



EVERYTHING YOU EVER WANTED TO KNOW ABOUT SPIN (But were Afraid to Ask!)

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The biggest difference between a serious table tennis player and a basement player is spin. Serious players use spin on both their serves and rallying shots, both to control the ball and to force errors from their opponents. What we are going to do is go over the types, effects and purposes of the various spins, how to create spin, how to read spin, how to handle spin, and how spin actually makes a ball curve in flight.

The Types of Spin

How many basic types of spin are there in table tennis? The most common answer is four: topspin, backspin, and sidespin in both directions. For many players, this is an adequate answer. However, the more correct answer is seven, plus an infinite number of combinations.

The ball can rotate in three different axis that are perpendicular to each other, and the ball can rotate in two directions on each of these axis. Assume you've just hit a ball away from you, and are watching to see how it rotates.

- If the top of the ball is rotating away from you, it is topspin.
- If the bottom of the ball is rotating away from you, it is backspin.
- If the right side of the ball is rotating away from you, it is "right" sidespin.
- If the left side of the ball is rotating away from you, it is "left" sidespin.
- If the ball is spinning clockwise (relative to you), it is "right" corkscrewspin.
- If the ball is spinning counter-clockwise (relative to you), it is "left" corkscrewspin.
- If the ball is not rotating at all, it's no-spin!

No-spin is considered a spin on its own. In fact, if you listen to top players, you'll hear them refer to "heavy no-spin," which sounds rather contradictory! It's actually a no-spin serve that is faked to look like heavy spin (usually backspin).

Corkscrewspin is rarely seen except in serves by advanced players. It generally can only be produced with a high-toss serve. If you ever face this corkscrewspin, read over the difference between sidespin and corkscrewspin carefully. If you imagine the axis of rotation, it's easier to understand. For sidespin, the axis is up and down. For corkscrewspin, the axis points straight at and away from you. (For topspin/backspin, it is left to right.)

For the truly nerdy, there are really 27 specific combinations of spin, by taking every possible combination of backspin/topspin, sidespin and corkscrewspin, rotating in either direction. (Yes, there are even 8 spins that combine all three – you can do that!) We'll leave it as an exercise to list all 27. (Don't forget no-spin!)

Effects of Spin

All spins have three major effects: how they travel through the air, how they bounce on the table, and how they bounce off the opponent's racket. Here is a listing of each spin's major effects.

Topspin

In the air	Curves downward
Bounce on the table	A low, fast bounce
Rebound off opponent's racket	Jumps upward and fast

Backspin

In the air	Tends to float
Bounce on the table	Ball slows down
Rebound off opponent's racket	Shoots downward

Sidespin

In the air	Curves sideways
Bounce on the table	A slight sideways bounce, but not too much
Rebound off opponent's racket	Bounces sideways

Corkscrewspin

In the air	Slight sideways curve
Bounce on the table	Very sharp sideways bounce
Rebound off opponent's racket	Not too much effect off opponent's racket, unless opponent's racket is very open or very closed, in which case it bounces sideways

Purpose of Spin

Spin is used when serving or rallying either to control the ball or force an opponent into error. Let's examine the purposes of each type of spin.

Topspin

When serving, topspin is used primarily to force a high return or a return off the end. If an opponent doesn't make an adjustment (i.e. aim low), the topspin will force either a high return or a return that goes off the end. Often players use a very fast motion to fake a backspin serve, but actually serve topspin, fooling their opponent into an error.

In a rally, topspin makes the ball drop very fast, and so allows a player to hit the ball very hard and still have it drop down and hit the table. Not only does it allow a player to attack a very low ball, but it gives a larger margin for error on all rally shots, with the topspin pulling down balls that would otherwise go off the end. One way of thinking of it is as follows. If you hit a relatively low ball hard but without topspin, the ball might only have enough time to drop so as to hit the last foot of the table. With topspin, it might be able to drop and hit anywhere on the last three feet. This means your target is three times as large!

Just as when you serve, the topspin you put on the ball will make your opponent tend to return the ball either high or off the end. The loop drive, which has extreme topspin, is the most important rallying shot in table tennis. It forces an opponent into either a defensive return or a difficult counter-attack.

Backspin

When serving, backspin is used to try to force an opponent into returning the ball into the net. It is also effective in forcing a defensive return that you can attack. Often players fake either topspin, sidespin or no-spin when serving backspin, trying to trick the opponent into an error.

In a rally, backspin is a relatively defensive shot. Against an incoming backspin, a backspin return (a "push") is a way to jockey for position, and against many players, it is quite effective. However, it gives the opponent the opportunity to attack (especially with a loop drive), and so should not be overused.

There are also many defensive players who back off the table and return topspin attacks with backspin ("chop") returns. Again, this gives the opponent the opportunity to

attack, but some players do quite well this way, returning ball after ball with backspin until the opponent either misses or gives an easy ball to put away.

Sidespin

Sidespin is used primarily when serving. The purpose is to try to force an opponent into returning the ball off the side, or into returning the ball where you want him to. Also, since sidespin jumps off the paddle relatively quickly, it forces opponents into hitting many off the end as well as off the side. Often sidespin serves are disguised as backspin serves, and opponents push them back, and go off the side. Sidespin is also mixed with topspin when serving to force mistakes – opponents have to worry about going off the side and going off the end.

Sidespin is not used much during a rally except at the higher levels. Top players sidespin loop, sidespin lob and sidespin push. Beginning and intermediate players should learn to do these shots early on as well. That way, when they reach the higher levels, they'll be able to control these shots.

Corkscrewspin

Corkscrewspin is not too common in table tennis, and is usually only used by advanced players when serving. It is difficult to produce except with a high-toss serve (i.e. a serve where the ball is tossed 6-10 feet or more into the air). Sometimes, a player out of position will scoop a ball off the floor, and when the ball hits the table, it jumps sideways because of corkscrewspin. Lobs and counterloops also may have this type of spin.

When done on the serve, it can be very effective. When the ball hits the far side of the table, it jumps sideways, throwing an opponent off. Additionally, an opponent's instincts for returning corkscrewspin are often off. Suppose you serve with a corkscrewspin so that the ball is rotating clockwise as it travels away from you. If your opponent hits under the ball (a push), the ball will jump to your right. If your opponent hits toward the top of the ball (a drive), the ball will jump to your left. Imagine the rotation of the ball and which way it jumps on contact with an opponent's paddle, and you'll see.

No-spin

No-spin serves are extremely effective because it is relatively easy to fake spin, but put no spin on the ball. If you can convince your opponent to react to a spin that isn't there, you don't need to put spin on the ball.

Most often, players fake a backspin serve, but contact the ball near the handle (where the racket moves slowest) and just pat the ball over the net with a vigorous but non-spin producing serve. If you use a big wrist snap after contact, and a big follow-through, your opponent will probably think there is spin on the ball – when it's actually "heavy no-spin"!

In a rally, no-spin is also used to fool opponents into thinking there is spin on the ball. Most players open their rackets when returning a backspin push, so if you give them a no-spin push, they will pop the ball up. Similarly, you can fool players by using a no-spin loop.

Another good use of no-spin is with a fast serve. If your opponent thinks your fast serve has topspin, he closes his racket slightly. If the serve actually is no-spin, the ball goes into the net. What makes this effective is that the serve must be fast enough so that the opponent doesn't have time to react to the ball's spin (or non-spin).

A ball with spin will jump off the paddle with energy both from the ball's velocity and its spin. A no-spin ball has no spin, and so bounces out slower. This means that players often put no-spin balls in the net because the ball doesn't bounce out as fast as they expect. Similarly, players often put spin balls off the end by not taking the extra bounce from the spin into account.

Creating Spin

Spin is created at two times: when serving, or when rallying. The main difference is that when serving, you are in complete control of the ball – you can toss it up just the way you want to. In a rally, the ball comes at you in different ways that you have to react to.

To create a good spin, you need three things: racket speed, a grazing contact, and a grippy racket surface. (With a non-grippy surface, you can't put as much spin on the ball, but you can return an opponent's spin – but that's not quite the same as creating spin.)

It's important to be loose and relaxed if you want to create a good spin. If your muscles are tight, your muscles won't work together properly, and you'll get little spin. Imagine hitting something with a whip, and then with a rigid stick. Notice how the tip of the whip travels much faster than the tip of the stick? That's the difference between loose, relaxed muscles and stiff (stick-like) muscles.

Service Spin

There are an infinite number of service motions where you can put spin on the ball – but that's outside the context of this article. What we want to go over are the principles behind getting that spin when serving.

To get maximum spin, you should use a grippy inverted surface. A less grippy surface, such as pips-out, can create spin, but substantially less. To really spin that ball, you need a surface that really grips the ball.

You need the racket to really be moving at contact – you want to accelerate the racket through the ball. With whatever service motion you use, you need to start with the arm moving, and then snap the wrist as you contact the ball. Most of the racket speed comes from the wrist – perhaps 70% – so work on using as much wrist as you can.

Lastly, you need to just graze the ball at contact. The finer the contact, the more spin you will get. Top players with really spinny serves can be almost violent as they move their racket to the ball during the serve – yet, since they only graze the ball, the ball moves very slowly, often barely making it to the net. Nearly all of their energy is being used to create spin, not speed. It will take practice. Get a bucket of balls, and go practice!

A good way to practice getting spin on the serve is to serve onto the floor, away from the table. Try to put spin on the ball so the ball bounces sideways or backward on the floor. If you put a good backspin on the ball, it should bounce a few times away from you, come to a stop, then bounce or roll back at you! If you put a good sidespin, it should bounce sideways after a few bounces. Put some targets on the floor and try to spin the ball so it bounces around the targets. (Theoretically, a pure sidespin would not bounce sideways, because its axis of rotation is on the bottom of the ball, so there would be no sideways bounce. However, in bouncing on the table, the axis will move backward, creating a slight corkscrewspin and thus a sideways jump on the second bounce. Isn't that simple?)

Rallying Spin

During a rally, you normally will use mostly topspins and backspins, with an occasional no-spin or sidespin thrown in.

Most drives have some topspin, but when you want to really produce a heavy topspin, you have to loop the ball. To really get a good topspin, you need to use your entire body, like a tennis player. The technique for looping is outside the scope of this article, but the principles are the same as when serving – racket speed, grazing and a grippy surface. Also, see above about relaxed, loose muscles – be a whip, not a stick!

The nice thing about looping, and topspin in general, is that not only does the topspin give you a wider margin for error, but the topspin often sets you up to attack the next ball as well. Especially on the forehand side, players learn to loop or drive the ball over and over until they see an easy ball to put away, or the opponent misses.

Topspin is also used when lobbing. A high ball with a lot of topspin (and often sidespin) can be hard to smash. The topspin makes the ball take a fast bounce off the table, and the topspin will make it jump out when it hits your racket. At the higher levels, lobbing is one of the most spectacular shots, but it can be quite effective against many players.

Backspin is used during a rally when pushing or chopping. A push is a defensive or neutral backspin shot against an incoming backspin shot. Many players are very good at attacking pushes, so choose when to use this shot carefully. Many players overuse it, especially when returning serves – often trying to push even against a sidespin or topspin serve! (Which leads to disastrous return high in the air, off the end or off the side.) However, a good push can be pretty valuable. The key is to make sure it is an effective push. Learn to put a good backspin on the ball, keep the ball low, and push to a wide angle. You should also learn to push quick off the bounce (so the opponent has less time to react), and perhaps to push short by just touching the ball lightly (so that it bounces very short on the other side of the table, making it hard to attack). At the highest levels, most players often push short. But this is a tricky shot, so I'd recommend learning a good deep push first. If you are pushing deep, try to push very deep, so the ball goes within at least a foot of the endline.

Sidespin is used in rallies mostly by relatively advanced players. It can be used when pushing, blocking, looping or counterlooping. It is used basically to throw the opponent off and force a mistake. (Jan-Ove Waldner, probably the greatest player of all time, is a master at this – he is famous for sidespin blocks and sidespin pushes.) When looping, especially against a block or a topspin (especially when counterlooping), you should usually put some sidespin on the ball, normally so that the ball curves to the left (for righties). A stroke with about 15% sidespin is more natural than trying to loop with pure topspin. Advanced players can sidespin both ways.

Reading Spin

The single hardest thing to learn to do in table tennis is to learn to read spin, especially against a good serve. Because there are no simple, easy-to-follow methods, it takes a lot of practice and experience. However, many players play for years and never gain this experience because they don't understand the principles of reading spin. Although it is best to read spin from the racket's contact with the ball, you can't always do that perfectly. You should use a number of pieces of "evidence" to really read the spin. What follows are eight factors take into account when trying to read spin, especially when returning serve.

1) The grippiness of the racket surface the opponent is using.

Inverted racket surfaces usually give the most spin, but inverted surfaces run the range from extremely grippy surfaces that will create huge amounts of spin to very slick surfaces that will not (antispin). Pips-out surfaces will not create as much spin as a grippy inverted surface, but most shorter pips can create a moderate spin. Longer pips normally don't create too much spin. (Note the difference between creating spin and returning an opponent's spin – item 8) below.)

2) The amount of spin from the racket's contact with the ball.

The amount of spin is related directly to the racket's speed and grazing motion at contact (in addition to the grippiness of the racket surface). The faster the racket is moving at contact, and the more the racket grazes the ball, the more spin. You should be able to see the racket speed, but make sure you are watching the part of the racket that is actually contacting the ball. Many players use a fast racket motion, making it seem like there is a lot of spin, but contact the ball near the racket's hand, where the racket isn't moving as fast. The result is less spin, which is effective if the opponent thinks there is more spin on the ball.

You can tell how much the opponent has grazed the ball in several ways. First, see how fast the ball came off the racket. If the racket was moving very fast at contact, but the ball came out slowly, the energy had to go somewhere – it went into spin, via a grazing motion. Second, see how the racket approached the ball at contact – you can see if it was a grazing contact, if you watch closely. Third, the sound gives it away. A grazing motion is very quiet, with at most a high-pitched "hissing" sound. If there's a "thumping" sound, there is less spin.

3) The type of spin from the direction of contact with the ball.

The type of spin comes directly from the direction the racket is moving at contact with the ball. Often, this is easy to tell – just watch which direction the racket is moving at contact. It gets tricky, however, when the opponent uses a "semicircular" motion. This means the racket changes direction during the serving motion. Your mission is to try to see what direction the racket was moving at contact.

There are two ways of doing this. First, you can try to get a very short "video" of the contact in your mind, and from that, see what direction the racket was moving at contact. If you can learn to create this video in your mind, soon you'll be able to pick up the contact more consistently. Second, try to see which direction the ball comes off the racket. If it comes up slightly, it is topspin; if it comes off sideways, it is sidespin, etc. However, since the racket may be moving very fast, it is not always that easy to judge this.

In both cases, when you are learning how to read the type of spin, call out to yourself (in your mind or out loud, if your opponent puts up with it!) the type of spin on each serve, until it becomes second nature.

4) How the ball bounces on the table.

If you aren't sure of the spin from racket contact, you can pick it up from the way the ball bounces on both sides of the table. If the ball has topspin, it will take a low, fast bounce. If it has backspin, it will tend to die and bounce short. If it has sidespin or (especially) corkscrewspin, it will bounce sideways.

5) How the ball travels through the air.

You can read the ball's spin from its flight in the air. A topspin arcs through the air and drops rapidly. A backspin tends to float, with a flatter arc. A sidespin curves sideways. A corkscrewspin doesn't curve much in the air, but its sideways bounce off the table makes it appear to do so.

6) Seeing the ball spin (or not spin) itself.

You can read the spin (or non-spin) from the ball itself. Some players can read a no-spin ball by seeing the label. Many advanced players claim to be able to read directly off the ball, most likely from how blurred the ball's label is. This is not easy to do, and while some players claim they can do this, others claim it is impossible.

7) Amount and type of spin on previous similar serves/shots.

Even if you can't read the spin from any of the above indicators, you can read it from experience. If you misread a spin one time, the next time you see that motion – even if you can't really read it – you can guess it is the same spin. For example, if you think you see a backspin serve, but every time you return it, it pops up or goes off the end, you are probably misreading a topspin. When you see this “backspin” motion again, put aside your natural reflex, and treat it like a topspin. The major problem with this, of course, is that your opponent might vary the spin with a similar motion – and if you aren't really reading the spin, you'll have great trouble reading any changes. So use past indicators to make corrections to your reading of spin, but only in combination with the above indicators, or as a last resort.

8) In a rally, how much spin was already on the ball, and how much of it is being returned.

If you put spin on the ball, your opponent might simply return your spin back to you. This happens most often if your opponent has a less grippy surface, especially long pips. Surfaces such as long pips (but also short pips and antispin) can return your own spin back to you. For example, if you put a heavy topspin on the ball, a player with long pips can give you all of your spin right back at you without doing much. A player with a more grippy surface can also return your own spin, but to a much lesser degree.

Handling Spin

Handling spin is mostly an exercise in racket angles and stroke direction. For every spin, there is a racket angle that will compensate for it. There is also a stroke direction that will compensate for it. Choosing which to use is the question. In general, use an upward stroke and open racket to compensate for backspin, while using mostly racket angle to compensate for other spins. (Open racket means aim racket upward; closed racket means aim racket downward.)

Against a sidespin, the more aggressive you are, the less the spin will “take” on your racket, and so the less it will affect you. The softer your contact, the more the ball will jump – so tentative players often have more trouble with spin than aggressive players.

When learning to read spin on a serve, it's a good idea to wait on the ball, and take it as late as possible to give yourself more time to react. As you improve, you should start taking the ball quicker. However, even advanced players often take the ball later against a player with tricky serves.

Here is a rundown on how to return the various spins.

Topspin: Close your racket (i.e. aim the hitting surface downward). This will compensate for the tendency to hit the ball off the end or pop it up. Against a heavy topspin, you'll most likely use a simple block to return the shot. Take the ball quick off the bounce – otherwise, you'll have to contend with the ball's low, fast bounce.

Backspin. Open your racket (i.e. aim the hitting surface upward). This will compensate for the tendency to hit the ball into the net. If you are topspinning, stroke upward and lift the ball upward. This is the perfect time to loop with heavy topspin!

Sidespin. Aim the opposite way. A good rule to remember when returning sidespin serves is to aim in the direction the server's racket came from. If you return the sidespin somewhat aggressively with a topspin, you can treat the incoming sidespin almost like it were a topspin, ignoring the sidespin.

Corkscrewspin. Anticipate the sideways bounce on the table, and be in position for it. Don't get too caught up trying to learn how to handle this spin too much as it is usually only seen at the higher levels. However, it is interesting to note that if you push against a corkscrewspin (with an open racket, hitting toward the bottom of the ball), the ball will bounce sideways off the racket. If you topspin it back (with a closed racket, hitting toward the top of the ball), the ball will bounce off your racket in the opposite direction. Imagine the incoming spin and how it will “grab” your racket based on whether you hit toward the top or bottom of the ball, and you'll see this.

What Makes A Spinning Ball Curve In The Air?

Now we get into serious science, so those less science-minded, here's your cue to leave and go practice!

Imagine a ball with topspin. As it travels through the air, the forward movement of the top of the ball forces air forward (or more precisely, slows down the movement of air over the top of the ball). This causes air to be "clumped" together toward the front top of the ball, creating an area of high air density. Similarly, the backward movement of the bottom of the ball pulls air backward quickly, creating an area of low air density toward the front bottom of the ball. The high density air mass at the top of the ball forces the ball downward; the low density air mass at the bottom of the ball "vacuums" it downward. The result: the ball drops. That's what makes a ball with topspin drop. The same applies to all spins, but as the spin orientation changes, the movement of the ball changes. For example, a sidespin creates a high-air density area on one side of the ball, a low-air density on the other, which forces the ball to curve sideways.

Backspin doesn't really curve up, but that's because of gravity. The backspin is pulling the ball up; gravity is pulling it down. The result is a ball that tends to travel in a line at first (to float) before the backspin is finally overcome by gravity.

Conclusion

Spin is the biggest difference between "basement" stars and advanced players. Players may learn to rally better than others, but if they can't handle spin – or create their own – they're at a huge disadvantage. Learn to use and handle spin, and you'll quickly leave the basement players (and most tournament players) behind. Get Spinning!