



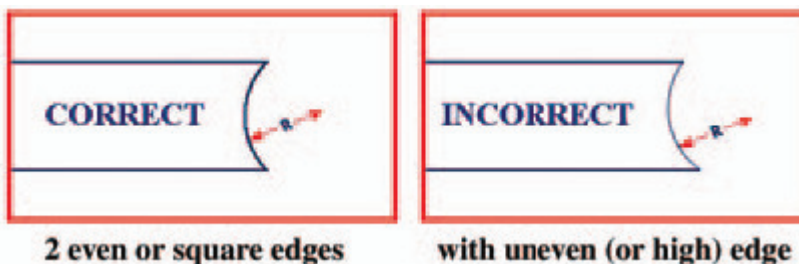
## The Cutting Edge to Skate Sharpening by Jim Johnson

Equipment is essential to the game of ice hockey and one of the most frequently overlooked components is that of the skate blade. At every level of the game it is imperative for players to appreciate the importance of having their blades sharpened correctly. It should be the goal of every hockey player to understand the elements of the skate blade and the value of having the blades sharpened correctly.

Having played in the National Hockey League for 13+ years and having coached at various levels from amateur to professional, I have a keen understanding of the advantages of having the skate blade properly sharpened. As a player and a coach I have taken an interest in “what makes the best skaters in hockey the best?” Not only have I realized the importance of a fundamentally sound skating stride but the underlying theme to success is often that of sharpening the skate blade correctly.

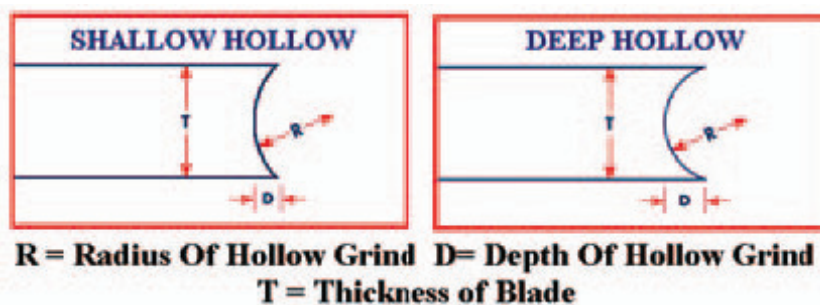
Let us understand the four critical elements of the blade in skate sharpening:

1. **Contour/radius of the blade** – This is the curve of the blade and it determines how much of the blade makes contact with the ice. More blade on the ice creates less maneuverability for quick turns; however players can generate more speed while having more blade on the ice.
2. **Apex** – The Apex is the center of the contour of the blade and if it is too far forward or too far back it will also effect the balance of the skater.
3. **Hollow/Radius of the Hollow** – This is the groove between the blades edges. This concave track has two outside edges and the space between the edges is called the hollow. A properly sharpened skate has two equal and even edges. The depth of the hollow will determine the amount of bite the blade will have with the contact of the ice.
4. **Levelness** – Both edges should line up perfectly even or square so that the player can have equally sharp edges with a flat hollow.



There definitely is a science and a skill to sharpening the skates, however by understanding the critical elements of the blade and realizing the importance of proper sharpening will provide the hockey player with an enormous advantage. I would like to address the problems that I most frequently see. The most common problem that I see in respect to the skate blade is that after sharpening 70-80% of skate blades are uneven. The unevenness in the blade forces the body to compensate in other areas and can ultimately compromise the health of the player. It definitely impacts the balance of the skater and the player's ability to hold their edges. Secondly, as a coach of young hockey players I frequently see the hollow of the skate is often too deep, thus creating more friction on the ice and impedes the younger player from learning some of the basic fundamentals such as how to stop because of their inability to slide on the ice. As players develop further and their skill levels rise it still is critical that the hollow not be too deep because it will deter the player from gliding on the ice as they will have too much friction. This friction will create fatigue, forcing the player to work harder to create speed and power against the ice. The whole idea is to get as much ice as possible contact the center part of the blade while still maintaining a good edge. The deeper the hollow, the more friction it will take to get the ice into that part of the blade – less hollow allows the player to be able to glide on the ice more efficiently. This allows the player to go longer, harder and faster. Hollows may vary depending on a player's role, position, size, style and skating skills. There are a range of hollows that are valuable for various types of players that enhance their performance and effectiveness.

- Deep Hollow ( $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{8}$  of an inch) allows for a more pronounced edge, which makes for tighter turns and more bite for stopping. The flipside is the deeper hollow makes the blade sink deeper into the ice causing more drag and less glide. Players with a deep hollow have to work harder because of the friction between ice and blade. The more pronounced edges of a deeper hollow may chip easier and require more maintenance. Players who maneuver in traffic or stop and start a lot may feel more secure with a little extra edge and may prefer a deeper hollow.
- Flat Hollow ( $\frac{3}{4}$ ,  $\frac{7}{8}$ , 1 inch) is more conducive to heavier players. The less-pronounced edge allows for more glide because the blade doesn't sink as deeply into the ice. Players using less hollow will use less energy. A flatter hollow was greatly beneficial to my teammate and defensive partner Paul Coffey. He had one of the most efficient skating strides in the NHL. Paul always experimented with a very flat hollow, between 1 and 2 inches. The flatter hollow blades are easier to sharpen and need less maintenance. There certainly is a general misconception that sharp skates can only be achieved with a deep hollow. In the NHL, a player's skate hollow is a personal preference based on trial and error and determined after many years of skating.



Presently I am the Head Coach of the PF CHANG'S U16AAA team in Phoenix, Arizona. Gradually I have altered each of my player's blades to fit their style of play. Understandably, players are reluctant to change the hollow on their blade, yet I encourage each of them to allow me to personally sharpen their

skates and let the player determine by “feel” how flat or hollow we can take their blades. Over the years I have witnessed many skates at 3/8 – 1/2 inch hollow that were not level and by sharpening them at 3/4 to 1 inch the players very rarely even recognize it. I share this because by flattening out the hollow the skating efficiency and speed is increased dramatically. Skate blades can be very individualized based on personal preference. (I realize that you might encounter some objections to the different hollow at various skate sharpening services due to the amount of detail and precision it will require.) I was very fortunate to have great equipment personnel in the National Hockey League (Steve Latin-Pittsburgh, David Smith-Minnesota/Dallas, Doug Shearer-Washington and Stan Wilson-Phoenix) that took an interest in teaching me the finer points of the “blade” on a hockey skate. If you look at the teams in the NHL that have had a history of success you can usually look to the equipment manager (the guy behind the scenes) who has had a lot to do with that success!

Below is a list of my team’s hollow:

PF CHANG’S Player Hollow

3/8 inch	0 players
1/2 inch	0 players
5/8 inch	2 players
3/4 inch	5 players
7/8 inch	5 players
1 inch	3 players
1 1/8 inch	2 players
1 1/4 inch	1 player

I personally was skating in the NHL with a 1 5/16 hollow and still skate today on that flat of a hollow. There is one disadvantage to the flatter hollow and that is the player may have to sharpen their skates a little bit more because even if they get a small nick in the middle of the blade it might need to be resharpened....a small price to pay for the ability to perform at a high level. Again the advantages of having the hollow as flat as possible with the proper levelness are clear to those of us concerned with the important skill of skating.

All of these factors mentioned will enhance the player’s effectiveness and performance on the ice. The key is finding the best skate sharpening formula for each player. There definitely is a science and skill to sharpening skates. You can have the fittest athlete with the best skills and hockey sense, however, if you put them on the ice with a pair of blades that do not have the capability to interact with the ice properly they will not be able to perform to their full potential.

Again, a hockey player clearly can give themselves an edge in the game by understanding the skate blade and addressing their skate sharpening consistently.

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