

How To Buy The Right Hockey Stick

The hockey stick is an extension of the hockey players arm. This means the stick needs to fit properly. Follow these tips to buy the right hockey stick.

There are several types of materials used for shaft types. These include wood and other composite materials including fiberglass, aluminum, graphite, Kevlar, and titanium.

You'll also need to determine the correct blade angle, the stick lie, stick stiffness, and stick length.

The shaft type is a personal choice. Different materials have different advantages and disadvantages. Which you prefer is entirely up to you.

Wood sticks

are the traditional material for hockey sticks. They are easily sized with a few cuts or some sanding and they are very cheap. The disadvantage is that they break easily and they are considerably heavier than some of the new composite materials.

Fiberglass sticks

have a wooden core that is then reinforced with a fiberglass exterior. Because the inner core is wood they are still heavy and still break quite easily. They are however inexpensive.

Aluminum shafts

are relatively cheap and they are quite a bit stronger than wood or fiberglass, although not as strong as titanium or Kevlar. Compared to other composite materials they are considered heavy but they are much lighter than wood hockey sticks.

Kevlar

is sometimes mixed with graphite but it can also be used by itself. Kevlar is expensive but it is light and it is one of the strongest materials. You can also replace the blades.

Titanium

is used alone and it costs about the same as Kevlar. IT is lightweight and strong and you can also replace the blades.

The blade on the hockey stick is normally made of wood and attached to the shaft with glue. Some blades have a Kevlar finish on them. There are straight, left, and right curved blades available.

You should choose a blade angle that the puck will on the forehand during the shot. A curved blade lets you lift the puck and put a spin on it but it is more difficult to pass or shoot with.

For those just starting to play hockey, a straight blade or a blade with only a slight curve is best.

Each player also needs to determine the angle between the blade and the shaft that works best for them. This is called the lie. Each stick has a lie number printed on the shaft ranging from 4 to 8.

The lower the number the wider the angle, where as the higher the number the less the angle. A lower lie is recommended for players that skate close to the ice and that carry the puck out in front. Where as a higher lie is recommended for players that skate standing upright and that carry the puck close to their body.

Hockey Stick Lie – Get Your Angles Right For Better Puck Control

Hockey Stick Lie describes the angle of the blade in reference to the shaft.



A lie value of 5 corresponds to a 135° angle, and each additional increase lie value corresponds to a 2° smaller angle. Typical lie values range from 4 to 7 with most stock sticks near 5.5.

The Hockey Stick Lie Chart

Lie value	Angle between shaft and blade
4	137°
5	135°
5.5	134°
6	133°
7	131°

Players usually seek a lie that will put their blade flat on the ice while they are in their typical skating stance. With the bottom of the blade flat on the ice, a higher lie value causes the shaft to stand up straighter.

You also need to determine the correct shaft stiffness or shaft flex. The flex is very important to control and performance. 85 is a medium flex. The higher the number the stiffer the shaft is and the lower the number the more flexible it is.

Beginners should use a medium flex or lighter, where as big strong players should use a stiffer shaft. Defense men should also use a stiffer heavier stick, while forwards should use a flexible lighter stick.

The most common measurements for stick flex are:

- Youth = 40 flex
- Junior = 50 flex
- Mid or Intermediate flex = 60-75 flex
- Regular flex = 85 flex
- Stiff flex = 100 flex
- Extra stiff = 110 flex

Composite hockey stick flex versus wood hockey stick flex: Does a composite stick flex more than a wood stick? No. Remember the flex rating is in pounds. 85 pounds are 85 pounds regardless of what material they're applied to. Flex is the same regardless of what type materials are used to make a hockey stick. A wood stick with a flex of 100 has the same stiffness as a composite stick with a flex of 100. They both require 100 pounds of pressure to bend the hockey stick an inch

Testing a Stick's Flex at the Pro Shop

Use your normal hand position on the stick and hold the stick with the blade on the floor. Now flex the shaft of the stick by holding your top hand stationary and pushing down and forward with your lower hand. You should be able to flex the stick about an inch or so without using full effort. If you can't flex the stick this much then the flex of the stick is too high.

How Cutting a Stick's Length Affects its Flex

If you cut too much of the length off of a stick it will significantly increase the flex of the stick. Imagine bending a full length broom stick. Now if you cut that broom stick in half how much force is required to get it to bend the same as the full length stick? A whole lot more that is for sure. This is also what happens when a hockey stick is cut down a significant amount. How much is flex affected by cutting off 2 or 4 inches? Here is a chart that provides ROUGH guideline for how cutting your stick affects its flex.

	Approximate flex when cutting the stick...		
	Baseline Flex	2 inches	4 inches
Youth	40	48 flex	54 flex
Junior	50	58 flex	66 flex
Intermediate	65	72 flex	78 flex
Senior	85	95 flex	103 flex
Senior	100	106 flex	113 flex

NOTE: These are just rough values for illustration purpose.

Check here for a more complete [Hockey Stick Flex Chart](#)

Another thing to note is that *hockey sticks flex* in more than one direction. In addition to the shaft flex that we talked about above, there is also a flex that happens with the blade. The blade impact with the puck causes a rotational flex that can also accelerate your shots.

The last thing you need to determine is the length of the stick. It is critical that the stick size match the player's size. A stick that's the wrong size makes it difficult to play and impossible to play good. It's very rare to find a stick that's exactly the right size for you but if you buy it a little too long than you can cut it to the right length.

The stick, the next most important piece of equipment after the skates is subject to one major mistake by parents and kids. This is one instance where the youngsters fail in most cases to copy the pros. **The kids' sticks are too long.**

Years ago some well-meaning character came up with a formula for determining stick length: with skates on, stand the stick on its end in front of you and cut it off at chin level. The stick will be from two to four inches too long.

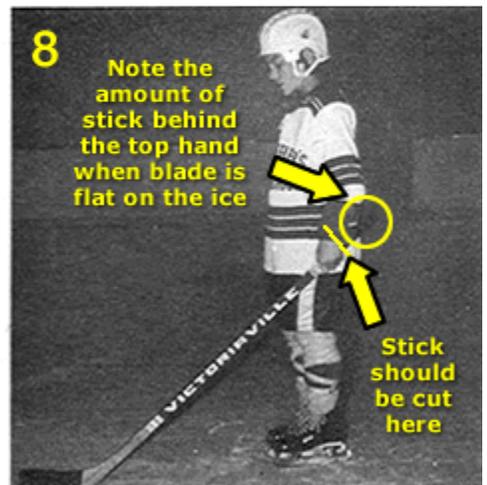
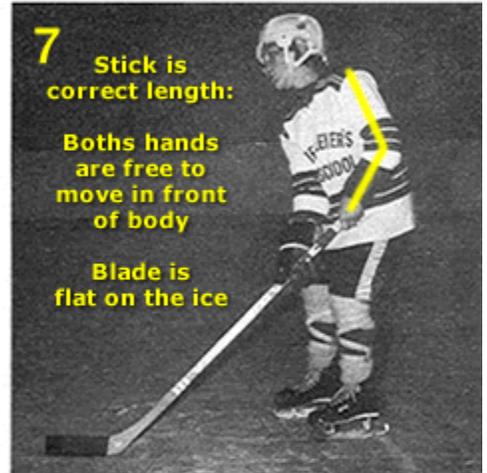
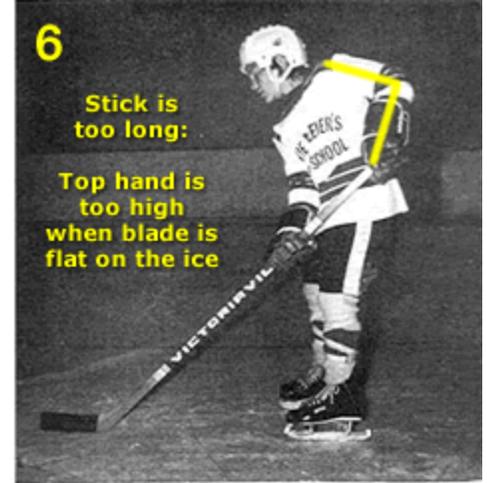
Next time you watch a professional hockey game from Montreal look out for players who, during the playing of the National Anthem, stand their sticks in front of them. See where the top of the stick is -- chest high not chin high. Some time during their careers they learned that the shorter stick is obviously better. Yet thousands of kids are starting out with the old nose or chin measurement. We sure don't make things easy for them, do we?

Here is what happens with a chin, mouth, or nose-measured stick, one that is several inches too long. Stand the player with his feet 18 inches apart on the ice. With their hands in the normal position (the top hand grasping the stick at the end) have them place the blade on the ice. In order for them to get the full length of the blade on the ice, it will be necessary to draw their top hand back against their hip. In extreme cases, their top hand could be six to nine inches behind the body and as high as the waist or lower chest area. (6)

Standing still, it will be almost impossible for them to shoot or receive the puck or stickhandle without moving that top hand out in front of the body. In order to carry out these functions, the top hand will have to be well in front of the body where it can be moved from side to side. As soon as the player does this, the toe, or front end of the blade, will lift several inches off the ice.

Of course the player can overcome this by sliding both hands about six inches down the shaft of the stick and drawing the blade in closer to their feet. But they're sure going to look funny spearing themselves with that six inches of butt end sticking out behind his top glove, every time they maneuver the stick in front of their stomach.

If you think they feel awkward standing still, try to visualize what happens when they start skating.



When a player starts to move, they must automatically crouch lower in order to utilize their hip and leg power. Naturally, the lower they go, the higher the toe of his stick lifts off the ice. Then, in order to bring the blade of their stick flush with the ice again they have to slide both hands even further down the shaft.

Thousands of hockey coaches must have seen the result -- a kid stickhandling down the ice with anywhere from two inches to five inches of the handle jutting out behind his top hand! The observant coach, or the rare one who really knows his hockey basics, should immediately realize that the player's stick is too long.

In (7) the player's stick is the correct length. With blade flat on the ice, both hands are free to pass in front of the body, the body is erect with eyes looking ahead, and the player can maintain the position without danger of getting a sore back.

Here (8) the player is standing, with top hand indicating where the stick should be cut off. Note the amount of stick behind the hand. It makes a hell of a weapon for spearing yourself!

The passing position shown here, (9), would be impossible if that extra piece of stick was spearing the player. The top hand would not be free to move in front of the body as it does here.

Here you see demonstrated the tangible difference. (10) One stick is chin length. That's the one that caused all the trouble in (6). The other stick, used in (7), (9), is chest high.

Next time you see an NHL game on television, take your eyes off the puck for a change and examine the man who is carrying the puck. In nearly all cases, when stickhandling, **both hands are in front of the body**. Then try the same thing yourself, or have a kid try it, with a stick that is measured to his chin or nose. See what I mean?

Regulations will not allow you to use a stick that is longer than 63 inches from the heel.

The correct stick can make the difference between you being an okay player and a hockey star. So be sure to follow these tips to make sure you buy the right hockey stick.

Hockey sticks: what's in a curve?

Alain Haché, Ph.D.
Université de Moncton, Canada

Because hockey sticks come in so many shapes, it can be hard to make sense of it all. One feature of particular importance is the blade – the only point of contact between the player and the puck. Players attach a lot of importance to the way it is curved. Looking at the Koho™ sticks in the figure below, you see that they each one carries a unique curvature pattern. There more to a curve than left- and right-bend indeed.

Figure 1: a few sticks by Koho™



The stick blade, a curved and twisted surface, is complex enough that it can't be precisely described in just a few words or numbers. Nonetheless, there are some key aspects that need to be considered, the first of which is the amount of curvature in the blade. The more U-shaped it is, the more pronounced the curve. Hockey leagues such as the NHL impose a limit on the amount of curvature:

*The curvature of the blade of the stick shall be restricted in such a way that the distance of a perpendicular line measured from a straight line drawn from any point at the heel to the end of the blade to the point of maximum curvature shall not exceed three-quarter of an inch ($\frac{3}{4}$ ").
NHL Rulebook 2007.*

If you can't picture this strange verbiage, the following drawing should help:

Figure 2: measurement of curve depth



The rule says that the red line should not be longer than $\frac{3}{4}$ of an inch, or 1.9 cm. Some people use the dime technique (not quite $\frac{3}{4}$ ", but close) whereby the coin shouldn't slip vertically underneath the blade when its lying against the floor, but nowadays NHL referees have fancier measuring gadgets to control illegal sticks. Note that the $\frac{3}{4}$ " figure is an increase from $\frac{1}{2}$ " as of 2006. We will discuss the implications of that rule change later.

A second key aspect is where the curve begins on the blade. A blade can be curved like a circle, smoothly and uniformly, but sometimes it is not. Take a look at the Reebok™ and Easton™ sticks in Figure 3: the "Yzerman" stick has a curve that begins in the middle of the blade whereas the "Amonte" one starts at the heel. These are called "center" and "heel" curves, respectively. A third one is called the "toe curve" and has a bend closer to the end of the blade. While the difference between center- and heel-curves is mostly a matter of preference (hockey players can be very picky), a toe-curve makes scooping the puck away from someone else a little easier.

Figure 3: sticks by Reebok™ and Easton™



Next there is the "loft" or "face" of the blade. The loft is the tilt angle of the blade; you can see it when holding the stick normally and looking from the above. A blade that tips backward is said to be more "open faced", very much like a 9 iron is compared to a 3 iron in golf. For example, notice in Figure 1 how the "Poti" blade has more loft than the "Jagr" blade. As in golf, the more tilt a hockey stick has, the easier it is to lift the puck up.

If blades have a heel they also have a toe. The toe is the very end of the blade, and it comes in two basic shapes: round and square, as see Figure 4 shows. The difference is that a square toe offers more blocking area and the round toe gives more puck control at the tip.

Figure 4: round and square toes



Finally, the “lie” is the angle the blade makes relative to the shaft. It’s a numbers between 4 and 8 printed in front of the shaft. With a proper lie, the bottom of the blade is flat against the ice when the player is holding the stick normally.

How does the curve affect shooting?

It is a common misconception that curved blades became popular because they produce faster shots. The truth is, the curve is mostly about puck control, not puck speed. A curved blade makes the following three actions easier to achieve:

1. Consistency: the curve effectively forms a pocket at the bottom of which the puck will tend to go. When the puck leaves the stick always at the same place, the player passes and shoots more consistently.
2. Control: it’s easier to scoop the puck and take it quickly around an opponent with a curved blade. Other tricks are also made easier, like grabbing the puck at the tip of the blade and shooting it upward all in one move.
3. Puck spin: it can hardly be seen by eye, but a curve permits more puck spin

Spinning imparts the puck more stability, like a football. In a “saucer pass”, spin is especially important because the puck must land flat on the ice. Although it is technically possible spin the puck with a straight blade, it can be done better and more consistently with a curved blade. Applying cloth tape to the blade also adds adhesion and helps the puck spin.

Figure 5: spinning the puck with a curved blade



Spinning the puck is also done by goalies, and indeed most of them use slightly curved sticks for that purpose.

What about the negatives aspects of a curve? What helps the forehand shot hurts the backhander, unfortunately. Some accuracy is lost in that respect, but considering the popularity of the curved stick in the NHL, it seems that the benefits win over the drawbacks.

The reason why the NHL sets a curvature limit is probably to avoid excessive puck control. Can you imagine blades shaped like half-circles? Just grab the puck and go! Some argue that straighter blades are safer because they tend to keep the shots low. Deeper curves means easier upward shots, but the loft is probably the more important factor, especially in a slapshot where puck control is limited to a very short impact time. When the league decided in 2006 to increase the limit from $\frac{1}{2}$ to $\frac{3}{4}$ " (at par with the International Ice Hockey Federation), some goalies and defensemen expressed concerns about flying pucks. Their concerns may be justified if the new rule allows for more loft than before. However, according to the rule statement, it is not clear whether the "point of maximum curvature" is taken anywhere on the blade, not just at the bottom. If so, the new rule will allow players to put more loft (or twist) on their stick, making high shots more likely.

What curve should you choose?

Now that we understand blade curve basics, how should you decide on your next purchase? If you're an experienced player you won't need advice, as you already know what works best for you. High-level players select their stick based on their position (defense or forward) and on what type of curve they are accustomed to. Beginners, on the other hand, don't need to go into the nitty-gritty and should select a curve that is neither flat nor overly bent. Buy what feels right, and as you get used to the stick, you might develop a preference for it. After all, an accurate pass, a hard slap shot and good puck control is above all a matter of practice and skills. But of course, don't forget to blame your stick for misfires.

Big thanks to the guys at [the physics of hockey](#) for this article. Check out their website for more cool hockey articles.

Steps To Buy Your Best Hockey Stick

- Find the right Size: Adult, Intermediate, Youth.

- Find the right Curve: Left, Right, Straight.
- Find a good Flex: Lean slightly on a stick to determine its flex for your strength.
- Choose a Blade: Size, shape, amount of curve.

Determine the Lie: Stand the way you'd position your body in a game based on your position and style. The blade should be flat on the ground. Lie will change when you crouch or straighten up, so go for your average stance. Hold your hand where the cut will be at the top of the shaft, because length will change Lie also.

How to Tape a Hockey Stick

Now that you have found a hockey stick that you really like, you will want to preserve its quality by taping it. Taping a hockey stick improves both your stick's longevity and your playing ability, if taped correctly. It is important to remember, though, that there are many correct ways to tape.

If you are wondering how to tape a hockey stick, you may be a beginner, or you may be looking for new tips. Either way, it's important for hockey players to try different methods in order to determine the best way to match their style of play.

A hockey stick needs tape around the blade and around the knob, or the grip, of the hockey stick shaft.

How to Tape a Hockey Stick Blade

When taping around the blade, start with a strip of tape at the bottom of the blade on the toe, and pull the tape down the length of the blade to the heel, keeping the tape centered on the blade edge. Neatly wrap the excess edges of the tape upward onto the edges of the blade.

Next, starting at the heel of the blade, wrap the tape vertically around the width of the blade. Begin to move the tape down toward the toe of the blade by diagonally wrapping the tape only slightly, overlapping the previous layer by 1/4 of an inch.

By wrapping the tape from heel to toe, small pockets of air are created which can help a player receive a pass, and can put spin on a shot, adding puck control. There are some arguments that taping from toe to heel will keep the tape neater, which is a matter of personal preference. Players may want to try using a hair dryer to securely seal the glue on the tape.

Black cloth tape is preferred by many players, especially on the blade, because the opponent cannot easily see when you have the puck. Also, ensure that the tape on the inside of the blade is perfectly flat to ensure proper puck control, and do your best to keep the back of the blade's tape flat as well.

How to Tape a Hockey Stick Grip

The way that hockey players tape their hockey stick grips often depends on their style of

play. A taped grip on the hockey stick improves stick control and diminishes wear on hockey gloves. It's important to remember that the more the more tape on a handle, the heavier the stick weighs.

One popular way to tape the grip is to wrap a folded piece of paper around the very top edge of the hockey stick handle, and secure it with cloth tape by wrapping the cloth tape around the handle five or six times. This helps to build a knob on the end for a better grip.

Then, without tearing the tape, pull out a strip that measures from your wrist to your elbow, and twist it into a rope shape. Wrap the newly formed rope around and down the handle of the stick, forming a diagonal grip. Without tearing the tape, begin wrapping the flat part of the tape back up the handle and over the rope, overlapping it slightly, until you have reached the knob of the stick. Once here, wrap it a couple more times to secure the tape.

Experiment with other ways to tape your stick by talking with friends, coaches, and other players. When you know how to tape a hockey stick, your game will improve dramatically.

Ice Hockey Stick Storage

As a side note, I'd like to add that it is not advisable to store ice hockey sticks in the garage or a car in the summer because of the heat. Keep sticks indoors when not in use. Basically, if you remain comfortable in an environment for hours at a time, so will your ice hockey sticks. Extreme heat can dry out wooden sticks rendering them less flexible and easier to break. Prolonged heat can cause composite sticks to become more brittle and even make blades come unglued. Composite stick blades that are different plies glued together can split and separate in heat.