

WELCOME TO COACHES REVIEW !

Welcome to issue 10 of ITF Coaches Review which features articles from the US, Britain and Canada. The subjects covered include an article on managing water and electrolyte losses by Michael Bergeron, Ph.D., how to create a performance environment by Paul Dent and Jason Goodall of Great Britain, as well as a very practical article on Biomechanics by Keith Reynolds. One of our regular contributors to Coaches Review, Josef Brabenec, illustrates the importance of players knowing **when** to use certain strokes in matches. Donald Chu Ph.D. emphasises the importance of strong abdominal muscles in the modern game and gives some examples of exercises to help players prepare these muscles for competitive tennis.

Many of our readers will be interested to see the announcement of the 10th ITF Worldwide Coaches Workshop which will be held in Puerto Vallarta, Mexico from 17 to 24 November 1997. Full details will be sent to all National Associations by mid 1997. This biannual gathering brings together tennis coaches from over 80 nations around the world to exchange views and to present the latest findings. We hope to see many of you there.

The education of coaches has become an increasingly important part of the ITF's development programme. With this in mind, the ITF have recently appointed Miguel Crespo of Spain as ITF "Research Officer". Miguel has a vast amount of valuable experience in the area of coaches education. He has a doctorate in psychology, is

the former Director of Coaches Education for the Spanish Tennis Federation and has conducted numerous coaches workshops for the ITF around the world. Miguel's role will include ensuring that the ITF's educational material and courses contain the most up-to-date information. We are delighted to welcome Miguel to the ITF's Development team and wish him well in his new role.

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 the comments are of interest, we may publish some letters in future issues.

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 10th issue of Coaches Review.



Doug MacCurdy
General Manager



Dave Miley
Manager, Development

PLAYING TENNIS IN THE HEAT - HOW TO MANAGE WATER AND ELECTROLYTE LOSSES

by Michael F. Bergeron, Ph.D. (USA)

This article first appeared in "Sport Science for Tennis" (USTA publication) - Summer 1996

Your body produces heat during tennis - lots of it! And as intensity and duration of play increase, you face a growing challenge to eliminate the accumulating heat, especially in hot weather. The best way for a tennis player to get rid of internal body heat during play is by sweating. But if it is hot and humid, even sweating does not eliminate heat effectively.

In warm to hot conditions, most adult tennis players will

lose between 1.90 and 2.5 litres of water during each hour of competitive singles, although sweat rates of 3.5 litres per hour have been observed during play in very hot (above 95° F) conditions. Sweat rate increases as: 1) the environment gets hotter and more humid, 2) as intensity of play increases, and 3) as a player becomes more aerobically fit and acclimatises to the heat. And although women generally sweat less than men, this is not always the case.

Sweat is mostly water, but it contains a fair amount of sodium (Na+) and chloride (Cl-). In contrast, there is usually very little potassium (K+) in sweat. Furthermore, contrary to what many tennis players and coaches have heard, clinical evidence clearly supports a relationship between heat-related muscle cramps (heat cramps) and a high sodium loss, not potassium. Players will generally lose 3-10 times as much sodium as potassium during play. And without adequate sodium replacement, the cumulative effect of such losses can lead to a progressive sodium deficit after several days of playing or training in the heat. The effects of inadequate sodium replacement may include incomplete rehydration between matches (from a decreased retention of fluid) as well as muscle cramps or increased heat exhaustion during subsequent play. Again, regarding electrolytes, players should be more concerned about replacing sodium losses after a match not potassium losses. And notably, bananas will not resolve or prevent heat cramps, although appropriate salt and fluid intake often will.

Even with relatively short matches, it is not uncommon for tennis players to finish play with water deficits equal to or greater than 2% of their respective pre-match body weights. So, why do these players not drink more during play? One reason that tennis players do not always offset sweat loss with fluid intake is that, during a match, thirst is usually not a rapid enough indicator of body water loss. Consequently, players do not always feel the need to drink as much as they should. Therefore, tennis players should follow a predetermined hydration plan, whether they are thirsty or not. But, is a 2-3% body weight deficit a big deal? After all, most players drink enough to avoid serious heat disorders. Well, very little research has specifically examined varying levels of a body water deficit on tennis performance. However, other research studies have shown significant decreases in muscular strength, muscular endurance, physical work capacity, and even mental performance, with only marginal to moderate body water losses. Furthermore, current research shows that fluid ingestion reduces internal body temperature, as well as muscle glycogen use during prolonged exercise; these factors can clearly contribute to improved performance.

So what should you do? First of all, recommendations for managing fluid and electrolyte losses should be individual-specific. However, several general recommendations can be made:

Prior to playing in a hot environment, make sure that you are acclimatized to the heat. This can be accomplished in 7-10 days, so long as you exercise for 1-2 hours each day in the same heat. Your sweat rate will increase, while your rate of sodium loss will decrease. Both of these are positive effects. If you are prone to heat cramps during hot weather, you might consider increasing your salt intake (via foods and liquids containing salt). Ensure that you are well hydrated and that your carbohydrate intake is adequate. Water is usually fine for a pre-match beverage, but only if sufficient carbohydrates and electrolytes are provided by your food intake. Avoid drinks that contain caffeine or alcohol; they will accelerate fluid loss.

During play, you should drink enough at each changeover, to feel comfortably full, whether you are thirsty or not. The specific amount will depend on your sweating rate and the average number of changeovers per hour; but for many players, 8 ounces (about 9 swallows)

during each changeover is appropriate. If you begin a match well-hydrated and with carbohydrate stores fully replenished, and you know that the match is going to be short (around 1 hour or less), then water consumption during play is probably fine. Otherwise, a carbohydrate (CHO)-electrolyte beverage is recommended. Why? Most researchers have shown enhanced fluid absorption with a carbohydrate-electrolyte drink versus plain water. In addition, consumption of a carbohydrate-electrolyte drink will help you maintain your blood glucose level; this may delay fatigue. And, the sodium in the drink will replace a portion of the sodium lost in sweat. Sodium may increase drink palatability (which may cause you to drink more) and can play an important role in restoring body water content.

After play, your primary nutritional concern should be to immediately begin the process of replacing lost fluid, electrolytes and carbohydrates. If you are going to play another match within 30-60 minutes, then rehydration should be with a carbohydrate-electrolyte drink. A small amount of easily digestible solid food can also be consumed at the same time (ie immediately following the previous match). If your next match is not for several hours or more, then water and an appropriate meal should provide enough of the required nutrients for subsequent play. If sweat losses from the previous match were excessive and/or you are prone to heat cramps, then adding more salt to your fluids and food may be appropriate. If you choose to use salt tablets, make sure you crush and dissolve them in plenty of water (usually about 2 tablets per litre of water).

Replacing Fluids with Food

Drinking eight glasses or more of water a day to offset the fluids lost through perspiration, evaporation, faeces, and urine is difficult for some exercisers. One alternative to water is any beverage that does not contain alcohol or caffeine. Both have dehydrating effects. Juices, sports drinks, soft drinks without caffeine, decaffeinated tea and coffee, and low-fat milk are all acceptable fluid-replacement choices.

There is another alternative. "The fluid that we need does not have to be exclusively in the form of water or other drinks", says Chris Rosenbloom, Ph.D., R.D., an Atlanta spokesperson for the American Dietetic Association. "Every mouthful of food contains water and there are some foods that contribute significant amounts of water to your diet. These foods, especially fruits and vegetables, supplement fluid intake and supply other nutrients." Below is a list of foods and their percentages of water.

Food	% of Water
Banana	75%
Blueberry	85%
Cabbage	92%
Cantaloupe	89%
Cucumber	95%
Grapefruit	91%
Lettuce	96%
Orange	86%
Peach	88%
Pear	84%
Squash	93%
Tomato	94%
Watermelon	91%

BIOMECHANICS AND THE FIVE FUNDAMENTALS

by Keith Reynolds (United Kingdom)

This article first appeared in Issue 24 of the British Lawn Tennis Association's publication, *Coaches & Coaching*

The Training of Coaches Scheme in Britain has used Five Fundamentals as a central focus point for many years. All candidates beginning their coaching career were required to become familiar with the Fundamentals and demonstrate their use, especially as analytical and assessment tools.

This article has been prepared to help all those coaches who have studied both the Fundamentals and biomechanics to understand how the two areas are interdependent and allow for even more precise analysis and development in the field of technical and movement analysis.

The Five Fundamentals are:

- watch the ball
- move
- balance
- control of the racket head during the swing, punch or throw
- control of the racket face

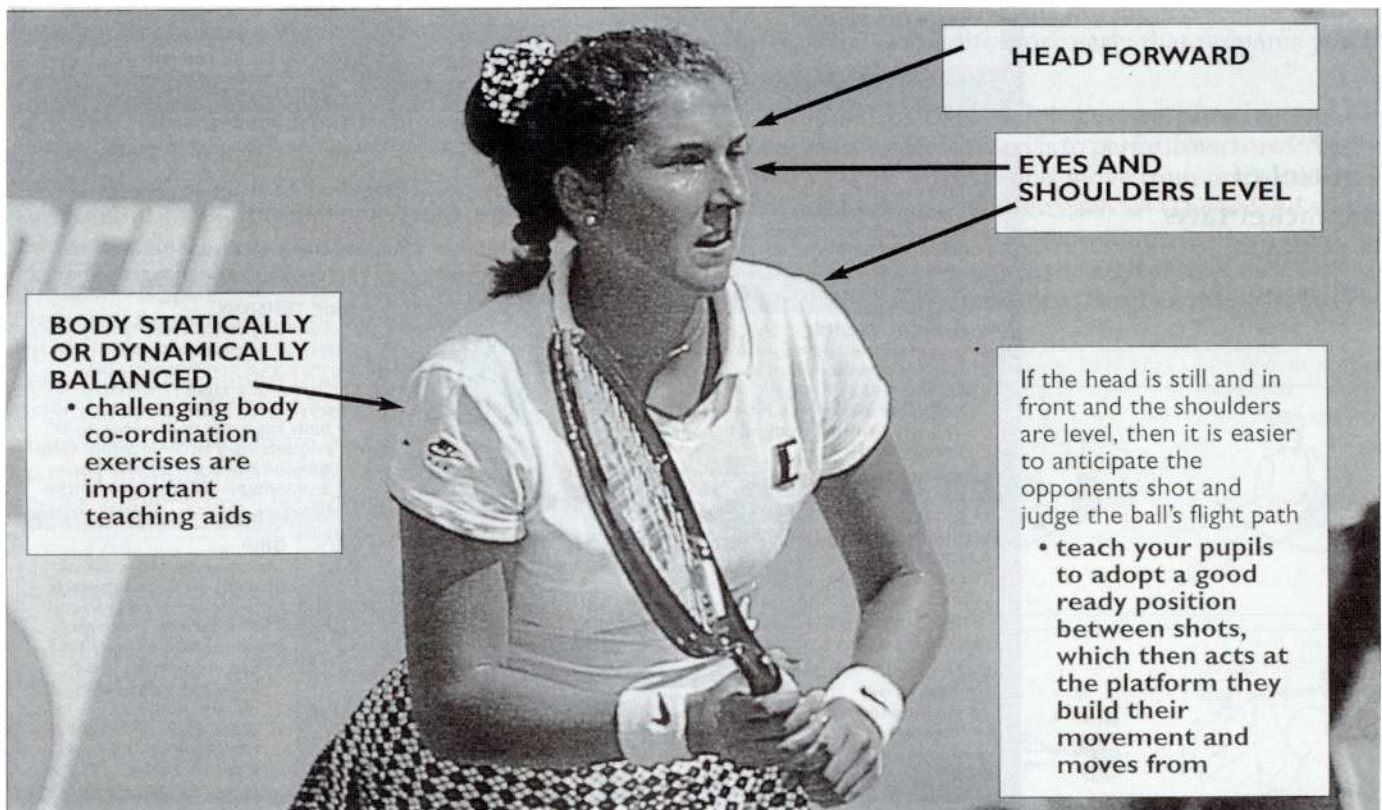
Meanwhile, the biomechanics principles taught on our courses have centred on the acronym:

B	Balance
I	Inertia
O	Opposite Force
M	Momentum
E	Elastic Energy
C	Co-ordination Chain
T	Torque

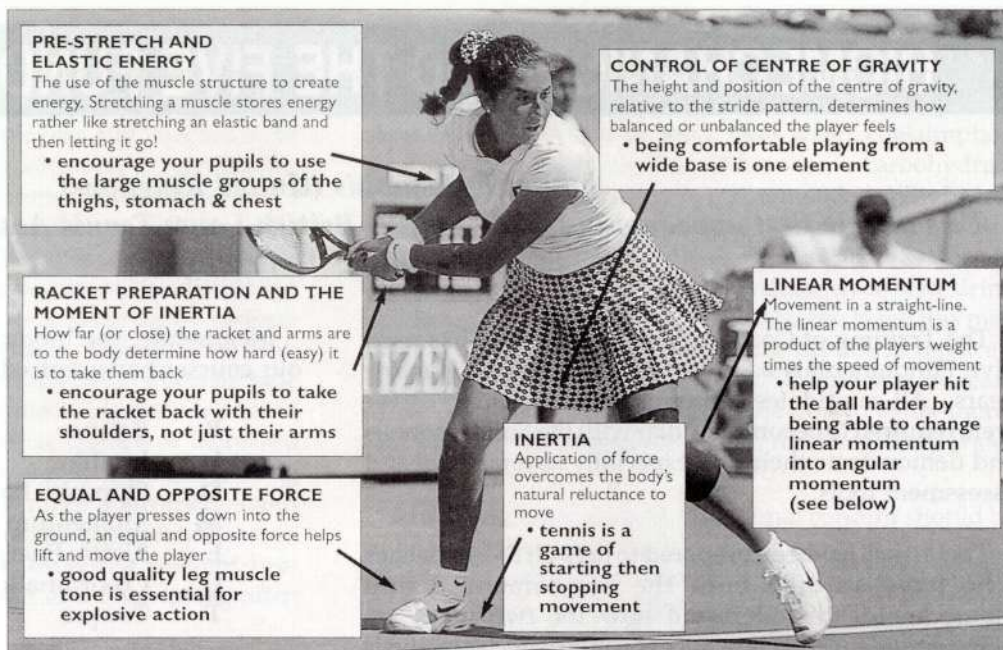
The following illustrations combine the Five Fundamentals with the biomechanical principle (BIOMECHT) and their appropriate components.

Being able to present technical information to pupils in an easily digestible form is a key strength for coaches. Therefore, sophisticated biomechanical principles need to be thoroughly understood by the coach, who can then use them effectively, without confusing or frightening pupils. This requires simplifying the language and using illustrations in lessons.

Watch / Judge the ball flight



Move/footwork and body preparation



PRE-STRETCH AND ELASTIC ENERGY

The use of the muscle structure to create energy. Stretching a muscle stores energy rather like stretching an elastic band and then letting it go!

- encourage your pupils to use the large muscle groups of the thighs, stomach & chest

CONTROL OF CENTRE OF GRAVITY

The height and position of the centre of gravity, relative to the stride pattern, determines how balanced or unbalanced the player feels

- being comfortable playing from a wide base is one element

RACKET PREPARATION AND THE MOMENT OF INERTIA

How far (or close) the racket and arms are to the body determine how hard (easy) it is to take them back

- encourage your pupils to take the racket back with their shoulders, not just their arms

LINEAR MOMENTUM

Movement in a straight-line. The linear momentum is a product of the players weight times the speed of movement

- help your player hit the ball harder by being able to change linear momentum into angular momentum (see below)

INERTIA

Application of force overcomes the body's natural reluctance to move

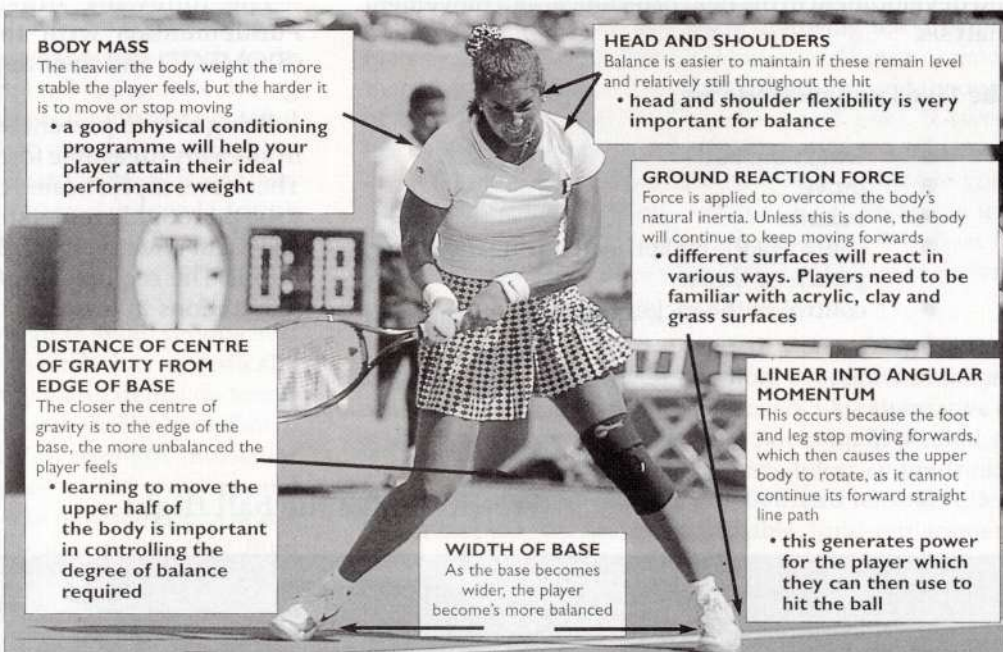
- tennis is a game of starting then stopping movement

EQUAL AND OPPOSITE FORCE

As the player presses down into the ground, an equal and opposite force helps lift and move the player

- good quality leg muscle tone is essential for explosive action

Balance/Dynamic or Static



BODY MASS

The heavier the body weight the more stable the player feels, but the harder it is to move or stop moving

- a good physical conditioning programme will help your player attain their ideal performance weight

HEAD AND SHOULDERS

Balance is easier to maintain if these remain level and relatively still throughout the hit

- head and shoulder flexibility is very important for balance

GROUND REACTION FORCE

Force is applied to overcome the body's natural inertia. Unless this is done, the body will continue to keep moving forwards

- different surfaces will react in various ways. Players need to be familiar with acrylic, clay and grass surfaces

DISTANCE OF CENTRE OF GRAVITY FROM EDGE OF BASE

The closer the centre of gravity is to the edge of the base, the more unbalanced the player feels

- learning to move the upper half of the body is important in controlling the degree of balance required

LINEAR INTO ANGULAR MOMENTUM

This occurs because the foot and leg stop moving forwards, which then causes the upper body to rotate, as it cannot continue its forward straight line path

- this generates power for the player which they can then use to hit the ball

WIDTH OF BASE

As the base becomes wider, the player becomes more balanced

Control of the racket face/ Win the Collision



CONSERVATION OF ANGULAR MOMENTUM

By correct use of the body's co-ordination chain, racket head speed is generated, as angular momentum is transferred through the heavy parts of the body which are moving slowly (eg. torso) to the light parts (wrist) which therefore have to move very fast, to keep the formula of weight x speed balanced

- helping your player to hit with rhythm or flow is essential when searching for racket head speed

CONTACT TIMING

A result of controlling the co-ordination chain and its constituent units, and interpreting the balls flight path

- help your players to hit the ball well, rather than just trying hard

GRIP TENSION

Tension is required to counteract any 'off-centre' hits which create torque. This turning force is a product of the balls momentum at impact and how far off the centre of the racket the impact occurred

- balls hit from the 'sweet-spot' require very little tension. Grip tension during the take-back and swing is counter-productive

ELASTICITY/RIGIDITY OF THE RACKET FRAME

The size, weight, weight distribution, string tension, string patterns, will all influence the contact

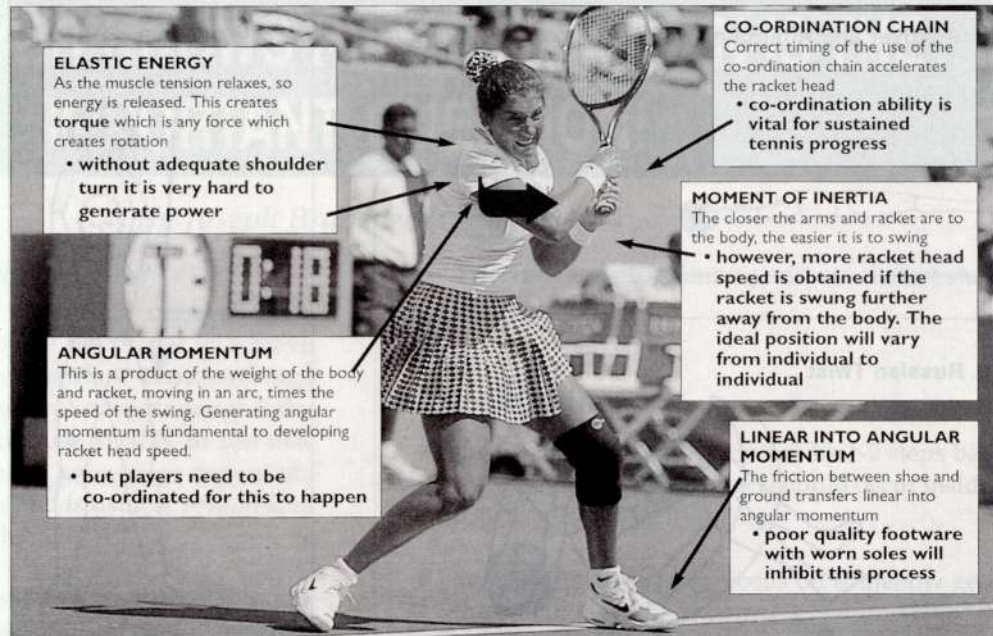
- 'test-drive' rackets before buying

GRIP

The further the grip is towards 'western', the sharper the arc of the racket path at contact point. This creates topspin through applying torque on to the ball

- but remember that extreme grips have disadvantages associated with shot variety and shot improvisation

Control of the racket head in the swing/punch or throw/The effectiveness and efficiency of the racket path



ABDOMINAL MUSCLE PULLS IN TENNIS PLAYERS

by Donald Chu Ph.D., RPT (USA)

This article first appeared in "Sport Science for Tennis" (USTA publication) - Summer 1996

Muscle strains in the abdominal area are on the rise. Although usually attributed to, and most painful during serving, they may also be related to more and more players hitting with open-stance forehands. These injuries are seen in highly competitive young players and seem to be slightly more prevalent in males than females.

Though the usual complaint is of feeling pain when serving, serving may not be the only factor. Children appear to be putting a lot more stress on the musculature of the abdominal wall because they are hitting with an open stance and generating more forces as they turn. In addition, players step around the backhand to hit the "inside-out" forehand more often. The whole idea of hitting the forehand with a great deal of upper body torque is to develop greater angular momentum, the result of which is a harder hit ball.

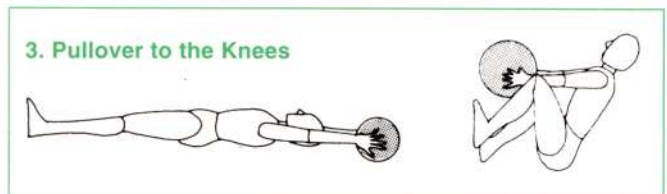
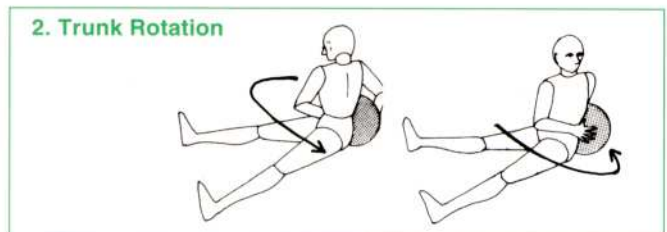
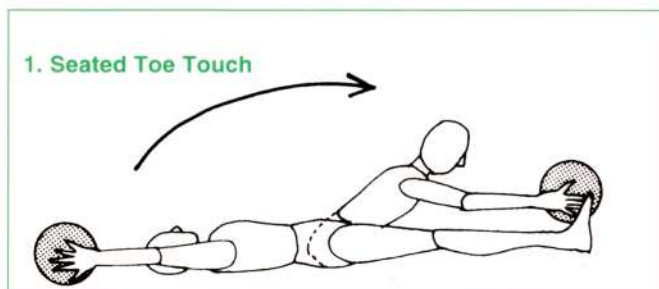
When asked the question about the role of the serve as a primary mechanism, most of the coaches interviewed felt that the serve as a stroke had not undergone the radical transformation that the forehand and over the last few years. Stan Smith believes that proper technique in serving involves more of a vertical drive with legs, than an arching and whipping action of the trunk. If young players are attempting to reach positions of

extreme extension or back-bending of the spine, it might be considered a technique error in serving.

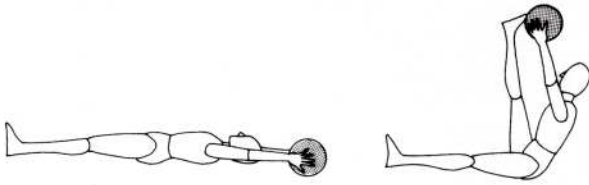
So, even though the exact mechanism of this injury is to be determined, one thing becomes apparent: the big forehands and big serves are not going to go away.

Here are some of the best exercises you can do in attempting to prepare yourself for tennis. These exercises should be regarded as a "dose of medicine" to be taken every day. Prevention is the key to success! The name of the game is doing the work early that prepares you to play.

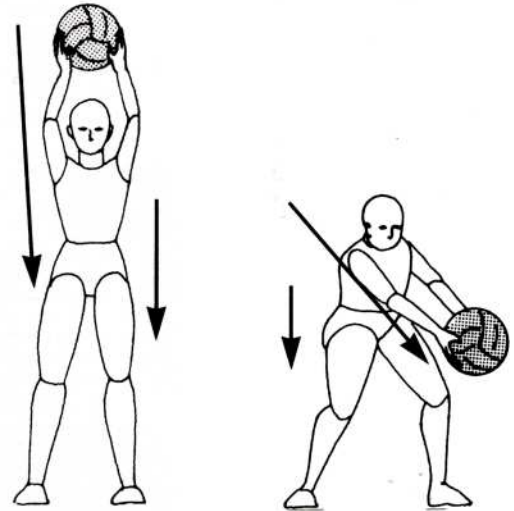
Try these exercises by doing one set of each exercise in one of two ways. The first is to perform each exercise for a period of 40 seconds and move from one to the next with minimal rest between each set. The second way is to perform a set of 12-20 repetitions for each exercise. Either way, you can rotate through each of the exercises from 2-3 times, performing a "core" exercise circuit. The exercises are as follows:



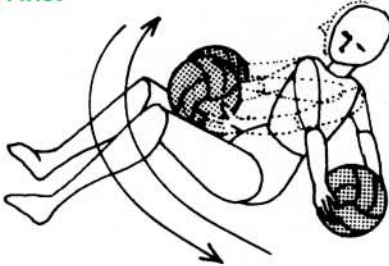
4. Pullover and Alternate Toe Touch



5. Woodchoppers



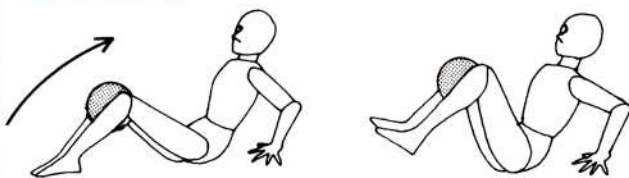
6. Russian Twist



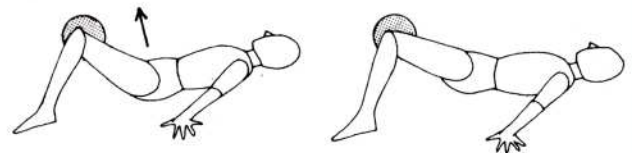
7. Hip Rolls



8. Hip Crunch

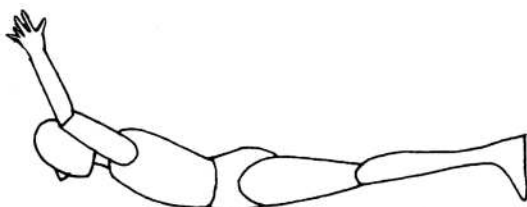


9. Bridging



Performing these exercises will benefit you as an athlete, but be prepared for the fact that there are no short-cuts in true development of athletic ability. It will take 4-6 weeks of regular exercising to yield results. Even then the effect might be subtle, but you will know that you have done what it takes to improve the condition of the trunk and prepare it for tennis.

10. Superman



As you can see, the main form of resistance in these photos is a medicine ball. If you are on the road and do not have access to such a piece of exercise equipment, then simply use the local phone book, or if you are in a gym, use a weight plate (5-10 pounds). Each of these exercises is going to stress a different area of the abdominal musculature. Many of them make the abdominal muscles work together to rotate or turn the upper body in the same way that you will use them when you play.

IF A PLAYER KNOWS HOW THEN WHEN IS THE IMPORTANT QUESTION!

By Joseph Brabenec (Canada)

What is correct stroke technique?

My interpretation is that the ONLY correct stroke techniques are ones which enable the player to achieve tactical objectives in competitive matches. The knowledge of HOW to correctly execute the stroke is not enough if the player lacks the ability to recognise WHEN to use that particular stroke. This particular knowledge represents the mental strength of a player and is usually responsible for the final result of the match.

Here are my observations of HOW and WHEN to use certain strokes in order to achieve the best tactical benefits:

When serving:

- having a high percentage (over 60%) of “forcing” first serves will reward the server with considerable tactical benefits because of the constant pressure it will put on the receiver.
- right-handers should use a wide sliced serve from the forehand court when leading by 2 points (30:0, 40:15) vs right-handers and mostly on the first serve.
- left-handers should use their sliced serve from the backhand court as much as possible. It should be their bread and butter shot.
- service placement wins points - power should come second.
- if a player does not serve like Sampras, Philippoussis, Krajicek or Ivanisevic, they should only attempt a flat serve with maximal power about 20-25% of the time. Instead they should save their energy and use more variety of spin and placement.
- if a certain amount of spin or placement bothers the receiver, use it on important points.
- serve and volley must be seen by a server as one unit (Edberg) - $\frac{3}{4}$ speed, depth, spin and placement is the key to success. It can be used as permanent intimidation throughout a match or as a surprise move on important points. It is very effective when the server is not a typical netrusher (eg. on game points in women’s tennis) and also as a surprise move on 2nd serve. The right-hander’s top-spin “kicker” from the backhand court is useful to open the court and force a weak return from a high backhand (as is the slice serve from the forehand court).

- Take time and programme your serve before starting the service ritual.

When returning:

- the initial waiting position can be 1-2 steps behind the baseline, but the contact should occur inside the court.
- against big first serves, focus on somehow getting the ball in play.
- crosscourt returns are preferable to down the line shots, because of easier court coverage of the server’s second shot.
- deep floating returns are effective against servers staying back.
- at deuce or 30:40 against a big server, try to go for it even on the first serve (a calculated risk).
- against serve and volley players chip short crosscourt or hit hard down the line.
- move automatically forward 1-3 steps against second serves to send an “intimidation” message to the server.
- be ready to run around your backhand to hit a forcing forehand return especially on important points (deuce, 30:40) - it is an intimidating move, one which in my opinion should be used much more in women’s tennis.
- second serves in women’s tennis can often be attacked very aggressively (attempt for putaway shots). It is often the only short ball of the rally!
- chip and charge occasionally at opportune moments (deuces or breakpoints).
- try a drop-shot from a second serve when trailing 0:30 or 0:40 to try to change a losing trend, break the rhythm of the opponent, or at least make the server run.
- the correct mental attitude against the second serve as receiver should be “This should be my point, I have the advantage”.

When rallying:

- each player should try to hit at least two or more consecutive shots in play.
- modern tennis requires the forehand to be a weapon (65-70% of the court should be covered with the forehand) and the backhand to be a solid support.
- 60-70% of the time, the player should preferably use crosscourt shots for consistency, manoeuvring, angles for easier court coverage.
- hitting down the line is much higher risk (shorter court, higher net, more difficult recovery) - hit down the line usually only after hitting a well angled crosscourt shot WITH THE INTENTION TO PUT THE BALL AWAY, (25-30%).
- when the opponent hits deep - (1 to 1.5 metres inside the baseline) the only correct response is to hit back deep.
- when the opponent hits a slower paced ball directed to the receiver's backhand, run around anytime it is possible to hit an attacking forehand. Forehands from the backhand corner disguise the hitters intended direction. Hit either inside out (crosscourt) or down the line. It also offers a higher possibility of hitting another forehand when the ball comes back.
- when the opponent hits shorter balls bouncing in the mid-court area, the receiver should consider the speed and the bounce of the ball and then decide:
 - 1 when the bounce is lower (knee high) the player should opt for an APPROACH SHOT (following the direction of the shot to the net). The key to a good approach shot is its depth. It is easier to cover the court behind an approach shot down the line. A crosscourt approach shot is only advisable when it forces the opponent into a long lateral run.
 - 2 when the bounce is higher (between hips and shoulder) go for a putaway shot with a hard flattened drive.
 - 3 depending on the opponent's position, a drop shot can be a good choice.
- when players exchange ground strokes from the backcourt, it is preferable to use a one-handed slice backhand (physically not so demanding, energy-saving). Use a one-hander also when reaching wide for a ball or when playing approach shots or volleys.
- the two-handed backhand has the advantage when returning the serve, when passing or disguising a topspin lob or when handling high bouncers to the backhand side, or simply to hit very hard shots.
- a simple tactical ploy is to hit three times to the backhand and then to change to the forehand, this often provokes an error.
- from the backcourt make sure not to HIT ANY BALLS IN THE NET and try to stay somewhere between the baseline and one step behind it.
- in modern tennis, any shorter ball in the mid-court area requires an attacking response (attempt for a putaway shot or approach shot).
- try not to commit unforced errors on the first two shots you play.

- the longer the rally, the less the advantage for the server.
- REMEMBER usually, when a player hits down the line the opponent's return will usually be hit away from him.

When volleying:

- in this situation, the player should think and execute aggressively.
- block and punch the volleys from hard-hit passing shots. Swing at the floaters (namely from mid-court).
- the first volley is the most difficult - in most cases place it deep.
- use angled volleys when standing close to the net.
- with difficult shots, hit the volley down the line - volley crosscourt for putaways.
- use the backhand volley when the passing shot goes right at the body.

When passing:

- try to make the opponent at the net hit a volley. First volley is one of the most difficult shots.
- try to hit the passing shots down the line with pace and speed - crosscourt passing shots require more touch with topspin or slice and good angle.
- blast the passing shot when hitting down the middle at the player at the net.

When lobbing:

- remember that a good lob can turn a defensive position into an offensive one.
- when the net player is looking into the sun, hit the ball high with backspin.
- use a topspin lob against players who tend to come very close to the net.
- hit a skyhigh lob when completely out of position to gain time for recovery.
- time is on the lobber's side, because the slow ball gives the smasher additional time to think and perhaps choke.
- the best way to return a lob is with a lob.

When smashing:

- hit the ball hard. The smash is supposed to be the most destructive stroke - keep it that way!
- from close range "spike it" short with power and a high bounce - placement is not important.
- from a deep lob, hit the smash deep, good placement is important.
- when a lob goes over a right-hander's left shoulder (vice versa for left-handers), use a natural wrist pronation to place the smash inside-out.
- let the very high lobs bounce and then smash them.
- if a young player tends to favour the serve and volley concept, THE SMASH MUST BE MASTERED FIRST.

CREATING A PERFORMANCE ENVIRONMENT

by Paul Dent (United Kingdom) and Jason Goodall (United Kingdom)

This article first appeared in the Autumn 1996 issue of the LTA publication *Coaches & Coaching*

CONFIDENCE BREEDS CONFIDENCE

As we all know, Sweden underwent a massive tennis boom in the late 1970's through to the mid 1980's and reaped the benefits of effective role models, as illustrated by this quote taken from "The Swedish Tennis Wonder Of the 80's: An Analysis Of The Players Background and Development" by Rolf Carlson and Lars-Magnus Engstrom:

"I advanced step by step. It meant a lot to me when "X" won at the age of 17. The rest of us started to think why shouldn't we be able to, when he is? We had been training together for a long time and did not consider him that good. We discovered all of a sudden that we were not that bad either, it might not be that far to reach the top."

An accomplished Swedish tennis coach once said: "...it's easy to get a player into the top 100. All they have to do is keep getting the ball back over the net - but you need to do a bit more than that to get into the top 50." The content of what this coach said is not the real issue in terms of whether we feel he is right or not. What is more important is the total confidence he had in what he said, almost "Well, it's obvious I'll be able to get them to the top 100 in the world" attitude. His level of normal expectation through past successes and experience had shown him that it was not out of his grasp or mystical but rather developing top 100 tennis players was normal run of the mill stuff!

Ian Barclay, Pat Cash's former coach has the same confidence which pervades his everyday behaviour. He lives and breathes excellence and is perfectly at home in the world of the best. The experience of being part of the "very best" appears to provide an assurance of mind and provides those players and coaches who come into contact with them with a greater belief in their own ability.

A COACH'S ROLE

So, what can we do to help our players develop these increased levels of expectation and self-confidence associated with being in a performance environment?

- access the "performance environments" of other coaches i.e. an environment where several different players "feed off" each other to allow each individual to reach a level which they would not have been able to reach on their own
- provide players with opportunities to play and practise against better players, e.g. structure your lessons so that your younger, up and coming players are having a session at the same time that some of your older, better players are practising on an adjacent court. Or, ensure that a better player takes a lesson directly after a young, developing player and let the younger player stay on the court to hit with the player for the first 10 minutes of their session. Also, vary sessions by integrating boys and

girls in lessons. The purpose of these ideas is to subtly provide players with images and examples of necessarily desirable skills. It is important to remember, however, that these "models" do not have to be related to technique or tactics. The players on the adjacent courts, for example, could be chosen because they display an excellent work ethic in terms of 100% effort during practice, or because they warm-up and warm-down before and after practising, etc

- behave and talk as though you obviously expect them to be elite players (provided that you are not giving them false hope at that time)
- create an environment or programme so the players can always clearly see the standards and behaviour of the players at the next level up. Encourage them to attend tournaments where the best juniors are on show
- if the player is confident in their coach's ability to make them better, then they will get better because they expect to. Let your players see you at tournaments, interacting with other respected coaches. Make pupils aware of the good results and improvement of the other players you coach. This helps to create a "team spirit" and allows them to feed off one another and work together as a unit
- ensure there are players of increasing standards at your club so that there are enough role models between the ages of 15 and 25
- try to ensure your players play on a variety of "performance" playing surfaces at your coaching venue (i.e. clay or cushioned acrylic)
- try to ensure that your coaching venue subscribes to satellite television so that juniors can see the top players in the world competing
- implement an effective and structured junior development programme with a visible path to the top
- provide opportunities for exciting high-intensity competition (such as a best of three tie-break sudden death shoot-out against another club or coaches' players)
- consider sending your players to another coach for a period of time so that they are exposed to a new and different approach
- allow the player to take the lesson (both individual and group). Coaches can learn from the players approach what is important to them and exactly

what they understand. It is a good yardstick to measure what the player really knows. As coaches we often think the players know because we have told them. But do they really understand? You'll soon see! Finally, it stops them relying on the coach and helps them develop as individuals

So, what can we do to help increase our own self-belief and expectancy in being able to produce players of excellence?

- be bold - question other coaches who have produced and/or worked with high level junior and senior players

- observe and/or assist coaches who have been there, seen it and done it before
- visit junior and senior tournaments and talk to your fellow coaches
- explore other areas which have produced performance people. It could be the local athletics club, a county gymnastics centre or a local school's hockey team

We as coaches must endeavour to be the "best we can be" - we cannot help our pupils fulfil their potential if we do not fulfil ours.

PERFORMANCE DRILLS

by Paul Dent (United Kingdom)

This article first appeared in the Autumn 1996 issue of the LTA publication, Coaching Excellence

Several of the world's top coaches have highlighted a number of key factors to bear in mind when using drills

- encourage player input, have clear objectives for the practice
- know the primary objective of the exercise / drill you are using and ensure you satisfy this above whatever secondary objectives you may have
- teach players how and why the work is needed
- practice should:
 - * be high quality, e.g. "hit the best 7 balls you can", "never waste a ball"
 - * be enjoyable and challenging
 - * be related to all the time scales of a match
 - * be well-structured i.e. planned!
 - * wherever possible, simulate matchplay (close to 100% intensity; mental intensity = concentration, physical intensity = footwork)
- be aware of basket feeding which can often lead to incorrect timing and placement of feeders, so the player learns incorrect moves / patterns
- use singles sticks to create match-like conditions if doing a drill relevant to singles
- there are two intensities:
 - 1 learning a new technique / corrections - high mental but low physical intensity
 - 2 practising with matchplay intensity - high mental and physical intensity

TENNIS-SPECIFIC MOVEMENT DRILLS

Tennis-specific movement drills should be carried out at the beginning of the session if the objective is to increase the speed of the players in those situations. If the purpose is to improve the tennis-specific co-ordination of the players in these situations from a skill learning point of view, then the drills can be carried out anytime during the session.

Ideally, as the game of tennis is so dependent on good movement, these tennis-specific movement drills should be an integral part of every single training session.

The following games situations are taken from the LTA Technical-Tactical Evaluation sheet. These drills have been developed for County Players.

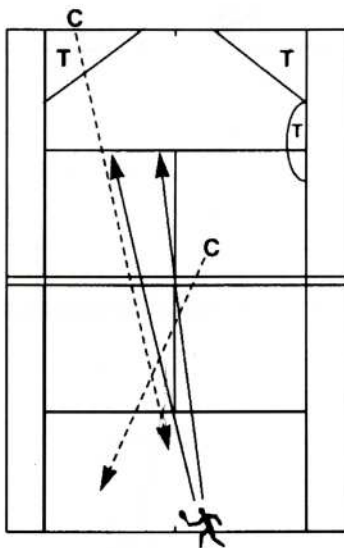
C = coach **P = player** **T = target**

WHEN SERVING, player has and uses the proper co-ordinated movement for **serve and groundstroke attack.**

DRILL 1:

Player serves aggressive first serve to the body or down the middle. Coach feeds immediately from either the net or baseline to the deuce court or slightly to the advantage court. Player must hit an attacking forehand groundstroke to a designated target area.

Feeding: coach needs to feed in such a way that the player has to recover quickly off the serve and rapidly prepare both upper and lower body to hit an effective aggressive forehand.



Repetitions/rest: each player will perform just one sequence before waiting their next turn. This will allow appropriate recovery for 3 or 4 in one group for maximum effort to be performed in each sequence.

Progression: as above but players serve from the advantage side. On this side, however, the server should direct the serve to the returners backhand or body.

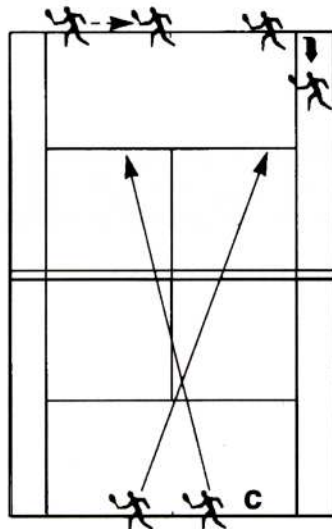
Teaching points:

- players must attack aggressively with both strokes
- coach needs to ensure that the player's footwork and movement is such that the player has options when hitting the groundstroke attack

WHEN RETURNING, player can and wants to attack a weak serve.

DRILL 2:

Coach or player directs second serve to opponents backhand side. Returner runs around the return to hit an attacking forehand



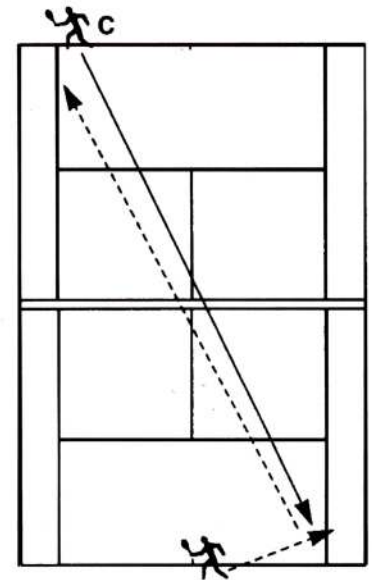
Teaching points:

- returner to move around as the server has placed the ball in the air
- the percentage return is to hit an inside-out forehand as this makes the server change direction; it is the longer distance over the lower part of the net and it allows the returner to move easily to return to a geometrically central position by minimising the angles of attack of the opponent
- encourage a feeling of hitting out towards the far baseline so that the shoulder and racket move out towards the target at the same height as the contact point (if the contact point is at shoulder height, which it will invariably be)

WHEN BOTH BACK, player dominates the ball when counter-attacking on the run

DRILL 3:

Coach or player simulates a counter-attack on the run situation by aggressively feeding the ball cross-court. The point is then simply played out from the feed. Play first to 4 points and best of 5 "sets". Change roles after each "set".



Progression: simulate the counter-attack on the run to the other side.

Teaching points:

- counter-attack back cross-court and ideally inside the line of trajectory of the oncoming ball
- players should ideally return the ball back cross-court as it is much easier technically not to have to change the direction of a fast ball (angle of incidence and reflection); and from a tactical point of view it allows for a quicker recovery
- to dominate the ball, a dominating body shape is necessary so therefore try to ensure that the players shoulders are leaning over their hips. Reply with a moon-ball if necessary. Make the correct decision when to counter down the line

WHEN APPROACHING OR AT THE NET, player can and wants to pressurise opponent from mid-court using power, accuracy and/or hitting on the rise.

DRILL 4:

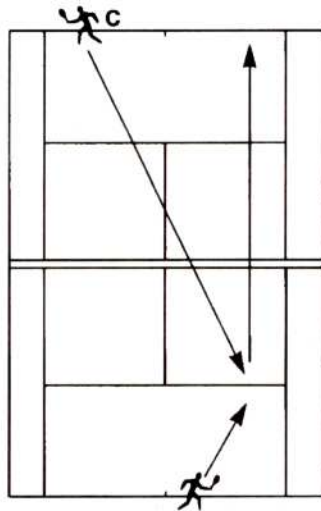
Coach or player feeds a short ball cross-court. Opponent must "cut-off the angle" and hit an approach shot on the rise down the line.

Progression:

- play out the point after the successful approach
- play out the point after the short ball feed
- feed short ball to the advantage side

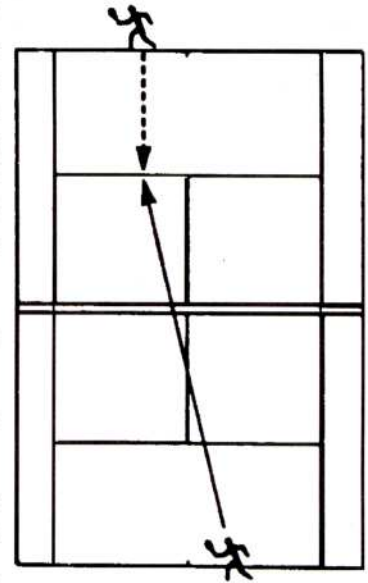
Teaching points:

- player to stay low as they move and hit through the ball
- breathe out "smoothly" during the hit. This will help the player to relax throughout the hitting zone and reduce the tension in the shoulders



have of the "all or nothing" outcome needs to be disproved. Providing an awareness of the possible outcomes (as listed below) in this tactical situation will encourage players to make the net player have to earn the point.

- 1 the player hits a clean pass
- 2 the volleyer hits a winning volley
- 3 the player forces the volleyer to miss
- 4 the net player does not miss the volley but only puts the ball weakly back into play
- 5 the net player makes the volley but the other player retrieves it and keeps the ball in play



DRILL 5:

Coach or player feeds a short ball cross-court to player A who approaches the net. Player A can direct their approach to the most appropriate place for that situation. Player B responds based upon the situation he finds himself in. Play first to 4 points and then reverse roles.

Teaching point:

Passing shots are a common source of forced errors. When an opponent approaches the net there is a tendency for players to see the situation as black and white i.e. they either hit a winning passing shot or the opponent hits a winning volley. This "all or nothing" perception by the player produces a lot of stress and intimidates the player to a degree where they panic and rush the shot. In order to reduce this negative feeling, the misperception the players

Remember to ask yourself the following questions before embarking on a particular drill or exercise:

- 1 what is the main goal/objective of the drill?
- 2 will the practice produce a long lasting change in performance?
- 3 does the practice transfer into the game, i.e. is it game realistic?

LET VARIETY BE THE SPICE OF LIFE

by Rob Antoun (United Kingdom)

This article first appeared in Issue 23 of the British LTA's publication, Coaches & Coaching

Introduction

When working with a team of British juniors at the Orange Bowl in December 1995 I noticed a handful of shots which were consistently being used to great effect by the top 16 & Under and 18 & Under juniors throughout the tournament. These shots, accentuated by the clay court surface, highlighted sound technical variation and astute tactical awareness:

The Recovery Shot

The recovery shot was of vital importance and was needed often when a player was put under pressure. Essentially used to neutralise an opponents' advantage, this shot was played with much height and spin over the net usually placed deep down the centre of the court to reduce the angles available. When played well the height, spin, and depth of the shot bought valuable recovery time and was of significant psychological importance because it meant the opponent had failed to capitalise on an advantageous situation. This frustration, coupled with the need for more physical exertion

needed to start over again, resulted in this shot becoming a weapon used by many.

So often we see players failing to hit this shot deep enough, and sometimes not attempting it at all. Some would rather risk hitting a low percentage shot down the line which would often lead to a lost point.

A key ingredient to hitting the recovery shot properly was movement. Many players moved sideways along the baseline automatically - even when being put under pressure. Movement must be straight to the ball, often diagonally, because time is of a premium.

If the recovery shot was played well enough some players looked to "sneak" in to the net while the opponent was having to deal with the depth, height, and spin of the ball - thus turning defence into attack within one shot.

The recovery shot was used many times to great effect, especially because of the clay, but is a shot which is of vital importance on any given surface.

The Aggressive Loop

This shot is not to be confused with the moonball which to many has rather negative, defensive connotations attached to it. The aggressive loop is far from this. It was a shot played often as an alternative way of approaching the net and as a means of mixing up the pace of the rally, potentially breaking an opponent's rhythm. This shot was played with accelerating racket head speed high and deep into an opponent's corner (especially on the backhand side of single-handers) and became very difficult to dominate off - often resulting in a defensive return which allowed the possible "sneak" in to the net, usually by means of a drive-volley.

I found that the aggressive loop also allows the player to learn a different type of pace, height, and spin to that of a conventional groundstroke - thereby increasing feel from the back of the court. Also, the player's tactical awareness is enhanced since there may be times when such a shot is the only way to attack an opponent who keeps a consistently good length, and who enjoys the normal pace of the players' groundstrokes.

The Short Angle Groundstroke

The short angle groundstroke was used on occasion as an alternative method of approaching the net by "sneaking" in after it and / or as a means of breaking the opponent's rhythm. When executed well it was effective in dragging the opponent away from their comfortable baseline position. As mentioned earlier, almost all players move laterally very well, yet find difficulty when forced to move diagonally to a short and wide position. The short-angle was not played that frequently but it did serve to remind an opponent that the player had a wide variety of shot.

Another version of the same shot used particularly well was the short angle return played off the second serve. Many players hit the inside-out forehand played from the advantage side which provided yet another means of approaching the net.

The short angle, often ignored in many practice sessions, shows a player the options available when the full dimensions of the court are explored. I noticed some players practising this shot by creating acute angles in the service boxes - not only with the forehand and backhand topspin but with the backhand slice as well. Practising these acute angles not only increases tactical awareness, touch, and feel but also is highly challenging and enjoyable to try.

The Absorbing Slice

I noticed a striking difference between the top players and the rest in their ability to hit with varying pace. Many players tried in vain to create an opportunity off every ball they hit and ended up "forcing" a shot which was not realistically available. The better players were more selective in choosing which balls to attack. One shot which was consistently hit when few options were available was the backhand slice played deep down the centre of the court. This shot effectively absorbed much of an opponent's aggression and kept the player firmly in the point until a better opportunity arose. The slice became tiresome to consistently play against because it

offered neither angle nor pace. Players trying to create something in response were often led into making errors with increasing frustration, exerting much physical effort in the process. As well as being used to break an opponent's rhythm, the absorbing slice was used early on in a match to "test" an opponent's gameplan and patience.

Another version of this shot could be found in the short angle backhand slice. Again, this shot was used to force an opponent short and wide while also requiring them to generate almost all their own pace once in position. This shot, as the ones mentioned before, was also used to "sneak" in with against an unsuspecting and highly frustrated opponent.

The Drop Shot

Finally, the drop shot was a much used yet highly underrated weapon which was delightful to watch when played well. It was very effective when disguised and played at the right time - maintaining that vital element of surprise. Most drop shots were played from the forehand wing usually when an opponent was anticipating a big inside-out forehand. The backswing remained the same yet the angle of the racket face was subtly altered at the last moment of the forward swing. The majority were played down the line - thus reducing the angles open to an opponent. Also, the ball travelling less distance down the line allowed for greater accuracy in its execution as well as giving the opponent less time to make the shot. Once executed our player would move well inside the baseline anticipating a short and scrambled return. This shot was occasionally played as a second serve return which often won the point through surprise alone. It was interesting to note that it was this surprise element which won most of the points rather than the actual placement of the ball - some landing near the service line yet remaining an outright winner because the opponent had anticipated a totally different shot.

An ideal way to practise this shot is for the coach to instruct the player to "smash" or "drop" just prior to the forward swing - encouraging the player to set up in the same way for both intentions.

Recommendations

Little attention is usually given to the shots discussed above. To encourage the use of them, bonus points can be awarded for attempting them within practice points. Experiment by playing practice points without allowing any pace - suddenly these shots become essential to the winning of each point. Each shot can be individually worked on and they create a good variety of practice options. Not only this but they are great fun to try out.

The beauty of playing on clay is the fact that it requires a player to have a wide variety of shot, to be tactically aware, and to have mental and physical resilience. Because of this the shots discussed above were played to great effect against players whose gameplans and thought-processes were somewhat limited. With enough time spent on clay these qualities naturally evolve since players cannot survive without them. In Britain, we presently lack such time on clay and so our coaches must work even harder to incorporate these shots into our players' repertoire, irrespective of surface. The playing of these shots extend far beyond the winning and losing of the odd point or two - but rather they can greatly enhance a player's technical competence, tactical astuteness, and all-round confidence.

BIRTHDATE OF TOP JUNIOR PLAYERS

By Anne Simpkin (United Kingdom)

This article first appeared in Issue No. 9 of the LTA publication, Coaching Excellence

The first batch of data regarding Rover* players has been keyed into the database, thanks to Derek Bone who has recently gathered information on player profiles. Many statistics will be kept in the system for analysis of any trends or changes over time. However, coaches may be interested in some of the information already available on the current stock of junior players.

The results in Fig 1 show clearly that there are far more players on the Rover Scheme with January or February birthdays than there are with November or December birthdays. Whilst some fluctuation is inevitable, one may be sceptical of the fact that less than a third of Rover Players are born between the months of July and December. Such findings may raise a number of issues, for example:

- is this difference coincidental or are those players with "early" or "late" birthdays advantaged or disadvantaged respectively?
- if certain players are advantaged or disadvantaged, what effect may this have both short term and long term? For instance, are we losing some players because they struggle to keep up with their year at a young age?

- if the system is biased towards certain players because of their birthdate, how could it be altered? For example, should 14 & Under tournaments include only those players who are aged 13 or less on the starting date of individual tournaments?
- what are the implications for talent identification and selection?

* (Note - in the UK, Rover sponsor the training of the top juniors - "The Rover Scheme")

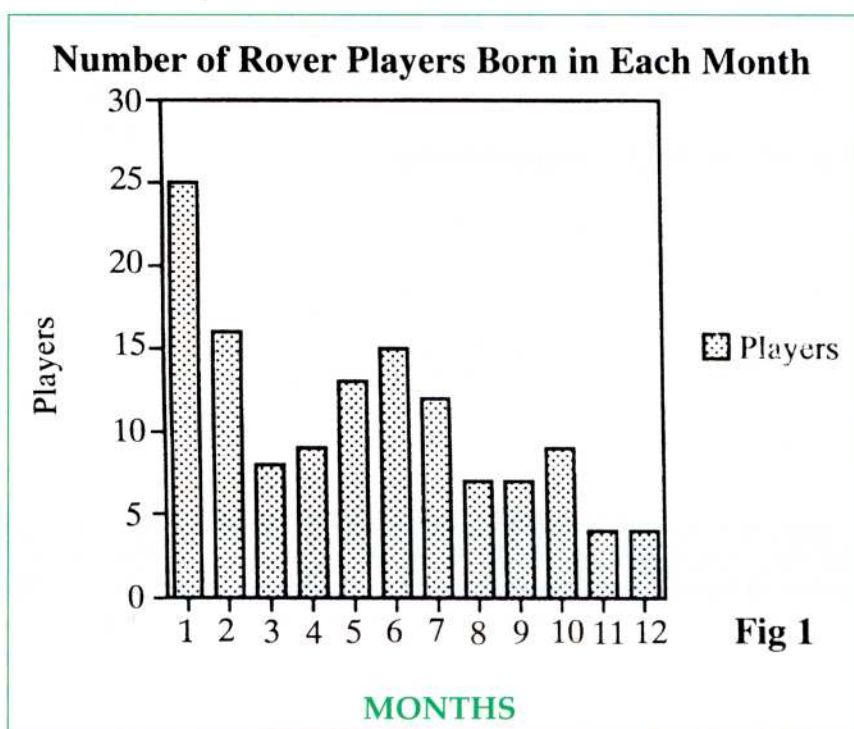


Fig 1

BRITISH TENNIS COACHES' ASSOCIATION

is hosting an International Conference on 21/22 June 1997
at the Forum Hotel, Kensington, London SW7

The theme of the Conference is "Attitudes". Speakers will include Jim Loehr (USA), Doug MacCurdy (ITF), Barbara Potter (USA) and six other internationally renowned speakers. Conference Delegates will receive accreditation to "The Championships" at Wimbledon allowing complimentary admission for the first five days.

For further information, contact:

Christine Tinker, PTCA Executive Officer,
c/o The LTA, The Queens Club, West Kensington, London W14 8EG.
Tel: 44 171 381 7097 Fax: 44 171 381 3001

MENTAL TOUGHNESS QUESTIONS ANSWERED

Tim Henman (United Kingdom) & Greg Rusedski (United Kingdom)
This article first appeared in Issue 13 of the LTA publication, Coaching Excellence

Q. What, in your opinion, is mental toughness?

A. Tim Henman: ability to perform under pressure; when things are going wrong, being able to turn a match around.

A. Greg Rusedski: mental toughness is having complete control of your emotions, fighting every point when you step on court and controlling all situations that you can control.

Q. What is the most significant mental skill you have been taught?

A. Greg Rusedski: the most important skills I have been taught are emotional control though breathing taking my time and visualisation.

A. Tim Henman: staying in the present.

Q. Which match (tournament/round) have you stayed mentally tough in and kept on top of your opponent or which match have you turned around from a potential loss to a great come-back and won? What was going on internally?

A. Tim Henman: the 1995 National final against Greg when I was 6-1, 2-1 and a break down. My internal thoughts were that I was losing a final. That adds to the importance of the match. I'd been on court about 25 minutes. Wondering what the crowd was thinking. Wondering how I was playing on television - pretty badly probably. Thinking about how well my opponent was playing. THEN - I returned to the present, thought about the situation and realised I had only lost a set.

Still had a long way to go in the match. Focused on my performance instead of my opponent's.

A. Greg Rusedski: I played Jonas Bjorkman in Essen in 1995 and was down 6-3, 5-2. I had lost to him the previous three encounters, each time very close matches going to 3 sets. I always believe I can win, no matter who I am playing, or what the score is. I also know serving for a match is always difficult. I held at 5-2 to make it 5-3. He got nervous. I broke and won the set 7-6 (6) and the match 6-4 in the third. Internally I was always thinking I could win and was always positive.

Q. Do you have a regular pre-serve routine? What is it? Were you taught it? Did it evolve naturally?

A. Greg Rusedski: I think where I am going to serve, bounce the ball between three and six times and then do it!

Tim Henman: Yes

- 1 collect the balls
- 2 choose the ball for the first and second serve
- 3 think about where I am going to serve
- 4 bounce the ball three times before each serve - then whack it!

A psychologist told me I should have a routine. Then I worked on something I felt comfortable with.

Q. What was the most significant piece of advice given you by a coach to help you improve your serve?

A. Tim Henman: take your time - don't rush.

A. Greg Rusedski: practise it!

RECOMMENDED BOOKS AND VIDEOS

Coordination Training in Tennis - Deutscher Tennis Bund -

A 33 minute video that demonstrates
the training of
coordination abilities in young tennis players.

Cost - US \$40 (plus postage)

Order from:
Prof Dr U Hanke
Institut für Sportwissenschaft
Im Fort 7
D-76829 Landau
Germany

Group Tennis Drills for Competitive Players - by Gundars Tilmanis

The author has logically organised 178 drills into
different themes involving: serve,
return of serve, baseline rallying, approaching the net,
passing shots and receiving passing shots.

Cost - US \$45 plus US \$4 for shipping

Order from :
Tilmanis Tennis
1246 NW 122nd Ave
Portland
Oregon 97229
USA

MENS PROFESSIONAL TENNIS

by John Treleven (ITF) & Dave Miley (ITF)

Over the past 3 years, we have published a number of statistics which showed that approximately 90% of the players in the top 100 were 22 years or older. We concluded from this that the vast majority of players do not break into the top 100 until they are at least 22 years old. However, based on the results of a study of the age at which the top 100 male players (as at 16 September 1996)

broke into the top 100, it seems that a high percentage of players do in fact break into the top 100 before the age of 22.

The study showed that:

- 24% of players broke into the top 100 before the age of 20.
- 48% of players broke into the top 100 before the age of 21.
- 66% of players broke into the top 100 before the age of 22

ATP TOP 100 as at 16.09.96																		
Year of Birth	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	Total
1964																		1
1965			1					2										3
1966				1			1		2	1								5
1967					1	1		2	1					1				6
1968								1	2	2	1	1	1					8
1969										1	2	2	1					6
1970						1		2		3	1	2	2	1		2		14
1971								1	2	2	2	1	2	1				11
1972									1			1	3		3	1		9
1973											1	4	1	1	3			10
1974												3		3	3	2		13
1975														2	3	3		8
1976															3	2		5
1977																		0
1978																	1	1
1979																		0
1980																		0
Total	0	0	1	1	2	1	2	5	9	5	7	6	11	13	8	15	14	100

Average age of top 100 - 24y 11m	
1x32	11x25
3x31	9x24
5x30	10x23
6x29	13x22
8x28	8x21
6x27	5x20
14x26	1x18

Average age on entry 20y 8m	
2x16	18x21
4x17	14x22
9x18	13x23
9x19	4x24
24x20	3x26

10TH ITF WORLDWIDE COACHES WORKSHOP - NOVEMBER 1997

The ITF is happy to announce that the 10th ITF Worldwide Coaches Workshop will take place at the Continental Plaza Tennis and Beach Resort, Puerto Vallarta, Mexico the week commencing 17th November 1997. The event will be organised by the ITF in conjunction with the Federación Mexicana de Tennis.

Further details of the Workshop will be available through all National Associations by June 1997, but coaches interested in attending may wish to put the week of 17 November in their diaries immediately. As in the past, all entries must be approved and submitted to the ITF by the relevant National Association.

Puerto Vallarta is on the Pacific coast of Mexico and the Continental Plaza complex - which comprises three individual beachfront hotels - offers the following facilities:

- Excellently-equipped, extensive lecture hall
- A total of 10 clay and hard courts for both indoor and outdoor tennis
- Excellent hotel accommodation for all delegates in one hotel, including on-site meals
- Running track, gymnasium, steambath and five swimming-pools within the complex

Following on from the success of the 1995 ITF Worldwide Coaches Workshop in Barcelona, Spain, the ITF looks forward to organising another successful Worldwide Workshop in 1997!

International Tennis Federation



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