

Editorial

Welcome to issue 34 of the ITF Coaching & Sport Science Review. This third and final issue of 2004 is indeed a special one for it signals the end of the Review in its current hard-copy format. The last three years has seen the Review produced and physically delivered to some 5000 coaches worldwide, however, its integration into www.itftennis.com/coaching has enabled more than three times that number of coaches to access each issue in an electronic, PDF format. With the recent revamp of our ITF Coaching weblet, access to the current as well as back-dated issues has become streamlined and is anticipated to become more and more user friendly with the planned addition of a Review search option.

In the final four months of this year, some of our readers attended our Regional Coaches' Workshops, which were held in conjunction with the Regional Tennis Associations. In Santo Domingo, Dominican Republic, approximately 90 coaches representing 14 countries from the region participated in the Central American and Caribbean Coaches' Workshop. Tennis Europe, together with the Maltese Tennis Association, organised its annual Coaches' Symposium in Malta, with 80 high level European coaches representing 35 countries in attendance. The Asian Coaches' Workshop was held during the second week of October in New Dehli, India. One-hundred and forty coaches from 19 nations took part.

In South America, close to 160 coaches from all South American countries absorbed the information on offer during the South American Workshop held in Asunción, Paraguay. Almost 90 coaches representing 12 countries also attended the African Coaches' Workshop held in Pretoria at the High Performance Centre.

In summary, 2004 saw close to 600 coaches from 90 countries attend an ITF Regional Coaches' Workshop. These biennial events provide a forum for coaches to gather together to discuss specific issues related to coaching in their regions as well as an opportunity to access modern trends in tennis science

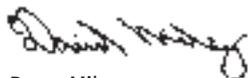
and pedagogy. We hope that those of you who've attended a 2004 Workshop found it to be beneficial for you in your coaching.

Finally, we would like to take this opportunity to thank the contributing ITF Workshop experts, and at the same time, recognise our colleagues who continue to assist the ITF with our Coach Education programme. As always, we welcome your comments on any of the information published in the Review and look forward to all of you continuing to or starting to access future issues of the Review on our website.

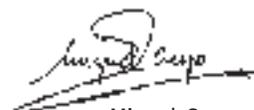
We hope you enjoy the 34th issue of ITF Coaching Sport & Science Review.



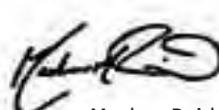
The homepage of the ITF Coaching weblet.



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Defining Tennis!

By Paul Roetert (Managing Director of USA High Performance), Scott Reiwald (Administrator of Sport Science of USA High Performance) and Machar Reid (ITF Assistant Development Research Officer)

INTRODUCTION

How does someone describe how the body moves? There are so many terms a coach of a player can choose from in describing movement. In watching a player who serves with very little knee bend one coach may tell the player, "Make sure to bend your knees more" while another may say "Flex the knees to 70 degrees." Is either of these descriptions incorrect? No. However, the second statement conveys more information, telling the player specifically which joint to bend and how much it should be flexed. This article will provide coaches with "definitions" of terms related to tennis movement production to help you enhance your understanding of movement and become more specific in the information you provide to your players.

DIFFERENT TYPES OF MUSCLE CONTRACTIONS

Tennis places great demands on a player's body and many times it is the muscular system that gets stressed. Muscles contract to move or stabilise a joint, but did you know there are three types of contractions that allow them to function effectively in a wide range of situations? These contraction types are defined below.

Concentric: A concentric contraction is a shortening contraction, and this is what most people picture when they think of a muscle contracting. In a concentric contraction, the two ends of the muscle move toward each other. In tennis, this type of contraction is typically used to accelerate body segments.

Eccentric: This type of contraction is also known as a "lengthening contraction" and occurs when the two ends of the muscle move away from each other while it is contracting. This type of contraction helps to decelerate body segments and assist with shock absorption and stabilisation. For example, every time the foot hits the ground, the quadriceps muscles in the thigh contract eccentrically to provide stability to the knee and keep it from flexing excessively.

Isometric: Isometric contractions are "constant-length" contractions and occur

when a muscle contracts but there is no joint movement. When players want to stabilise certain joints or hold a particular position or posture they will use this type of muscular contraction. The core muscles of the body often contract isometrically to provide stability and balance during tennis play.

JOINT ACTIONS

It is just as important to have an understanding of movement terminology and the types of joint movements these muscle contractions can produce. What does flexion of the shoulder mean? How do you describe the action of pointing your toes? The most common movements seen in the body are defined below.

Flexion: The bending of a joint such that the angle between the adjacent body segments is reduced. For most joints this movement is fairly straight forward. When you flex your elbow, you reduce the elbow angle by bringing the wrist towards the shoulder. However, at the hip and shoulder joints, flexion represents a forward raising of the leg or arm, respectively.

Extension: Extension, the opposite of flexion, is the straightening of a joint such that the angle between adjacent body segments is increased. At the hip and shoulder joints extension is the action

straightening the hip or shoulder joint rearwards, out of a flexed position.

Dorsiflexion: Dorsiflexion is the more common term used to describe ankle flexion. This is the action of bringing the toes up towards the front of the leg.

Plantarflexion: Plantarflexion, also referred to as ankle extension, is the action of pointing your toes and moving them away from the front of the leg.

Abduction: Abduction is the movement of a body part (i.e. limb) away from the vertical midline of the body. An example of abduction would be to lift your arm or leg straight out to the side.

Adduction: Adduction is the opposite of abduction and is the movement of a body part (i.e. limb) toward the midline of the body. To illustrate adduction, stand with your arms out to your sides. Lower your arms to your sides – that movement is adduction.

Internal rotation: In tennis, we think of internal rotation primarily at the shoulder and hip. Internal rotation of the hip is the movement that turns the knees and feet inward toward each other. To demonstrate internal rotation of the shoulder, stand with your arm at your sides and elbow flexed 90°. Your forearm should be parallel



In general terms, during the forward swing of Agassi's forehand, the muscles on the anterior aspect of his upper body are contracting concentrically to accelerate the hitting limb-racquet.

Table 1. Examples of joint actions during tennis play

| Joint Action | Examples during tennis play |
|-------------------|--|
| Flexion | <ul style="list-style-type: none"> ■ Knee flexion when performing a split step. ■ Elbow flexion during a double-handed backhand. |
| Extension | <ul style="list-style-type: none"> ■ Elbow extension during the forward swing of the serve. ■ Extending the knees during the serve (leg drive). |
| Abduction | <ul style="list-style-type: none"> ■ Movement of the hitting arm during the backswing of the serve. |
| Adduction | <ul style="list-style-type: none"> ■ Movement of the leg furthest from the ball when side-stepping. ■ Racquet arm movement across the body when preparing to hit a backhand. |
| Internal rotation | <ul style="list-style-type: none"> ■ Turning of the upper arm (as seen by the change in direction to which the inside of the elbow points) during the forward swing of the forehand. ■ Outward movement of the hitting arm during the forward swing of the serve. |
| External rotation | <ul style="list-style-type: none"> ■ Movement of the hitting arm that allows the racquet to go down and away from the body during the backswing in the serve. ■ When a player begins to move laterally to his right, he will step with and turn (externally rotate) his lead (right) leg outwards, opening his hips in the direction of his intended movement. |

to the floor with the hand pointed forward. Rotate your shoulder so your hand moves towards your chest – that is internal rotation and this motion is used in every forehand and serve.

External rotation: External rotation is the opposite of internal rotation. Hip external rotation causes the feet and knees to turn outwards. External rotation of the shoulder can be demonstrated by first assuming the 'final position' after you have performed

the internal rotation described above. Then rotate the shoulder back to the 'starting position' so the hand is pointing forward again. That movement is external rotation and it is used when hitting a backhand.

In tennis, all of these joint actions are coordinated such that efficient strokes and movements can be produced. The game is characterised by 3D joint motion, whereby no one joint action occurs in isolation. Nevertheless, Table 1 does highlight where

these actions may be more easily observed during stroke and movement production.

CONCLUSION

Being able to precisely define the different types of muscle contraction and joint actions does not guarantee coaching success. However an appreciation of how the above terms relate to tennis strokes and movements can facilitate a coach's ability to analyse and improve his players' tennis techniques.

Match Analysis and Evaluation

By Ivan Molina (ITF Touring Team Coach, Colombia)

When we analyse the performance of the modern player during matchplay, whether it be junior or professional, the criteria to be evaluated must be specific to the game's demands and may even be result-determining. Hereby, completion of the table below, where coaches ask players to relate a percentage of performance in each

set to a final comment about pre-determined, important performance criteria can be used to assist game analysis, identify strengths and weaknesses, and improve subsequent performance.

In using the table, post-match analysis would be as follows: for each set, the

player rates his performance in terms of consistency, ball placement, etc ... out of 100 (i.e. a percentage) before making a specific, related comment in the final column. Once the players have completed the table, they meet with the coach to discuss the match and the players' own perceptions of their performances.

| Performance Criteria | 1st set (%) | 2nd set (%) | 3rd set (%) | Comments |
|----------------------|-------------|-------------|-------------|----------|
| Consistency | | | | |
| Ball placement | | | | |
| Power | | | | |
| Hitting early | | | | |
| Anticipation | | | | |
| Physical aspects | | | | |
| Recovery | | | | |
| Surprise | | | | |
| Change of rhythm | | | | |
| Concentration | | | | |
| Intelligence | | | | |
| Attitude | | | | |
| Fight, effort, ... | | | | |
| Looseness | | | | |
| Enjoyment | | | | |

ANALYSIS OF PERFORMANCE CRITERIA

Consistency: tennis is a sport of “errors” and the player who commits the least number of errors holds a significant advantage over his or her competitor. This is one of the foremost means through which players win matches when they commence playing competition.

Ball placement: a common goal during matchplay is to place the ball as far as possible away from the opponent. In doing so, some more specific objectives will include playing with depth and opening the court.

Power: modern players aim to hit with maximum power and control. On the other hand, other players whose goals are to only get the ball over the net or play defensively run the risk of experiencing limited or less consistent success.

Hitting early: “contacting” the ball early, or more concisely taking time and space away from an opponent by playing further up the court, is an important tactical feature of the modern game.

Anticipation: of undoubted importance, especially in situations like the return, when taking advantage of aggressive

baseline shots, or at the net.

Physical aspects: the various physical qualities and capacities required of the high performance player include the ability to change direction quickly and efficiently, be well balanced dynamically, possess excellent coordination, and the capacity to continue to perform at high intensities for long durations; all the while making appropriate decisions during the large number of emergency situations that present themselves.

Recovery: when opened or pulled wide, players need to possess the ability to arrive in time and then execute. In the same way, having executed, it's equally important to recover court position so as to maximise one's chances of intercepting an opponent's next shot.

Surprise: the ability to surprise (not “telegraphing” intention) an opponent through occasional serving and volleying or the use of a drop shot (and not telegraph one's intention) should be part of the elite player's repertoire.

Change of rhythm: the need to vary shot height, spin, direction, combinations, etc such that opponents do not become too

familiar with a player's game is well accepted. Having the ability to do so is never more important than during matchplay on clay.

Concentration: here, we are talking about a mental capacity that can separate the best players from those that never quite make it. It is one of the most important, if not the most important area that a player can develop. The many thoughts and emotions that players entertain during matchplay demand that players maintain high levels of concentration for long periods of time, while simultaneously being optimally aroused. For this very reason, routines become all-important.

Intelligence: players need to be able to find appropriate solutions to situations or problems that present themselves on court, including the ability to make tactical modifications when things are not going to plan. The faculty to evaluate the strengths and weaknesses of opponents and subsequently exploit or avoid them is also a must. In simple terms, the player needs to be able to evaluate what's happening on court, select appropriate responses and implement them before any match slips from his or her hands!

Attitude: the player must prepare for every encounter professionally, entering the court in the right frame of mind, as a strong competitor and one that commands respect.

Fight, effort, ...: to achieve anything in life requires work; tennis is no exception. The competition in professional tennis is so intense that only those players that possess the necessary ambition, discipline and desire to succeed are likely to fulfil their goals.

Looseness: to develop a game that possesses heavy artillery, the player needs to let his muscles work. If the player wants to move fluidly around the court - as if flying - he needs to be calm and relaxed, but at the same time, alert. Each match is a serious and organised practice in which the player has to hit the ball sinuously and perfectly synchronise muscles in even the most difficult of situations.

Enjoyment: tennis is a game, and should be enjoyed as such. Players, in acknowledging that they are lucky to be in good physical and mental health, should also appreciate that they are fortunate to be able to play and earn a living from a sport they love.

CONCLUSION

Match analysis can be achieved in many ways. The table presented within this article provides coaches with a method through which players are comprehensively included in post-match debriefings such that an ownership over their own games and development is fostered. While the performance criteria identified herein are fundamental for successful tennis play, coaches may wish to add other criteria they consider as similarly important.



As part of a comprehensive match analysis, coaches are well advised to chart the “fight” displayed by a player from set to set.

An Integrated Approach to Tennis Training

By Arnau Florit Castro (Spain)

During tennis training, it is very important to respect the tennis playing profile⁵ - tactically, mentally and physiologically/physically - in the aspects in the different drills programmed during the season. Studies show that inadequate training, especially with young tennis players, negatively affects growth, increases the risk of overuse injuries¹ and restricts future performance. Here, of common concern is the appropriateness of the training load - is it necessary to have a high training load at a young age? How much training is enough for each age group?

While difficult to answer these questions, one possible way of reducing the quantity of training to benefit players may be as follows. The great number of elements that comprise the game of tennis see it considered a group sport and gives rise to the notion of two different training methods: a multidisciplinary approach, which works different training stimuli in isolated forms, and an integrated approach, which combines physical, tactical, psychological and technical performance measures during drills. An integrated approach shares certain parallels with the game based approach² and has the potential to help coaches avoid the prescription of excessive training loads.

This integrated methodology is based on a classification of exercises in accordance with their own specificity level. Specificity level is determined by the extent to which an exercise is similar to the requirements of competition, so exercises should be selected according to the various periods of the season. The classification of exercises to follow was used in the training of young tennis players and has been adapted from Moras⁴:

Generic Exercises (GE): they present low specificity if the goal is mental. They are favoured for:

- Acquiring an improved motor skills base, coordination abilities, tactical notions using games and reduced group sports situations.
- Developing and strengthening the body in a global form.
- Working all the conditional capabilities according to their sensitive - neural phases like reaction speed, action

speed, eye-hand coordination, the maintenance and improvement of flexibility / elasticity.

Specific General Exercises (SGE): they respect the physical demands and requirements of tennis. They are largely strength exercises that may also challenge mental faculties, involving the training of:

- Muscular chains that are influential in tennis player development. Session contents may include complexing exercises such as lateral throws with medicine balls (1 or 2 kg), the motor learning of compound strength exercises, vibration training, ...
- Motor control to provide for injury prevention and limit any potentially dangerous muscular imbalances.

Specific Directed Exercises (SDE): provide for more tactical specificity but may also be used for specific, technical correction. For example, in certain circumstances players may benefit from simulating point play with a heavy racket (< 5 strokes), and then competing with a normal racquet against other players.

Specific Special Exercises (SSE): similar to real competitive tactical situations, but more varied and with specific emphasis on a particular aspect or goal. An example: to hit only four serves with the condition that they should be "good" serves. Another example is to play points and try to win them using the least number of shots (100% tactical).

Specific Competitive Exercises (SCE): for maximal training stimulation. These exercises are the most intense: competition situations like tiebreaks, three games = one set, ...

With Specific Exercises, monitoring training is very important, BUT how can it be done?

There are a number of methods that enable us to monitor certain physiological variables during on-court tactical-physical-technical exercises. They include the monitoring of heart rate and exhibiting control over the work:rest ratio or the number of hits, and while they do not provide definitive measures of workload, they do provide coaches with additional information regarding training intensity.

CONCLUSION

Greater specificity requires more intensive training; therefore training volume should be reduced. As physical trainers and coaches, we have to look after our players. We are responsible for the stimulus we apply in training³, which should be based on the players' biological ages, performance goals and their unique playing profiles.

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During a training exercise, the number of times a player executes a shot in a specific time-frame can provide some indication of training intensity.

Advanced Cues in Predicting the Direction of the Backhand Tennis Stroke

By David Lovejoy (Sport Psychology Consultant, England)

INTRODUCTION

The modern game has become one of power and speed. At any level, players need to accurately anticipate their opponent's next shot. Day (1980) suggested that an opponent's racquet face, body position, shoulder and hip rotation can be used to determine the direction, trajectory, terminal location and speed of a tennis ball. Abernethy (1987a) proposes that body language cues are essential for advanced decision making, due to the constantly changing dynamics in sports. Therefore, from a coaching perspective it is important that during skill acquisition a pupil is taught to watch and process the appropriate body language cues at an early stage in their development. Additional research by Buckolz, Prapavesis and Fairs (1988) concluded that advanced cues (body language), do exist when forecasting passing shots in tennis. Tenenbaum, Levy-Kolker, Sade, Liebermann and Lidor (1996) similarly established that expert, novice and intermediate players watch different cues prior to contact; *Expert*: arm, racquet, shoulders and legs,

Intermediates: racquet, *Novice*: racquet. It is apparent from this literature review that authors have expanded the paradigm of forecasting advanced cues in tennis in a progressive, methodical manner. Nevertheless, research papers have failed to recognise the importance of spin as a variable when determining the terminal location of a ball when using body form as an advanced cue. Also, given that 16 of the world's top 20 men and 17 of the world's top 20 women play with double-handed backhands, current research has yet to investigate if advanced cues are different for single or two handed backhands.

GOALS OF THE RESEARCH

The research design was two fold. (1) To investigate if there is a difference in the body cues used to forecast a topspin or slice backhand between novice and intermediate players. (2) To establish if there is a difference in the prediction of backhands hit with one or two hands, between novice and intermediate players.

FILM DESIGN PROCEDURE

The position to which the ball was fed was controlled, and the players were instructed to hit, down-the-line using topspin or slice to a target area. The 50Hz video camera was positioned to capture the player making ball contact near the centre of the court on the baseline. The same procedure was followed for both single and double-handed backhands.

METHOD

Twenty-five participants were seated in front of a colour television (26 inch) screen two metres away. Instructions were given as to the test procedure; it was also emphasised that if no prediction could be made that an "unsure" response was appropriate. The participants were given 10 practice trials to familiarise themselves with the task. The eight filmstrips were randomly shown. Twelve novice: five males and seven females, and thirteen intermediates: seven males and six females, (M = 32.15 years; SD = 4.5 years) completed the questionnaires. After each film strip segment had been shown, participants had eight seconds to answer the following: (a) What type of backhand is being attempted, slice or topspin? (b) Is the backhand being hit with one or two hands? (c) Please rate the confidence you have in your prediction between 0-100%. They then marked on a sheet the cue(s) looked at as a basis for their prediction. This procedure was repeated for the eight different stroke combinations, at 4 frames prior to contact (-160 msec) 2 frames prior to contact (-80 msec), at the point of contact (0 msec), 2 frames post-contact (+80 msec) and at 4 frames post-contact (+160 msec).

RESULTS

- That advanced cues can be used to forecast the terminal location a tennis ball, agreeing with Buckolz, et al. (1988).
- That the racquet and shoulders of an opponent can be used to predict the terminal location of a ball, concurring with Day (1980).
- At pre-contact: Novices attended the racquet or the ball.



In an effort to anticipate the direction and intention of an opponent's backhand stroke, players are likely to benefit from attending an opponent's racquet preparation, and shoulder and leg rotation.

At pre-contact: Intermediates attended the racquet, legs or shoulders or both simultaneously.

- At the point of contact both groups focussed primarily on the ball.
- Post-contact results suggest that novices focus on the ball or the racquet, while intermediates are able to narrow their focus to the ball only.
- With the exception of single-handed backhands hit cross court, intermediates are significantly better at predicting a backhand, hit with one or two hands, slice or topspin, or hit down the line or cross court than novices.

Potential explanations of the study's findings:

- the current generation of "coaches" are more likely to hit with a one handed backhand and novices are subsequently more familiar with this type of stroke
- cross court strokes are in the main, taught and practised before down the line strokes.

APPLIED FINDINGS FOR COACHES

1. Coaches should try to expose players to one and two handed backhands at an early age along with topspin and slice strokes.
2. Coaches should actively instruct players to focus on their opponent - more specifically their racquets, shoulder rotation and positioning of their legs - for advanced cues prior to contact and NOT the ball.
3. Subsequent instructions should be to re-focus on the ball following the opponent's racquet-ball impact.
4. With the modern proliferation of the open stance backhand, the upper body (shoulders) should remain a point of "cue" focus when players are under pressure.

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Suggestions for Designing a Tennis-Specific Strength and Conditioning Program

By Adrian Faccioni, Alan Pearce and David Fisher (Australia)

INTRODUCTION

In tennis, the optimal execution of any given stroke requires different adaptations of learned motor patterns in coordination with the requirements of strength, power, speed, agility and balance.

Strength and conditioning training not only prepares the athletes for such demands, but also enables complete integration with the tactical/technical and psychological elements of the sport. Meaningful integration of conditioning training with the required game skills assists the athletes' understanding of these requirements of the sport. Further, results of such integrated programs are athletes that enjoy their physical training as much as playing tennis.

This article aims to give coaches who may also be responsible for their athlete(s) conditioning sessions some suggestions in designing programs that are specific to the sport as well as giving athletes meaningful exercises at training.

Prescription of conditioning training vs. specifics (or realities) of tennis.

Coaches will be familiar with the theoretical concepts of specificity; that is the maximum benefits of a training stimulus can only be obtained when it replicates the movements and energy systems involved in the activities of a sport (Rushall and Pyke, 1990), therefore the greater the similarity of a training activity, the more likely transfer of adaptation to performance (Fleck and Kraemer, 1987).

As McClellan and Bugg (1999) correctly point out, many conditioning exercises prescribed by coaches of tennis athletes as 'specific' to tennis are in reality exercises for general fitness development. These exercises include (amongst others) leg presses, squats, leg extensions, leg curls, bench press, dumbbell flies, and reverse flies.

So although these exercises can benefit the tennis athlete, why are they not tennis-specific exercises? Table 1

summarises the fundamental differences between these exercises and the realities of the sport, with Figures 1 and 2 illustrating differences between traditional and specific exercises.

Suggestions for programming conditioning training.

Coaches can work on athletes' conditioning not only in the gym environment, but also at the courts. In many cases coaches may not have opportunities to get to a gym, therefore athletes' have no alternative but to improvise specific exercises at the courts. Similar to the gymnasium environment, there are specific exercises that will transfer to the sport more effectively than generic exercises. Coaches should aim to prescribe exercises that are specific to serving, return of serve and movement during rallies. Table 2 shows some simple but effective alternatives to traditional exercises.

Athletes' who have access to

2 ONE HOUR LESSONS FOR CHILDREN 5 - 8 YRS OLD

| | |
|------------------------|--|
| LESSON 19 | Theme: RECEIVING AND PROPELLING WITH CO-OPERATION AND MOBILITY |
| Objective | To pass the ball round a group using only one racquet. |
| Warm up | <u>Racquet round</u> : Pupils stand round in a big circle, each pupil stands their racquet up on the floor by holding the tip of the handle with one finger. Teacher shouts "LEFT!" and each pupil moves one position to the left trying to place a finger on the next racquet before it falls to the floor, leaving their own racquet standing for the next pupil. The teacher can shout "LEFT" or "RIGHT". |
| Games/Exercises | <u>One racquet circle</u> : Students form circles of 3-6 members facing inward. Using only one racquet per circle, students must pass the ball around the circle. Students must pass the racquet from student to student. Ball cannot bounce. Team that completes the most continuous circles wins. |
| Variations | Students bounce the ball using both faces of the racquet, as many times as possible, hitting the ball against the wall, changing the feeder's or hitter's positions, etc. |

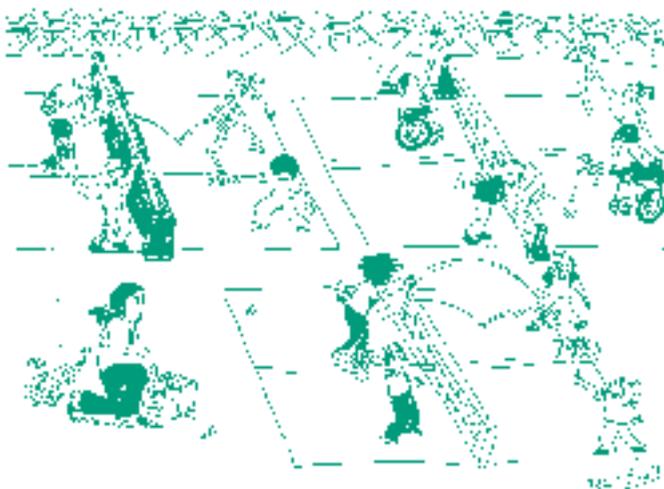


| | |
|------------------------|--|
| LESSON 20 | Theme: HANDLING THE BALL AND THE RACQUET |
| Objective | To pick up a ball on the floor with the racquet. |
| Warm up | <u>Hit the fence</u> : Students are divided into teams. They are positioned far from the fence. At the signal, each team starts to throw balls to the fence with their hands. The team with the most hits wins. |
| Games/Exercises | <u>Picking up balls contest</u> : Students have to pick up balls from the ground using the racquet strings or by pressing the ball between the racquet and the foot. The student with the most balls in his pocket wins. |
| Variations | Picking up the ball on the ground with the racquet by rolling it or pressing it between the racquet and the foot, etc. |

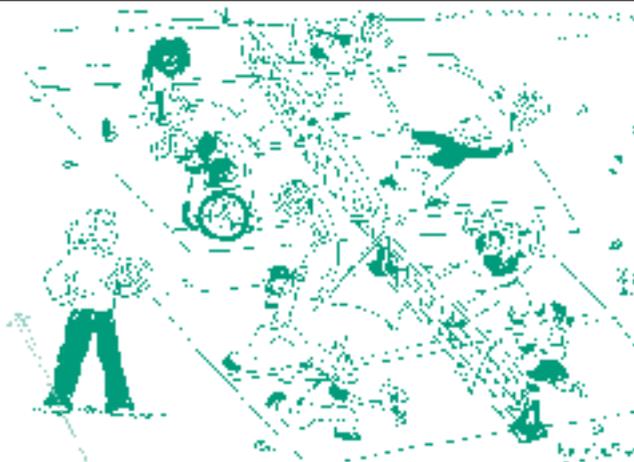


2 ONE HOUR LESSONS FOR CHILDREN 8 - 10 YRS OLD

| | |
|------------------------|--|
| LESSON 19 | Theme: PROPELLING, RECEIVING AND CO-OPERATING: VARYING HEIGHT |
| Objective | To provide the students with the skills required to defend by varying the height of balls received after a bounce (groundstrokes). |
| Warm up | <u>Squat down tag</u> : One student is "it" and chases the other to catch them. Each student who is caught squats down. Those who are not caught can squat down for a few moments and pretend to be out. |
| Games/Exercises | <u>HI-LO</u> : Students rally in pairs. One student at the net and the other on the baseline. The baseline student feed lobs to the net student who has to hit a nice overhead smash back. The pair who hits more balls in a row is the winner. Students rotate positions. |
| Variations | Rallying groundstroke to groundstroke. Defending with height, etc. |



| | |
|------------------------|---|
| LESSON 20 | Theme: PROPELLING, RECEIVING AND CO-OPERATING: VARYING DISTANCE (DEPTH), DIRECTION AND HEIGHT |
| Objective | To further promote the relationship of learnt ball control skills through their integration in various drills. |
| Warm up | <u>Back to back racquet pass</u> : Students in pairs with their backs to each other. They have to pass a racquet around both of them, moving a little further apart each time. Then pass through legs, over head etc. |
| Games/Exercises | <u>Anything goes</u> : Students rally in pairs. They have to rally varying distance, direction and height. The pair who hits the most number of balls in a row is the winner. Students rotate positions. |
| Variations | Rallying groundstroke to groundstroke, groundstroke to volley or volley to volley; 2 on 1 drills; vary distance, direction and height on groundstrokes, etc. |



gymnasiums should also follow the principle of specificity. Table 3 shows some specific exercises which particularly focus on unilateral and lunge movements. Although benches and machine weights have a role in general conditioning training, for a sport such as tennis, which relies heavily on proprioception and stability during movement, exercises should be free and dynamic to develop and enhance balance concurrently with strength and speed.

It should also be noted that although we suggest that exercises should be unilateral, symmetrical muscular balance between dominant and non-dominant sides is paramount, particularly with the upper extremity strength which favours the dominant side over the non-dominant side (see review by Roetert and Ellenbecker, 2002). Although athletes may find doing exercises on the non-dominant side unfamiliar, they still should nevertheless be completed for the prevention of injury.

Other alternatives - medicine ball training and plyometrics

Medicine ball training is also an effective tool for conditioning. On or off court, it is an enjoyable alternative to traditional conditioning exercises and for the junior athlete it helps develop new motor patterns. Further, medicine ball exercises can accommodate several requirements of training (for example, speed and balance) concurrently. The key to medicine ball exercises is to change the exercise routine very frequently. This will prevent fatigue of the neuro-muscular pathways: important for maintaining an athlete's coordination.

Plyometric exercises are also an effective alternative to only weight room exercises. Plyometric training bridges the gap between strength and power, and is known to directly enhance

competitive performance (Chu, 1998). However for best results research studies have shown that a combination of strength conditioning and plyometric training gives superior performances gains than just strength training or plyometric training alone (Adams et al, 1992; Wilson, 1994).

Similar to medicine ball activities, it is very important that the athlete is exposed to a variety of different drills. The basic plyometric activity should include elements of balance, agility, body coordination, hand-eye coordination, spatial and body segmental awareness. This will keep the athlete interested, injuries to a minimum (avoid overuse of the same exercise routine), and will help the athlete accrue a greater number of motor patterns that can be used in their sport.

Recommendations to coaches

Coaches should not be limited to traditions either out on court or in the gym. Being mindful of any contraindications that could harm athletes, coaches should aim to scrutinise and analyse specific movements and not be afraid to experiment with exercises that can model the specifics of the sport. Further, when implementing new exercises and/or a new conditioning program, talk and obtain feedback on the effectiveness of the program with the athlete(s).

Specifically for younger athletes it is important to expose them to as many motor skill variations as possible. The more they accrue early in their sporting career, the better off they will be once they are more senior. Furthermore, if athletes have the possibility of becoming professional athletes often they are so busy with competitions and travel that they are unable to do much ground/core conditioning resulting in an increased occurrence of injury. If athletes are

conditioned the appropriate way early in their careers they are then able to hold a high conditioning level much easier than having to try to develop one when participating in the demanding arena of professional/elite sport.

Finally, focussing on varied but specific conditioning routines ensures that athletes, particularly young athletes, are getting a varied training routine which will ensure minimising overuse injuries (from repeated activities from limited general exercises). Moreover, programming meaningful exercises will increase enjoyment, minimising the chance of dropout of junior athletes due to boredom and rigidity of training, a big factor in the high participation dropout rates in junior sport.

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Table 1. Summary of conditioning exercises prescribed compared to the realities.

| Traditional conditioning | Realities of the sport |
|--|--|
| <ul style="list-style-type: none"> Exercises are bilateral (both limbs move together during exercise). Prescribes leg exercises in squat nature. | <ul style="list-style-type: none"> Movements are unilateral (one side provides force production). Leg movements are usually of a lunging nature (or at least in a split position). |
| <ul style="list-style-type: none"> Apart from selected abdominal exercises, exercises are performed in one plane. | <ul style="list-style-type: none"> Skills revolve around rotational movements in a multi-plane environment. |
| <ul style="list-style-type: none"> Focus is on maximal strength as an assumption of force development. | <ul style="list-style-type: none"> Sports are time related, thus power is more important. |
| <ul style="list-style-type: none"> Conditioning is primarily involved with initial movement. | <ul style="list-style-type: none"> Rallies are generally lost due to ineffective recovery once execution of a shot is completed. |
| <ul style="list-style-type: none"> Little proprioception work. | <ul style="list-style-type: none"> Strokes and movements require good transfer of balance and body self-awareness. |

Table 2. Conditioning at the courts – typical examples of traditional exercises and some alternatives.

| Traditional | Possible alternative(s) |
|--------------------|--|
| • Double leg jumps | • Scissor jumps |
| • Forward lunges | • Oblique and cross over lunges |
| • Single leg hops | • Alternative angle leg bounding (forward and reverse) |

Table 3. Conditioning in the gym.

| Traditional | Possible alternative |
|----------------------|---|
| • Squats | • Split squat |
| • Bench press | • Single arm dumbbell press (using Swissball) |
| • Abdominal crunches | • Twisting walk lunges (forward and reverse) |

Table 4. Plyometric exercises as alternatives for traditional gym exercises.

| Traditional | Possible plyometric alternative(s) |
|---------------------------|--|
| • Single leg calf raisers | • Single leg oblique jumping |
| • Squat | • Scissor jumps; squat jumps (with variations) |
| • Dumbbell flies | • Medicine ball throw |



Figure 1. Traditional weight room exercise – Incline Leg Press. Notice bilateral movements of lower limbs and the removal of balance and proprioception required during the performance of the exercise.



Figure 2. Example court specific exercise – Oblique Lunge. This exercise is a good example of replicating the specifics of movements and position during the execution of a volley.

How to Develop Independence in Tennis Players

By Paul Lubbers (Director of Coaching, USTA) and Gustavo Granitto (Development Officer for Central America and Caribbean, ITF)

INTRODUCTION

The development of independence in tennis players is one of the foremost objectives in tennis training. As is the case with all open skill sports, the ability to evaluate situations and make positive decisions is a constant for successful player development.

A player's independence is closely associated to his level of self-confidence, and its development should commence

upon the player's first introduction to the game. Self-confidence is the belief that you can successfully perform a desired behaviour.

As coaches, it is our job to help players develop their confidence and accomplish their goals (i.e. victory). Realistically evaluating players' strengths and weaknesses, and then demonstrating our faith in their ability to succeed, will help here. To invest such faith in a player is

quite "persuasive" in facilitating that player's belief in his own abilities.

On the contrary, if as coaches we are not confident in ourselves, it is difficult to transfer confidence to our players. An interesting aside to any successful transfer though, is that players are provided with a direct example of confidence at work such that they can begin the process of increasing their own self-confidence. A process that is largely defined by the

attitude of both the player and coach.

Ultimately the goal remains to have players' doubts eradicated, confidence crystallized and belief in their ability to reach their potential and experience success, enhanced.

One of the most dependable ways to positively affect self-confidence is by helping create an environment of excellence that fosters successful performance accomplishments. Successful on-court experiences raise the level of self-confidence while failure results in lower self-confidence.

WORKING ON COURT

In working on court, it is important to have specific, daily objectives in mind. Training is important but not when devoid of intention. Players need to understand the relationship between training quality and providing for peak performance.

Again, a culture of excellence needs to surround players, whereby the significance of high quality training is recognised. In this way, players are encouraged to develop their independence. The following steps may also assist in developing independent and confident players:

Step 1

- Facilitate players in discovering their own abilities: speak to players and together with them, realistically evaluate and agree upon their abilities. Put together a plan to achieve their goals and implement it! Be available to players but do not imply that they depend on you to achieve their goals.

Step 2

- It is important to create situations in which players can test their ability to tolerate effort. The players should be encouraged to give 100% in trying to overcome any obstacle placed in front of them.

Step 3

- The coach should help players to increase their ability to tolerate effort through the use of progressive (challenging) goals : it's essential to plan competitive situations so that players can begin to experience small, positive results. This will lead to a change in attitude.

Step 4

- Support this by continuing to create more positive than negative experiences (at a ratio of 3:1) – in this way, the player will be conscious of the fact that there exists both success and failure.
- It's been proven that training, which is only characterised by high degrees of failure, is not conducive to the development of a player's self-confidence.
- If the activity generates results, it takes on greater importance for players; that is to say, it makes sense! They begin to associate effort with reward (success).

Step 5

- Now, it's time to develop the player's self-esteem. Help players demonstrate to themselves that they can improve, and thus, help foster their desire to do so. The coach's effectiveness in communicating this concept is crucial.

- If a player's self-esteem increases, so too will his self-confidence. As coach, acknowledging this enhanced self-esteem, will have a further, positive affect on the player without comprising his independence.
- Elevated self-confidence is likely to correspond with more confident decision-making. Give him the latitude to make his own decisions, however it is important for them to be later discussed and reviewed. Create situations so that he is able to discover the "pro's and cons" of the choices made. In making mistakes or poor decisions, remind the player of the process and continue to encourage high effort, which he already associates with some level of success.

CONCLUSION

One key challenge in tennis is to foster the independence of players such that they develop the necessary skills to negotiate difficult situations both on court and in life. The above process, where coaches de-emphasise outcomes and help players focus primarily on performance improvements and excellence, can be used to direct players along this path.

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Fostering an environment of excellence in training is considered most effective in assisting players to develop self-confidence.

Momentum Match Flow

By Garry Cahill (Ireland)

“A tennis match is a war with every point a battle within the war “

Basing momentum on the score in tennis can be divided into three main areas:

1. Playing from ahead
2. Playing from behind
3. Maintaining momentum

It's true to say that players usually make silly mistakes when ahead and play their best shots when behind. When ahead, there is a tendency to take some of the pressure off yourself and it is not uncommon to begin making more unrealistic decisions. On the other hand, when behind the tendency to play better exists basically because you have to. The pressure also makes players perform.

How do I play if I am behind?

Momentum is never switched by tentative play; remember “the best form of defence is attack; “be patient with and stay true to your fundamentals but always be on the attack”. When attacking, try to use your strengths (attack but hit big targets), your best patterns, your “money” shots, your 70% percent serves. All this will have a positive effect on your confidence and self-belief.

How do I play when the score is tied?

Momentum has to be created at this stage so again you should try to go with your best or favourite play. Be confident enough to take charge of your opponent and use the parts of your game you are most confident with. “Deal or be dealt with; “don't wait for good fortune, go after your opponent and create your own good fortune”.

What do I do if I am ahead?

When ahead there is a tendency to be a bit loose. This coupled with the opponent's tendency to play better and become more focussed can change momentum. When ahead by one point it can be a good idea to play a breakdown point. This does not mean to become tentative, rather it hints at giving yourself a slightly bigger target at which to hit. The first point in each game typically involves the least amount of pressure, and the player behind will often try to accelerate. It is important to match this aggression with aggression.

When in front it is also important to avoid trying to sprint to the finish line with four laps to go. You should grind away at your opponent, maintaining good court position and a positive mind-set.

Charting Momentum

Momentum can be charted using the chart below, which basically serves as a heart rate monitor, going up one when a point is won and down one when one is lost. The initials “w” (winner) “u” (unforced) and “f” (forced) are used to help pinpoint the reason for the switch: is it because of my good play, my opponent's good play or my opponent's poor play.

Practices on court

- 1) Play games from different scores with players discussing their pre point plans with the coach and following specific routines.
 - a) From behind (0-40)
 - b) From ahead
 - c) From scores tied
- 2) Chart a full match using the momentum match flow chart and discuss your findings with your players.
- 3) 3 in a row game: 3 consecutive points = game, 6 = set and 9 = match.
- 4) Instead of playing points to 9 or 11, play sets of four points with sudden death at three all to emphasise the importance of every point.

| | | Match Flow Chart | | | | | | |
|--------|----------|------------------|-------|--------|-------|--------|-------|--------|
| | | Return | Serve | Return | Serve | Return | Serve | Return |
| Player | | | | | | | | |
| | Opponent | 0/ | | | | | | |
| Player | | | | | | | | |
| | Opponent | 0 | | | | | | |
| Player | | | | | | | | |
| | Opponent | 0 | | | | | | |

How many series of three points did you win? _____

How many deuce points did you win? _____

How many deuce points did you lose? _____

At what scores were the big momentum switches and why? _____

Did you use any time management strategies to control momentum? _____

Key Issues in Developing Female Players

By Edvard Raastad (Norway)

INTRODUCTION

In Norway there is a high dropout rate in girls' tennis, which becomes even more apparent when tournament participation is considered. Girls start to leave the game from the age of 14-15, and while there is a similar problem in boys' tennis, the rate at which adolescent females are dropping out of tennis is of particular concern. Indeed, this is in spite of tennis schools having a relatively high ratio of female players in younger age groups. It has been suggested that the problem may be compounded by the considerable lack of female coaches. The Norwegian Tennis Federation has subsequently given priority to "Girls' Tennis" as an area of focus in their General Sports Plan.

As part of this process, research has been conducted to identify reasons for the high drop out rates among girls and attitudinal differences between girls and boys. Several conclusions regarding the way forward have thus been drawn and in the paragraphs to follow are presented in a summarised version.

GENERAL AIMS

Emphasis must be placed on development and task-oriented goals (i.e. developing a repertoire of skills for each individual) rather than ranking and outcome-oriented goals. The latter must be seen as a result of the preceding process.

Short term, realistic goals will be important in potentially providing for the mastery of technique and the fostering of self-confidence. Division of training and competition into periods will also allow for the improved monitoring and measurement of progress.

TECHNIQUE

Due to gender-related physiological differences, developing sound, basic technique, is possibly even more important for girls than for boys. In general terms, as girls are not able to harness as much physical power as boys, the development of a solid repertoire of strokes is a priority. In the early stages of player development, technical emphasis

should be placed on the development of strengths. The correction of weaknesses can come later. The training of coordination at an early age is a must.

PHYSICAL ASPECT

The physical training performed by the girls may be just as "tough" as it is for the boys; however, it must be individualised in terms of training load, goals, etc. Providing for variety in training is important and coaches should introduce different physical training stimuli as a result.

MENTAL/SOCIAL ASPECT

The main aim of mental training should be to develop skills, which can improve self-confidence and, among other things, reduce any detrimental (outcome-based) expectations and competition pressure. As part of this, the development of a harmonious club environment and scheduling appropriate group training (team building) can be beneficial.

METHODOLOGY (PROGRESSION)

Clear progression and sequenced instruction (i.e. using the "part method" as well as the "whole method") can be very effective for tennis skill development and enhancing self-confidence. The Game Based Approach is another methodological tool used by coaches to advance a player's abilities through specific, match related exercises. The teaching approach employed by the coach should be tailored to the individual.

DIFFERENT STYLE OF COACHING

In working with players, and in particular girls, it is important for coaches to employ more democratic, rather than authoritarian, styles of coaching. The aim then becomes to develop the person as a whole. Communicating through active listening, enthusiasm, patience, and positive body language and feedback can make the overall tennis experience more enjoyable for the female athlete.

ALTERNATIVE FORMS OF COMPETITION

It is important that, as players mature, the genders are integrated as much as possible in activities like mixed leagues, mixed doubles, ITN tournaments, etc. Similarly, the provision of conventional tournament play (i.e. knock out) and alternative forms of competition (i.e. feed-in) caters more comprehensively for female players of all levels and ages.



The development of a sound technical repertoire is a must for the aspiring female player.

Recommended Books and Videos

BOOKS

18 & Under: A celebration of junior tennis.

Year: 2004. Pages: 95. Language: English. Level: All levels. ISBN: 1-903013-39-9. Foreword by Andy Roddick. Contributions from Chris Bowers, Eleanor Preston, Luca Santilli, Faye Andrews, and Neil Robinson. This book reviews the main features of the ITF Junior tennis programme: the history, the circuit, the world champions, the team competitions, the development and the future. It also includes a very comprehensive results section so readers can check which juniors won what and where! For more information contact: www.itftennis.com/juniors



The Tennis Tournament Handbook.

Author: Jerome Kilmer. Year: 2002. Pages: 160. Language: English. Level: All levels. ISBN: 0-9719126-0-2. The principal purpose of this book is to provide tennis players with information so that they are best prepared to get the most from the entire tournament experience. Contents include: Part I: Types of tournaments, basic draw formats, technology, rating systems, tournament selection advice for players. Part II: The scene. Players, doubles partners, spectators, tournament directors. Part III: Managing your experience. Practical game plan. Appendix. The author has played and directed hundreds of tournaments worldwide. For more information contact: www.tournamenthandbook.com



Tênis de campo (Lawn tennis).

Author: Anna Skorodumova. Year: 1999. Pages: 157. Language: Portuguese. Level: Advanced. ISBN: 8686702-11-0. This book is based on the work of the author with top level players. Skorodumova, who has been scientific coordinator of the Russian Tennis Federation, summarises the key ingredients of the Russian system for developing tennis players. Contents include: Competitive activity of tennis players, technical and tactical training, physical conditioning,



structure of the training process, control of training loads and organisation of training cycles. For more information contact: www.phorte.com

Play better, live better.

Author: David O'Meara with Barbara Luehring. Year: 2003. Pages: 180. Language: English. Level: All levels. ISBN: 0-9724324-0-X. This book is written as a conversation between the author and the reader. The author shares his vision about how sports coaching should evolve. Contents include a ten step pedagogical process (aspirations, observation, patterns, what is and what is not working, perception, trust, experience, awareness, assimilation) and guidelines relating to its most effective use. The author is a professional touring coach, consultant and speaker, and has published several tennis books. For more information contact: www.omearaprocess.com



Teniska Prizma (Tennis Prism).

Authors: Radmilo Armenulic and Dejan Simic. Year: 2000. Pages: 226. Language: Serbian. Level: All levels. A textbook for the Advanced Coaches' Courses of the Yugoslav Tennis Federation, it details fundamental coaching information on tennis theory (history, organisation, physical conditioning, psychology, technique and tactics), methodology (training methods, coaching) and pedagogy (role of the coach and planning). For more information contact: yugtenis@verat.net.



The Science and Art of Tennis.

Author: Julio A. Yacub. Year: 2002. Pages: 398. Language: English. Level: All levels. ISBN: 1-58736-212-0. Foreword by Nick Bolletieri. This book is designed for visual learners and students of the game who look for simplicity without cutting corners. It is filled with dynamic drawings and easy to follow diagrams. The author has extensive experience in teaching and coaching tennis. For more information contact: www.tenniscoachonline.com



Fit to Play Tennis. Authors: Carl Petersen and Nina Nittinger. Year: 2003. Pages: 210. Language: English. Level: All levels.

ISBN: 0-9734314-0-7. By combining comprehensive information on general training concepts with specific guidelines and practical tips that athletes can put into practice immediately, the authors of this book have applied their collective knowledge and experience to provide tennis players with the latest information on smart training concepts. For more information contact: www.citysportsphysio.com



Instinctive Tennis.

Author: Happy Balla. Year: 2003. Pages: 264. Language: English. Level: All levels. ISBN: 81-901297-8-3. The author's understanding is that tennis is a microcosm of life. He believes that it is possible to transform both our lives and ourselves by changing the way we play tennis. He calls this style of play, instinctive tennis. **Relaxed Intensity.** Author: Happy Balla. Year: 2003. Pages: 96. Language: English. Level: All levels. ISBN: 81-901297-7-5. This book is about more than just tennis. It gives insights into the deeper self of the reader and his tennis game as a paradigm for life. For more information contact: happyballa@hotmail.com



VIDEOS

Tennis Coaching Today!

Authors: Judy Bull and Mitch Hewitt. Year: 2003. Pages: 296. Language: English. Level: Beginners. This program includes a video and 16 lesson plans divided into two stages (8/8). Contents covered include: The first stage (the application and pre-tennis development of essential fundamental motor skills) and, the second stage (use of the Game Based Approach to help students learn tennis through the game). For more information contact: judeaction@optusnet.com.au



2004 ITF REGIONAL COACHES' WORKSHOPS



Paul Lubbers and Bobby Bernstein from the US High Performance Program presenting at ITF Central American and Caribbean Coaches' Workshop in Santo Domingo, Dominican Republic.



Ivo van Aken, Technical Director of the Flemish Tennis Federation, in action during the ITF Asian Coaches' Workshop held in New Delhi, India.



Coaches attending the ITF South American Coaches' Workshop in Asunción, Paraguay.



Top coach Luis Bruguera from Spain presenting at the Tennis Europe Coaches' Symposium in Malta.



Coaches and speakers at the ITF African Coaches' Workshop held in Pretoria, South Africa.