THIS CONTENT IS A PART OF A FULL BOOK - TENNIS FOR STUDENTS OF MEDICAL UNIVERSITY - SOFIA

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Groundstrokes from the baseline (forehand and backhand)

Groundstrokes are the first shots to be learnt by/taught to beginner students. They can be used from the baseline during a rally as winners and as a preparation for coming to the net. They vary in strength, height of the ball's flight, direction, type of applied rotation - topspin, backspin or flat, and so on. The hand movement technique and the racquet's trajectory in the preparatory phase vary considerably in recent times:

A. **Flat forehand - a description of the technique.** It is the first shot that the training of beginner students starts with. It is used mostly by tennis amateurs and those who are taking the first steps into the game. The stroke is straight ahead, so the ball often goes beyond the court's lines. It is performed with an eastern grip.



Fig. 23. Flat forehand

Preparatory phase: The aim is to take the racquet back in the shortest and most correct trajectory for the subsequent movement. Execution sequence: letting go of the racquet's neck with the left hand while folding and unfolding the right one in the elbow. This is combined with a right turn of the shoulder, upper body, arm and racquet, right foot and the body to the net. At this point, the racquet forms/creates a small arc (loop) as it is taken upward and back to the rearmost position, i.e. the racquet is opened with a back swing (Figure 23b).

Approach to the ball for impact. The preparation for the stroke begins with unfolding of the arm in the elbow and stepping forward with the left foot in the direction of the coming ball. The weight of the body is transferred on it. The left shoulder is pointing towards the net as the player is turned in a sideway position (Figure 23c).

The "hand- racquet " system moves forward and upwards from the rear position at hip-height horizontally or upward to the incoming ball in the direction of the net. The face of the racquet's head is perpendicular to the court. In the horizontal plane, it is on the level of the point of contact. This depends on the height and type of stroke that is being executed - flat for high or medium-high balls. At that moment, the weight of the body is transferred from the back (right) to the left leg and falls entirely on it at impact.

Execution phase: The striking action is performed with an insignificant turn of the hips to the side of impact. Movement starts from the elbow and shoulder joints slowly with a gradual acceleration. In this way, the racquet is lagging behind the movement of the upper part of the body.

The stroke takes place when the ball is located on the front and side of the player's body in line with the front left foot, i.e. on the projection line of the front leg and the rear shoulder near the vertical axis in front of the body. The hand's motion is accelerating (Figure 23d). The stroke on the ball is not abrupt. The aim is for the racquet to have a longer contact with the ball, that is, the player to "lead the ball" as long as possible, which is a prerequisite for a more accurate and successful/better stroke.

This technique is defined as closed and is rarely and less often found in modern tennis.

Finish/Follow-through phase: The progressive movement of the hand and racquet continues briefly after impact. The motion further is by inertia and the speed decreases to zero (Figure 23e). The hitting action ends with the back (right) leg retracting to the front, left hand catching the racquet's neck, and player returning to the initial position for the next stroke.

Errors in the training and execution of a flat forehand:

- The impact is executed without turning sideways to the net.
- The striking movement is performed only with the playing hand, without the help of the other.
- The head of the racquet is dropped low.
- The face of the racquet is not perpendicular to the direction of the ball.
- The left leg is placed sideways rather than perpendicular to the direction of impact, etc.

Exercises for studying and improving the flat forehand:



Exercise # 1: The coach feeds a soft ball from the area behind the service line to player A. The player strives to adjust to the ball with an open racquet and returns the ball either back to the coach in the center of the court, or cross court or down the line.



Exercise # 2: The coach feeds a ball from the center of the court behind the serving box to player A, who is at the baseline. The player moves with an open racquet and short footsteps and hits a flat forehand cross court, after which returns back to the center of the court. The same drill is repeated down the line.

B. Topspin forehand - technique of execution. With the development of tennis technique, this method of implementing the shots takes a major place in the game and, respectively, in the preparation of the more advanced students. Particularly often, an upward-rotating forehand/with top rotation is used as it is efficient on hard surfaces. The "relative" immobility at the moment of impact – sideways in relation to the net, was replaced by shots on the run in a specific "fast frontal court movement" (Gayman, B. 1977). Academies, based on this "topspin" technique, were also established (the Spanish ones) that had successes in the 1985-1990s period.

a) Topspin forehand with a closed stance

Preparatory phase: The impact execution requires more power, i.e. greater swing. The grip is a modification of eastern to semi western or only western grip. The backswing motion is done with a larger loop. This is accompanied by turning the shoulders, upper body, free hand and hips to the side of impact. The weight of the body is transferred to the right leg, which is further back than the left. The arm in the far back position is substantially unfolded in the elbow joint. The head of the racquet is taken high back with a slope - almost perpendicular to the ground. The other hand is brought forward in front of the chests at a shoulder-height level (Figure 24b).



Execution phase: It is implemented by the shoulders joint with a simultaneous coiling of the shoulder and body. The head of the racquet is below the level of contact with the ball. At impact, the angle between the arm and the upper body decreases, while at the elbow joint – it increases (Figure 24c).

At the moment of contact, the wrist is unfolded and racquet is to the side along the shoulder axis and is parallel to the ground. It moves from the bottom up/low to high. The striking action is accompanied by the simultaneous straightening of the legs - often times leading to a jump from the back to the front leg(Figure 24d).

The ball is hit with a great force on its rear upper surface more upward than forward. As a result, it receives a strong forward rotation and a flight with a considerable parabola. When in contact with the ground, the ball bounced at a high speed up in the direction of the flight. This hinders the opponent to successfully play it back.

In the final phase, the arm folds strongly in the elbow behind the right shoulder. Often times the hand movement continues upward on the side of impact and stops when the wrist is at a head-level height or above (Figure 24f).

Errors in the training and execution of a closed-stance topspin forehand:

- The stroke is performed without turning of the shoulders to the net.
- The forehand groundstroke is hit only with the playing hand, without the help of the other (a "hugging" effect may be observed).
- The player's body is strongly pulled back during the stroke and thus, losing control of the ball.
- The left leg is placed sideways rather than perpendicular to the direction of impact, etc.

Exercises for studying and improving the topspin forehand:



Exercise # 1: Player A feeds the ball from the baseline cross court to player B's forehand. Player B adjusts with an open racquet and returns the ball back to player A's forehand in order to make a rally. The goal of the players is to keep as many rallies as possible without a missing the ball.



Exercise # 2: The coach feeds a ball from the service line to the forehand of player A, who is on the baseline. Adjusting with an open racquet and short steps, player A hits a cross court forehand, aiming to send the ball close to the baseline. The next shot is done in the same way, but is Following is the same ball, but/hit down the line. The aim of the exercise is for the player to prepare and direct the shot as early and accurately as possible.

b) Topspin forehand with an open stance

This stroke is used quite often by the best players in recent times.



Fig. 25. Topspin forehand with an open stance

The preparatory phase for the upcoming impact is faster. A proper technique of movement is required to offset that is adequate to the fast speed of the ball coming at the player. The swing for the stroke is short. It is performed by moving the left hand forward in front of the chest, synchronized with the simultaneous move of the shoulder, right arm and the racquet to the side and upwards. They rotate in the direction of impact. Thus, the head of the racquet makes a small arc up and back with an unfolded wrist joint a loose wrist. The angle between the body and the arm is not large unlike the one in the elbow joint. In an extreme rear position, the incline of the racquet's head is almost parallel to the court and continues its movement down to and below the level of the waist, i.e. it is closed relative to the terrain (Figure 25b).

Simultaneously with the movement of the hands, the right leg is taken out one or two steps aside. The weight of the body is transferred to the right leg and to some extent, the body twists. In a number of cases, the body tilts slightly sideways and forward. The feet are parallel to the net (it is possible the right one to be slightly ahead). The center of gravity is on the right leg. (Figure 25c)

The body is in a relatively open position to the net. The weight is on both legs.

Execution phase: The impact is performed to the side and in front of the body. The striking action is with a short swing and moves from low to high and forward, i.e. the ball is "brushed", the angle between the arm and the body is small, and the movement of the arm and the racquet is short-sighted. The grip is western (Figure 25d). The strength of (holding) the grip also determines to a significant extent the correct performance of the shot.

Closing phase: Performed with a vigorous folding of the arm in the elbow behind the right shoulder. Often times, the hand motion continues upwards and stops when the wrist is at or above the head level (Figure 25e).

Errors in the training and execution of an open-stance topspin forehand:

• The striking movement is performed only with the playing hand, without the help of the body and the other hand.

• The player loses balance and body equilibrium during the stroke by hitting the ball late.

• The shoulders do not rotate perpendicular to the net to be sideways and therefore, the player is fully facing the court.

Exercises for studying and improving the open-stance topspin forehand:



Exercise # 1: The coach feeds a ball from the baseline to player A's backhand. Player A adjusts with an open racquet and plays the ball with an open-stance forehand. Then the teacher feeds the same deep ball, but on the forehand side. The player's goal is to adjust and play forehand strokes with an open stance anywhere on the court.

C. Forehand slice

The dynamic and offensive style of play has led to a less frequent use of this shot. Depending on the game situation, / It is/can be used in cases when:

- the player is challenged by the opponent's game - in instances of a return of serve and rescuing/of strong attacking strokes;

- playing slow, short, heavily sliced balls before coming to the net, etc.



Fig. 26. Forehand slice

Preparatory phase: The following are possible options for preparation:

Starting position with shoulders parallel to the net - a technique used by the majority of players (Figure 26b). The weight is on the open right foot. The arm and the racquet are taken to the side and higher than the other forehand strokes. The speed and height of the swing depend on the speed and height of the coming ball.

Execution phase: The stroke starts with a hand movement from high to low and forward, giving the ball a rotating motion. The face of the racquet is slightly open and almost perpendicular to the ground. The angle in the elbow joint increases, while the one between the forearm and the racquet remains almost constant (Figure 26c).

During impact, the hand and the racquet perform a scooping motion - the inside of the arm and the racquet turn and rotate, following the direction of impact. The longer follow through leads to a strong slicing of the ball as well as the creation of a significant backward spin - a solid underspin rotational movement (Figure 26d). The forward action is considerably less. With such strokes, the ball's flight is of less linear speed and length of flight (often deemed as a "short stroke") and the rebound is lower, making it difficult for the opponent to return.

Greater velocity and flight's length can be added to the ball when the movement of the hand and racquet during impact is directed more forward rather than downward.

Closing phase: The hand and the racquet move almost horizontally forward and at the end of the striking action they are pulled up to the level of the player's head by folding the arm in the elbow (Figure 26e). The weight of the body is on the front leg.

Errors in the training and execution of a sliced forehand:

- The impact is executed without turning sideways to the net.
- The striking movement is performed only with the playing hand, without the help of the other.
- The left leg is placed on a side rather than perpendicular to the direction of impact.

• The player does not lead the ball with the racquet, but chops it abruptly as a result of which the ball loses speed.

• The body weight remains on the back leg during impact and thus, loses balance due to a late contact with the ball.



Exercises for studying and improving the forehand slice:

Exercise # 1: The coach feeds a ball from the service line to player A's forehand. Player A adjusts with an open + ready for slicing racquet and returns the ball to the teacher. The goal is to keep the rally going by rhythmic slice shots on the forehand side without an error from the service line.



Exercise 2: The coach feeds a ball from the service line to player A's forehand. Player A adjusts with an open (and ready-to-slice racquet (for forehand and hits the ball straight down the line, after which returns to the center of the court. The same is done diagonally - cross court. The goal of player A is to direct the fed ball down the line and cross court using a forehand slice.

G. Backhand

These strokes are considered more difficult. They are frequently used by players to hinder the opponent as well. However, many specialists define them as more natural and easier to implement considering the biomechanics of movement – supination of the hand and moving it away from the body. They can be hit both with one and two hands.

a) One-handed backhand



Fig. 27. One-handed (flat) backhand

Preparatory phase: The ready position is the same as with the forehand. The stroke is performed with a continental grip.

The racquet takeback begins at waist level (in many cases – in a circular motion) simultaneously with rotating of the shoulders and to a lesser degree - the body. At the rearmost position, the racquet reaches the height of the shoulder and is behind it. Its head is perpendicular to the ground. The front shoulder points to the ball and the net. The right foot (often times both) is parallel to the net and flight direction of the ball, while the left one is at an acute angle. The weight of the body is primarily on the rear leg (Figure 27c).

The player's sideway position to the net enables the hand and racquet to swing naturally and with a wide amplitude as far back as possible in preparation for the stroke.

Execution phase: The hitting action starts smoothly by transferring the weight from the rear to the front (right) leg. It is combined with the simultaneous expansion/unfolding of the shoulder and elbow joints, and a forward swing of the racquet to the ball. It is contacted at waist level in front of the right leg at the moment of or immediately after stepping. At the point of contact with the ball, the speed is greatest. The hand is fully unfolded in the elbow joint and firm in the wrist. The racquet is parallel to the court while its head is perpendicular to it.

During impact, the hand motion is mainly forward at a waistband level (often by loosening the wrist and moving from low to high and forward), and after the contact – up and to the right (Figure 27d and Figure 27e).

At this point, the body is also moving forward with the weight being transferred from the left to the right leg, which enables a slight upward rotation to (be given) the ball, since the racquet head is more closed during impact.

Closing phase: After the striking action, the hand and the racquet continue their inertia forward and upward, following the ball's flight. The hand, almost unfolded in the elbow, is taken with the racquet to the side (on the right) and high above the player's head - a continuation of the shoulders line (Figure 27f).

This stroke is used to play balls of great power and extended flight from the baseline, as well as for playing short balls/playing back drop shots, or hitting winners at different spots on the court.

Errors in the learning and execution of a flat, one-handed backhand:

- The impact is executed without turning sideways to the net.
- The striking movement is performed only with the playing hand, without the help of the other.
- The body is pulled entirely on the back leg.
- The legs are not bent in the knees during impact

Exercises for studying and improving the flat, one-handed backhand:



Exercise # 1: The coach feeds a ball from the service line to the backhand of player A. With an open and prepared racquet, the player adjusts and returns the ball to the instructor. The goal of player A is to make adjustments and maintain a rally with light rhythmic backhand shots at the service line without making a mistake.



Exercise # 2: The coach feeds a ball to player A's backhand from the service line. Player A adjusts with an open and ready for-a-backhand racquet and returns the ball down the line, then recovers to the center of the court. The same is done cross court. The goal of the player is to make adjustments and control the ball fed by the coach both down the line and cross court using a flat backhand.

(b) One-handed (topspin) backhand



Fig. 28. One-handed (topspin) backhand

Preparatory phase: The approach to the ball is identical to the ones described previously. The racquet takeback for the shot) depends on where the balls are hit from: a) close to the net -a short takeback; b) for stronger shots and greater flight length– a longer one. The swing's length is determined by the experience, practice, rebound height and the playing possibilities according to the aims on of the court.

The grip is especially important. A closed grip, similar to the eastern is used, where the face of the racquet is perpendicular to the court. In an effort to further spin the ball, the grip may vary to a more closed one, i.e., with a greater inclination of the racquet face forward (Figure 27c and Figure 27d).

Execution phase: The hitting action is performed horizontally in the beginning by moving the hand and racquet slightly below the level of the waist, and then – upward, to the side of the ball and forward during the impact (Figure 27e and Figure 27f). The active movement of the body forward in this moment helps to increase the ball's rotational spin and flight velocity. These strokes turn into attacking, because the rebound of the ball is low and hinders the opponent.

Closing phase: The stroke's ending is the same as with the previous one – takeback of both the hand, extended in the elbow, and the racquet away to the side, on the right, and high above the player's head (Figure 27g).

Errors in the learning and execution of a one-handed topspin backhand:

• The impact is executed without turning sideways to the net.

• The striking movement is performed only with the playing hand, without including of the body.

- The racquet head drops low and points to the ground.
- The elbow is bent when executing the shot.

Exercises for studying and improving the one-handed topspin backhand:



Exercise # 1: The coach feeds a ball to player A's backhand from the service line. Player A adjusts with an ready open-for-backhand racquet and hits the ball down the line, then returns to the center of the court. The same drill is done cross court. The goal of the player is to make adjustments and direct the ball down the line and cross court from the baseline with a flat backhand.



Exercise 2: Player A feeds a ball cross court from the baseline to player B's backhand. With a prepared-for-backhand racquet, player B adjusts and returns the ball back to player A in order to establish a rhythmic rally without an error.

b) Backhand slice

Until recently this shot was used by many tennis players as a main one. With increasing the dynamics of the game activity and going for attacking moves from any point on the court, its use has decreased. It is considered a defense shot or as a convenient way to change the rhythm of the game. It is mainly used for low-bouncing, fast and well-placed balls as well as when approaching the net, etc. In rare cases, however, they are obstructive as the rebound is low, sliding and requires topspin when playing it.



Fig. 29. Backhand slice with one hand

Preparatory phase: The racquet takeback is at a rearmost position, significantly higher than the point of impact and the player's head level. The racquet face is open (Figure 29b and Figure 29c). The weight of the body is on the left rear leg, which is parallel to the ball's flight direction. The right one, which is half-folded in the knee joint, is moved forward to the incoming ball (Figure 29d).

Execution phase: The ball stroke is executed in front of the right foot and slightly to the side with an extended arm. The hand-racquet movement is high to low and forward with an open face of the racquet towards the ball. The aim is to "brush" the back surface of the ball as the head moves under the ball straight, up, sideways and ends at the level of the right shoulder. That results in an underspin (backspin) rotation and linear velocity at an angle of the flight, which depends on the length of contact between the face of the racquet and the ball - a brief small rotation force and vice versa. Both the flight and rebound of such balls are low.

Closing phase: After impact, the player is upright and the hand is tightened in the elbow joint while it continues to move up and forward to the opposite shoulder. The weight is on the front, right leg (Figure 29e). The stroke ends as the player grabs the racquet neck with his/her free hand and gets into the starting position ready for the next rally.

Errors in the training and execution of a one-handed backhand slice:

- The impact is executed without turning sideways to the net.
- The striking movement is performed only with the playing hand, without the help of the other.
- The weight of the body is entirely on the back leg.

• The racquet drops abruptly forward without a follow through, causing too much chopping of the ball and hence, it goes in the net.

Exercises for studying the one-handed backhand slice:



Exercise # 1: The coach feeds a ball to Player A's backhand from the service line. With an open racquet, player A adjusts and hits the ball down the line, after which returns to the center of the court. The same is done cross court. The goal of the player is to make adjustments and direct the ball fed by the coach down the line and cross court with a backhand slice.



Exercise # 2: The coach feeds a ball from the service line to Player A's backhand. S(he) adjusts with a taken back, prepared-to-slice racquet and hits the ball short cross court to the net, and then returns back to the center of the court. Following is the same coach-fed ball on the backhand that player A has to hit near the opponent's baseline. The goal is to create a feeling and precision for the adjustment and control of short and long balls.

d) Two-handed backhand

In the early 1970s, this shot (first used by Bjorn Borg) was widely used in practice as well as utilized extensively by both male and female players. It makes it possible to play all elements of the game's technique - return of a strong serve, dynamic play from any point on the court, topspin lobs, together with surprising and unpredictable in terms of direction and speed strokes.



Fig. 30. Two-handed (topspin) backhand

Advantages of the stroke: 1. More natural and with fewer possibilities for variation and deviation in technique. 2. Shoulder shortening of the "forearm - racquet" system; 3. Change of the direction of impact immediately prior to execution with active body movement forward; 4. Perform the hitting action also with a western grip, i.e. with greater rotation; 5. Reduce preparation time with impact performance horizontally on a side to the rearmost position.

The two-handed backhand striking technique is similar to that of the one-handed, despite of a difference in the grips. The racquet is held with the left hand in eastern grip, as with the forehand, and the right hand most often is in continental. However, many players also use the western grip by placing the left hand above the right as they touch slightly.

Closed stance when executing the backhand – both feet turn in the direction of impact as well and remain at an acute angle to the net. The preparation motion is a combination of moving the right foot to the left, forward, and to the side, plus turning the shoulders in the same direction, i.e. shoulders and body are parallel to the movement of the ball. The weight of the body is transferred from the back (left) leg to the front (right) leg.

Preparatory phase: The racquet takeback is done by all players through turning the shoulders (rotation) in the same direction and moving the racquet horizontally on the side to a rearmost position (Figure 30b).

The preparation and swing of the hitting action are accompanied by an additional opening of the racquet head from both wrists, i.e. the movement of the racquet is somewhat lagging behind that of the hands – the head is dropped slightly lower. This leads to an extended swing and the possibility of free execution of an additional swing with a sufficiently large amplitude of the racquet's head from the bottom up (Figure 30c).

Execution phase: The striking action is performed by moving both straight arms: a) below the ball, "brushing" primarily up and forward; (b) facing the ball, slightly underneath it, moving upward and forward; c) at a level of the upper half of the ball, with a strongly "brushed" motion rather forward than upwards (Figure 30d).

The impact strength on the ball depends on the player's aspiration and desire for the upper rotation and forward velocity of the ball, which is reinforced by incorporating the weight of the body at impact. At this point, both hands are almost straight in the elbows and tight the wrist joints. The hand and the racquet are moved far back horizontally, lower than the level of the waist. The head of the racquet is perpendicular to the court.

Depending on the degree of the shoulders and feet turn in direction of the striking action, the tennis player can:

a) Step forward with the right leg and transfer the weight of the body on it - with a significant shoulders turn in the preparatory phase.

(b) Rotate both feet simultaneously in the direction of impact as the weight of the body is also transferred to the front foot.

c) The two legs remain in one place as the striking action is mainly done by uncoiling of the body.

The impact motion is performed slightly in front of the body and is performed from the bottom up and forward. The stroke is dynamic, flat, slightly with topspin or a winner.

The flight of the ball has a larger parabola and length that the opponent at the baseline.

In fewer cases, two-handed slice shots are used to reach drop shots - short balls in the game.

Closing phase: The racquet moves forward as in the one-handed backhand (more often with the closed stance) or ends over the right shoulder behind the head - this is accompanied by stepping forward of the rear to the front leg (with the open stance). The two arms and the racquet are taken behind the right shoulder in a circular motion, after which the player goes back quickly into the starting position since the racquet is held with both hands (Figure 30e and Figure 30f).

Open stance when executing a backhand – only the shoulders rotate in the direction of impact while the feet remain parallel, to each other, perpendicular to the net. The movement is faster and shorter. This stance affects the amplitude of the racquet take back and the swing's magnitude – on the result and the impact strength as well. Moving the hands back in the preparatory phase is individual to each player. Possible variations are:

a) lifting the racquet's head upwards with a rotational movement at the level of the left shoulder and finishing slightly above the waist;

(b) taking the hands and the racquet back at a waist-level;

c) moving the hands and the racquet back to a level below the waist, slightly above the knees (rarely executed).

Disadvantages of a two-handed backhand:

1) The possibilities for reaching distant balls on the side, playing low and drop shots, performing backhand slice shots, etc. are limited

2) The necessity for a strong and firm wrist is not in the power of many of the training beginners, children and women.

3) Players have difficulties playing high balls, volleys, etc.

It is deemed that the two-handed shot should only be performed on one side. However, a number of athletes, amongst the best in the world, play both forehand and backhand with two hands. The future of this technique will be determined by those players' successes and by its widespread practical use.

Errors in the training and execution of a two-handed backhand:

• The impact is executed without turning sideways to the net.

• The striking movement is performed only with the playing hand, without the help of the other.



Exercises for studying and improving the two-handed backhand slice:



Exercise # 1: The coach feeds a ball from the service line to player A's backhand. With an open racquet, player A adjusts and slices the ball down the line, then returns to the center of the court. The same is done cross court. His/her goal is to make adjustments and direct the fed ball both cross court and down the line with a two-handed backhand slice.



Exercise # 2: The coach feeds a ball from the service line to player A's backhand. With an open racquet, player A adjusts and hits the ball short-angled cross court, then returns to the center of the court. Following is the same coach's fed ball to the backhand side that the player has to play close to the opponent's baseline. The goal of the player is to create a feeling and precision for the adjustment and control of short and long balls using a two-handed backhand.