

ITF Coaches Education Programme Level 2 Coaching Course



Advanced stroke techniques: The serve

By the end of this session you should be able to:

- Understand the fundamentals of the different serve variations used by advanced players
- Understand the advantages and disadvantages of the use of each shot
- Explain and teach these shots to players

INTRODUCTION



- In the early stages of developing a good serve, the important elements are:
 - (1) Simple action
 - (2) Continuous action
 - (3) Good balance and ball placement
 - (4) Reasonably correct grip (starting with an Eastern forehand grip and gradually progressing to a continental grip).

INTRODUCTION



- Rhythm in the serve is an important criterion to ensure a fluid service action.
- Both arms, the racket and ball arms, move in synchrony.
- Control the ball placement.
- Transfer weight efficiently towards where you are hitting.

INTRODUCTION



- As the player develops further, other elements are usually introduced:
 - A change of grip towards the Continental grip
 - The use of the wrist to control placement
 - Spin, both slice and topspin, is added
 - A harder “flat” service is encouraged.

INTRODUCTION



- It is important to understand the biomechanics of the serve, so that advanced service techniques can be added to **make the serve a powerful weapon.**

THE SERVE'S LINKED SYSTEM



BODY PART	FORCE CREATED
Leg drive	Increases velocity of hip
Trunk and shoulder rotation	Increases shoulder velocity
Upper arm elevation	Increases elbow velocity
Forearm extension and pronation	Aligns the racket for impact and increases wrist velocity
Hand flexion	Increases racket speed

POWER IN THE SERVE



- Not developed by the trunk and arm
- Primary source of power (force) is generated from the ground in the form of **ground reaction force**.
- “For every action, there is an equal and opposite reaction” Newton’s Third Law.
- Leg action (knee bend-flexion and extension).
- Power is transferred through the link system.



THE GRIP

- Usual grip for players is the continental.
- Tendency to use a grip between an Eastern forehand grip and a continental.

DEVELOPING FORCE IN THE SERVE



- Pushing against the ground is the way to develop force (power)
- Knee bend (flexion and extension) is important.
- Optimum knee bend is quite individual, depending on the strength and co-ordination of the server.
- Two problems of an incorrect use of the knees:
 - Not enough, or too much knee bend
 - If the knee bend and push (flexion and extension) is uncoordinated with the rest of the links (the service motion), then the service power will be impeded.

DEVELOPING FORCE IN THE SERVE

- As the ball hand starts upwards, the left (and right) knee (s) should co-ordinate in a rhythmical movement.
- The server should keep the left hand pointing upwards **after** the ball is placed in position.
- The server's weight can then be efficiently transferred downwards (knee flexion).
- The server's body leaves the ground, not by jumping intentionally, but as the result of driving upwards to the ball.

HIP ROTATION



- Second part of the link.
- Transfer the power generated by the knees to the trunk through the hips.
- Hip rotation occurs after the knees bend, and then straighten.
- Drives the shoulder up and out which forces the racket further down the back of the server.
- This is called displacement and requires excellent co-ordination.

TRUNK ROTATION



- Once hips achieve maximum rotation speed, then the trunk is rotated.
- Most good servers have considerable trunk rotation.
- As the trunk rotates the left arm is tucked in front of and across the body.
- This arm action acts to decelerate the trunk rotation thus allowing the arm to accelerate out towards the target.

ROTATION OF THE ARM ABOUT THE SHOULDER

- This is called power loop.
- Next link in the system.
- When the arm is at the bottom of the backswing behind the back, it is externally rotated at the shoulder.
- On the upward or forward swing, the upper arm internally rotates at a very high speed.

ELBOW EXTENSION - FOREARM PRONATION



- The next part of the link involves the elbow in two ways:
 - The elbow extends from the position when the racket is behind the back (in the power loop).
 - Pronation (turning outward) of the forearm and hand around the elbow occurs.
- The speed of these two actions is very high and care should be taken to avoid injury.

WRIST FLEXION



- In the backswing (behind the back) and early forward swing the wrist is hyperextended (the hand bends back at the wrist).
- As the racket head accelerates towards the impact point, the hand flexes at the wrist until, at impact, it is relatively straight compared to the forearm, and then the racket head continues in its high speed so that the wrist flexes.
- The wrist action from a hyperextended position, through to a straight (at impact) and then flexed position (after impact), is the final stage in the chain of links which produces a powerful serve.

FOLLOW THROUGH



- The completion of the weight transfer forward moves the body into the court.
- The face of the racket does an outward rotation that reduces the strain of the shoulder joint.
- The racket moves across the body and decelerates.
- The body starts to recover its balance for the next shot.

FOLLOW THROUGH AND LANDING FOOT

- Commonly believed by coaches that a power serve is associated with a crossover step (back foot is the first to land in the court after impact).
- Research has shown that neither technique (i.e. front foot landing first or back foot landing first) was associated with a higher service speed.
- The personal preference of the player should therefore dictate which technique is used.

TOPSPIN SERVE

Introduction



- Research has shown that advanced players seldom hit a flat hard serve.
- They usually hit a fast power serve with an up and out action immediately prior to and after impact (ie. some spin is imparted).
- The topspin serve gives the player more margin for error because it passes over the net in a high curved path and it bounces higher after hitting the ground.
- The rougher the surface, the higher the bounce will be. It is therefore used effectively on clay courts.

TOPSPIN SERVE

Preparation and swing



- Ball usually tossed from above or slightly behind the head over the left shoulder (for a right-handed player).
- For advanced players the toss for all serves will be basically the same to facilitate disguise.
- The upper body is turned slightly sideways and arches backwards.
- The upper body leans increasingly backwards.

TOPSPIN SERVE

Contact



- The body rotates upwards and to the front in the direction of the shot
- The ball is hit from behind and to the left of the server's head and the racket trajectory is upwards across and over the ball.
- The racket is swung to the point of impact at more of an upwards angle.
- The right foot moves in relation to the direction of the hit.
- The ball is met a little further to the left than on the basic service.

TOPSPIN SERVE

Follow through



- The first part of the follow through is directed more to the right.
- The racket initially continues outwards and to the right.
- The upper body initially leans slightly to the left and then turns in the direction of the shot.
- The left foot is the one that lands and takes the player's body weight while the right foot goes up due to the action-reaction principle.

SLICE SERVE

Introduction



- Gives the player the possibility of pulling the opponent out of the court because it passes over the net and bounces to the side after hitting the ground.
- The smoother the surface, the more effect sidespin will have on the ball.
- Used a great deal on indoor courts and on grass.
- The racket path has a flat trajectory causing more sidespin than forward spin.

SLICE SERVE

Preparation and swing



- Ball usually tossed in front and slightly to the right (for a right-handed player).
- For advanced players the toss is basically the same to facilitate disguise.
- The upper body is turned slightly sideways and backwards.
- The upper body is leaning increasingly backwards.

SLICE SERVE

Contact



- The ball is hit near its centre and its back and the racket moves upwards across the ball.
- The body rotates upwards and to the front in the direction of the shot.
- The upper body is turned sharply forwards.
- The racket is swung to the point of impact at an angle to the side.
- The ball is met a little further to the right than on the basic service.

SLICE SERVE

Follow through



- The upper body follows the path of the ball in the direction of the shot.
- The right foot is the one that lands and takes the player's body weight.