online Tennis Association of Beijing, China is at www.bol.com.cn/tennis/taon.html

These and other tennis clubs and organizations can be contacted directly or through **www.tennisserver.com**

Other organizations include:

- ☐ The National Foundation of Wheelchair Tennis has its web site at: www. nfwt.com
- ☐ The United States Professional Tennis Registry has its web site at www. usptr.org
- ☐ The United States Professional Tennis Association has its web site at www. uspta.com

Do you want to know head to head results from professional tennis players? Just contact **gene.wins.uva.Nl/~jellekok/tennis/**. Do you need ATP statistics by player, year, topic, surface, country, and biographical data of players? You will find them at: **members.aol.com/atpstat/**

As you may notice, there is a lot to see, read and search about tennis on the web. We will report on more tennis web sites in our next issue.

RECOMMENDED BOOKS AND VIDEOS

The Trench Pro's Cycle to Professional Success A guide to excellence for tennis-teaching professionals. By Thomas J. Martin and Karen M. Fellabaum. Level: Teaching Professionals. 264 pages. It focuses on the Art and the Science of being a tennis-teaching professional. For more information contact: T. J. Martin, 6734 Shadowcreek Drive, Maumee, Ohio 43537, USA. Fax: 1 419 865 1840. Cost: Book - US\$45 plus shipping, outside USA -add US\$10. Available only in English.

Tennis: different perspectives. Notes on Physical Education and Sport. F. Solanellas. All Levels. 204 pages. This book provides a general view of tennis development during the last

years in Spain. It covers historical and organisational issues, technical-tactical, medical, mental, physical and training aspects. For more information contact: Federacion Catalana de Tennis. Tel. 34 93 428 53 53. Only available in Spanish.

French Tennis Federation MINI-TENNIS books. Tennis a l'ecole. 76 pages. Learning sessions for teaching tennis at school. L'enfant d'abord, l'élève ensuite: Du Mini-Tennis...à l'école de tennis, 54 pages. Pedagogical cards for 5-6 year olds. La motricité, 67 pages. Pedagogical cards for mastery of motor abilities. For more information contact: Fédération Française de Tennis, 2, Avenue Gordon Bennett, 75016 Paris, France. Only available in French.

VIDEOS

USTA's Complete Conditioning for Tennis Video. Reaching peak fitness for competition. Paul Roetert. Colour. 25 min. For more information contact: Human Kinetic Publishers. PO Box 5076. Champaign. Illinois, USA. Only available in English.

Play Better Tennis with Gabriela Sabatini and Carlos Kirmayr. 2 videos. 45 min. each. Intermediate and advanced courses. For more information contact: Kalender Video. Tel. 34 91 556 72 97. Available only in Spanish.

Situations de jeu pour l'entraînement: Fond de court. Fédération Française de Tennis. Analysis of typical clay court game situations with drills to use during practices. Jean-Claude Massias. Colour. Approx.30 min.

Situations de jeu pour l'entraînement: Services et volées. Fédération Française de Tennis. Analysis of typical fast court game situations with drills to use during practices. Jean-Claude Massias. Colour. Approx.30 min.

Le jeu des Champions: Coup Droit. Fédération Française de Tennis. Analysis of the mechanics of the modern forehand. Jean-Claude Massias. Colour. Approx.30 min. Available in French and English.

Le jeu des Champions: Service. Fédération Française de Tennis. Analysis of the mechanics of the modern serve. Jean-Claude Massias. Colour. Approx. 30 min. For more information contact: Fédération Française de Tennis, 2, Avenue Gordon Bennett, 750. Only available in French.

READERS' LETTERS

Buenos Aires, 2 May 1998

Dear Sirs.

First of all, I would like to congratulate ITF Coaches Review for the quality of its contents and to thank the ITF for sending me Issue No. 13.

I read in depth the articles in each issue as I am dedicated to observing and studying various aspects of our sport. Maybe some time I shall have the opportunity of sending you an article and sharing my findings with you. But today I am motivated to write to the teachers. Teachers who educate young people beyond technique or tactics, youngsters who have a future, who are going on to live life as tennis players, as professionals, as employees, as parents - fathers or mothers. As teachers, we must therefore understand that in our work success in the relationship with the student is all encompassing and all important.

We should try to pass on values through the teaching of tennis. In our lessons, we teach a wide range of according to the frequency of the classes and the time we spend with them.

The teaching process is geared to pupils mastering a given art or discipline. But our main role as teachers is to give our students principles and values which we put across to them indirectly, such as making them feel happy with what they are doing, and feeling supported by us and their parents. Children should feel both our commitment and their own commitment towards reaching a goal. Children should learn honesty through the example of a call during a match, and should learn the value of perseverance by overcoming a difficulty which they confront. They should recognise and learn to value friendship and loyalty by being part of a training team. of the game.

The rest will follow as a consequence, because as we educate children to make their own judgements we delegate to them the freedom of taking their own decisions.

Then, teachers, instructors, coaches, in conclusion, teachers of all types, we will know that our lessons are

Daniela S. Gargini National Teacher of Physical Education National Tennis Coach

ITF COACHES WORKSHOPS

The 1st ITF African Coaches Workshop will be held in Lome, Togo from 8 - 11 September 1998 and in Sun City, South Africa from 14 - 17 September 1998. Confirmed speakers at each workshop are:

Togo

Roland Hansson (Sweden) Richard Schonborn (Germany) Amine Ghissasi (Morocco) Nicolas Ayeboua (ITF) Frank Couraud (ITF)

South Africa

Roland Hansson (Sweden) Richard Schonborn (Germany) Feisal Hassan (Zimbabwe) Kevin Smit (ITF)

Frank Couraud (ITF) Leon Freimond (RSA) Charl Marais (RSA) Frans Cronje (RSA)

The Central American Coaches Workshop will be held in Guatemala from 2 - 6 September 1998. Confirmed speakers are:

Emilie Foster (USA) Dave Miley (ITF) Miguel Crespo (ITF) Gustavo Granitto (ITF) The 9th ITF Asian Coaches Workshop will be held in Thailand from the 12 - 18 October 1998. Confirmed speakers are:

Ivo van Aken (Belgium) Louis Cayer (Canada) Dave Miley (ITF) Miguel Crespo (ITF) Suresh Menon (ITF)

The 7th ITF South American Coaches Workshop will be held in Guayaquil, Ecuador from 18 - 22 November and in Santiago, Chile from 24 - 28 November 1998. Confirmed speakers at each workshop are:

Juan-Carlos Andrade (Spain) Edgar Giffenig (Germany) Ricardo Ycaza (Ecuador) Dave Miley (ITF) Ivan Molina (ITF Miguel Crespo (ITF) Gustavo Granitto (ITF)

Juan-Carlos Andrade (Spain) Edgar Giffenig (Germany) Eduardo Aspillaga (Chile) Patricio Cornejo (Chile) Daria Kopsic (ITF) Miguel Crespo (ITF) Dave Miley (ITF) Miguel Miranda (ITF)

APPLICATIONS TO ATTEND ANY OF THE ABOVE COACHES WORKSHOPS SHOULD BE MADE THROUGH NATIONAL ASSOCIATIONS.

We received the sad news that Euphemia Tlhapane of Botswana passed away on Monday 3rd August, whilst recovering from surgery. Euphemia was the Coordinator of ITF Junior Circuits in Southern Africa for many years until her retirement in 1997. She was active and instrumental in developing tennis in the region and was one of the initiators of the ITF Southern Africa Junior Circuits. Over the twenty years that Euphemia was involved in tennis, hundreds of players, both junior and senior, experienced her warm welcome, her open hospitality and her supreme efficiency. Her contribution to tennis was recognised by the ITF in 1994 when she received the ITF Award for Services to the Game.

Euphemia was a tennis administrator par excellence, who will be missed very much by all those who had the privilege to know her or work with her. She will always be remembered as the mother of tennis in this region. Our deepest condolences go to her husband, Solomon and her children.



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