

HOME / COLUMNS / **VANTAGE POINT**

# Everything you need to know about balance in tennis

In this comprehensive interview, the 52-year-old, Australian-born Marty Smith summons his vast expertise so players, teaching pros and coaches can learn why and how excellent balance is critical for success in tennis.

Published : Aug 20, 2020 10:51 IST

PAUL FEIN





**“Balance is the key in life,” says Novak Djokovic and he definitely applies the philosophical approach to his physical attributes and style of play helping him win 17 Grand Slams.**

*“Footwork is the means to perfect weight control and balance.” — Bill Tilden, in his 1924 classic, Match Play and the Spin of the Ball .*

*“One of the single biggest causes of errors in tennis is poor balance.” — Nick Saviano, in his 2003 book, Maximum Tennis .*

Strokes and tactics usually dominate the conversation among coaches and teaching pros about what makes elite tennis players. Body balance seldom gets the attention or credit it deserves.

A notable coaching exception was legendary Welby Van Horn, who famously taught only footwork and balance in many a student’s first lesson. Nowadays, teaching pro Marty Smith, a protege of Van Horn, carries the banner for balance. “It sets a foundation from which a swing can be powerful, consistent and done with less effort. It also plays a crucial role in agility and movement,” says Smith, a two-time NCAA Southern Conference champion and, for the past 26 years, Director of Tennis at the prestigious New York Athletic Club.

Smith’s mission makes eminent sense. Proof of the powerful impact balance has on stroke production is evident in Roger Federer’s masterful game. His unrivalled body stability and perfect equilibrium contribute greatly to beautifully timed, powerful and precise shots that are effortlessly produced. As tennis shots on every level have become more powerful this century, moving faster has become more important than ever. Indeed, the fleet-footed Bjorn Borg once said, “A tennis match is like a thousand little sprints.” A typical tournament match also requires hundreds of quick directional changes. It is no coincidence that all-time greats

Rafael Nadal, Novak Djokovic, Steffi Graf and Justine Henin also have featured blazing speed, uncanny agility and exceptional balance.

**READ |**

**ALSO READ | [Reasons to use side spin in tennis](#)**

The secrets of these and other stars are analysed in Smith's brilliant 2017 instruction book, *Absolute Tennis: The best and next way to play the game* (New Chapter Press). No stone is left unturned in this oversized, 319-page tome. Perhaps the most valuable gem is his incisive treatment of balance.

In this comprehensive interview, the 52-year-old, Australian-born Smith summons his vast expertise so players, teaching pros and coaches can learn why and how excellent balance is critical for success in tennis.

**Why did you devote an entire chapter of your book, *Absolute Tennis*, to balance and then emphasise its importance even more by making it your first chapter?**

I wanted my book to have a logical progression. Tennis is a very athletic sport, so I felt it made sense to begin the book with chapters on balance, the kinetic chain and movement. I subscribe to the European philosophy of how to develop top tennis players — juniors should cross train and play various sports as young kids first to learn balance and movement before spending many hours hitting balls on the practice court later as teenagers. I applied that viewpoint to the structure of the book by starting with the athletic principles, then moving on to the strokes, strategy and finishing with psychology. Without understanding how the body moves, students cannot maximise their potential on their strokes. Poor strokes are going to limit strategic options and without fluent movement, confidence in your strokes and strategic knowledge, your mind will likely be frustrated instead of inspired. My goal was to teach the reader that tennis should be learned

sequentially to help them improve their skills quickly and enjoy the game even more.

**READ |**

**ALSO READ | [Why rhythm is important in tennis](#)**

Additionally, I wanted to make the first chapter balance, because it is such an important foundation from which successful stroke production and other aspects of the game flow. To use a painting analogy that Welby Van Horn used to tell me; if the stroke is the painting, balance is the painting's frame that enhances the stroke's stability and structure. Poor balance inevitably diminishes the stroke's power, accuracy and consistency. Balance is also an important factor in movement. Tennis is a game where the ability to change direction quickly has a big influence on a player's success and braking fast and then accelerating powerfully is dependent on balancing the body.

It's always been perplexing to me why many other sports — especially moving-ball and moving-athlete sports like basketball and soccer — emphasise balance, while a multi-skill, highly athletic, fast-paced sport like tennis often does not. If you swing at a moderate speed and you are two degrees off with the racquet face, you will probably lose the point. Tennis is a precise game and balance has a huge impact on your level of precision. Furthermore, better balance can make you a step faster covering the court. So I wanted a logical progression to my book, but primarily I thought by making balance the first chapter, I could highlight an aspect of the game I felt deserved more recognition and appreciation.

## **What is balance?**

In scientific terms, balance is achieved when the centre of gravity is aligned with the middle of the base of support. In the human body, the centre of gravity is located near the navel and the base of support is our legs. Therefore, balance

happens for us when our navel is positioned above the middle of our stance. Now, because the head is easier to see than the navel and the head usually follows the direction of the core, coaches often use the head — not the navel — as a reference point. A common coaching mantra for balance is, “Keep your head upright and above the middle of your stance.”

Keep in mind, this textbook definition of balance sometimes doesn't align well with tennis players because they frequently load their weight on one leg to hit the ball and push off mostly from one leg to change direction. Tennis involves extreme types of movement and therefore, requires players to shift their centre of gravity far outside their base of support and still maintain body control.

**READ |**

**ALSO READ | [Life without tennis during a pandemic](#)**

When I teach, I also pay close attention to the shoulders and back. Your shoulders need to be fairly level to maintain balance. Once your shoulders tilt, your centre of gravity shifts outside your base of support and your equilibrium is lost. And while your back will lean forward slightly into many shots in tennis, you want to swing with good posture to gain the benefits that stem from sturdy balance. Observe the way Novak Djokovic keeps beautiful posture when he swings the racquet. His superb flexibility, strength throughout the core and incredible movement lead him to appear to play with a rod running through the upper half of his body. This posture helps him maximise the benefits derived from superior balance. Djokovic has said, “Balance is the key in life” and he definitely applies the philosophical approach to his physical attributes and style of play helping him win 17 Grand Slams.

Of course, tennis is a game of near constant movement, so you must learn dynamic balance and acquire skill in establishing balance on the move. Not only are you moving in different directions, speeds and lengths, but you are also receiving balls at different heights and hitting shots with one or two feet on the

ground further complicating the very quick computations the brain has to make to maintain balance. It really is amazing how the top tennis players move and sustain body control in the frenzy of an intense point. It is no wonder they are sometimes lauded as the world's greatest athletes.





**Roger Federer's unrivalled body stability and perfect equilibrium contribute greatly to beautifully timed, powerful and precise shots that are effortlessly produced.**

### **How do you move your body to maintain balance?**

Players who have good balance have a malleable body. They are loose, agile and fluid in their movement. They glide low to the ground in a relaxed manner like a panther, not high above the ground and stiff like a giraffe. And they know how to adjust their torso and move their limbs effectively. For example, after running to hit a difficult wide ball, they tilt their torso against the direction they were moving, widen their stance and spread their arms to quickly get balanced. This allows them to stop and recover fast for their opponent's next shot.

They also know how to adjust their legs and arms during the swing to maintain equilibrium. The best leg positioning for balance depends in large part on the height of the ball. The lower the ball, the wider your stroke stance should be. As you widen your stance, you lower your centre of gravity and your base of support becomes larger and stronger. On high balls hit above your head, the opposite should occur and your stroke stance should narrow. Bending your knees is also important for balance on low balls. If you don't bend your knees and instead bend at the waist, your centre of gravity will move in front of your legs causing you to tilt forward and stumble.

Keep in mind, your right and left leg will take on different roles during the swing to improve equilibrium. Many shots in tennis require one leg to anchor the stroke while the other leg pivots for balance. For example, on most right-handed

backhand groundstrokes, the right leg will anchor the body while the left leg moves around to the left during the forward swing to balance the body and allow the weight transfer to happen fluently.

**READ |**

**ALSO READ | Paul Fein: 10 tennis things you can do during the coronavirus crisis**

Just as tightrope walkers use their arms for balance, so too should tennis players. On the one-handed backhand, as you swing forward with the right arm, the left arm moves backward to equalise the body's weight distribution and improve posture. Watch Stan Wawrinka crush his one-handed backhand. Even as hard as Wawrinka swings, his left arm's dual purpose of assisting balance and stabilising the hips helps him hit his powerful backhand in a controlled and consistent manner. During the forehand backswing, the left arm separates from the right arm and straightens to equalise weight distribution and provide anchoring counterpoint strength. On the serve, the left arm goes up straight and the right arm bends in the trophy position and then the right arm goes up straight and the left arm bends as you reach up to hit the ball. Again, the arms work as a team to balance the body and support each other.

Therefore, you have four levers — two legs and two arms — to keep the less mobile and heavy torso upright. Agile players know how to manipulate these levers to establish good posture.

Now what are these four levers joined to? Your core. Being a good athlete demands a strong and stable core — all the muscles of your torso and pelvis that support your spine. Like a trunk of a tree supporting its branches, these muscles provide a powerful foundation for your legs and arms to help stabilise your body as it moves and assists your balance.

**READ |**



**ALSO READ | Things to remember about Maria Sharapova**

**In *Absolute Tennis* , you point out that balance impacts your game in five critical ways. Would you please explain each of them.**

The biggest impact balance has on tennis is the way it affects racquet control. The dimensions of the court, the height of the net, the design of the tennis racquet and the size and weight of the ball make the game one of exactness especially at the higher levels. If players' lack of balance causes them to tilt the racquet slightly up or down more than intended, there is a good chance they will miss the shot. When you lean, the angle of your hand in the grip stays consistent, but the angle of the racquet relation to the ground changes. Therefore, if you lean backwards the racquet face will tend to open, often causing the ball to sail long. Or, if you lean forward the racquet face will close, often sending the ball into the net.

Similarly, tilting your shoulders to the right or left can make the ball veer in that direction. For example, a right-handed player positioned too close to the ball on a forehand will pull that shot to the left, while being too far away from the ball will drift the shot to the right. Last, when you are off-balance, your body weight shifts in unintended directions, a change that must be taken into account and adjusted for during the swing in order to salvage the shot. Lurching forward suddenly adds power to the swing and often pushes the shot past the baseline, while falling back usually results in a short ball that your opponent can pounce on.

Second, balance has a large impact on racquet speed. You need to be balanced to use the whole body effectively and maximise kinetic chain power. On the two most important shots of tennis — the serve and the forehand — a significant amount of the power in those shots is derived from the legs pushing from the ground and the hips rotating. If you were to serve or hit a forehand by just moving your arm, you would hit a mediocre shot. The power in these shots starts with the legs bending, straightening to different degrees and then pushing up from the ground, creating a ground force reaction. If you are off balance, you

can't set your feet and "dig" into the court to produce this ground force reaction. Also, your hips won't rotate well if you are swinging with poor posture.

**READ |**

**ALSO READ | [A letter to lefties](#)**

Ash Barty's power on her serve and forehand is a great example of how a champion player connects balance with efficient use of the legs and hips and therefore, produce tremendous racquet speed. Barty is a fantastic athlete. She moves low to the ground with excellent body control, widens and narrows her stance appropriately and uses her arms well to balance the body. She plays her serve and forehand with a deep knee bend and aggressive hip rotation resulting in her body often lifting high above the ground during the follow through of these shots. Her athleticism and balance allow her to increase racquet speed in this vigorous way while not sacrificing control on her strokes.

Third, good balance speeds up the recovery process. Tennis is a game centered on movement and time management. The more balanced you are during the follow through, the better you will be at resisting the forces of momentum created from moving to the ball and swinging the racquet. This allows you to change direction and recover more quickly for the next shot. For example, leaning to the right while finishing a wide forehand, instead of being balanced and having your body weight neutral, will slow down your movement to the left back toward the middle of the court.

Fourth, good balance makes your head steady and upright, which improves visual tracking. If your head tilts from being off balance, it can cause a miscalculation of the speed and distance of the incoming ball and hurt your ability to position yourself well and time your swing. Watch how top players keep their head steady and upright when preparing for shots. This head position assists their vision and judgment, helping them establish correct positioning to the ball and good timing on their swing.

Fifth, the degree of balance you and your opponent have while hitting the ball will largely determine who is winning the rally. Your main strategy in tennis is to move your opponents around the court and force them to hit rushed and off-balance, while you hit in a poised position and control the point. That's tennis tactics in a nutshell. It primarily revolves around time, but balance is intertwined with it.

**READ |**

**ALSO READ | [Heart health for tennis players](#)**

**Would you please describe the best “ready position” for balance.**

The ready position places each foot several inches outside the shoulders with the legs slightly bent so you stand about six to eight inches lower than your natural height. In this crouched position, you lean slightly forward with your upper body, but with hips back and back fairly straight. The ready position lowers your centre of gravity and moves some of your body weight from the legs up towards the hips. This “lightens” the body and assists you in reacting quickly to your opponent’s shot.

The arms are extended forward with the elbows slightly bent. The left arm and hand are largely responsible for holding the racquet to assist quick grip changes and allow the right arm to relax. The strings of the racquet should be around chest high and tilt slightly to the left if you are right-handed.

On the pro tour, you will see a variety of ready positions on the return of serve, but when the ball is struck, all the players are in a traditional split step position. For example, Kei Nishikori sets up with his feet at a 45-degree angle as his opponent starts his serve and then as his opponent tosses the ball, he takes a step forward. After the step forward, as the server hits the ball, he split steps with his chest facing his opponent in the same position as his peers.

**What is the connection the split step has with balance?**

The split step is done by hopping with both feet above the ground and opening the legs wider an instant before your opponent hits the ball. The split step lifts the heels off the ground, activates the quad muscles and lowers your centre of gravity. A helpful car analogy in regards to the split step involves the design of Formula 1 racing cars. These cars have a wide wheel base and a low centre of gravity, allowing them to move and change directions quickly.

The purpose of the split step is to help you get a quick reaction to your opponent's shot. The faster your reaction is to your opponent's shot, the more time you will have to execute the footwork needed to get balanced for your swing. A quarter of a second is a lot of time in tennis and losing that amount of time due to a weak split step will have a big impact on your balance.

The touring pros all split step, but some do it better than others. Steffi Graf had the best split step I've ever seen. What made it so good was not just the timing of her split step, but how high she would lift above the ground. The higher off the ground you split step, the greater force you can apply to the court surface when you land and the more explosive the first step will be. Only superior athletes like Graf can do the split step this way because it requires more complicated timing and greater spring in the legs. In today's game, Stefanos Tsitsipas and Simona Halep have outstanding split steps and this feature in their game plays an important role in their exceptional court coverage.

**READ |**

**ALSO READ | [Australian Open 2020: The Novak Djokovic and Sofia Kenin show!](#)**

**Why is it important to keep your head still when you run and stroke the ball?**

It is important to keep your head still when you run for the ball so you can correctly read the speed, depth, direction and trajectory of the incoming ball. If

your head is bouncing, your vision is compromised and you won't read the flight of ball well. This leads to a mistimed stroke and incorrect spacing from the ball.

It is also important to keep your head still as you stroke the ball. First, keeping the head still and looking at the back of the strings at contact, which indicates a high level of concentration, improves the chances of a well-timed shot. Federer is the gold standard in freezing the head at contact. His impeccable timing can partly be attributed to his tremendous ball focus and "quiet" body during the strike zone.

Second, when you lift your head, you move your shoulders and change the swing path and that decreases the likelihood of hitting the sweet spot of the racquet. For example, if you are right-handed and lift your head on the forehand, the racquet moves to the left and you'll often hit the ball in the top part of the string bed, or worse. Keep in mind, missing the sweet spot by three inches results in more than 30 percent less power.

The shot where I find recreational players lift their head the most is the volley. No shot in tennis is more target-oriented and that makes it a prime candidate for volleyers to take their eye off the ball to peek at the ball's intended destination. Plus, playing the net is an adrenalised situation and that extra level of excitement can cause players to look anxiously ahead.

**Rafael Nadal is the master at improvising quickly and successfully before and after the swing to regain balance.**

Third, jerking the head can cause a loss of balance. The inner ear is the headquarters for balance. When the head moves suddenly, our brain instructs some muscles in the body to focus on attaining balance instead of performing the swing. This leads to sub-optimal stroke execution.

**Positioning yourself too far from or too close to the oncoming ball can ruin your balance. How do you avoid or overcome these two problems?**

You can often avoid these two problems with good footwork. Stay light on your feet as the ball approaches, so if you misjudge the incoming ball, or the wind moves the ball, you can adjust and get correctly positioned for the swing.

You also have to take steps in the right direction. A common mistake I see recreational players make on the volley is that their front foot steps in the same direction despite the ball being hit to them in different locations. For example, the classic footwork on the right-handed backhand volley is done with the right leg stepping forward toward an 11 o'clock direction. However, if ball comes at your stomach, the right leg should step in a 1 o'clock direction. In this case, if you do the 11 o'clock step, you will be too close to the ball and lose your balance. Or if the ball is wide, the right leg should move in a 9 o'clock direction. Here, if you do the 11 o'clock step, you will be too far away from the ball and lurch awkwardly as you

volley. Tennis is dynamic game and the direction of your forward step must change with the circumstances.

**READ |**

**ALSO READ | [What are the right criteria to pick the tennis GOAT?](#)**

Your arm positioning also plays a role in establishing correct spacing to the ball. During the forehand backswing, your left arm straightens and moves parallel to the baseline. The left arm works as a spatial reference to help determine the correct distance from the ball to hit a balanced stroke. Sometimes I've adjusted a student's arm positioning on the follow through to improve spacing. A student who crowds the ball at contact on the forehand and finishes by wrapping the racquet close to the body can improve spacing by simply catching the racquet with the left hand away from the body on the follow through. Our brain likes our hands to work as a team — the right hand will follow where the left hand leads it. Therefore, when the left hand creates space on the follow through, it often leads to more space created for the right hand at contact.

Additionally, the alignment of your arm can hinder or help your positioning to the ball. For example, if players hit their forehand with wrist bent forward too much, they will swing forward in an incorrect outside-inside swing path (not inside-outside) and crowd the ball. Improved footwork isn't going to remedy the player's spacing problem. However, once players with a hook wrist issue learn to lay their wrist back, they immediately hit the ball farther in front and away from the body and the problem of being too close to ball is fixed.

**How can you quickly regain your balance if you find yourself off-balance either just before hitting a shot or just after hitting a shot?**

Regaining your balance just before the swing can be done by taking a small adjustment step away from, or closer to, the ball. Regaining your balance after the swing can be done largely through the legs, too. On most shots in tennis, you

have one leg anchor the swing to establish a base while the other leg pivots to balance the body, rotate the hips and transfer body weight. After hitting the shot, you can move your “pivot” foot to regain your balance. Shifting your arms to equalise weight distribution and moving the torso to straighten the back will also help you balance the body during the stroke’s follow through.

Nadal is the master at improvising quickly and successfully before and after the swing to regain balance. If he finds himself too close to the ball before the swing, he often uses a quick backward cha-cha move to create space and stabilise the body. While after the ball is struck, the Spaniard is renowned for his assortment of unique follow-throughs, often with his racquet high above his head and slightly backwards posture. These racquet and body positions help him balance the body and enable him to hit a powerful shot even when under pressure during a difficult rally.

**Is it possible to be balanced for a groundstroke if you hit a ball outside of your “strike zone” either above the chest or below the knees? If so, please explain how.**

Yes, balance is improved on high balls by narrowing your stance and on low balls by widening your stance and bending your knees. However, there is an important additional point to be made here in regard to balance and stances that is under-appreciated and under-taught by coaches. If you receive a high ball during a baseline rally, you should use an open stance on the forehand and sometimes on the two-handed backhand. If you receive a low ball, you should use a neutral or closed stance on your groundstrokes. Using these stances on the high and low balls will help your balance and improve stroke power and control.

Watch the touring pros play. They hit the ball fast so they use the quicker open stances most of the time. However, when they receive a slice shot that moves slower and bounces lower, they often use a neutral or closed stance.



At the recreational level, I find players are often too one-dimensional in their footwork. On the forehand, it's either all open stance or all neutral or closed stances. There are many stances and some are hit off one leg. An important fundamental in establishing balance on all the different ball heights is being flexible with your footwork and understanding which stance is the best one for the different situations.

Think of the ball as your dance partner and because tennis is such a random, dynamic game, it's a dance partner that has had some fun at the bar. You must be adept at many different and unpredictable moves that can occur during a rally. Players who have footwork adaptability, or, in dancing terms, the dancers that change with the beat, are the ones who attain the best positioning and balance for their swings.

**READ |**

**ALSO READ | [How they aced it: Roger Federer, Rafael Nadal, Serena, Djokovic](#)**

### **How do you remedy the common balance problem of hitting groundstrokes off the back foot?**

Welby showed me a valuable teaching tool that highlights and helps correct poor balance — the freeze technique. The freeze technique asks students to end the swing and hold, or “freeze”, for three seconds. In this motionless position, I can analyse balance and explain what needs to be rectified to improve it. If students are wobbly during the freeze, I will pay close attention to the feet, back and shoulders and provide a remedy for their instability.

When players hit groundstrokes off the back foot and freeze, the heel of their back foot will be flat on the ground instead of being correctly off the ground. I like to ask players with this issue to freeze and then tap the toes of the back foot on the ground. This checkpoint will guarantee they transferred their body weight forward during the swing and ended it with their weight over on their front foot.

Of course, hitting off the back foot could stem from other things like late racquet preparation or incorrect wrist alignment. But I usually start with the freeze technique and work my way forward from there to find a solution.

### **What are the main reasons players lose their balance when they hit overheads? And what are the corrective techniques for this problem?**

Players lose their balance on their overhead usually because they don't go back far enough so they can push forward into the swing. This often occurs because their footwork is wrong. From the ready position, the correct overhead footwork begins with the feet moving into the neutral stance. Then it's generally one or two crossover steps backwards, followed by skipping steps before the feet plant and body pushes forward into the shot. Many recreational players face the net and run backward with little steps and thus, they cover little ground and fail to establish the solid base needed to hit a strong overhead.

Another reason players hit the overhead off the back foot is because they mistakenly think the contact point on the overhead is the same as the serve. However, unless the overhead is hit from deep in the court, the overhead contact point is farther in front of the body than the serve and therefore, requires a deeper court positioning than many players anticipate.

**READ |**

**ALSO READ | [The origin of tennis: History, mystery and myths](#)**

A good drill to help players improve their balance on the overhead is to have them catch a lobbed ball after one bounce with their left hand as they prepare to hit a mock overhead. This will help the student understand the footwork and positioning needed to hit a balanced overhead as well as highlight the left arm's important role as a spatial guide. After several catches, I will have the students hit the bounce overhead and then freeze after the follow through to critique their

balance. The next progression is to have them catch the lobbed ball in the air and then hit the overhead in the air followed by a freeze and critique.

In my coaching, I often use Nadal as a role model on the overhead. I've seen him play many matches and I don't remember him missing one. His early racquet preparation, footwork and timing make it a very reliable and powerful shot. I especially enjoy watching the way he moves his feet on the bounce overhead. There is nothing casual about the way he prepares to play, what is for him, a relatively easy shot. He treats every ball with respect, regardless of its degree of difficulty.

On a high lob that he allows to bounce, Nadal can take as many as 15 steps tracking the ball backwards, stop and then take several steps forward, using a longer run up than most to add speed to his overhead. He is exemplary in his determination to establish deep court positioning, so the ball is well in front of him when he hits his overhead.

**In today's game, Simona Halep has outstanding split steps and this feature in her game plays an important role in her exceptional court coverage.**

### **What are key elements and patterns of confusing and disrupting the balance of your opponent?**

The element of surprise plays an important role in disrupting the balance of your opponent. For example, disguising a drop shot by first setting up like you are going to unload on a power forehand will have your opponent leaning back in the ready position anticipating a defensive situation is about to unfurl. Then, when the drop shot happens, because your opponents were leaning back, they will lose their balance and stumble when they realise they need to run forward quickly to reach the drop shot.

Federer's superb disguise on his forehand often causes his opponents to be flat-footed when reacting to his drop shot. First, he pauses the racquet in forehand unit turn, allowing him a split second of extra time to determine if the next ball is the right time to play the drop shot or unleash a big forehand. Second, his mild forehand grip means he has only a tiny grip change to perform to execute the drop shot further adding to the disguise of the shot.

Federer's backhand drop shot is even better-concealed. Unlike most players, he often plays his backhand drop shot with a full wind-up, setting up for the drop shot in the same way as he does to play his regular slice backhand groundstroke. Federer's ability to camouflage his drop shot intentions upsets his opponent's balance out of the split step and has won him countless points over his brilliant career.

**READ |**

**ALSO READ | [Tennis's Big Three and the Next Gen](#)**

Also, surprising your opponent by mixing up the placement, speed, spin and height of your shots can disrupt balance. Mixing up your shot selection in these ways increases the chances your opponents will end up too close or too far away from the ball, or mistime their swing, leading them to jolt forward or fall back during their stroke.

This is why Bianca Andreescu's dizzying variety of shots makes her such a very dangerous and frustrating competitor. I've watched her hit the rarely seen side-spin, slice forehand short in the court, followed by an 85-mile-an-hour backhand deep in the corner and then a drop shot. This variety wreaks havoc with her opponent's balance and timing and was a major factor in her winning last year's Canadian Open and US Open as a 19-year-old.

You can also disrupt the balance of your opponents by surprising them with infrequently used shot patterns. If you have consistently hit your backhand return

of serve on the deuce side down the line and then, unexpectedly, hit that same return cross court, you will likely catch your opponents leaning in the wrong direction. Leaning in the wrong direction, instead of having their body weight neutral, will result in a weak first step and a much greater likelihood your opponents hit their shot stretching and off kilter.

### **Are there certain kinds of injuries that diminish a player's balance?**

Yes, injuries are going to diminish a player's balance especially injuries to the legs, hips and back. For example, if you have an injured knee, you are going to move slower and have less time to set your feet and get balanced for the swing. You are also going to be reluctant to bend your knees or widen your stance on low balls and detrimentally shift your centre of gravity outside your base of support.

If your hips are sore, you are going to hesitate to put weight on your side when playing a wide ball, causing your shoulders to tilt. That imbalance hurts your stroke and slows down your recovery back toward the middle of the court.

### **READ |**

### **ALSO READ | [How playing other sports improves your tennis](#)**

Hip injuries are brutal for tennis players, just ask Andy Murray. After doing his hip surgery, he said his chances of competing in the top 10 were "unlikely," so he set his goals to return to the top 100, or possibly top 50 players, in the world. He understood that he would return to the ATP Tour with slightly slower foot speed and at the elite level of the game, that reduced court coverage will result in him losing to players he used to defeat.

Finally, attaining balance comes from having a malleable body and flexible back. Obviously, playing with a stiff back will hamper your ability to balance the body during stroke production and accelerate and decelerate around the court.

### **Does excellent balance help prevent injuries? And, if so, how?**

Yes, it does because balance creates efficient use of the kinetic chain. The kinetic chain re-imagines the body as a system of chain links, whereby the energy generated by the legs is transferred up to the hips, then the shoulders, culminating in an end point power surge in the arm as the ball is struck.

This power that starts from the ground and moves up the body can only happen if you have good balance. If you don't generate kinetic chain power, you are forced to use vigorous arm movements to gain racquet speed. Repetitively swinging the racquet in this manner can strain the muscles and joints and over time, possibly damage the arm and shoulder. If you use the kinetic chain well, your arm will "come along for the ride" on the wave of energy surging from below and reduce strain and likelihood of injuries.

Balance will also assist forward weight transfer into the shot and reduce the demands on different parts of the body. For example, if you can step forward into a powerful backhand with good balance, your front foot will plant firmly and the body weight being transferred forward into the swing will be maximised. This efficient use of forward momentum will lower stress on the body and prevent injuries.

Many injuries often don't occur from swinging the racquet, but instead come about from moving quickly around the court. High-speed braking is a major cause of injury for tennis players and learning good balance can help players brake with proper weight distribution and correctly activate and sequence the decelerating muscles in the legs and hips. If you are off balance as you stop to change direction, you will place heavy weight on one leg and one side of the hips. Repetitively stopping this way will wear down the joints and strain the ligaments and muscles in these parts of the body. Leaning too much while braking will also upset the optimal sequence of the decelerating muscles. Our body is designed to decelerate with certain muscles being activated before others. If this fails to happen, some muscles will feel more tension and fatigue and that will increase the likelihood of injuries.

**READ |****ALSO READ | Nick Kyrgios: entertainer or embarrassment?**

It is no surprise that 39-year-old Roger Federer, a player with amazing balance, has experienced few major injuries and has enjoyed a very long career. His balance contributes to a smooth weight transfer upward as well as forward into his swings and therefore, he hits the ball with effortless power. I'm sure Welby was a huge Federer fan. He once said to me, "Proper balance means an economy of motion: achieving maximum results from minimum effort." We are still waiting for Federer to break a major sweat or grunt when he hits a 90-mile-an-hour forehand.

Additionally, Federer's balanced, harmonic flow of movement allows him to stop and change direction with less strain on his knees and hips — body parts that often let professional players down and cut careers short. Indeed, after he won his record eighth Wimbledon at age 35, former champion John McEnroe said of Federer, "He's the most spectacular mover. I call him the Baryshnikov of tennis." That balletic and balanced movement creates the impression that he glides, or even floats, above the court providing a cushion for his body to withstand 20 years of fast running and abrupt stopping on the unforgiving hard courts of the ATP Tour.



**Martina Navratilova, who won 59 singles, doubles and mixed doubles Grand Slam titles, is definitely one of the most balanced players. She has the three qualities all champion players with good balance have — she is agile, physically strong from head to toe and moves low to the ground.**

### **What are the best on-court drills to improve balance?**

I have two favourite on-court balance drills I like to do with my students. The first drill, called the Loose Hat Game, highlights keeping your head still and upright —

a key fundamental in attaining balance. The first step is the coach slightly loosens the hats of the two students playing the game. The two students then compete cross court from the baseline hitting into the doubles half court area only. If a player loses the hat and the other player wins the rally, that player scores two points. If both players lose their hats, then the winner of the rally scores three points adding excitement to the game. The first player to score 21 points wins. The Loose Hat Game makes for a fun doubles game, too. This drill not only emphasises balance, it also trains students to hit away from their opponents and make them move to the ball — an important, but sometimes overlooked focus of recreational player's shot decisions.

The second drill is the Cup of Water Mini-Tennis Game. Two players play a game of mini-tennis holding an almost full cup of water in their non-hitting hand. The object of this game is to maintain balance so you don't spill the water. If you spill some water and your opponent wins the rally, they score two points. If both players spill water, the winner scores three points.

As I mentioned earlier, the freeze technique is a great on-court exercise to monitor your balance. While hitting with a practice partner, occasionally freeze your follow through in a motionless position and check your body equilibrium. If you are balanced, you should feel comfortable and stable.

On-court exercises such as spider runs, lateral cone slaloms and court line racquet touches improve a player's body control and ability to brake and recover quickly. The faster you move, the more time you have to measure your steps to space yourself correctly from the ball and stabilise the body for the swing.

**READ |**

**ALSO READ | [Federer keeps getting better](#)**

**What are the best off-court drills or exercises?**

You can do many tennis-specific exercises on the BOSU ball to improve balance. Jumping on the BOSU ball's unstable surface with one leg and doing forehand and backhand shadow swings will enhance body control on the court. The agility ladder is also a useful balance tool. In agility ladder drills, your goal is to perform a series of movements as fast as possible, minimising your contact time on the court surface while maintaining equilibrium. Lateral ladder running drills strengthen both knee and ankle stability and thus, speed up your change of direction. The agility ladder also trains you to use the little steps required to adjust before the swing, attain good positioning and hit a balanced shot.

Medicine ball exercises build up strength in the core, which is a very important part of the body in regard to balance. The legs and arms are the levers of balance and they are attached to and depend on a powerful core for their strength. I recommend plyometric exercises like box jumps and agility hurdles for a more explosive first step and faster movement. Plyometric training also builds up leg strength helping you achieve equilibrium faster as you decelerate and accelerate around the court. Resistance bands exercises improve flexibility and this plays an important role in achieving balance when stretching for difficult shots.

Speaking of flexibility, Novak Djokovic is renowned for his obsession on flexibility, but he is just as diligent working on his body stability. I've seen videos of him in the gym performing exercise after exercise challenging his balance. His high-intensity balance training includes walking along skinny poles, kneeling and the moving around on large rubber balls, standing on small cylinders, doing one-legged hops under a low limbo bar and many more exercises. Djokovic knows improving his balance will assist racquet control and power as well as speed up his movement giving him an edge over his opponents in the ultra-competitive world of professional tennis.

**Who have been the most balanced players in tennis history? And what are the keys to their balance?**

Martina Navratilova, who won 59 singles, doubles and mixed doubles Grand Slam titles, is definitely one of the most balanced players I have seen play. She has the three qualities all champion players with good balance have — she is agile, physically strong from head to toe and moves low to the ground. The way she is able to maintain balance on low volleys, while running at full speed, is incredible. Her fluent movement and balance resulted in a long, largely injury-free career, allowing her to win big doubles tournaments well into her 40s, culminating with her winning the 2006 US Open mixed doubles title with Bob Bryan a month short of her 50th birthday.

Justine Henin was another player with tremendous balance. I know she worked very hard off the court on her agility and it showed on the court with her superior movement and body control.

On the men's side, we are living in an era featuring two of the best balanced players of all time — Roger Federer and Novak Djokovic. Federer is a once-in-a-century player with regard to fluidity and timing. He almost always plays his shots with his head still and upright, shoulders level and posture perfect. His impeccable balance largely stems from his quick and nimble footwork, which helps him move to the right position for the stroke. He also “reads” the incoming ball extremely well so he rarely swings the racquet while being too close or too far away from the ball.

Djokovic's fantastic balance is attained in a slightly different way. He follows all the rules required to establish good balance, but he also has the added benefit of being extremely flexible. Tennis fans are familiar with the famous near-splits he does during difficult wide shots. His flexibility allows him to keep his back straight under duress and still hit a forceful and controlled shot.

Being an Aussie, I would be remiss if I didn't give a shout out to the great Rod Laver and commend him for his outstanding balance. He glided around the court and played in such an effortless and athletic manner. I know it was a different era

with a different style of game, but when it comes to grace and body control, I don't think it got any better than The Rocket.

**READ |**

**ALSO READ | [Gender and fair play in sports](#)**

**As serves, forehands and backhands have become more powerful this century, has the balance of pro players kept pace with that? And if so, how?**

The pro players spend more time working on their agility, flexibility and core strength than players in the past, so, naturally, their balance is better. You can see it in the way taller players move today compared to tall players in the past. Reilly Opelka is 6'11-3/4", and he moves better than many players in the '90s who were a half-foot shorter. Opelka says he trains by practising two and a half hours on the court, followed by two hours working out in the gym. That's typical of most pro players today; their ratio of court time to gym time is around one to one.

Also, the introduction of polyester strings about 25 years ago has changed the game. The polyester strings increased the accuracy and control of players' shots. They also added more spin to the ball, creating more acute angles in opponent's shots and forcing players to run longer distances to defend the court.

As a result, in this century, sliding and stretching while maintaining balance on difficult wide balls has become an increasingly important skill. Modern professional players contort their bodies during swings to allow them to extend points in ways rarely seen in the past. You see what coaches now call "strength at end-range" in the way players such as Kim Clijsters and Gael Monfils retrieve seemingly impossible forehands in an almost full-split position.

This ability to achieve balance and play quality defensive shots while under duress has seen a big jump in its influence on winning matches. Consequently, players

have emphasised agility, flexibility and core strength more in their workouts making current pros the best athletes the game has ever seen.

**Early in her career, Venus Williams covered the court with tremendous speed using giant steps. Roger Federer glides around the court and then nimbly cuts sharply with small, precise steps to arrive in the right spot. What are the best ways to run fast and precisely while keeping your balance?**

It's interesting how the top players move to the ball in different ways, but there are commonalities. They all move around the court in a crouched position to lower their centre of gravity so they can stop quickly and change direction. Every incoming ball is different, but generally speaking, they start their movement with smaller steps, then longer ones, and if time allows, they will return to the smaller steps before swinging the racquet. The touring pros hit the ball fast, so you don't often see these smaller steps before swinging, but when they receive a slower ball, you will see them. Recreational players often receive slow balls, and therefore, should make using this nimble type of footwork a priority.

In my opinion, the Federer method of using the small steps is the best way to obtain balance for your swings. The main reason is because where you think the ball will land when the ball is 50 feet away may be a different place when the ball is 15 feet away. Staying light on your feet allows you to remedy any ball location misjudgements, and thus helps you not end up too close or too far away from the ball and hit a balanced stroke.

**Serena Williams' agility and athleticism is unmatched on the WTA tour.**

**Not all elite players have perfect balance. World No. 6 Stefanos Tsitsipas looks off balance on his serve. Why and how is Tsitsipas losing his balance? And what should he do to improve his balance when he serves?**

Tsitsipas has a very good serve, but for a player with his height (6'4") and talent, it should be better. His problem lies in his faulty trophy position. In the trophy position, your front hip should be bowed forward and most of your body weight placed on your front leg. A proper trophy position helps you perform two body movements that are key to hitting a powerful and consistent serve — cartwheeling your shoulders and elevating up and forward to hit the ball.

Tsitsipas doesn't bow his front hip forward or have his weight forward enough on his front leg. Therefore, his shoulders don't cartwheel, but instead rotate more horizontally and face the net too early in the swing. To accommodate this incorrect shoulder movement, he must toss the ball to the left and as a result, he falls to the left instead of correctly pushing towards the net on his follow through.

However, this isn't the biggest problem that his faulty trophy position causes on his serve. His even weight distribution during the trophy position means he elevates up to hit the ball, but not forward and up. At contact, his body is almost perpendicular to the ground, not tilted slightly forward like the Leaning Tower of Pisa. On the serve, you want forward balance at contact, not neutral balance. Do boxers land a heavy punch with their weights even? No, they lean forward for greater leverage. Tsitsipas is robbing himself of significant power on the serve due to his incorrect balance at the contact point.

As a coach, you have to know cause and effect. Instructing Tsitsipas to move his serve ball toss more to the right and in front of him is not going to fix his leftward follow through or his neutral balance issue at contact. He has to learn to bow his front hip and place more body weight on his front leg in the trophy position to resolve these problems.

Ironically, his neutral balance at contact actually helps him finish the serve with a straight back and quick ready position to respond to his opponent's return of serve. However, this benefit of better posture on the follow through is insignificant compared to the power and consistency he is losing on his serve due to his faulty technique.



### **No. 3 Dominic Thiem and No. 16 Denis Shapovalov also look off balance on some backhands. What are they doing wrong?**

Thiem and Shapovalov love to get airborne to crush high balls hit to their one-handed backhands. It's one of the most exciting shots in pro tennis. It's true they are off balance in the sense that they are not grounded, however, they are balanced in many other ways. They play this shot with their head upright, shoulders level and back straight. They are balanced even though their feet are well above the ground. The reason why they jump on these backhands is to turn a shoulder-high swing into a waist-high swing that is stronger and more comfortable.

Some pros, like three-time major champion Angie Kerber, do the opposite of this on low balls, but for the same reasons. When receiving a very deep ball hit down the middle, she will sometimes swing with both knees almost on the ground. Again, like the airborne backhand, the goal is to create a contact point around the same height as the waist. Modern players are using their improved athleticism and balance to lift and lower the body on strokes so they can attack balls that in the past would have been handled with caution.

### **Even Serena Williams, the consensus female GOAT, looks increasingly off balance, particularly on volleys and forehands. What causes her balance problem?**

I agree, she is the GOAT. Even though she is a great player, I understand what you are saying about her balance. It might be partly because she swings so hard, that when she misjudges the ball, or the wind grabs the ball, her body lurches more than most. Also, she doesn't always take that last second little adjustment step to get closer or further away from the ball to get balanced.

I've seen videos of her cartwheeling over her sister in the gym — her agility and athleticism is unmatched on the WTA Tour. I think it's her fast swing speed and footwork that hurts her balance occasionally. I think she would be the first to say

that her game now revolves more than ever around playing first-strike tennis — hitting a huge serve and return of serve — and less on court coverage and movement.

## READ |

### ALSO READ | **How should female athletes be portrayed?**

**Most of the greatest servers, such as Pete Sampras, Roger Federer and Milos Raonic, use the platform stance. Other powerful servers, such as Andy Roddick and Gael Monfils, use the pinpoint stance with their feet starting very close together. In terms of balance, which stance is better? And why?**

Olympic weight lifters use a wide stance because it lowers the centre of gravity, strengthens the base of support and therefore, improves balance. These same positive qualities of the wide stance apply to the serve. I sometimes do the push test with my students to illustrate the benefits of a wide stance. The push test begins with students standing with their feet close together; I push them gently sideways from their shoulder and they quickly lose their balance. Next, I ask them to widen their stance and I do a similar push. This time because their base of support is stronger, they are able to resist the push and hold their balance.

On the serve, the wider stance leads to a stronger back leg push and more momentum created from the backward and forward rocking motion during the serve's windup. You can see evidence of this powerful back leg push in the way platform servers like Federer hit the ball high above the ground. This creates a high contact point and more favorable hitting angle to land the ball in the service box.

However, the narrow stance has benefits, too. The narrow stance produces a stronger hip rotation. Just like ice skaters spin fastest when their feet are close together, tennis servers can rotate their hips best when their feet are positioned side by side. Andy Roddick's 140-mile-an-hour serves can be partly attributed to

his explosive hip rotation adding kinetic chain power to his shoulder and arm. The narrow stance also allows the server to lean forward more at contact to add body weight momentum to the swing.

The various benefits of the wider and narrow stance can largely be attained by using the technique employed by the vast majority of WTA players and most ATP players: the hybrid pinpoint stance. In this stance, the player starts in the platform stance and then the back foot slides forward during the backswing to join the front foot in a pinpoint stance. It's a more athletic and complicated motion, but players like Serena Williams and John Isner, who use this method enjoy the benefits of forward momentum created by starting in a wide stance as well as the stronger hip rotation and forward balance at contact derived from the narrow, pinpoint stance.

**Roy Emerson, Stefan Edberg and Ash Barty played in different eras and faced different kinds of passing shots. But, in my view, they all had superb balance when they volleyed. If I'm correct, what are the keys to their exceptional balance?**

You are correct and there are four keys to their exceptional balance. One, they move low to the ground, so they are able to accelerate and stop quickly with good balance. Also, by playing the net in a crouched position their eyes are closer to the height of the passing shot and this helps them judge the speed and direction of the passing shot better.

Two, they use the four levers — the two legs and two arms — beautifully to maintain balance when they volley. They keep their head upright on low balls by widening their stance and bending their knees and they move their arms in different ways to stabilise the body when stretching for wide passing shots.

Three, they do a strong split step. Australians are known for being great volleyers and as a junior player growing up in Melbourne, I was taught the Aussie mantra, "Volley is hit with your legs." The legs provide the balance, power and

positioning on the volley and it all starts with a strong split step. A strong split step allows you to get to the passing shot earlier and helps the legs do their thing on the volley.

Four, Emerson, Edberg and Barty have exceptional anticipation. It almost seems they can read their opponent's mind in the way they guess right on the direction of their opponent's passing shot. Like the split step, anticipation allows them a split second extra bit of time to attain good positioning and therefore, better balance at the net.

**Andy Roddick's 140-mile-an-hour serves can be partly attributed to his explosive hip rotation adding kinetic chain power to his shoulder and arm.**

**If a court is slippery — such as red or Har-Tru clay, slick hard courts, or wet grass — how can players keep their balance?**

Keeping your balance on a slippery court requires split stepping in a narrower stance and then moving to the ball with more cautious footwork. While a narrow split step leads to less explosive first step in normal conditions, on a slick court, you are less likely to slip pushing off from a narrow stance than a wide one. Following the skinny split step, you should move to the ball with small steps and keep your body more upright than usual. The key to covering a slippery court well is to make the force applied to the ground by your feet to be more vertical and less forward. Tilting the body forward and running fast will make it difficult to stop and recover quickly. Last, make sure your sneakers are reasonably new and have the correct tread for the court surface you are playing on.

**Former world No. 7 Tim Mayotte, now a respected coach, said, "One of the next frontiers will be visual training. How well players react to the incoming object can develop significantly. Visual training involves the ability to recognise objects in motion and react to them as quickly as possible." Do you agree? And, if so, how will better visual recognition and reaction improve a player's balance?**

The introduction of visual training to tennis is exciting. Players can now take vision exams that identify where their visual skills, such as spatial and directional localisation and depth perception, need help. Sports facilities offer programs to train and improve these skills. At any level of tennis, being able to recognise accurately and react quickly to the speed, trajectory, spin, direction and depth of your opponent's shot faster is a huge advantage.

Tennis experts have said one of the reasons Jimmy Connors and Andre Agassi had incredible serve returns is because they reacted faster to their opponent's serve than other players. And while players like Petra Kvitova have exquisite timing because of incredible eye-hand coordination, it's also due to superior vision and the ability to "read" her opponent's shot, which plays a significant role in her strokes meeting the sweet spot time and time again.

Certainly, faster recognition of and quicker reaction to an opponent's shot is very helpful to a player's balance. Reacting faster gives players an extra split second to move to the ball, set their feet and stabilise the body for the swing. And more quickly recognising the various characteristics of your opponent's incoming ball would result in better positioning and timing on the swing and therefore, improved balance. It can also improve your shot selection because you have more time to make the right decision.

Studies have proved children's reflexes and hand-eye coordination improve by playing video games. I believe it won't be too long before visual training video games are a regular part of high-performance junior tennis training and it won't be a hard exercise to get the juniors to do!

---

## **Related Topics**

▼  
[Roger Federer](#) / [Novak Djokovic](#) / [Rafael Nadal](#) / [Serena Williams](#) / [Martina Navratilova](#)  
/ [Simona Halep](#) / [Andy Roddick](#) /

## **Latest on Sportstar**

**1** Italy beats Australia, reclaims Davis Cup title after 47 years

Team Sportstar

**2** IPL 2024: Hardik Pandya's likely transfer to Mumbai Indians continues to be talking point hours after retention deadline

Shayan Acharya

**3** Ducati's Bagnaia wins Valencia GP to defend MotoGP title, Jorge Martin crashes

Reuters

---

**READ MORE STORIES**

---

### **Sportstar**

About us

Archives

News Archive

Sitemap

Print Subscription

Digital Subscription

Student Access

Corporate/Enterprise Access

Rss Feeds

Contact Us

Careers

---

### **Group News Sites**

The Hindu

Business Line

Frontline

இந்து தமிழ் திசை

The Hindu Centre for Politics and Public Policy

Young World Club

The Hindu E-Paper

BusinessLine E-Paper

Crossword+ "Free Games"

The Hindu Coupons

---

### **Other Products**

RoofandFloor

STEP

Images

Classifieds

Special Publications

---

### **Popular Sections**

Cricket World Cup 2023

IPL 2023

Cricket

Football

Tennis

WTC

F1

Basketball

[TERMS OF USE](#) / [PRIVACY POLICY](#)

Copyright© 2023, THG PUBLISHING PVT LTD. or its affiliated companies. All rights reserved.