

## Essential Topspin

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## Introduction

Over the past two decades of tennis, the game has been revolutionized by ever increasing amounts of power and offense at it's top levels of competition. It used to be tennis was a game of finesse, control, and guile. Those days are now gone, and without the ability to hit the ball aggressively even an average level weekend warrior will find it difficult to come out on top. So how has it changed? How have things developed so quickly? It is true that modern racket technology has made it easier and easier to take big swings at the ball, due to lighter and larger frames. However, even when armed with the most up to date weapon of choice, the fundamental techniques used to swing it must be correct to hope for any level of success.

Topspin is what allows the pros to take big, powerful swings at the ball and still maintain an acceptable margin for error. The question of course is: "How do they do it?". In this e-book, I will walk you through every essential element necessary to create big, heavy topspin. Over my years of teaching I've learned exactly what's important to the process of creating topspin, and sometimes even more importantly, what's not important. Read this e-book completely, and you too will finally understand everything you need to know about this incredibly important part of your tennis game.

The information in this e-book is split up into five different chapters. They are:

1. Why Topspin is Important
2. Essential Elements of Creating Topspin
3. Topspin Myths and Lies
4. Maximize Your Topspin
5. Special Uses of Topspin

Now lets get started!

## **1. What is it and Why is it Important?**

What is it?

Top spin is rotation of a tennis ball end over end towards the direction that the ball is traveling in through the air. It's called top spin because the ball is turning from below it to over the "top" of it when looking at the back of it from the perspective of the person who just struck the ball. The ball is rotating away from the hitter of the ball, and towards it's target. This is the opposite of "back" spin or "slice" which rotates from the top of the ball back towards the bottom. When a tennis ball has back spin it's rotating towards the person who hit it, and away from the balls target.

What it does to the ball

As the ball rotates end over end towards its target, fuzz starts to grab the air causing resistance. This creates slightly higher air pressure over the top of the tennis ball than the bottom of it and the ball starts to sink down towards the court surface as it flies through the air. The end result is a path of the ball that is more curved or arched than a ball that is hit "flat", with no significant spin on it in any direction. Of course gravity will bring any ground stroke back to earth at some point, but top spin aids in this process and makes the ball bounce earlier than it normally would. This curved flight of the ball is exactly what's significant about hitting with top spin, let's learn why.

Margin for Error

Watching the pros on TV can sometimes be very miss leading. Yes they are hitting the ball very aggressively and confidently, however you'd be surprised exactly how much space they're giving themselves to stay consistent. When watching a tennis broadcast typically the camera is perched up above and behind one of the baselines, looking slightly down onto the court. This gives the illusion that the ball is constantly crossing just over the top of the net. When teaching students how to hit fundamentally sound ground strokes for the first time I very often ask them how high over the net they think the pros typically hit. A large percentage of the time their answer is just a few inches, after all they are pros right?

They're so good they probably aim an inch over the net every time!

While the height of professional player's ground strokes will vary depending on the style of the individual and also the specific point situation, on an average "rally ball" back and forth from the baseline professional players are usually clearing the net by three to five feet! Most club level tennis players are shocked to learn this. After all, when their own shots travel 5 feet over the top of the net the ball often travels well long, and obviously they aren't hitting nearly as aggressively as a professional player. So how is that possible?

It's all about the curve! Professional tennis players have adapted to start creating huge amounts of top spin which allows them to put a big arch in the path of the tennis ball. This arch gives them increased margin for error as compared to a flat ground stroke which pays off doubly. Not only are they able to aim higher over the net to avoid hitting it as often, but once up in the air the ball curves downwards again sooner than it normally would, which keeps it in play more often as well. High level players are able to very closely control exactly how much rotation they're putting on the ball during a ground stroke to create a wide variety of results ranging from just a little bit of spin to attack, or tons and tons of spin to hit a reliable but competitive shot in a high pressure situation.

Hit Aggressively AND Consistently

Knowing how to hit with top spin means you do not have to chose between hitting aggressively or consistently, you can have the best of both worlds. Can this be achieved with a flatly hit ball? Yes it is possible to hit a flat ground stroke aggressively and still put it in play relatively reliably, however its important to understand that a great deal more precision is required in order to make this happen. Clearly we only have a limited amount of space available to us each time we strike the ball, and a ball hit with no spin will travel farther and farther through the air when we hit it faster if the height it crosses the net is the same every time. That means when using a flat ground stroke to hit aggressively we will have to aim lower over the net the faster we try to hit the ball in order to keep it in play. This method of hitting a ground stroke causes us to have a lower percentage chance of making a shot the faster we swing at it, because the faster we swing at the ball the less margin for error we have over the top of the net and inside the court.

## **2. Essential Elements of Creating Topspin**

So now you fully understand exactly how important it is to develop topspin in your tennis game. That's great, but how do we make it? Simply speaking, it only comes down to two technical components, and then can get very complicated from there once we start talking about specific muscle groups and the way they are designed to work together. In this chapter I will outline and go into detail about the simple fundamentals. To a casual reader this may seem monotonous, but trust me you need to fully comprehend these two components before we start talking about anything more complex.

Vertical Racket Path

The first of two essential stroke components to creating topspin is: a vertical racket path. In order to hit a successful topspin ground stroke your racket needs to follow a path moving in two main directions: forwards and upwards. The forwards part is quite self explanatory, the ball needs to be given momentum traveling towards its target. The upward part is obvious to some players as well, but its importance is more often than not terribly underestimated by the average level tennis player. Upward movement of the racket in a topspin ground stroke serves two purposes: lift, and spin.

From baseline to baseline a tennis court is 78 feet, that's a lot of space! At its lowest point, the net is three feet high. In order to have any chance at all of a successful shot in tennis, most of the time the ball is going to have to be hit upwards first, before it comes downwards again into your opponent's side since the net is in your way. From the baseline on your own side of the court, hitting the ball straight or downwards simply isn't an option, with few exceptions. This is why swinging upwards is so important, even if you're just trying to hit a flat drive of the ball. On the vast majority of ground strokes, the ball needs to go up before it can come back down again.

It's worth noting quickly that one exception to the lift rule on ground strokes is a slice, which produces backspin, the opposite of topspin. This is achieved by swinging out towards your target, and slightly down at contact, with a slightly open racket face (facing upwards). Is it possible to hit a great ground stroke this way? Absolutely, it's a very useful stroke. Will it be as easy to attack and hit aggressively using the backspin of a slice? No, by nature a slice ground stroke is typically a neutral or defensive shot because the backspin put on the ball actually causes it to travel farther before bouncing as compared to a flatly hit shot. Topspin on the other hand causes the ball to come back down to the court again sooner than a flat shot, which makes it the most obvious choice when trying to hit the ball hard and still keep it in play.

Not only is swinging upwards on a topspin ground stroke necessary in order to avoid hitting the net, but causing the ball to actually rotate end over end towards your opponent's side is not possible without the racket moving vertically at the moment of contact. Please allow me to repeat that for emphasis. Topspin is not possible without an upward swing at the ball, the laws of physics simply can't be changed. To impart rotation of the ball towards our opponent the racket has to be moving skyward as the ball touches your strings. Period.

#### Flat Racket Face

This is the second technical necessity of creating topspin, and it's just as important as making a vertical swing at the ball. Without both factors working together in harmony a topspin swing will fail. As the ball meets the strings, with the racket traveling upwards, the racket face has to be somewhere close to perpendicular to the court surface. By close I'm talking about within a degree or two, definitely not ten. When the strings meet the ball perpendicular to the court surface they touch directly behind the ball, as opposed to the top or the bottom side of it. When this happens as the racket is moving upwards the result is spin imparted on the ball, rotating end over end towards the side of the court opposite you.

#### Grip and Racket Face

Having an appropriate grip of the racket can aid in keeping the racket face flat at contact a great deal. This is the reason why increasingly you see more and more extreme grips used by typically higher level tennis players, they've turned their grip under the racket more and more in an attempt to keep the racket face from opening at the point of contact. So what grip should you use? Well let's start from the beginning and work our way towards what I suggest most often.

The grip of your tennis racket has 8 individual sides, or bevels on it. Looking at the bottom of the racket you'll see an octagon. Hold your racket up on edge so that the face is perpendicular to the ground. The bevel facing straight up at the ceiling/sky is numbered bevel #1, the bevel one over to the right (clockwise) is numbered bevel #2 and so on and so forth all the way around the grip until we get to bevel #8. For a left handed player the

bevels increase in number traveling counter clockwise instead of clockwise, still beginning with bevel #1 up on the very top of the grip when holding the racket on edge. The way we tell what type of grip you have is by looking at what numbered bevel the "base" knuckle of your index finger is on. The base knuckle is the one all the way on the bottom of your finger connected directly to your hand, the lowest of the three knuckles on your index finger. Lastly, its important that as you grip the racket your hand should be comfortably spread out across the grip, so that your fingers fan out, creating an angle with your base knuckles across the grip.

When the base knuckle of your index finger is placed on bevel #2 and your hand is spread out across the grip, you have a continental grip. Turn your hand clockwise (counter clockwise for a lefty) so your knuckle goes to bevel #3, now you have an eastern forehand grip. Bevel #4 is a semi western forehand grip, and bevel #5 is a full western grip, with your base knuckle all the way down at the bottom of the grip.

A continental grip is essentially a neutral grip of the racket, if you open up your hand when in one you'll see your palm becomes parallel with the racket face. This makes the continental grip very versatile, it's very easy to maneuver the racket and hit the ball because it's just like actually using the palm (forehand) or back (backhand) of your hand to hit the ball. Turning the racket in your hand more towards the bottom of the grip does two things that make it easier to create topspin. First of all the more you turn your grip towards a full western, the more your racket face closes relative to a continental grip. This makes it easier to maintain a flat racket face at contact which is necessary to create topspin. Secondly the more you turn your grip towards full western, the more "below" the racket your hand becomes, which makes it that much easier to lift and swing the racket upwards as you hit the ball, the other necessity to creating topspin.

It is exceedingly important that you understand the relationship that these two factors share with each other, and exactly how each affects the path the ball. Below I'm going to describe a drill that I want you to spend some time doing on your own so that you can start to put the pieces of this puzzle together, not just cognitively but physically as well. This drill will teach you exactly how the above technical elements affect the path of the ball, so that as you start to learn topspin more effectively you can diagnose exactly what is occurring during your swing. Before we get to the drill there are just a few other important basics to understand.

### Top Spin Drill

To do this drill you'll need an empty tennis court, your tennis racket, and a bunch of tennis balls, the more tennis balls the better. Stand right in the middle of the service line, and turn yourself to the side perpendicular to the net, towards your dominant side. A right handed player will be facing the right sideline with his or her shoulders perpendicular to the service line. Now put the racket in your right hand with a semi-western grip, your base knuckle will be resting in the middle of bevel #4, with your hand spread across the grip. Once you have the right stance and grip, I want you to completely relax your whole dominant arm from the shoulder down and just let it and the racket drop down to your side. With your left hand take a tennis ball and bring it straight out in front of you at shoulder height. Before you drop the ball and attempt to swing at it we're going to make sure that we have two very important things in mind. First of all let me repeat that your entire dominant arm and shoulder need to start off completely loose, and stay that way through out the stroke we're about to attempt. Secondly, keep conscious the idea that the swing we're about to attempt is going to be 100% vertical, and nothing else. With those two ideas understood, lets move on to hitting some balls!

After dropping the ball from shoulder height straight out in front of you, you're going to take the racket which is completely dropped down by your side in your relaxed hand, pull it straight upwards at the ball and continue moving it vertically through the point of contact. I do not want you to try to hit the ball forwards at all, you're only allowed to swing upwards towards the sky or ceiling, and you're only allowed to swing with a completely relaxed arm. In reality the racket will be moved forwards towards the ball simply because it's starting down at your right side, and you're dropping the ball straight down on your left side, however the only conscious effort you're allowed to impart into the racket is vertical. As you make these vertical swings do not swing any faster than 50% effort with your arm and shoulder, we want to make sure that we can keep full control over what's going on.

Now that you've started to hit the ball I need to make sure that you're giving your undivided attention to exactly what the ball is doing after making contact with the racket. Assuming that your arm is completely relaxed, and you're moving your racket straight up at the ball from a fully dropped position, the ball is going to react in one of four main ways. In each of these possible results we're going to watch for variables in three categories: height of the ball, direction of rotation on the ball, speed of rotation on the ball.

#### Example #1

**Ball height:** The ball crosses over the net and continues to rise, reaching a peak height of 10 feet or more before floating back down again. The ball is traveling all the way to the baseline on the other side of the court, or even out.

**Direction of rotation:** The ball is turning in different directions from shot to shot. Sometimes sideways, sometimes forwards (top spin), sometimes backwards (slice).

**Speed of rotation:** Relatively slow and lazy, it's easy to pick out the seams on the tennis ball, and you can spot the writing on the ball as it comes and goes.

If your shots are traveling pretty close to what I'm describing in all three indicators above then your racket face is too open at contact, it's tilted slightly back to face the sky or ceiling. Continue to swing upwards with a relaxed arm, and close your racket face to face it more towards the ground at contact.

#### Example #2

**Ball height:** The ball goes directly into the bottom of the net, or even hits the court before it gets to the net.

**Direction of rotation:** The ball is rotating forwards towards the other side of the court.

**Speed of rotation:** The ball is rotating quickly, you're not able to make out clearly the seams or writing.

If you're certain that you did in fact start with your racket dropped completely down, and you made an upward swing from there and yet the ball traveled downwards, then we know for a fact that your racket face was too closed, it was facing down towards the ground at contact instead of perpendicular to the court. Adjust your racket face to be slightly more open than before.

#### Example #3

Ball height: As you swing upwards the ball makes a "clicking" noise on the strings, and hits the net a foot or less below the tape.

Direction of rotation: The ball is rotating forwards towards the other side of the court, you're hitting with topspin.

Speed of rotation: The ball is rotating very quickly, you're not able to clearly see the seams or writing on the ball.

In this example the racket face is adequately closed and you are making topspin, however we're not creating enough lift to clear the top of the net. Focus on dropping the racket lower and swinging at a steeper angle upwards towards the ball to transfer more momentum upwards as opposed to forwards. If after doing this you continue to make a lot of spin but the ball isn't getting off the ground enough to clear the net then your racket face is just a little bit too closed, open it very slightly and continue to swing upwards.

#### Example #4

Ball Height: The ball travels upwards off your strings and over the net, reaching a peak height of 5 or 6 feet off the ground.

Direction of rotation: Forwards towards the other side of the court, you're hitting with top spin.

Speed of rotation: The ball is rotating quickly, you're not able to pick out the seams or writing.

This is the one we want! The ball is clearly being hit in an upward direction, however after reaching its peak height of 5 or 6 feet it quickly curves back down into the court and should bounce up off the court more than a flat shot. When having the average player attempt this drill for the first time it usually only takes a minute or two making little corrections here and there before they hit their first ball along this type of path. How consistently they're able to do it after that varies from person to person, but this is an excellent way to quickly get the feel for what it's like to actually hit a top spin ground stroke. The controlled environment makes it easy to obtain quickly, and I've yet to teach anybody who hasn't been able to pick up on this at all and just not be able to obtain a shot with the characteristic described in example #4.

Your job is now to stay at the service line until you're able to hit a correct top spin forehand in the ways described above 10 to 15 times in a row. Yes, in a row! Actually keep count as you continue to hit, if you accidentally open up your face and pop the ball up or hit too straight and lose that nice curve in the ball start back at zero again. Stay focused, and keep very aware of what is happening with your body and also what is happening to the ball. Hitting 15 of these correctly in a row might take you half an hour, or it might take you two. whichever it is stick with it, it's absolutely vital that we get a good feel for this process.

Once you've mastered the feel of creating top spin with this abbreviated swing we can start making a more full one. Instead of starting with the racket dropped all the way down by your side begin turned to the side with your hand up about chest height and the tip of the racket pointing up towards the ceiling. Drop the ball from shoulder height just as before, and our goal is to create exactly the same ball path and direction of rotation. The difference is that now you're dropping your racket down to the bottom of your swing instead of placing

it there, and then taking that momentum and directing it straight up towards the ball. It's extremely important that we still remain very relaxed in your dominant arm as you allow the racket to just fall completely down to the bottom of the swing before making the upward swing towards the ball. I find that if I allow people to start in this position from the get go they do drop the racket, but only far enough to get barely below the height of the ball, which means that as they then swing towards the ball the path of the racket is much straighter, creating little spin if any. Hopefully you repeated the top spin swing starting from the bottom of the swing enough times that you can fall right into doing this correctly with a fuller swing.

Again continue to hit top spin forehands until you hit 15 in a row that closely resemble the description in example #4, this time starting with your racket in the raised position.

Now that we've completed the top spin drill and have a good feel for how to generate rotation towards the other side of the court at a relatively fast speed we're ready to move back to the baseline. Take your basket of tennis balls, move it back with you, and start hitting some top spin forehands in exactly the same way we did from the service line. Between the service line and the baseline is 18 feet of court, so with this extra space is between yourself and the other side of the court we'll have put a little more effort into the swing. As you do so focus on maintaining the same racket path and racket face to continue creating a ball that crosses the net by 3-5 feet and has a distinctive curved path. Time for new objective, your goal is now to hit 10 forehands in a row that cross the net by at least three feet, and curve back down into the other side of the court between the service line and baseline. Keep a sharp eye on the ball to make sure that you are in fact hitting the ball with top spin as you were on the service line. If you lose the feel fore it head back up to the service line and repeat the drill from there.

If you've completed everything above you're well on your way to being able to hit a heavy top spin forehand in your point play and practice.

### Acceleration

Once you understand the fundamentals of creating topspin and are able to produce good results in a controlled environment you can start practicing your topspin swing in an actual rally or point play situation. Please keep in mind that this will bring in to play all kinds of extra variables that you didn't have to worry about before making it very difficult to create the same direction or amount of spin. One of these variables is the natural spin on a tennis ball once it has left it's bounce on the court and is traveling up towards your racket. Upon contact with the court surface every tennis ball will "grip" the court, leaving it with spin imparted on the ball. This spin is rotating in the exact opposite direction that you want it to if you'd like to create a heavy topspin shot that curves back down into your opponents side of the court. This spin that the ball has after making contact with the court is something that doesn't have to be battled when dropping the ball to yourself in the topspin drill. So how do we combat this rotation of the ball? Acceleration!

Once your racket face is flat at contact with the ball and your racket path is vertical the next step is to accelerate the racket's path through the air. This is obviously much easier said than done as most players find it difficult to continue controlling everything that the racket is doing once the whole process gets sped up. Be patient and only add speed to your topspin swing a little bit at a time. Don't make the mistake of trying for 90% effort in your first attempts to rally your ground strokes after completing the topspin drill, you must learn to walk before you can run, as it were. I strongly suggest that in your first few minutes of rallying and attempting to hit with heavy topspin that you swing no faster than 50% of your



capacity to accelerate the racket. Keep your focus on staying relaxed, making a long upward swing towards the ball, and keep a close eye on exactly what type of results you're getting from shot to shot making adjustments accordingly. After doing the topspin drill described above you should know exactly what technical adjustments to make each time that a ground stroke doesn't result in the ball flight that you wanted.

Once you're able to make 8-10 ground strokes in a row at 50% speed bump it up to 60% and again spend some time at this pace until you can demonstrate good consistency in the results that you're achieving. Continue this process until you're able to hit four or five shots in a row at 80% capacity without shots flying all over the court in between. Quite honestly this should take you quite a bit of time, please don't become frustrated if the first day you head out and attempt to do this you don't even make it past the 50% capacity phase. It's possible that you have made some big changes to your technique and feel of your forehand or backhand which will take some time to get comfortable with and re-learn. I've heard it said that to program new muscle memory into your brain and make it automatic it takes 1,800 repetitions. That means 1,800 repetitions doing it the correct way! Be patient and be happy each time that you produce a good quality result, don't let it bother you when only half or less of your shots resemble a high quality topspin shot at first.

### Pronation and Supination

If you look around the internet for tennis instruction on a regular basis you've probably heard the word "pronate" or "pronation" several times. Usually this type of rotation is being talked about in reference to a good service motion, however it plays a very big role in hitting a high level forehand ground stroke as well. Without it topspin would be very difficult to achieve. Why? Simply put, it's because the rotation of your shoulder and forearm as you make a forehand or backhand ground stroke swing allows the longest and smoothest possible range of motion with your racket and body. When the arm isn't free to rotate as contact is made it inhibits the momentum of the racket both forwards and upwards, definitely something that will make it difficult for you to create much topspin, or power for that matter.

So what is pronating exactly? First, put your open hands out in front of your body so that they're both facing each other. From this position turn your forearms so that your palms face downwards, parallel to the ground. You've just pronated! Bring your hands back to the middle so that they're facing each other again and this time rotate your forearm so that they face up towards the ceiling. This is called supinating, the rotation of your forearms in the opposite direction of pronating. Pronating is essential to the creation of heavy topspin on your forehand side, and supinating is just as important when it comes to creating heavy spin on your backhand side.

Something that I've never heard or seen discussed before is how different parts of the body can actually cause the palm of your hand to rotate downwards towards the ground or court surface. While "pronation" and "supination" refer specifically to your forearm rotating one way or another you can also turn your palm upwards or downwards by rotating your shoulder. Go ahead and try it, face your palms towards each other then turn them down towards the ground without moving your forearms at all, you will notice that your elbows and shoulders will raise upwards and out to the side. This is a combination of internal rotation and elevation by your shoulder joints which have an extremely versatile range of motion. If you bring your palms back to face each other again and then rotate them up towards the ceiling without turning your forearms it won't be quite as easy or comfortable, but your shoulders do turn in that direction as well.

Pronation of the forearm, internal rotation of the shoulder, and elevation of the shoulder all aid in creating topspin on your forehand side. Why? Pronation helps keep your racket face square to the ball at contact. Put a racket in your hand using your normal forehand grip and hold it so that the face is perpendicular to the floor. Now pronate your forearm and see what happens. The frame stays in the same place but your racket face will close and turn down towards the floor. If you hold the racket in the same way and rotate your shoulder to close the racket face you'll notice that the racket will raise as your elbow and shoulder does. During a high level topspin forehand swing this rotation and lifting of the shoulder help to close the racket face but also to achieve an upward swing path towards the ball and a full range of motion during the follow through. The combination of pronation in your forearm and rotation/elevation of your shoulder results in a long, circular swing path which starts below the ball, makes contact moving upwards, continues moving upwards, and then finishes lower again over on your non dominant side.

### Forearm and Shoulder Working Together

It's very important that you learn how to use your forearm and shoulder together correctly to get the most out of your topspin ground strokes. I often times see people who understand pronation and have a very "over the top" type swing by twisting the racket face closed with their forearm, but do a very poor job actually getting the racket below the point of contact and lifting it upwards with their shoulder. This type of technique can result in a good shot, but never one that is going to curve very much to add margin for error, without the vertical swing path created by using the shoulder to rotate the racket upwards and around to their non dominant side their ground strokes will always be relatively flat and straight. The other downside to this type of technique is that the timing of the pronation with the forearm needs to be just right. Since there isn't a lot of topspin being made and the ball is traveling relatively straight if you pronate too early the ball will go directly into the net, too late and it will sail long. When used in conjuncture with the lifting and rotating of the shoulder pronation keeps the racket face very steady and consistent without big changes in the angle of the racket face.

The reverse of the above technique can also be a problem for players: lifting and rotating with the shoulder without pronating with the forearm. This isn't quite as common but I've definitely seen it many times before. Lifting the racket up and over to your opposite with just your shoulder is certainly possible, in fact you can still create a reasonable amount of topspin and drive this way, plus the racket face tends to stay very consistent since you're not "turning over" your forearm. The draw back here is that you will lose out on significant amounts of potential to create racket head speed and ultimately reach your full potential off the ground. Without ever allowing your forearm to rotate over freely and loosely you'll be essentially "arming" the ball, which again can create a certain amount of spin and speed on the ball, but not nearly the same amount as when coupled with the pronation of your forearm.

### Backhands

What about on a two handed backhand? This same process should be followed on the other side of your body with your non dominant hand. I usually recommend to my students that they begin with an eastern forehand grip with their left hand (if they're righty) and see how it feels, usually this grip works great.

What about a one handed backhand? A very similar process is now used but using very parts of the body to rotate and lift your racket. The forearm is now supinated instead of pronated, and your shoulder is externally rotated as you follow through and lift the racket

up past contact. In order to develop topspin with my students who have a one handed backhand I often times have them hold the racket with a true eastern backhand grip, their knuckles almost straight across the top bevel of their grip. From here I have them hold the racket out in front of them with a straight arm and make a "fist" with their hand as if they were punching the oncoming ball. The result is a solid position with the body and arm and a square racket face out on front of them. From here I have them pronate and supinate the racket back and forth while keeping their arm straight out in front of them. The result is a circle being traced in the air with the tip of their racket. This feeling of rotating the racket in a circle is what needs to be added to most rec player's one handed backhand swings in order to achieve topspin. As this rotation is taking place the racket should be taken through a low to high swing path with the shoulder while the body rotates forwards into contact. Essentially we're creating two circles here: one with the tip of the racket going around the axis of our arm (the supinating), one with the tip of the racket rotating around the axis of our body as we swing the racket from the right side of our body over to the left as the racket is lifted upwards.

### **Topspin Myths and Lies**

#### Hitting "Over The Top"

This is one of the biggest myths and misconceptions out there about hitting with topspin. Many players and even teachers think that topspin is achieved by turning the strings over the top of the ball as contact is made, causing it to rotate. This is just plain wrong. We just finished discussing why and how pronation of the forearm is important to hitting topspin on your forehand ground stroke, it allows you to keep the racket face closed enough to actually hit upwards at the ball enough to cause it to rotate end over end rather than float too far. Pronating does not, however, create topspin in and of itself. Proponents of this theory think that the racket turns around the back of the ball and over the top of it all while the ball is touching the strings in order to kind of massage the ball over and get it spinning back towards their target. The physics of this just don't work because the ball has come and gone off of the strings much, much faster than we could possibly twist the racket around the back of the ball.

Quick recap just to make sure that I'm clear on this. Please don't misunderstand me as saying that pronation isn't an important part of creating topspin, it is. However it's the combination of keeping the racket closed along with upward acceleration that actually causes the ball to spin.

#### Use of the Wrist

Another big pet peeve of mine: "To create topspin you've got to snap that wrist!". Do me a favor and pick up a racket in your hand with a forehand grip. Place it out to your dominant side and hold it as if you're making contact with a forehand ground stroke. Now I want you to move your wrist back and forth. Not your forearm, arm, or shoulder, just your wrist. Unless you have some crazy sideways joints in your wrist or a very extreme forehand grip you'll see your racket moving back and forth, not up and down.

A few points of clarification here. First of all it's important to mention that using your wrist correctly in general is important to your tennis technique, however the vast majority of the time I'm instructing students to simply keep it relaxed as they swing, nothing more. The wrist is one of the smallest and most fragile joints in your body, actively trying to "spin the ball" by "snapping" it over and over again is a sure way to introduce some pain into your game down the road, it's not meant to bear a large load of effort repeatedly, especially

when you're really trying to accelerate and hit a heavy shot. Do yourself a favor, just keep it loose and relaxed.

Secondly, if you keep your racket face perpendicular to the ground and rotate your grip from continental down to full western you'll notice that your hand faces up towards the ceiling more and more on its way there. From this perspective one could definitely argue that today's modern players absolutely snap their wrist up at the ball since they're using full western grips. However the reality is hardly any professional players actually use a full western grip, Roger Federer uses only an eastern grip for crying out loud, and he is able to make plenty of topspin on his forehand side. Go ahead and put your hand on the grip in an eastern forehand position (base knuckle on bevel #3) and move your wrist back and forth. Your racket will wag forward and backward, not up and down.

### Strings and Frames

I'll be honest, I'm not a gear head or equipment guru. I'm not going to get into complicated physics equations and experiment results. However I'm very sure of one thing: your technique creates spin, not your equipment. The direction your racket is traveling and the direction its strings are facing will determine the type and amount of spin imparted on the ball, not how much you paid for your frame and strings, or which type of moon rock was mined and infused into their genetic makeup. Is the "right" set up of frame and strings to maximize whatever technical ability you have to put spin on the ball? Yes, absolutely, you should definitely spend time on the court trying different gear selections to see which feels most comfortable to you and fits in best with your game. Will a high level player using the same swings make a little more spin with a top of the line textured poly string compared to some cheap synthetic gut? Yes, he or she probably will, but if you're reading this and looking for greater understanding and insight about your tennis game you're probably not a "high level player", which means the biggest way for you to improve your results on the court is through technique improvement, not spending more money for fancy strings.

I recently won a bet against a pretty athletic guy. He's played many sports his entire life including tennis, although I wouldn't call him a "tennis player", he only plays once in a while for fun. While working out together one day our discussion came around to what type of handicap would need to be put on me in order for us to have a competitive match. Both of us being extremely competitive people the conversation grew quite serious very quickly as we discussed a variety of different ways to make things difficult for me to use what tennis skills that I've developed. Using a racketball racket, broken strings, rollerblades, patch over one eye, and playing opposite handed were all discussed as options. Finally we settled on having me play with a frying pan dominant handed and the bet was placed, both of us quite confident that the other would lose. I'll be honest, it was a pretty close set of tennis, but I pulled it out 6-4 in the end. During our point play I used a variety of tactics including rushing the net, drop volleys, and drop shot lobbing my opponent (my favorite). I was able to impart both topspin and slice on the ball when needed. With a frying pan! Now, clearly I didn't make nearly as much spin as I would have with my normal equipment, but my point is that fancy strings and rackets don't actually produce spin, they can only enhance what abilities you already have. With correct technique you can create spin using a frying pan from Walmart priced at \$14.95, don't sweat the gear.

### Windshield Wiper Follow Through

This is a technique that professional players use often, and when done correctly can absolutely work as a way to create big topspin, however it has to be executed correctly. For those of you that are unaware of this type of follow through it essentially finishes the racket

down by your non dominant hip rather than up over the top of your shoulder. Rec players very often see this type of swing being used by a pro or other high level player and assume that finishing in that position will automatically create heavy topspin for them. When you copy this technique without doing the rest of the fundamentals that the pros do so well things don't work out as well as they should.

The mistake rec players make when copying this follow through is that they come over across their body immediately after making contact with the ball. The result is a swing path that is very abbreviated and short, very little extension with the arm and racket through the point of contact, instead the racket swishes around the back of the ball very quickly and heads immediately over to the left hip (for a righty forehand). The resulting shot often times does have a lot of curve to it as the quick circular racket path spins the ball, however players who use this kind of technique over and over again often struggle hitting the ball with any pace, especially when partnered with an extreme grip with their hand below the racket. Believe it or not the pros do follow through with the racket up to shoulder height or above across to their opposite side before then continuing the circular motion down towards their hip. It's not so much that the windshield wiper follow through is a completely different technique or follow through, but rather more so that it's simply a much faster acceleration of a more "classic" type follow through with the racket finishing lower to accommodate all of that racket head speed. If any top professional player tried to "catch the racket" up over their opposite shoulder after swinging at the ball at full speed at a heavy topspin ball the racket would certainly crash into the top of their opposite shoulder unless they physically decelerated the racket abruptly after contact had been made (obviously not a good idea). The result is the windshield wiper follow through, the extra follow through gives the racket someplace to go after an extremely aggressive topspin shot as been hit.

So when should you use this technique? Only after you have already become very competent with a more classic follow through. Honestly, none of my coaches ever actually taught me how to hit a windshield wiper follow through but I definitely make use of it often when hitting at full speed. Allow this technique to become part of your game as you start to get good enough at topspin to accelerate aggressively at the ball and still maintain control of your technique. Do not implement this into your forehand swing as a way to actually create topspin, rather start to use it after you've learn how to hit topspin well without it.

## **Maximize Your Topspin**

### Loose and Relaxed

I literally cannot emphasize this enough. If you really want to get all of the spin and power out of your ground strokes that you're capable of then being loose and relaxed is essential. The tighter your muscles get as you swing a tennis racket the more racket head speed is taken away resulting in less power and spin. This is rather counter intuitive for most people, after all you have to try super hard to swing the racket fast, right? Yes, a lot of physical effort is needed to swing the racket as fast as the pros do, however accelerating your body and being tense are two completely different things, practicing your acceleration while staying relaxed is something that you should do very often. The more relaxed your body is while you try to speed the racket up in your hand the easier it will be, I promise you.

Often times rec players feel "sloppy" and out of control when they first try to relax while making an aggressive topspin swing. After all it's a very natural reaction to "tighten" up after missing a shot in order to try and "control" what the racket is doing. This tightening up will hold back your improvement as a player, each and every time you do it the level of your resulting shot goes down, don't fall for this trap! I'm obviously not saying that you

should just continuing on missing over and over again, especially during a match, however if you're just trying to relax and loosen up for the first time on the practice court I honestly wouldn't be worried about where the ball is going at all. Just like when practicing any other technique change for the very first time you can't expect it to just work out perfectly right away, although with some people it may (the lucky ones!).

One thing to keep in mind as you try this for the first time and continue to practice it: I can honestly count on one hand the number of club players that I've ever seen be "too relaxed" as they swing at a ground stroke, and I've studied the technique of thousands of average level players. When you try relaxing and loosening up more on your ground strokes it may feel at first like you're getting way too sloppy with your swing, the reality is that you've probably just taken a step in the right direction, chances are you were much too tense before and this new feeling just hasn't become comfortable yet. Obviously if you give it a fair shot and 2 hours of relaxed hitting later you still have no idea where the ball is going then maybe you've overdone it a bit, but I would be very, very surprised if any of you reading this experience something like that.

### Long Racket Path

A natural result of being more relaxed during your ground stroke swings is a longer path with your racket from start to finish. This is a good thing! The longer of a path your racket travels along the greater your potential for spin and power, it gives you much greater ability to accelerate the racket head. It's worth noting that if you're really going to emphasize the length of your swing the best part to focus on is the follow through hands down. A huge, loopy back swing is absolutely not needed to create topspin or pace on your shots, however, a long follow through is if you want to do it as efficiently as possible.

It's very important to understand that to cause a tennis ball to travel through the air with "X" speed and "Y" amount of spin is much easier to do with a follow through that's twice as long. For some of you that's going to seem impossible, doesn't it take more effort to swing the racket for a longer period of time? No, it's not, the reason for this is that a short racket path typically has nothing to do with effort but rather the player inhibiting the natural momentum of the frame. Of course I'm talking about average level players here, if you're already a 5.5 player then you obviously already swing with plenty of length, otherwise shots at that level wouldn't be possible without terrible physical ailments. When you're relaxed and your racket travels freely across a long swing path the result is a tennis ball leaving your strings with more pace, more spin, and with less effort. It's a beautiful thing! Have you ever watched the pros and said to yourself "Wow, how do they make those shots look so easy!". It's they're solid technique and gift of athleticism put together. You won't see any tightness or tension there, everything is smooth and flowing.

If you happen to be a golfer you know exactly what I'm talking about here, picking out a high handicap player on the driving range is so incredibly easy if you have any eye for technique at all. They're always choppy and abrupt, it looks awkward and uncomfortable. The low handicap player hitting balls next to them doesn't seem to be trying at all and yet the ball just launches off their club face traveling twice as far as the "hacker". Don't be a hacker on the tennis courts. Relax and lengthen that swing.

### The Kinetic Chain

This is really important stuff to understand. The "kinetic chain" is the bio mechanical order of events that takes place when a good athlete executes any kind of throwing or hitting technique. Basically when you make a forehand swing every muscle group in your body

should be used and in a specific order to fully take advantage of your physical strength. When used out of order, or when certain muscle groups get used more than others the results aren't as good. The correct order of usage in the kinetic chain should essentially travel from the ground up through your body and out the tip of your racket. This begins with a push of the legs, then your hips start to rotate forwards towards the ball followed by your abs and the rest of your core. Next your shoulders should start to rotate forwards as the racket is dropping, then the upward swing begins by using your dominant shoulder, lastly your forearm pronates and your hand/wrist should release as you make contact and follow through. Watch a really slow motion forehand swing of a professional player and you'll see this transfer of energy moving up the body and out through the arm and racket, it's quite something to watch when you know what to look for.

Recreational players with poor swing technique don't follow the kinetic chain, in fact they often times don't even really have one, they only use one or two muscle groups and they're often times relatively small ones. When you watch an unathletic person attempt to hit a tennis ball for the first time they will use predominantly their forearm, hand, and wrist. Three parts of the body that are very weak relatively speaking and will never produce very much power or spin on their own. Not only will their results be poor but if they continue to use this technique over and over again injuries often result when these small parts of the body get overused and agitated.

Want to maximize your topspin by accelerating at the ball as athletically as possible? Focus on the big parts of your body first, make sure that they're being actively used as you make your swing. The smaller parts of your body like your shoulder, forearm and wrist should be relaxed and allowed to move freely. Usually when people try to do most of the accelerating with small body parts things get tight, tense, and rushed. This is a big reason why the pros look so relaxed, they're using the big parts of their body extremely well, which means that from the shoulder down they're able to just let loose and allow the racket to swing freely. Of course when they're really unloading on a shot they not only use the big parts of their body but the little ones as well, everything accelerates aggressively. If you're a pretty good athlete learning to play tennis then it's possible you're already doing a good job using your kinetic chain correctly, however accelerating quickly while maintaining good technique and a correct order of effort with your body is really tough, increase your speed a little bit at a time to make sure everything is being coordinated together well.

### Special Uses of Topspin

Once you begin to implement topspin into your tennis game so many different new types of shots will become available to you. I'd like to talk about a few of the main creative uses of topspin around the court. These shots aren't impossible without topspin, but the use of it accentuates and really makes these shots as effective as possible. Experiment with all of them, but only after you're pretty comfortable and consistent hitting a heavy topspin rally ball from the baseline. I'm a very strong believer in not having "too many irons in the fire". Please don't complicate things by trying to not only create topspin for the first time but also add it to five different types of topspin shots in various point scenarios. Once you're really confident that you've got the technique of topspin down, take one of the below applications at a time and give them a shot, see which ones come pretty naturally and which are obviously going to take an investment of time and repetition. Work on each of them accordingly until the use of topspin is available through out your game.

### Topspin Lob

What a beautiful shot this is when executed correctly. Don't be fooled, even though there's

a whole lot more acceleration going on during this swing as compared to a traditional flat or backspin lob a great deal of touch is still needed to hit this shot effectively. In order to execute the topspin lob effectively both main technical elements of a topspin ground stroke swing need to be modified slightly as compared to a typical "rally ball" with good pace and around two or three feet over the middle of the net. First off the racket face should be slightly, and I mean slightly, more open than the angle that you would typically use to hit a standard topspin drive. This is going to allow us to loft the ball up into the air to a desired height, obviously the more we open up the racket face the more loft will be achieved. Secondly, you're going to want to really exaggerate the upward swing of your racket, we really want the racket attacking the ball on a steep upward plane. This will give us both of the desirable results in a good topspin lob: height and lots of spin to bring the ball sharply back down into the court after it has traveled over your opponent.

"But Ian, we've already opened up the face a little bit more than usual, won't this along with the exaggerated upward swing path give us way more distance on the shot than we want?". Well, this is where the "great deal of touch" part of the swing comes into play. It depends on exactly how much height and exactly how much spin you're trying to get. Let's say for the sake of discussion that you want a max height of 20 feet on your topspin lob. If you want to really spin the heck out of this lob and have it dive back into the court aggressively then your racket face will only be a tiny bit more open than it normally is for a rally ball, the big difference will be in the angle and acceleration of your upward swing: both will have to be very aggressive. The result will be a 20 foot high lob with a very sharply dipping path, assuming that the angle and upward acceleration are just right. On the other hand, if you're really in a lot of trouble, your opponent is really close to the net, and you want to hit a lob with some topspin to bring it back into the court then this really aggressively spinning shot that I just described is not very practical. In this case you're going to want to open the racket face up more than before, and accelerate upwards a little bit less aggressively. The result will be a lob that's the same height and depth, but with a lot more "float" to it. It's not going to curve back down into the court nearly as quickly, however this shot is a lot more consistent.

As you can tell these different variables are limitless in application, and small changes in them can make a very big difference in exactly how the ball travels through the air, as well as how far it will ultimately go. I would suggest grabbing a hopper of balls, dropping them to yourself one at a time and experimenting with different amounts of acceleration along with different racket face angles. The results can be a lot of fun!

### Dipping to a Net Player's Feet

If you're a doubles player then this shot is especially for you, however singles players can certainly make use of it as well against a serve and vollier or net rusher. The goal behind this type of shot is to achieve around the same height of shot that you typically would for your rally ball, but to have the apex (highest point) of the arch be well on your own half of the court rather than over the net or even on your opponents side of the court. This means that as your shot crosses the net it has already started coming down towards the court and hopefully also towards the feet of your opponent who's at the net! Just like the topspin lob this shot can be hit many different ways depending on exactly what your requirements are. Against a player who doesn't close into the net very quickly you can get away with hitting upwards a little less aggressively and having the racket face a little bit more open, creating a dipping shot at a little bit slower pace. This can leave the ball hanging up into the air a little bit longer, but it's much easier to make than being super aggressive. When trying to really dip the ball sharply a more closed racket face and sharper, faster upward acceleration is needed which can be necessary against somebody who will recognize a slower, more



floating shot and immediately close in for the kill.

### Sharp Cross Court Angles

You can use your new found spin powers to create amazing angles as well! This shot can really be a lot of fun, especially when you've been pulled way out wide by your opponent and you're on the run. Of course this presents a shot that's very technically difficult, but definitely give it some practice on both sides to see how quickly it comes to you.