

Dag van de Trainer

Technique: development effectiveness in tennis

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Inhoudstafel

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TECHNICAL DEVELOPMENT (Wayne Elderton and Louis Cayer)

When looking at technique, there are two important elements that must be considered. The first element, called "**Conformity**", is what the player's body does (their balance, biomechanics, etc.). The second element, which is just as important, is called "**Effectiveness**" and refers to what the ball and racquet does.

TECHNIQUE =



The purpose of this Chapter is to provide the Coach with information on Technique which, when used in conjunction with the Instructor Manual (Chapter 15: Technical Development), will provide the Coach with the necessary tools to work on the technique of players up to the 4.0 level (high intermediate).

Specifically, this chapter will provide the Coach with information on:

1. **Effectiveness:** The Instructor Manual provided detailed information on basic ball control considerations, problems and corresponding solutions for direction, distance, height, speed and spin. This chapter will include that information and provide some additional applications for players from a 2.5 to 4.0 level.
 - **Spin:** At the Instructor Level it was assumed that the 1.0-2.0 level player hit the ball relatively flat so no information was provided on spin. At the Coach 1 level, the Coach will have to deal with spin as players of the 2.5-4.0 level may already play with spin, or want to learn spin. The effect of spin and how it relates to each Ball Control will be covered as well as the advantages and limitations of each spin (topspin, underspin, sidespin).
 - **Spin Progressions:** A sample progression to introduce a player to using the various spins will be provided.
2. **Observation & Analysis:** This will be new for the coach, as the main focus of the Instructor Level Course was to implement preplanned content. At the Coach 1 level, the coach is required to observe and analyze the player(s) to determine which technical elements need to be addressed.

1. EFFECTIVENESS:

In the Instructor course, the concept of the **5 Ball Controls** was introduced. Technically, when the ball does not follow the trajectory required to reach the target, it is because of a problem with one or more of the following ball controls:

A) THE 5 BALL CONTROLS



The 5 Ball Controls are used as a tool for both player and coach to:

- **Tactically:** Have measurable characteristics of the ball (trajectories and targets) in order to perform tactics (e.g. control *direction* in order to move an opponent around, challenge an opponent's timing by putting more *speed* on a serve, increase the *height* of a shot to lob it over an opponent at net, etc).
- **Technically:** Have a practical terminology to explain how to manipulate racquet on the ball, and what needs to be corrected if the ball doesn't go where intended. (e.g. how to fix it if the ball goes too far right, too high, etc.).

Learning what affects and influences each Ball Control and how to modify them helps students become better problem solvers on court.

B) THE P.A.S PRINCIPLES

We can use the acronym P.A.S. to help remember that it is the Path, Angle and Speed of the racquet at impact that make every ball control happen.

"P" = Path of racquet swing:

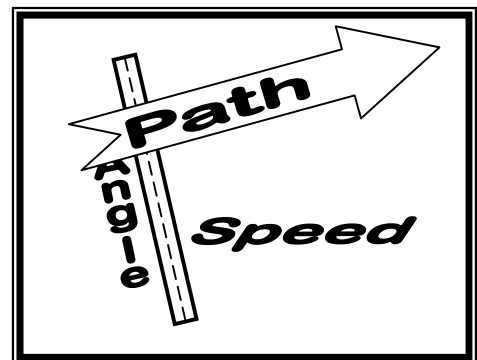
- Level (back to front at the same height)
- Low to high
- High to low

"A" = Angle of racquet:

- Vertical angle (how open or closed to the sky)
- Horizontal angle (how much the racquet face is angled to the right or left)

"S" = Speed of the racquet:

- Increase Racquet Speed
- Decrease Racquet Speed
- Maintain Racquet Speed



The P.A.S. principles give both coach and player a tool to analyze and correct any ball control problem. Every shot is a 'recipe' combining varying degrees of each P.A.S. principle.

C) DIRECTION



CHALLENGE:

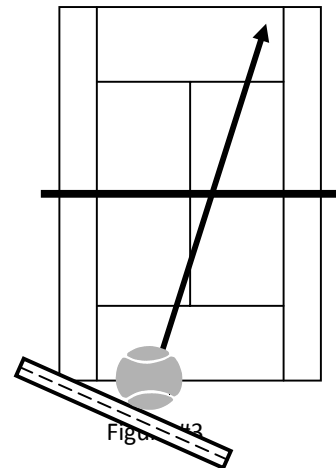
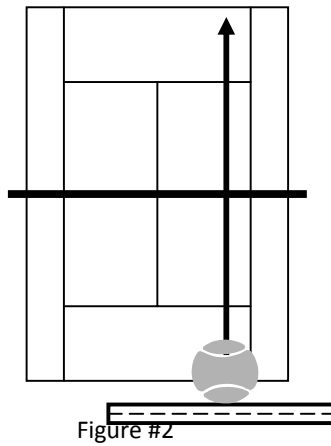
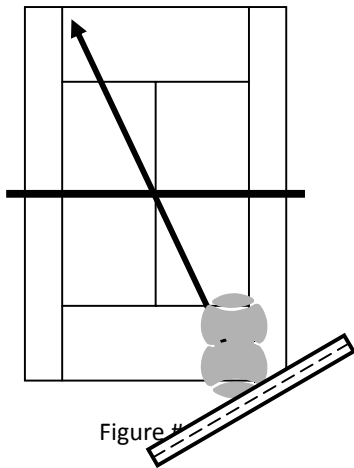
The ball is sent too far to the right or to the left of the target.

1) DETERMINING FACTORS:

There are two factors that determine the direction of the ball. When receiving a slower ball the horizontal angle of the racquet face at impact **determines** the direction of the ball. When receiving a faster ball, the angle of incidence and reflection also comes into play.

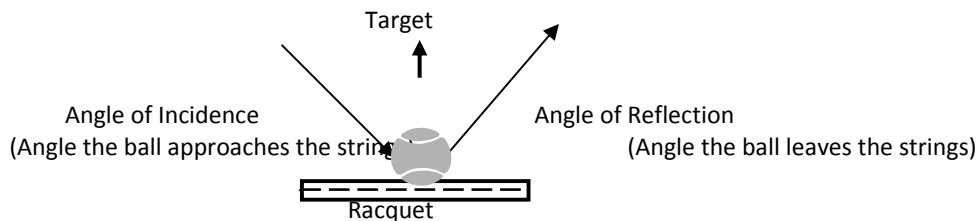
(a) Racquet Angle for Different Directions: (Diagrams for right-handed forehand)

- Crosscourt: Hit the "outside" of the ball (Fig #1)
- Down-the-line: Hit the "back" of the ball (Fig #2)
- Inside Out: Hit the "inside" of the ball (Fig #3)



(b) Angle of Incidence/reflection:

The angle the ball comes into the racquet face also **determines** the direction of the ball. For example, the racquet may be facing an intended target but, if the ball is coming from an angle, it will "reflect" off at an angle (as if it was bouncing off a wall).



The reflection angle can be overcome (or at least used to the player's advantage) by the following:

- Racquet Speed: If the racquet speed is faster than the ball, the path of the racquet will determine the ball's direction and minimize the reflection.
- Racquet Angle: A player can take into consideration the reflection angle and compensate by angling the racquet less.
- "Absorb" the ball speed: By "absorbing" the ball speed, the distance the ball reflects off the strings can be minimized.

2) INFLUENCING FACTORS:

The following elements don't directly determine the direction of the ball but **influence** the angle of the racquet face at impact. To help players understand this concept, it is helpful to show how, when 2 of the 3 following elements are stable, modifying the third will change the racquet angle:

(a) Impact point: With the same body position and wrist position, it is the impact point that will create the racquet face angle.

- If impact is further in front, the racquet face tends to hit more of the outside of the ball, sending the shot more crosscourt.
- If impact is further back, the racquet face tends to hit more of the back or inside of the ball, sending the shot more down the line or inside out.

- If the impact is far out to the side of the body, the racquet tends to hit the back or inside of the ball.
- If the impact is close to the body, the racquet tends to hit the outside of the ball.

(b) Body position: With the impact point and wrist position stable, the body position will create the racquet face angle (for example, if the shoulders are sideways to the net and the stance is closed, it is easier to send the ball down the line.)

(c) Wrist position: If the impact point and body position are the same, the wrist position will create the racquet angle.

(d) Keeping the racquet face angle constant (The “Hitting Zone”):

To keep the racquet face angle under control consistently from shot to shot, it is important to make a Hitting Zone. The Hitting Zone maximizes directional control by keeping the racquet face moving towards the intended target. The chance that the racquet angle will be correct at impact is greatly increased. This is in contrast to a more 'circular' swing where the racquet face would only be angled towards the target for a very short time. The following elements can be modified to lengthen the hitting zone:

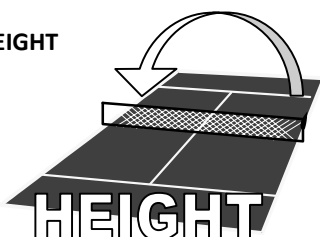
- *Impact point:* If the ball is impacted in the middle of the Hitting Zone (rather than at the beginning or end), the greatest margin for error will be achieved.
- *Grip/Wrist Action:* The wrist should be in a stable and 'laid back' position to keep the racquet face moving towards the target. An Eastern Forehand grip with the palm of the hand behind the grip will also help create this position. Excess wrist movement causes angle of the racquet face to change through impact.
- *Arm Action:* Swinging with a straighter back to front arm action towards the target will minimize the circular path of the racquet.
- *Shoulder Action:* Having the shoulders start in a sideways position and rotate forward makes it easier to keep the arm action more back to front.
- *Weight Transfer:* The hitting zone can be further lengthened by weight transfer in the direction of the shot (this can also aid shoulder rotation).

3) MEASURING EFFECTIVENESS:

When a coach sets a tangible measurement for each Ball Control, it gives the student a way of judging their own correct performance when playing or practising. The table below lists some ways to measure Ball Control, and a sample dialogue a coach may use during a drill. A coach can measure the *outcome* of a shot (where the ball went), or the *process* of a shot (how the student moved their racquet and body). Please note that these are only a guide. Coaches are encouraged to be creative and find other ways to measure these and any other skills they teach.

MEASURING DIRECTION	DRILL DIALOGUE
<ul style="list-style-type: none"> • OUTCOME: Use markers or cones to identify target areas realistic for the student's level of play. Note: Avoid placing a single cone or marker down since the difficulty of hitting it will provide very little sense of success. • Connect targets to the net (roped areas or balloons). 	<p>Note: When measurements are connected to points, it helps understanding, focus, and motivation.</p> <ul style="list-style-type: none"> • Outcome: “One point if the ball is sent into these target areas marked by these cones (or markers).” • Process: “For this game a player gets one point if they hit on the ‘outside’ (or ‘inside’) of the ball.”

D) HEIGHT



CHALLENGE:

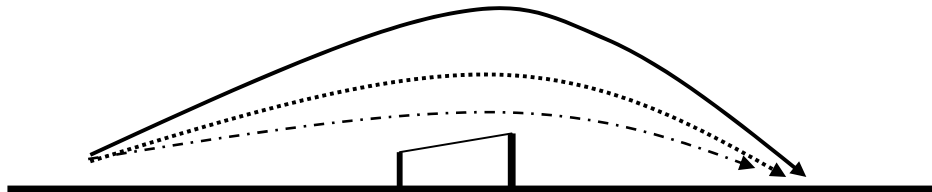
The ball's trajectory is too high or too low for the intended tactic.

1) DETERMINING FACTORS:

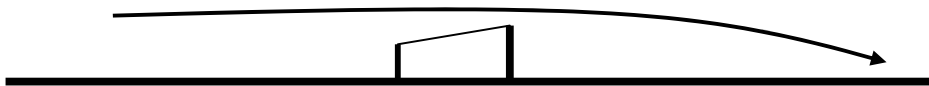
The relationship between the vertical angle of the racquet face, the path of the racquet, and the racquet speed (the P.A.S. principles) **determine** the height of the ball.

(a) Trajectories: There are three different trajectories that come into play when talking about height:

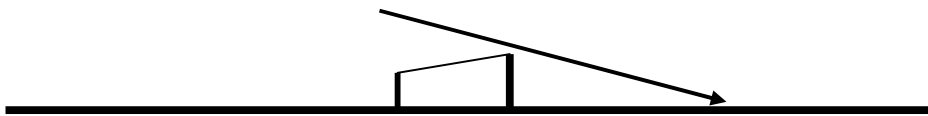
- **Arced:**
 - High (commonly used for lobs, "moonballs", etc.)
 - Medium (common for rally shots, or a "mini" version for drop shots, etc.)
 - Low (commonly used for passing and some approach shots, etc.)



- **Straight:** (Used for serves, block volleys, drives with the impact over the level of the net, etc.)



- **Downward:** (Used for overhead smashes and 'punch' volleys, etc.)



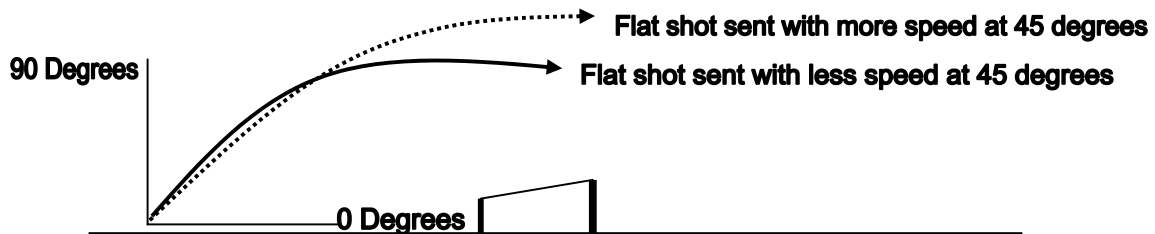
Height is controlled by manipulating the P.A.S. elements. Each spin has its own combination when producing the different heights.

(b) Controlling Height on Flat shots: For any flat shot, the horizontal angle of the racquet must be the same as the racquet path, otherwise spin is created. Flat shots can be used to create any height or trajectory.

- **Path & Angle:**

Opening the Racquet face Angle more with the Racquet Path following the same angle upward will send the ball higher. Closing the face with the accompanying Racquet Path will lower the height of the ball. (keep the speed constant).
- **Speed:**

Increasing the Racquet Speed can also increase the height of arced shots if the Racquet face and Path are angled 45 degrees or above. Decreasing the speed lowers the ball.



(c) Controlling Height with Topspin: For topspin, the racquet face angle must be vertical and the Racquet follow an upward path (see Spin section). Topspin is best used for arced trajectories and not practical for straight and downward ones.

- **Path:**
Increasing the upward path of the Racquet (while keeping the speed constant), will send the ball higher. Decreasing the upward path (level off the racquet path more) will lower the height.
- **Speed:**
Increasing the Racquet Speed will also increase the height of arced topspin shots. Decreasing the speed will decrease the height.

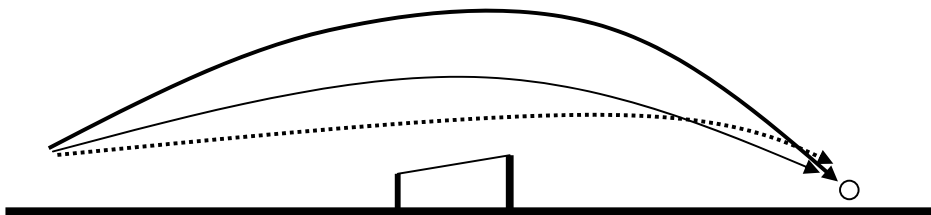
(d) Controlling Height with Underspin: For underspin, the racquet face angle must be slightly open and the Racquet can follow both level and high-to-low paths (see Spin section). Underspin can be used for any trajectory and Height (arced, straight, downward).

- **Path:**
Decreasing the downward path of the racquet (level off the path more) without varying the racquet speed will send the ball higher. Increasing the downward path will lower the ball.
- **Angle:**
Closing the racquet face more (Note: On groundstrokes the optimal angle usually does not exceed 5 degrees) without varying the Racquet Speed will lower the ball.
- **Speed:**
Decreasing the racquet speed will allow the slightly open angle of the racquet face to influence the ball more, lifting it higher. Increasing the Racquet Speed will cause the downward path of the racquet to influence the ball more, sending it lower.

(e) Controlling Height with Sidespin: For sidespin shots, the racquet must brush across the side of the ball. Sidespin is commonly used to keep the ball low when receiving low groundstrokes and volleys and on 'slice' serves (see Spin section).

(f) Spin & Height comparison: If a ball is hit at the same speed and same distance:

- ▶ Topspin ball will cross the net highest
- ▶ Flat will be the second highest
-▶ Underspin will cross the net lowest



2) MEASURING EFFECTIVENESS:

When a coach sets a tangible measurement for each Ball Control, it gives the student a way of judging their own correct performance when playing or practising.

MEASURING HEIGHT	DRILL DIALOGUE
<p>Height:</p> <ul style="list-style-type: none"> • Have the students imaging "windows" at certain racquet heights over the net. • String a rope across sticks connected to each net post. • Have a player standing to the side of the target area hold out their racquet to show the desired height. • Stand something up and connect it to the net (broom, make a target out of PVC pipe, etc). 	<p>Note: When measurements are connected to points, it helps understanding, focus, and motivation.</p> <p>Height:</p> <ul style="list-style-type: none"> • Outcome: "Imagine a 'window' two racquet heights over the net, players get one point if they send the ball through this window." • Process: "If your racquet starts below the impact and rises above your head on the finish, you get one point".

Trajectory:

- Combine net clearance and landing point to define a trajectory.

Trajectory: (Outcome)

- “We are practising making a medium height arc over the net for a consistent, deep rally. Players get one point if the ball is sent over my head at the net and lands past the markers”.

E) SPEED (commonly referred to in tennis as "power")

**CHALLENGE:**

The ball speed cannot be controlled correctly to accomplish the tactic. The player cannot speed it up or slow it down appropriately.

1) DETERMINING FACTORS:

The speed of the racquet at impact, and the speed of the ball received, **determine** the speed of the ball.

(a) Speed of the ball received: Without even moving the racquet, the ball will rebound off the strings with approximately two thirds of the speed it approached at.

(b) Racquet Speeds: There are three basic ways to control speed.

- **Increasing speed:**
 - Used commonly to add power on a shot to challenge an opponent. (E.g. 1st serves, drives, putaway volleys, overhead smashes, etc.)
- **Decreasing speed:**
 - Used commonly to control receiving fast balls. (E.g. controlling a return of a fast serve, a defensive lob, or a block volley off a fast shot etc).
 - Used for taking speed off to challenge an opponent. (E.g. taking pace off for a dropshot, etc.)
- **Maintaining Speed:**
 - Used commonly when it is necessary to keep a constant speed from shot to shot. (E.g. low approach shots, rallying shots, etc.)

(c) Controlling Racquet Speed:

- **Path:**
 - A flat shot will give maximum speed (the racquet Path moves back to front powerfully and the racquet is at the same angle so no spin is produced).
 - Reduce the ball speed by adding spin (have the racquet follow a more vertical path up, down, or sideways across the ball). Underspin is the easiest to use for taking speed off the ball (see spin section).
- **Angle:**
 - A vertical racquet angle also makes it easier to Centre the ball (hit the ball in the “sweet spot” of the racquet). This transfers the power of the ball received optimally.
 - Angle the racquet to increase the spin (see spin section)
- **Speed:**
 - Increase the racquet speed through increasing the size of the backswing (this option may adversely effect timing)
 - Increase racquet speed through biomechanics (engaging more body segments, turning more when preparing for the shot, etc.)
 - Reduce racquet speed by using fewer body segments. Start by checking the parts closest to the racquet face (i.e., Check wrist, then arm, shoulder, trunk, and legs).
- **To maintain a constant speed:**
 - One of the biggest speed control challenges is helping players maintain the same correct speed on each repetition. Ensure the player keeps a stable wrist and uses proper biomechanics from ball to ball. Make sure the P.A.S principles remain constant to maintain the same spin from shot to shot as well.

2) MEASURING EFFECTIVENESS:

When a coach sets a tangible measurement for each Ball Control, it gives the student a way of judging their own correct performance when playing or practising.

MEASURING SPEED	DRILL DIALOGUE
<ul style="list-style-type: none"> • Measure the distance between bounces (More bounces after the ball lands in the court = less speed. Fewer bounces = more speed) • Use a radar gun to measure speed 	<ul style="list-style-type: none"> • Outcome: "We are practising a medium paced rally shot, so players get one point if the ball lands in the target area and bounces 2 times before it hits the wall" • Process: "If your racquet moves faster (we hear a bigger 'swish' sound'), you get one point."

F) SPIN



CHALLENGE:

The spin generated is too much or too little for the intended tactic.

1) SPIN Q & A's:

(a) What is Spin?

Spin refers to the rotation of the ball. The direction of rotation determines the type of spin. There are 4 types of ball rotation we refer to in tennis.

- **Topspin** (where the ball rotates forward)
- **Underspin** (sometimes called 'backspin' or 'slice' on groundstrokes)
- **Sidespin** (sometimes referred to as 'slice' on serves)
- **Flat** (very little ball rotation)

(b) Why use spin?

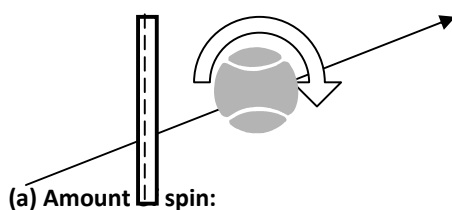
Spin is used to help control the ball by giving a player additional ability to manage how the ball flies and bounces. It also can provide a higher margin for error. Being able to control the trajectory and bounce of the ball gives a player more ability to perform all the tactics that modern tennis demands (i.e. angles, passing shots, etc.). Using different spins also challenges an opponent to adapt to a variety of receptions. The powerful racquets currently available allow spin to be used very effectively on all the variety of court surfaces tennis is played on.

(c) What is the effect of spin?

The ball rotating as it flies through the air causes different air pressures on the opposite sides of the ball. This can change the characteristics of the ball compared to a flat shot hit at the same height and speed in the following areas:

- Spin changes the trajectory (flight of the ball through the air)
- Spin changes how the ball bounces off the court
- Spin changes the flight and speed of the ball after the bounce

2) TOPSPIN



With topspin, the ball rotates forward in the same direction it is travelling (The top of the ball rotates away from you as it travels toward your opponent). It is produced by having the racquet start below the impact and 'brush' up across the ball in a "low-to-high" action. The racquet face should be perpendicular to the ground (vertical).

(a) Amount spin:

The amount of spin can be increased or decreased by changing:

1. The Racquet Path (e.g. a steeper upward path will increase the spin)
2. The Racquet Speed at impact (e.g. increasing the racquet speed, provided the racquet path stays the same, will increase the amount of topspin)

(b) Topspin on Groundstrokes & volleys:

ADVANTAGES	LIMITATIONS
<ul style="list-style-type: none">• Consistency: Topspin allows the ball to clear the net higher and then brings it down into the court. It gives a greater margin for error.• Controlling Pace: Topspin is important for players who hit the ball with pace, since balls travelling faster have more chance to land out of bounds. Topspin helps keep these balls in.• High Bounce: Topspin makes the ball 'dive', hitting the ground with a more vertical angle, which results in a higher bounce.• Fast Bounce: Topspin shots will not slow down as much after they hit the court than flat or underspin shots hit at the same initial speed and approach angle. This makes them difficult to receive.• Challenges an opponent's timing: The different trajectory and bounce of topspin shots makes it difficult to time. Especially for opponent's approaching or at the net.	<ul style="list-style-type: none">• Timing: Topspin shots require better timing to perform since the racquet needs to 'brush' or glance across the ball. The racquet is also in the hitting zone for a very short period since the racquet head is moving very fast in an upward plane. Using topspin to receive a fast ball may result in more off-centre hits.• Receiving Low Balls: Topspin shots use a low-to-high motion that starts below the impact point. It is difficult to start the racquet head below the impact on low balls.• Receiving High Balls: If the impact point is very high, it is difficult to brush up the back of the ball with a low-to-high motion. This is especially true for a one-handed backhand.• Speed: Topspin decreases the forward speed of the ball since much of the racquet speed is used to create rotation.

(c) Topspin on serves:

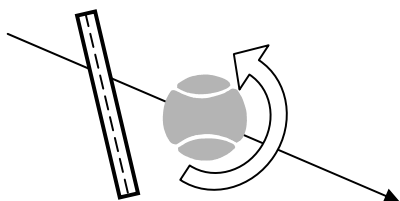
The mechanics of a topspin serve are very similar to those of a flat serve with a few notable differences:

- Instead of hitting the ball at full extension, the racquet brushes up the back of the ball at a slightly lower impact point.
- To make the action easier, the ball can be tossed and contacted slightly further to the left (of a right-hander). *Note that changing the toss and contact location will also reduce the disguise.*
- The motion of the racquet through the impact is from the lower left to the upper right across the back side of the ball. In other words, if the ball were a clock face, the racquet would move from 7 o'clock to 1 o'clock. *Note that pronation (turning outward) of the forearm should be maintained rather than a, 'peeling an orange' action.*

(d) Tactical Use on Serves:

- The topspin serve is most commonly used as a second serve or as a variation to a first serve. It allows the ball to be hit higher over the net (giving a greater margin for error) and still have it land inside the service box. The spin gives the ball a more arced trajectory than a flat serve hit at the same height and speed.
- Because of the arced trajectory, the ball bounces higher, making it more difficult to return.
- Since the ball travels in an arc and slower than a flat serve (hit with the same racquet speed), a player performing a serve & volley has more time to get to the net.
- Some players have more difficulty returning spin serves because the ball tends to 'ricochet' off the racquet face if the opponent simply tries to block it.
- It allows a player to draw an opponent out of position on the ad side (for right-handers)

3) UNDERSPIN (sometimes called "backspin" or "slice" on groundstrokes)



With underspin, the ball rotates opposite to the direction it travels (the top of the ball rotates towards you as it travels towards your opponent).

It is produced by having the racquet start level or above the impact and address the ball in either a level or high-to-low action. The racquet angle should be slightly open.

(a) Amount of spin:

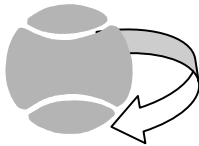
The amount of spin can be increased or decreased by changing:

1. The Racquet Path (e.g. the sharper the downward action, the greater amount of underspin)
2. The Racquet Speed at impact (e.g. increasing the racquet speed, provided the racquet path and angle stays the same, will increase the amount of spin)
3. The more open the racquet face, the more spin will be produced (on baseline shots, this rarely exceeds 5 degrees)
4. The spin of the ball received (the greater the amount of topspin, the more underspin is produced)

(b) Underspin on Groundstrokes & volleys:

ADVANTAGES	LIMITATIONS
<ul style="list-style-type: none"> • Timing: Short underspin strokes tend to be easier to time (centre the ball on the strings at the right impact point) since many underspin actions require little or no backswing (volleys, block returns, etc). • Receiving Fast Balls: Underspin strokes can be used effectively in defensive situations against fast balls when all that is required is to direct the ball over the net with a short stroke and an open racquet face. • Receiving High Balls: The angle of the racquet face and path of racquet needed for receiving high balls makes underspin an easier option to perform. • Receiving Low balls: Since underspin is hit with a slightly open racquet face and the path can be level, it is easier to direct low balls up and over the net. • Sending Low Balls: Since an underspin shot can be sent with a very level trajectory, the bounce of the ball can stay very low making it difficult for an opponent to return. 	<ul style="list-style-type: none"> • Speed: It is difficult to send an underspin shot with a high pace since the ball tends to float. • High Bounce: If the underspin shot has a higher approach angle to the court, they tend to 'sit-up' on certain courts, making them easier for an opponent to return.

4) SIDESPIN (Referred to as "slice" on a serve)



With sidespin the ball rotates around (like a globe of the earth on a stand). Right-handers naturally send the ball in a right-to-left rotation.

It is produced by having the racquet start beside the impact and 'brush' across the ball in a, "one-side-to-the-other" action.

(a) Amount of spin:

The amount of spin can be increased or decreased by changing:

1. The Racquet Path (e.g. the more across the side of the ball the racquet glances, as opposed to low to high topspin or high to low underspin, the greater the sidespin) . *Note that it is very difficult because of the mechanics involved in tennis shots to produce pure sidespin.*
2. The Racquet Speed at impact (e.g. increasing the racquet speed, provided the racquet path stays the same, will increase the amount of spin)

(b) Sidespin on groundstrokes & volleys:

Some sidespin is present on certain actions when the ball is close to the body or when the ball is low. However, by far the most common use of sidespin is on the serve.

ADVANTAGES	LIMITATIONS
<ul style="list-style-type: none"> • Receiving balls at your body: Whenever possible, a player should adjust their position to get out of the way of balls sent at them. However, sometimes an 'emergency' shot is required. Bringing the racquet across the body with the backhand can be an option in this situation. • Receiving low balls: It is a natural result when performing underspin on very low groundstrokes and volleys. For example, when receiving a low shot and performing an underspin backhand, it is natural to allow the Racquet face to follow-through the shot with some sidespin. This allows the tip of the racquet to point to the ground and the racquet face to stay constant through the shot. The angle of the racquet face and path of racquet needed for receiving high balls makes underspin an easier option to perform. • Direction: It can be used to curve the ball further away from, or into, an opponent's body. 	<ul style="list-style-type: none"> • Speed: Spin slows the forward speed of the ball which can make it easier for an opponent, especially if they know which way the sidespin will curve. • Timing: Since the racquet must come across the ball, it is more difficult to time and centre the ball.

(c) Sidespin on serves:

The mechanics of a slice serve are very similar to those of a flat serve with a few notable differences:

- To make the action easier, the ball can be tossed and contacted slightly further to the right (of a right-hander). *Note that changing the toss and contact location will also reduce the disguise.*
- The racquet brushes across the 'outside' of the ball from left to right. *Note that pronation (turning outward) of the forearm should be maintained rather than a, 'peeling an orange' action..*

(d) Tactical Use on Serves: (all examples referenced to right-handers)

- The slice serve wide can be used to force an opponent off the court on the deuce side.
- It can be used to keep the serve to the forehand of a right-handed opponent (backhand of a left-handed player)
- Makes it easier to serve down the middle when serving to the ad court
- It often has a lower trajectory and approach angle causing it to bounce lower and making it difficult to return.
- Because of the difficulty in judging the direction and spin of a ball while it is flying through the air, slice serves can be very effective to spin the ball into the opponent's body.

5) MEASURING EFFECTIVENESS:

When a coach sets a tangible measurement for each Ball Control, it gives the student a way of judging their own correct performance when playing or practising.

MEASURING SPIN	DRILL DIALOGUE
<ul style="list-style-type: none"> • Measure how the characteristics of the ball change after it lands. For example, bouncing over a specific target for topspin, or under a target for underspin (see height measurement), or how far to the side for sidespin. • Define the required trajectory (see height measurement). • Set a specific starting point of the racquet and an ending point to define the required racquet path. 	<p>Note: When measurements are connected to points, it helps understanding, focus, and motivation.</p> <ul style="list-style-type: none"> • <i>"We are practising topspin so players get one point if the racquet starts below the impact and finishes above it. The racquet face must also be vertical"</i> • <i>"On our slice serve (sidespin) players will get one point if the ball lands in the target area and curves out past the second marker."</i>

G) DISTANCE



CHALLENGE:

The distance of the ball is not correct for the intended tactic. The ball flies too long or too short.

1) DETERMINING FACTORS:

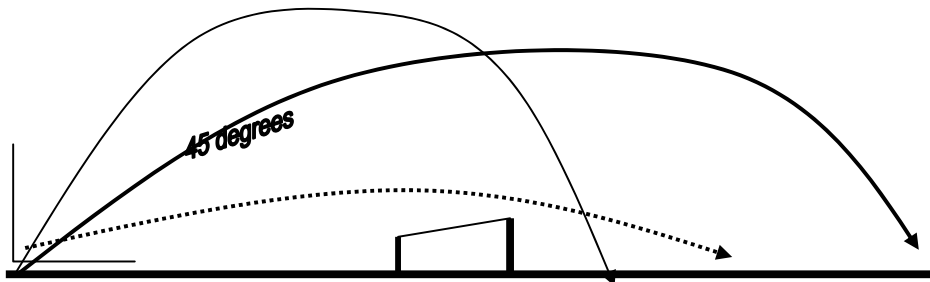
Distance is created by a combination of height, speed, and spin. Use the P.A.S. principles that control height, speed and spin to control distance.

(a) Controlling Distance: For distance, when one ball control changes the others can remain constant. For example, when spin and speed are the same, distance can be controlled through changing height. When height and spin are the same, distance can be controlled by changing speed, etc.

- **Path:**
Increasing or decreasing the vertical path of the racquet will increase or decrease the distance provided the angle and speed remain constant.
- **Angle:**
Closing the racquet face more will shorten the distance if the Path and Angle remain constant. Opening the racquet face will increase the distance.
- **Speed:**
-On a flat ball: Increasing the racquet speed will increase the distance if it is sent at a 45 degree angle or less. Decreasing speed will send it shorter.
-On a Topspin ball: Increasing the racquet speed will decrease the distance if the path and angle remain constant.

-On an underspin ball: increasing the speed will make the ball land deeper if the path and angle remain constant. Decreasing the speed will make the ball land shorter.

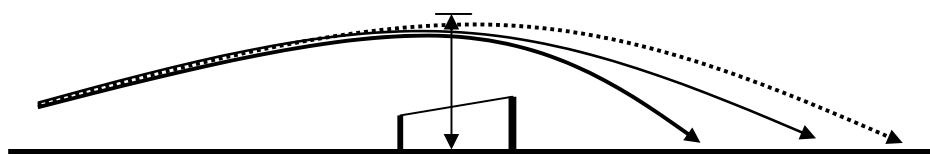
(b) Trajectory & Distance comparison: This diagram shows that a ball sent at a 45° trajectory with the same spin and speed will get the ball to travel furthest. A lower trajectory (0-44 degrees) will land shorter as will a higher trajectory (e.g. a lob 46-90 degrees).



One of the biggest challenges relating to distance control is helping the player maintain the same correct distance on each repetition. Ensure the player uses proper biomechanics and racquet work for every shot.

(c) Spin & Distance comparison: This diagram shows a comparison of the distances a ball will land if hit with the same net clearance, at the same speed using different spins:

- ▶ Topspin ball will land the shortest
- ▶ Flat
-▶ Underspin will land the deepest



SPIN PROGRESSIONS

How the racquet addresses the ball at the impact is the most important moment in any spin shot. The following progressions "shape" a stroke starting from the impact and building it up from there. One of the keys when learning spin is to feel how the ball comes across the racquet and link that element to the rest of the stroke movement.

TOPSPIN PROGRESSION (forehand)

Sample Dialogue

Progression #1: (Press & Brush) "With a vertical racquet face, press a ball against the net tape. 'Brush' the racquet upward against the back of the ball, rolling it over the net. Make sure your racquet face remains vertical for the entire movement and doesn't 'cover over' the ball. Keep doing it 8-10 times until you get the feel for how the racquet 'brushes' the ball."

Progression #2: (Drop & Brush) "Step back 3 meters and set your racquet in place at the impact point. Drop the ball so it bounces up at waist level. With the same 'brushing' action, dip your racquet below the impact point and let it rise up the back of the ball. Roll the ball over the net and into the service box. Watch to see if the ball is spinning. Do this 8-10 times until you get the feel."

Progression #3: (Drop & Brush with Body) "Step back to the

serviceline. Using the same, 'Drop & spin' action, let your hips and shoulders rotate through the shot so it is not just an arm action. Let your racquet rise and finish around your opposite shoulder."

Progression #4: (Toss & Brush) "Now lets toss the ball to each other making sure it lands in front of our partner and bounces up at waist level for them. The hitter performs the same topspin action. Try to land the ball in front of the tosser who will try to catch the ball off the bounce."

Progression #5: (Serviceline Rally) "Now lets try to rally from serviceline to serviceline using topspin. Prioritize feeling how the racquet 'rolls' the ball up and over the net."

Progression #6: (3/4 Court Rally) "Now lets try to rally at 3/4 Court using topspin. Prioritize feeling how the racquet 'rolls' the ball up and over the net. It will be challenging to organize your body around the proper impact point. Prepare your racquet and body so the racquet can drop below the impact point and rise through it."

Progression #7: (Baseline Rally) "Now lets try to rally from the baseline using topspin. Prioritize feeling how the racquet 'rolls' the ball up and over the net."

UNDERSPIN PROGRESSION (backhand)

Sample Dialogue

Progression #1: (Balance & Brush) "With an open racquet face, balance the ball on the strings. Send the racquet forward towards the net (in a follow-through action). Make sure your racquet face maintains the same angle throughout the entire movement. Keep doing it 8-10 times until you get the feel for how the racquet 'brushes' under the ball."

Progression #2: (Drop & Brush) "Step back 3 meters and set your racquet in place at the impact point with a slightly open angle. Drop the ball so it bounces up at waist level. With the same 'brushing' action, send your racquet forward with a level path. The racquet will brush under the back of the ball. Send the ball over the net and into the service box. Watch to see if the ball is spinning. Do this 8-10 times until you get the feel."

Progression #3: (Drop & Brush at serviceline) "Step back to the serviceline. Using the same, 'Drop & spin' action, send the ball over the net. It is helpful to let your shoulders remain sideways through the motion and let your non-dominate hand balance the movement by projecting the other way (both arms are 'split' at the end of the motion)."

Progression #4: (Toss & Brush) "Now lets toss the ball to each other making sure it lands in front of our partner and bounces up at waist level for them. The hitter performs the same underspin action. Try to land the ball in front of the tosser who will try to catch the ball off the bounce. Keep the racquet path level to avoid and 'chopping' actions."

Progression #5: (Serviceline Rally) "Now lets try to rally from serviceline to serviceline using underspin. Prioritize feeling how the racquet brushes under the back of the ball."

Progression #6: (3/4 Court Rally) "Now lets try to rally at 3/4 Court. Prioritize the same feeling. It will be challenging to organize your body around the proper impact point. Prepare your racquet and body so the racquet starts just above the intended impact point."

Progression #7: (Baseline Rally) "Now lets try to rally from the baseline. Prioritize the feeling of the racquet making the spin and the racquet path."

SLICE SERVE PROGRESSION (sidespin)

Sample Dialogue

Progression #1: (Press & Roll) "In a service stance at the serviceline, hold the ball up at the top of a service toss action. Press the racquet against your hand as high as you can reach. Roll the ball off your stationary hand (towards your fingertips and off). Let the forearm pronate out to roll the ball. Keep doing it 8-10 times until you get the feel for how the racquet spins the ball."

Progression #2: (Toss & Brush) "At the serviceline, toss the ball lightly up into the impact point. With the racquet starting near your right ear (for right-handers) extend your arm up so the racquet brushes across the ball in the same motion as the previous progression. Send the ball lightly over the net and into the service box to a partner who serves it back to you. Watch to see if the ball is spinning. Do this 8-10 times until you get the feel."

Progression #3: (Isolate the Feeling) "Move back to 3/4 Court. To get a better understanding of the motion and to isolate the feeling of the shot, we will serve with one knee on the ground. This will help our bodies zero in on the important sensations without having the distraction of other parts moving. Put your right knee on the ground (for right-handers). Perform the same motion as the previous progression."

Progression #4: (Toss & Brush at 3/4 Court) "Now stand -up at 3/4 court and use the same action. Try to feel how the racquet can contact the side of the ball and still send it forward into the proper service box. Let the racquet pick up speed and follow-through."

Progression #5: (Toss & Brush with full motion) "Now add the full service motion from the beginning. Prioritize the feeling of brushing across the side of the ball at impact."

Progression #6: (Full motion at Baseline) "Now try to perform the same motion at the baseline. Tossing the ball slightly more to the right (for right-handers) may make it easier to brush the ball. If the ball keeps going too far to the left try to maintain the forearm pronation. Keep on prioritizing the feeling of the racquet brushing across the ball."

Progression #7: (target practise) "Once you have the feel of the motion and spin, the challenge is to send the ball to different targets. Let's practise a slice serve to 'wide' and 'T' targets on both Ad and Deuce sides."

SERVE PROGRESSION (topspin)

Sample Dialogue

Progression #1: (Press & Roll) "In a service stance at the serviceline, hold the ball up at the top of a service toss action. Press the racquet against your hand as high as you can reach. Roll the ball off your stationary hand (up & over your hand). Feel the racquet moving from low to high. Keep doing it 8-10 times until you get the feel for how the racquet spins the ball."

Progression #2: (Toss & Brush) "At the serviceline, toss the ball lightly up into the impact point. With the racquet starting near your right ear (for right-handers) extend your arm up so the racquet brushes up across the ball in the same motion as the previous progression. Send the ball lightly over the net and into the service box to a partner who serves it back to you. Watch to see if the ball is spinning. Do this 8-10 times until you get the feel."

Progression #3: (Isolate the Feeling) "Move back to 3/4 Court. To get a better understanding of the motion and to isolate the feeling of the shot, we will serve with one knee on the ground. This will help our bodies zero in on the important sensations without having the distraction of other parts moving. Put your right knee on the ground (for right-handers). Perform the same motion as the previous progression."

Progression #4: (Toss & Brush at 3/4 Court) "Now stand -up at 3/4 court and use the same action. Try to feel how the racquet makes the ball roll up and over the net. Let the racquet pick up speed and follow-through."

Progression #5: (Toss & Brush with full motion) "Now add the full service motion from the beginning. Prioritize the feeling of brushing up the back of the ball at impact."

Progression #6: (Full motion at Baseline) "Now try to perform the same motion at the baseline. Tossing the ball slightly more over your head may make it easier to brush the ball. Aim 'over' the service court and let the spin bring the ball in. Keep on prioritizing the feeling of the racquet brushing up the ball."

Progression #7: (target practise) "Once you have the feel of the motion and spin, the challenge is to send the ball to different targets. Let's practise a topspin serve to 'wide' and 'T' targets on both Ad and Deuce sides."

2. OBSERVING & ANALYZING TECHNIQUE:

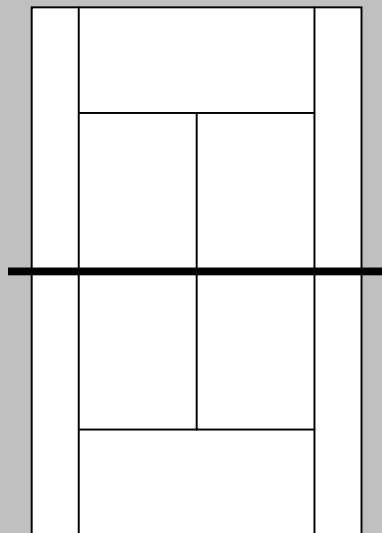

The goal of this observation and analysis process is to determine why the ball did not go where it was intended and determine key solutions to correct the problem. Effectiveness issues come first since, all technique is simply a means to control the ball more accurately and consistently.

(a) OBSERVATION:

When observing, here are a number of recommendations:

- Start by observing what is happening without jumping to judgements or conclusions right away.
- Make sure student's are clear on the goal to be achieved.
- Allow a number of attempts to get a fair picture.
- View the skill from different positions whenever possible (e.g. It is much easier to detect if an impact point is too early or too late from a viewing position beside the student).

(b) ANALYSIS

EFFECTIVENESS ANALYSIS	
<p>Direction & Distance On the chart, mark the target area and where the ball was sent.</p> 	<p>Height, Speed & Spin Draw the intended path of ball through the air and the trajectory it actually followed</p>  <ul style="list-style-type: none"><input type="checkbox"/> Appropriate Speed?<input type="checkbox"/> The proper type and amount of spin?
<p>P.A.S PRINCIPLES What does the player need to send the shot correctly?</p> <p>PATH: <input type="checkbox"/> More High to low <input type="checkbox"/> More Level <input type="checkbox"/> More Low to high</p> <p>ANGLE: <input type="checkbox"/> More Open <input type="checkbox"/> Closed <input type="checkbox"/> Angled right <input type="checkbox"/> Angled left</p> <p>SPEED: <input type="checkbox"/> Faster <input type="checkbox"/> Slower <input type="checkbox"/> Maintain Speed</p>	

Once the challenges have been identified, the coach must then set up a way to improve the student. It could be by simple feedback, or the coach may need to set up a drill to systematically train the correct performance. The P.A.S. principles can be used to explain how to solve the problem (E.g. *"Have you noticed how the ball is going wide of the target on your crosscourt forehand? The angle of the racquet determines the balls direction so let's see if you can adjust the angle and hit more of the back of the ball (not so much on the outside)."*)

CONFORMITY ANALYSIS

Proper conformity allows a student to consistently control the ball and add more racquet speed if required. When observing and analyzing Conformity, it is important to note that there are two 'phases' in every shot.

- **Reception** is what the player does to set-up and receive the ball.
- **Projection** is what is done to send the ball.

RECEPTION QUESTIONS

GENERAL OBSERVATION QUESTION	Specific Questions
Did the player get a quick start to move to the ball? <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Did they Judge the ball early enough? <input type="checkbox"/> <input type="checkbox"/> Did they react with a proper 1 st Step?
Are they balanced and prepared for the impact? <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Did they get to the appropriate location in time? (Footwork) <input type="checkbox"/> <input type="checkbox"/> Was their body prepared? (Bodywork) <input type="checkbox"/> <input type="checkbox"/> Was their Racquet prepared? (Racquetwork)
Is the Impact point in a good position that allows proper Racquet work for the shot? <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Was the Impact point the correct height? (vertical) <input type="checkbox"/> <input type="checkbox"/> Was the Impact point the correct distance from the body? (lateral) <input type="checkbox"/> <input type="checkbox"/> Was the Impact point forward or back enough for the specific shot? (horizontal)

PROJECTION QUESTIONS

GENERAL OBSERVATION QUESTION	Specific Questions
Was the ball sent with the appropriate speed? <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Were too many segments engaged for the shot? <input type="checkbox"/> <input type="checkbox"/> Were too few segments engaged for the shot? <input type="checkbox"/> <input type="checkbox"/> Did they let the racquet finish appropriately for the shot?
Did they recover for the next shot? <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> Was the Recovery step performed right after the Impact? <input type="checkbox"/> <input type="checkbox"/> Did they quickly regain their balance and recover to the appropriate location? <input type="checkbox"/> <input type="checkbox"/> Was the Recovery done on time?

CONCLUSION

Technical development provides a student with important tools necessary to play the game. Manipulating the ball is the foundation of tennis. To help students learn faster, coaches must master the knowledge and terminology of Ball Control. The coach must have, and teach, a clear understanding of why the ball does what it does, and how to control it. When it comes to a complex skill like spin, a coach must not only know why the ball reacts like it does, but how to ease a student into the skill as well. When analyzing technique, the coach's job is not to conform students to an idealized version of a stroke, but help them to play more efficiently and effectively. By asking themselves the right questions, the coach can get to the point quickly.