

Sharpening Your Speed Skates

Ken Hart

Speedskate sharpening is something that all skaters have to eventually learn to do on their own. Sharpening is both an art and a science. And it is best learned by instruction from a coach or other very experienced skater.

This page is to give you an idea of the sharpening process and is by no means a replacement for a coaches' instruction on proper sharpening.

As a beginner, you probably do not need to own a sharpening jig, but you will need access to one. Our skating club has a jig for use by our members. If you have need, you can sign it out.

Sharp skates truly do make a difference in your skating, so please keep them sharp.



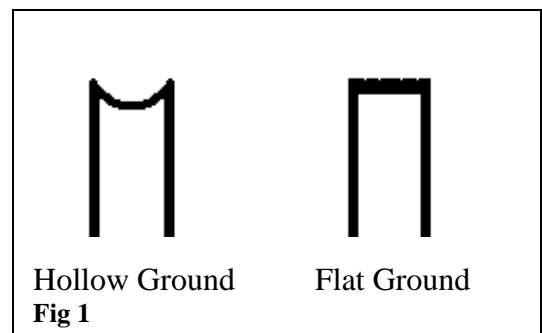
Speedskate blades should be sharpened every 2-6 hours of use, depending on how abusive you are to your skates. Once skates get really dull, they can take a long time to sharpen. It only takes five minutes to sharpen skates that are slightly dull. It may take over an hour to sharpen dull or incorrectly sharpened skates.

Speedskates are sharpened differently than hockey or figure skates. They are “flat ground” (Fig 1.) and hand sharpened in a sharpening jig, and cannot be sharpened by your local ice rink pro-shop. Figure and hockey skates are hollow ground, using an electric grinder at your local ice rink pro-shop.

Equipment Required for Sharpening

- Sharpening Jig, used to hold the speed skates. \$125 - \$250
- Sharpening Stone, 11.5" by 2" is the best size. \$ 30 - \$ 90
- Burr stone, carbide, or razor blade, to remove burr \$ 5 - \$20
- Container of light honing oil \$ 5
- Soft rags, for cleanup of blades and stones

- Extra items for use at home:
 - Newspapers or Floor Mat to set jig on.
 - Solvent to clean stones.
 - Straight edge or Radius guide
(To check for flat spots and hollows.)



Choosing a Sharpening Jig

The most important thing for a jig is that the skate blades are held in an identical position, every time you use it. The blades need to be parallel to each other, and even with each other. To do this, a jig should be rigid, and not flexible. It should have a way to ensure the blades are level (up-stops) with each other and even (end-stops) with each other.

Some models of jig will have adjusting screws for “fine tuning” the position of the blades in the jig. Once the jig has been assembled and confirmed to be correct, these screws should never move. Use loctite or a locknut to ensure that these adjusting screws do not move once they are correctly aligned, and check them often to make sure they have not moved.

Some jigs have the ability to fold, or collapse. Although this sounds like a handy feature, it is not. Every time you break down, then re-assemble your jig you end up with a new alignment of the jig that most likely is not the same as the old position. If you decide to disassemble your jig, **MARK ALL THE PIECES** so that the jig can be re-assembled in the same manner as when it was taken apart. Mark the front, back, top, left, right, etc... of each piece, so that you know that it has been reassembled correctly. Some skaters ‘pin’ the pieces to ensure they assemble the same way every time.

Every time you change the position of the jig, you need to “sharpen to the jig”, before you can actually sharpen the skates. Even minor adjustments in the alignment of a jig will affect its ability to “reproduce” the same cut on the blades. This means that some sharpening will be required merely because the jig has been “adjusted” or “re-assembled”. This problem also exists if your skates are sharpened on a different jig.

Some beginner jigs to consider, include:

Maple Gold Sharpening Jig \$150
<http://www.Specialequipment.com>

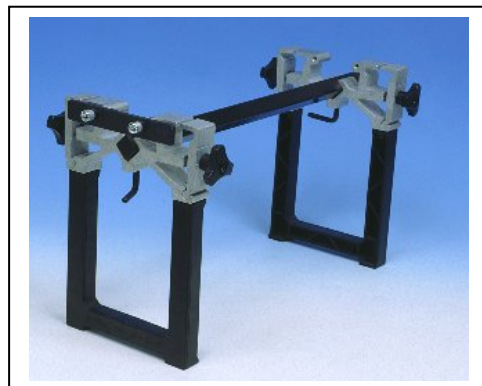
A well-designed jig, with up-stops and end-stops, portable. Suitable for long or short track skates. It is very popular.

Note, the difference between this, and the Maple Silver jig (\$120), is that the silver does not come with “up-stops”, but the Gold model does. This is an important consideration for blade alignment.



Pennington Titan Sharpening Jig \$120
<http://www.Specialequipment.com>

Simple jig with end-stops, but no up-stops.



Sharpening Stones

Measuring the coarseness of your stone.

Stones are measured in grit, just like sandpaper. A 100 grit stone is supposed to be made up of grits that are 1/100th of an inch in diameter. As the stone cuts, it makes gouges in the blade that are the same size as the grit. A 100 grit stone remove a lot of metal, but leaves a rough finish behind. 200 grit is considered a medium stone, and 400 grit is considered fine. Very fine is 600-800 grit, and is considered to be a polishing stone.

Sharpening stones are made out of 4 different materials.

1) Diamond stones are the hardest, and cut the fastest. Of course this also makes them the most expensive, around \$100. These are lubricated with water, and not oil. They are available in a variety of coarsenesses, varying from coarse to very fine.

2) Crystolon Stones are the next hardest stones. For bi-metal blades, you should use a crystolon or harder stone. These are more economical, in the \$30 - \$50 price range. These are lubricated with oil. They are available in a variety of coarsenesses, varying from coarse to very fine.

3) India Stones are the next hardest stones, and are considered to be the “standard” stone. They will work on bi-metal blades, but will take 3-4 times longer to get an edge. These sell in the \$25 - \$40 range. These are lubricated with oil. They are available in a variety of coarsenesses, varying from coarse to very fine.

4) Soap Stones, also called polishing stones, or Arkansas stones, are used only for polishing the blade, after the other stones have been used. These sell in the \$30 - \$60 price range. Since they are only used for polishing, they are available in a variety of coarsenesses, varying from fine (800 grit) to very-very fine (1200 grit). Most polishing stones use water as their lubricant.

Stones come in different widths.

If you buy your stones from a speedskating shop, they will probably only carry 11 ½ - 12” stones.

If you go to a hardware store or lumberyard, you may find stones that are 6”, 8”, and 10” in size as well. Always get the larger 12” stone. At a hardware store, these stones are often called “bench stones”. Since your blades are held about 5” apart in the jig, a 6” stone really only has about a 1” “working area”, while a 12” stone will have about a 7” working area, this increase in working area size speeds the sharpening process, as well as increases the life of the stone.

Some stones to consider:

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| Sharpening Stones | \$43 | http://www.Specialequipment.com |
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IC11 Norton Combination stone,
Medium Crystolon on one side and India Fine on other. Great combination stone for hard bi metal blades. Has a silicon carbide "Crystolon" side for fast cutting on hard blades and fine "India" side for great finishing.

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| IM9 Norton | \$30 | |
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This is the finishing part of the stone from above. An India stone in 400 grit.

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| DMT D11 Dia-Sharp Diamond Stone | \$65 | http://www.sharpeningsupplies.com/11-12-Dia-Sharp-Diamond-Stone-P205C3.aspx |
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DMT Diamond stones



Norton Crystalon Combination stones

Lubricating Your Stones

There are 2 basic lubricants, oil and water. Which one you use will depend on the type of stone you are using. As mentioned above in the stone area, most stones use oil as their lubricant, although diamond stones and some polishing stones will use water. I have seen skaters use all sorts of oil on their stones, olive oil, baby oil, motor oil, and of course, honing oil. Personally I only use honing oil. There is no reason to use the others, and honing oil is easy enough to find. Zandstra makes a stone that requires no oil, but I have not seen anyone use them, so I would be skeptical of it at this time.

The one oil you DO NOT want to use is WD-40. Initially, it sounds like a good idea, spraying a light film of oil onto the stone. Yes, it does work, but it will radically shorten the life of your stone. Most modern stones are artificial, being made the same way you would make a brick, or some other ceramics. Because of this, they are actually porous (Think of ceramics, without any glaze on them). The pressure from the WD-40 will force the dirty oil into the stone, clogging its pores. If you use WD-40 expect your stone to only last one to two seasons. Compare that to the stone I use, which is about 15 years old, and gets LOTS of use.

To prevent a traditional stone from absorbing the dirty oil, and clogging its pores, it should be soaked in clean oil before its first use. Put the stone into a plastic container, and pour/brush oil onto the stone. You will be able to see the stone soak up the oil. Repeat this several times. Eventually the stone will slow its absorption of oil. When this happens, turn the stone over, and soak the other side. You may need to do this several times.

When the stone is finally saturated in oil, it is ready to be used. When not in use, this stone needs to be kept wrapped in plastic, so that it does not seep oil onto rags or your sharpening area.

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| Sharpening oil | \$6 | http://www.Specialequipment.com |
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Any honing, or sharpening oil will do. Try the hunting department of a sporting goods store, in the knife department.

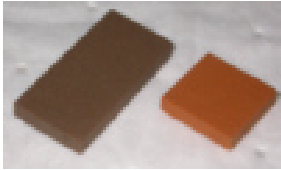
Tools For Removing the Burr From Your Blades

After the sharpening stone from above is used to create a flat, smooth bottom to the blade, the extra metal left over from the sharpening is pushed to edge of the blade, creating a burr, which will need to be removed.

There are three options for removing the burr:

1) burr stones, 2) carbides, and 3) razor blades. Each of these three choices have pros and cons in different situations.

1) Burr Stones are small sharpening stones. They are usually around 1 inch tall, 1 to 3 inches wide, and about ¼ of an inch thick. They are available in the same materials as full size stones: diamond, Crystalon, India, Arkansas, and soap stones. These stones are what most beginners learn to de-burr with. However, they are also the most temperamental. These are the most likely to mess up your edge while de-burring.



Burrstones, even when used properly can still leave a rolled burr behind (Fig 19). They can also remove an existing edge in a moment of inattentiveness (Fig. 20). The best use for burrstones is for cleaning up the sides of your blades, things such as nicks, the start of rust, or for flattening the irregularities of an inexpensive blade (Figs 15 - 16).

2) Carbides are small pieces of very hard metal that are used in machine shops to cut metal. Carbides are handy for a quick “touch up” on the ice. They work well, but require some caution, and if used improperly, can gouge or nick your edge. The “burrmaster” is a nice gadget that holds a carbide in a manner to prevent it from gouging your edge.

Burrmaster

\$20

<http://www.Specialequipment.com>



A nice little gadget that holds a carbide, for deburring skate blades.

A nice alternative to a paint scraper that you can carry in your pocket at the rink.

3) Razor blades. This is my personal preference. It removes the burr by cutting it off, instead of “pushing it around”. As long as the razor is held flat against the blade, it will not nick the edges. A painter’s razor that uses single edge blades works best.

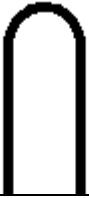
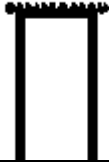
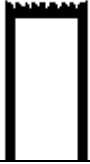
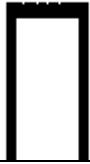
New Blades

When you order a set of new blades, the factory ships them to the vendor. These blades arrive in a dull state, as they have not yet had an edge put on them (Fig 2). These new blades also do not yet have a rock (also called a Radius). Depending on where you buy your blades, they may, or may not get radiused. Always ask your vendor. Some will radius for free. Some will radius for a fee, and some vendors do not radius at all. Most vendors do not sharpen new blades.

Normally blades will arrive from a vendor straight from the radius machine (Fig 3) and sometimes de-burred (Fig 4). The radius machine has a “bench grinder” type stone that puts the radius on the blade. These stones are usually 100 – 200 grit. This puts a course finish on the blade, instead of the fine finish that you would prefer. Because of this, you usually need to sharpen new blades (Fig 5).

Sharpening new blades does several things for you:

- 1) It polishes the blade, removing the coarseness left behind from the rocking machine.
- 2) It removes the burr left behind from the radius machine.
- 3) It sharpens the blades in “your jig”, making it consistent with future sharpenings in your jig.

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|  |  |  |  |
| New Blade From Factory Fig. 2 | New Blade after Radius Fig. 3 | New Blade after Radius and De-burr Fig. 4 | Blade after Radius, Sharp- en, & De-burr Fig. 5 |

Sharpening Technique

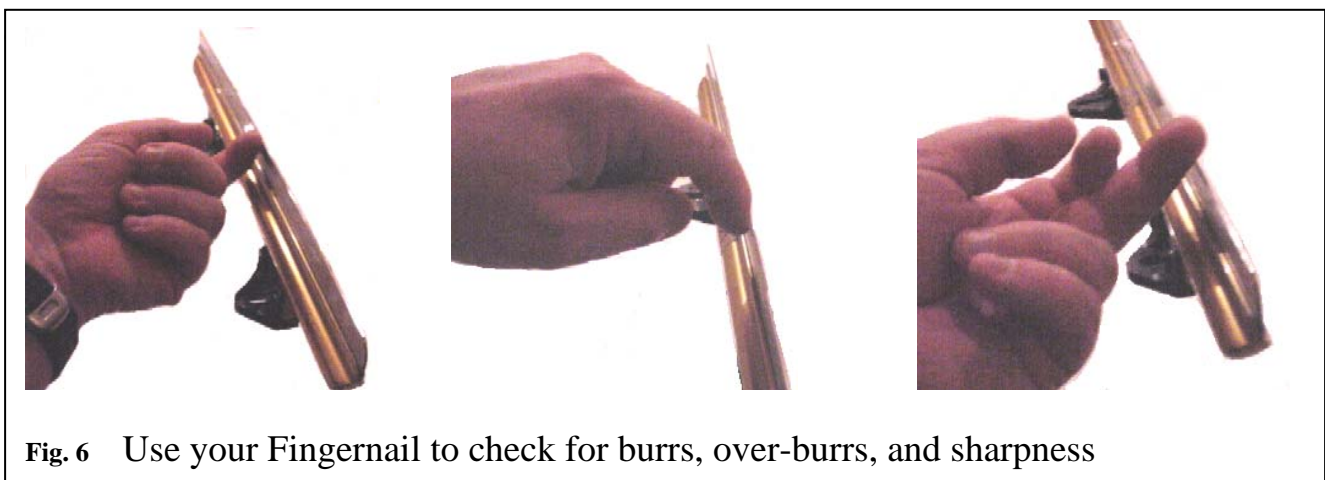
If you get ten “old-time skaters” together, they will give you ten different methods for sharpening your skates. The technique described here may be different than the technique you hear from someone else. As with most things, you need to listen, determine the pros and cons of each technique, and then come up with a technique that works for you.

How to Tell If Your Skates Need Sharpening

There is a certain knack to “feeling” your blades, to see if they are dull (or sharp). Most people’s fingertips are not sensitive enough to feel the fine edge on your blades. Plus, if the blade is sharp, you stand a chance of slicing your finger, and drawing blood.

To check for burrs and over-burrs (An over-burr (top-burr) (Fig. 18) is a second burr that can be created by using a burrstone to remove the burr that was created by the big stone), slide your fingernail along the side of the blade, moving toward the “edge in question” (Fig. 6). If there is a burr, your fingernail will “snag” as it gets to the edge of the blade. If there is no burr, your fingernail will “slide” across the edge without any resistance from the “snag”. Repeat this process several times down the edge of the blade, looking for burrs.

To check for sharpness of the edge, we slide the fingernail across the edge of the blade. Start with the center of the nail on the edge of the blade, then moving your nail towards the base of the blade. If the blade is sharp, a small bit of fingernail shaving will be left behind on the edge of the blade. If the blade is dull, no shavings will be left behind. Repeat this process several times along the length of the blade,

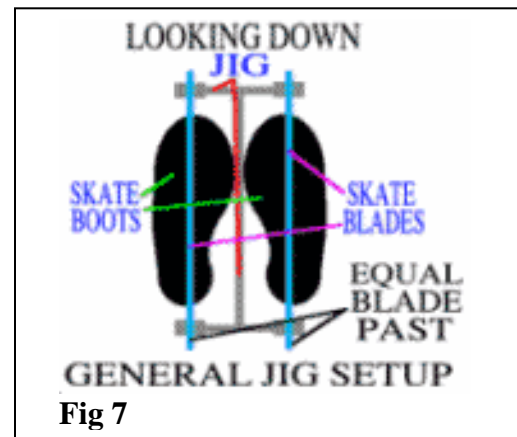


Sharpening Your Skates:

1. Check your blades for any existing burrs. If there are any burrs, remove them before starting the sharpening process.

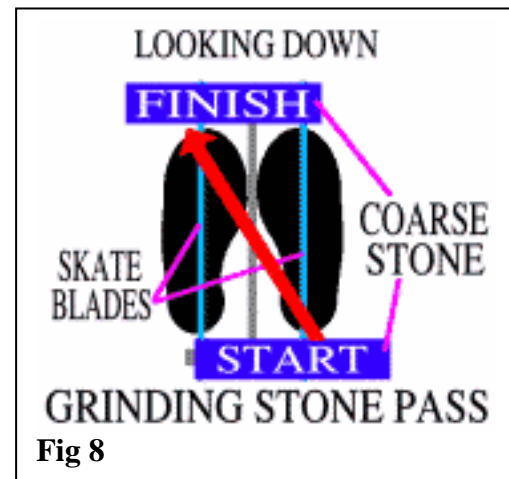
2. Put down some newspapers to catch any potential oil drippings and blade dust. If your jig is disassembled, assemble it, making sure to do this the same way every time, ensuring that 1 piece is always the front, and the other piece is always the back. Position your jig on top of the papers. Put your skates in the sharpening jig.

NOTE: There are a wide variety of jigs and this procedure will vary slightly for each type of jig.



One end of your jig should always be the front. Place the skates in the jig the same way every time you sharpen: instep-to-instep, with the toes of both boots towards the front of the jig. The boots must hang freely in the jig frame. The toes and heels of the boots should not touch the jig. If you have up-stops and/or end-stops, attach them to the jig now. The heel (or toe) of each blade must project the same distance from the frame of the jig. Pull one blade up against the up-stops, then against the end-stop, and then clamp the jaws of the jig onto the blade. Repeat for the other blade. The blades should now be even and parallel in the jig. (Fig 7) Make sure the jaws are tight against the blades and that the blades are even and parallel, then remove the stops (If you have removable stops, and have put them on above).

3. Making sure that your stone is clean; put a light, even coat of honing oil on the coarse side of the stone. Begin to sharpen the blades, use light even pressure on the stone for the full length of the sharpening motion. Do not press on the stone. The only pressure on the blades should be the weight of the stone itself. The sharpening motion should be long, diagonal strokes from one end of blade to other end. Starting with the large stone on both blades, as far to the right as possible, push the stone forward, and to the left, so that when it reaches the far end of the blades, it is at the opposite end of the stone (Fig 8). Pull the stone back, and to the right, returning to your original position. Keep the stone perpendicular to the blades as you slide it forward and back. At the end of 20 strokes that went forward and to the left, and then returned, move the stone to the rear left corner, and repeat, this time pushing forward to the right and grind another 20 strokes.

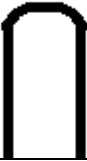






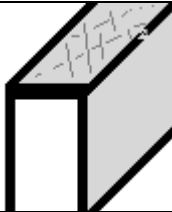


4. As you start to sharpen, listen to the stone as it moves across the blades. Dull blades (Fig. 9) will need a lot of sharpening, and the stone will need to do a lot of cutting. The stone will make a loud scratching sound, even with oil on the stone, because of the amount of cutting it needs to do. As the blades start to sharpen, the noise from the stone will get softer, to the point that when you put the final polish on the blade, the stone will only be “whispering”. As you listen, you will also be able to tell where the “dull spots” are located, as they will initially be “noisy” spots during sharpening. If you hear a squeaking sound, like fingernails on a chalkboard, then the stone is too dry. Add some lubricant to the stone, and the squeak should go away.

When you start to sharpen, the stone will also have a different “feel” to it. Dull blades will need a lot of sharpening, and the stone will need to do a lot of cutting. The stone will be hard to move, like trying to move a brick across carpet, because of the cutting the stone needs to do. As the blades start to sharpen (Fig. 10), the “feel” of the stone will get easier, to the point that when you put the final polish on the blade, the stone will “sliding” across the blades.

5. Continue the grinding process, occasionally adding oil to the stone to keep it lubricated. If the blade was fairly sharp to start with, this may take 2 –3 passes of “20 to the left, 20 to the right” A dull set of blades may take 20 – 30 passes to get a burr. Occasionally check for a burr. The burr will first develop on the tips and tails, then on the outsides of the blades (Fig. 11). The last place to get a burr will be the insides of the blades, between the two cups as this is the part of the blade that gets the most use (Fig. 12).

6. Once you work to the point that you have 4 burrs, 1 running the full length of each side of each blade, you are ready to polish. The burrs do not need to be big. In fact, you want to take as little metal off of the blades as possible. Clean your big stone before putting it away.

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|  |  |  |  |
| Dull Blade Fig. 9 | Blade Half Sharpened Fig. 10 | Blade 3 / 4 Sharpened Fig. 11 | Blade Ready to Deburr Fig. 12 |

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|  |  |  |  |
| Polished Blade Fig. 13 | Blade w/ Scratches, Nick Fig. 14 | Inexpensive Blade Fig. 15 | De-burring Inexpensive Blade Fig. 16 |

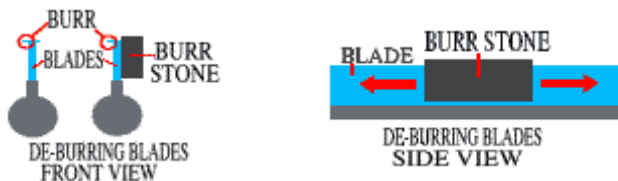
Polishing the Blades:

With the fine side of the big stone begin stroking forward and back in a straight line to remove all scratches. This should only take 1 –2 “passes of 20”. Use long strokes and light even pressure. Do not press on the stone. Work on the blades until they are glassy smooth.

Check the blades under a strong light, look along the bottom of the blades to ensure that they are smooth and shiny with no scratch marks. You can also use the light to look for kinks or bends in the blade.

De-burring the Blades:

- Remove the skates from the jig. Use a rag to wipe the oil from the blades and cups.
- Remove the burr from the blades by using a carbide, or burrstone, or razor blade.



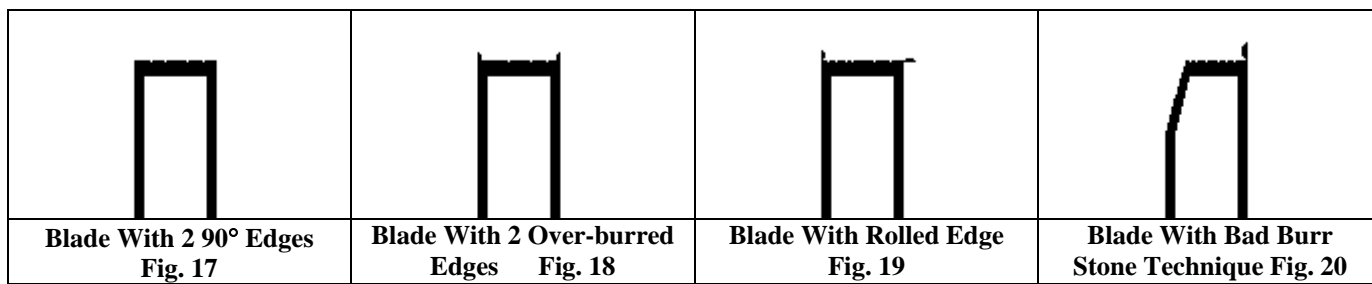
Use steady, even pressure, to push the tool into the blade, and use long strokes, trying to de-burr in passes that run along the entire length of the blade. As you remove the burr, you will work down to a couple of spots that still have a burr. On these spots, start 2-3 inches before the burr, using your tool on the edge, going past the spot by 2 – 3 inches. Repeat on all 4 edges until no burr remains.

An alternate de-burring tool is the razor scraper, often used to remove paint from windowpanes. This tool will effortlessly remove burrs with a few quick passes. Burrstones move the metal around, often creating an “over-burr” (Fig. 18), which may require a second sharpening. The idea behind using the razor or carbide is to slice off the burr. The main thing to remember when using this tool is to keep the edge of the razor flat on the side of the skate blade and the angle of the razor at around 75-80 degrees, this will prevent rounding off the edge of the skate blade. After cutting the burr off of the blade, switch to a burrstone and touch up the blades to make sure that every last bit of burr is gone and to make sure that no burr remains (Fig. 17). The smaller the burr, the easier it is to remove.

Some skaters like an over-burr (top-burr) on their blades (Fig 18); this gives some skaters the impression of ‘hollow ground’. This skates well, but the possibility exists that the over-burr (top-burr) may “roll”, causing the edge to disappear. The slightest rolled burr will cause slipping on the ice and can be a reason for falling of a skater.

CAUTION: Try for a sharp 90-degree right angle from the side to the edge of the blade. To do this, keep the burrstone flat against the blade with just a bit protruding above the edge of the blade. If the stone is not kept flat against the blade, it can remove the edge (Fig 20). Burrstones can also create an over-burr (Fig 20).

- Clean the blades with the cloth and put on clean dry skate guards. Clean the stones with some oil, your finger, and a rag. You are finished sharpening. With a bit of practice, a complete sharpening should take no more than 10 minutes.



Protecting Your Hard Work

Now that you have done all this work, you need to protect your nice, sharp edges.

1) **On-ice wear:** Any sort of sliding with the blades wears down their edges. Hockey stops and snow-plows wear on the edges of your blades. Doing “Starts” on your skates are also rough on your edges. Most skating practices save starts for the end of the session, since this wears down the edges of the blades.

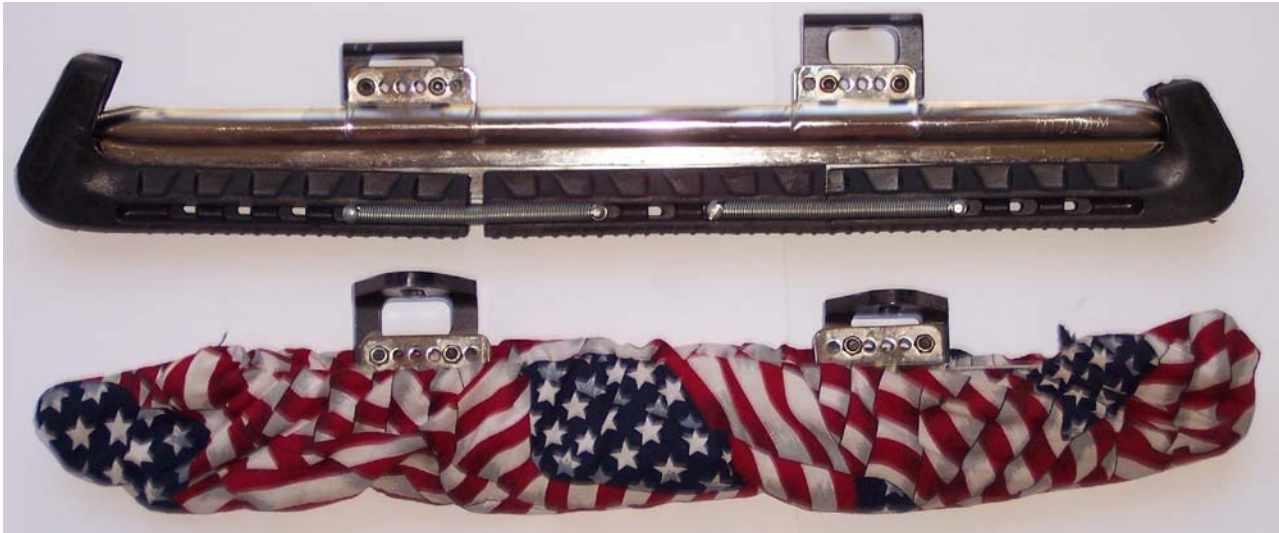


Fig. 21 Plastic Guards and cotton “Soakers” protect your edges when used appropriately.

2) **Off-ice wear:** The obvious, is to spend as little time as possible walking around the rink without blade guards. Try to pick a spot for putting on skates that is near the rink. Most rinks have some metal in the doorways, holding the ice in place. Stay away from any metal or concrete around the rink. A good set of plastic or leather guards will protect your blades when walking around.



Fig. 22: Pick a spot close to the rink for putting on your skates. Put down your towel, to protect your skates, and to mark your seat as ‘taken’ while you are skating. (photos by Andrew Love, AndrewLove.org)

Guards are made of leather (\$30) or plastic (\$20) and are used for walking in your skates when you are off the ice.

Leather blade guards (scabbards) are the best choice, as they will wick water away from your blades. Leather guards come in 2 thicknesses. 'Thin' guards are about 1/8 inch thick, and will last several years. The toe of the blade will eventually cut through a thin guard. If this happens, you can patch the guard with a small piece of leather. 'Thick' guards are at least 1/4 inch thick and will last many years. Blades rarely cut through thick leather guards.



Fig. 23: Types of Blade Guards: (From top) Thin leather, Thick leather, 1 piece plastic, multi-piece plastic (caterpillar)

Plastic guards do not wick water away from blades, so should only be used for walking, and not be used for storage. Your blades and guards should be kept clean and dry. Make sure the guards fit snugly so that the blade does not move around inside of them when you are walking with them.

Plastic guards come in two styles: one-piece and multi-piece. A one-piece guard usually has some sort of elastic, to hold the guard onto the blade. Multi-piece guards usually have springs in them, allowing the guards to be stretched, and then hooked, onto the blades.

3) **Rust and water damage:** Any rust that appears on your blades, especially on the edges, is a real problem. Rust is soft, and will not allow you to get a good edge. It is VERY IMPORTANT to stop any rust before it can start. The best way to do this is to keep the blades dry, wiping off all water and ice with a soft cotton towel or rag. You should ALWAYS have a cotton towel or rag in your skate bag for drying off your blades and hardware.

4) **Storage:** When storing your skates, the blades should always be dry and covered. The reasons are twofold. First, you do not want to dull your edges, and secondly, you do not want the blades to cut items in your skate bag. There are several ways to cover and protect your blades. Leather guards are good for storing your skates. They will wick any remaining water away from your blades, preventing any rust before it can start.

'Soakers' are a good storage choice, too. Soakers are terry cloth towels designed to stretch over the blades. These are handy for storing your skates in your skate bag, especially if your guards are wet. As always, make sure your blades are dry inside your soakers.

You can make a skate sack out of a towel, and store your skates in the pockets of your skate sack. A towel is always a good option, as you can use it several ways: If you have made pockets in your towel, you can carry and store your skates in it. You can put the towel on the floor, and use it as a mat while changing out of your shoes, and into your skates (Figure 22). Most rinks have dirt on the floor, even if you cannot see it. This dirt is tracked in by street shoes, and can often have chemicals from the parking lot and sidewalk, that were used to clear snow. The dirt and chemicals can dull blades, and increase the likelihood of rust, so using a towel as a mat also protects your skates from this dirt. A towel can be used to ‘mark your place’ in the rink, and to help keep your seat warm. And finally, a towel can be used as a towel, to dry off your blades and hardware.



Fig. 24: Using a Towel to Protect Skates: Fold the towel over, and stitch two pockets. Put 1 skate in each pocket.



Fig. 25: Speed Skate Sharpening Kit, made by Norton: A sponsor of US Speedskating, Norton makes a handy sharpening kit for beginners.

Advanced Concepts in Sharpening

Additional comments by Andrew Love

As you become a faster skater, sharpening becomes much more important. Your blades need to be sharp and fast every time you use them. Fast skaters may sharpen every 2-3 hours of ice time. At this level, the blades are never really dull, so this is more of a polishing or finishing of the blades, which can be done relatively quickly and easily.

The 1st Law of Sharpening:

The more experienced you are, the better you become at sharpening, but also as you get faster, it begins to MATTER far more to perform well and consistently every time you skate, so it is important to always devote Good mental attention to sharpening.

Don't sharpen while watching a movie.

L-R movement of the stone:

I was talking with the Calgary sharpening guru for the Canadian national team, and he said "only ever go front to back with the stone, it makes a better structure on the bottom of the blades, you move the stone a little L-R to avoid making a groove, but not much".

I find that it takes a lot longer to sharpen this way, but it creates a much smoother finish on the bottom of the blades. I use almost all of the stone, but it takes me 6 or 8 passes to go from one side to the other...

Try using only fine / very fine stones:

My coach last year used to kid me that I don't really sharpen, I just polish a heck of a lot, until I see a burr, I am a big guy, and a power skater, and I wear out blade edges fast... so I sharpen every 2-3 skates or so (and that is on very clean indoor ice.. at lake placid I sharpened after every skate practically) and I like to use the finest grade diamond stone, and that is all I use. I had two months at the Pettit where all I sharpened with was a super hard arkansas stone... it took about 2-3 times the jig time, but my skates were consistently scary fast if you do this all the time.

If I skated outdoors mostly, or on dirty ice, I would probably use a rougher stone, but most of the time, if one is patient, you can actually sharpen using only the smooth side of a viking or norton IM-9, or what I use, the DMT Red/Green, and mostly I only ever use the green side.

Sharpening to one spot:

Since I sharpen regularly, and take good care of my blades, usually I only sharpen to "one spot"... what do I mean? Well there is a spot in the middle of my right blade that always gets far and away the most wear. I know exactly where that spot is, so I just keep sharpening till that spot has a nice burr.

Then of course I do look at the whole blade after that, but consistently, if I get this one small spot (and it's only a few inches long) correct, the rest of the blade is great. Besides, that is the spot one needs the MOST, as it's the point of most frequent and greatest pressure, and if you miss it, life sucks.

And that is the spot people consistently miss. Even if you just miss a centimeter of it, you can feel it.

Indoor sharpening versus outdoor sharpening:

Indoor on crazy nice ice, its good to sharpen, deburr, and put the skates back into the jig, make a few passes with the polishing stone to flatten out the top burr (over-burr), and then de-burr again... so it's really a nice true edge... indoor you want the skates to run fast, and not cut too much into the ice, so you want there to be no top-burr (over-burr) at all. Even slightly worn blades can be very fast... For outdoor, and especially in cold / hard conditions, some national team guys recommend a very small top burr (over-burr) to get a better bite on hard ice.

Top-End Sharpening Jigs:

The "tabletop" style jigs like the 'Next Edge' and the JOHA are super-popular at the top levels now. Chad uses the JOHA... I used a 'Next Edge' for a week once working at Dimon sports, and sold my maple immediately... it was obviously superior in consistent skate setup.



Fig. 25: Advanced Sharpening Jigs: "Next Edge", "JOHA Pro", and "Marchese" sharpening jigs.

The tabletops are hard to travel with, but I found a rolling tool chest that fits mine perfectly, and the skates go "inside" the box of the jig, and are totally protected. Maple jigs are fine as long as you never disassemble them. Take them apart, and life sucks!!! I have seen people drill holes & threads in their maples, or use other markings to ensure that it MUST screw together exactly the same way every time.

DMT dia-paste:

It's what I use for ultimate race polishing... 3 slabs of aluminum and 3, 1, & .05 grit diamond compound, + some poly-chrome furniture polish for final touch, and the skates are SCARY fast and better than a mirror. This is very messy, with paste getting all over the place. This is definitely NOT for beginners, and this is only necessary if that extra .05 of a second per lap makes or breaks your self-image for all eternity (and for me, sometimes that is true). You need a solid burr to protect the edge when using this technique... 100 strokes on a really good Arkansas stone will give nearly the same results.

Burr Stones:

Sometimes I have a cup of water on my work desk. Sometimes I dip my burrstones in it. It seems to cut better with a lubricant. The BEST BURR STONES IN THE UNIVERSE are the Dimon sports angled burr stones. John has them made just for him. They wear out in a month or two, but it's only your health & self-esteem riding on those edges!! it's WORTH it... I buy a handful at the beginning of every year.

Edging the burr stone:

This works especially if there is a little burr that will not go away, it's acceptable to lay the burr stone on the runner of the blade, and LIGHTLY stroke it ONCE over the area, some skaters will FREAK seeing this, but I know for sure Olympic & world cup medals have been won on this technique, if you push too hard, or go back and forth, it will wreck the blade... its one SUPER-LIGHT pass, and only do it if other stuff doesn't work.

Hand Rockering:

A good thing to learn if one starts going crazy fast (I define that as sub 39 sec 500's, or being able to skate sub 30 sec flying 400m laps)... if you are going that fast, you need to own a gauge, a bender, and hand rockering tools, and learn how to use them... expect to kill at least one blade learning... tiny things start to MATTER at those velocities... if my blade is flatter under the clap mechanism, I skate well, if its flatter under the heel or at the tail, I skate like crapzilla. Who knows why, but I discovered this when I bought a gauge, and learned how to hand rocker... it's worth every penny.

Not all Rockering machines are created equal:

Rockering machines heat blades up when they rocker, and blades themselves come in different hardness, sometimes a very hard blade, on a certain rockering machines that make that blade insanely hot, will become "heat-annealed" and almost impossible to de-burr properly. The Calgary machine did this to a pair of my Vikings. The results were awful, ruining a month of my racing.

Sometimes a blade that is horrid to de-burr can become an absolute kitten when re-rockered by a DIFFERENT machine. This is also why sometimes the burr master is wonderful on some blades, and completely ineffective on others. It has to do with how hot the blade got when being rockered.

Final Comments on Sharpening

The object of the sharpening process is to achieve a razor sharp, 90-degree edge and to make the flat under surface of the blade as smooth and friction free as possible.

Always sharpen with complete strokes along the full length of both blades. If you only work on the part of the blade that is dull, you will eventually cause flat spots in the blades. If the poor sharpening technique continues, the "flat spots" can become "hollows". To check the blades for these you can use a steel-ruled edge on to the bottom of the blade. Start at one end of the blade and slowly rock the edge of the ruler along the length of the blade. If there are any flat spots in the blade, they will show up as a jerking of the ruler or a clicking sound. Hollows will often be visible as a gap under the ruled edge.

Flat spots and hollows can be removed by grinding from the edge of the hollow to the nearest end of the blade, and then repeating on the other end of the blade. Go slowly and check results often until the problem is removed. Once the flat spot is gone give the skates a thorough proper re-sharpening.

Rotate your jig occasionally. This is done to ensure that the highpoint of the blade stays in the same spot. If you only sharpen from the same end of the jig, the highpoint will, over several sharpenings, slowly move to the opposite end of your blades. It is important not to change the shape / rocker of the blade. Small nicks will disappear over time, but should be ground out before competitions. Always keep metal parts clean and free of rust.

Make sure that your stones are flat. If the stone is small, or used incorrectly, it will develop hollows in it. If you use a bad stone on your blades, it will be nearly impossible to get a flat gliding surface and sharp edges. The stone can be kept flat by using the whole surface when grinding blades.

It is much easier to sharpen skates if they are not allowed to become too dull. The amount of time it takes to sharpen skates is directly related to the amount of time between sharpenings. If you cannot shave some fingernail on your edge, then the edge is dull and needs sharpening. You can spend 5 minutes per week sharpening, or 60 minutes every three months. It takes the same amount of time to sharpen, but in the first case, the blades are always sharp. The more metal that has to be removed to make skates sharp, the more likely you will change the shape of the rocker and / or high point of the blade.

Take the time to sharpen correctly and completely. Focus on the job at hand, away from distractions. If your blades need some work for Sunday's race, take the time on Friday to make sure everything is 100% done before race day. That way, you should not need to touch-up your blades on race day.

Once your skates are sharp, protect your edges. Use plastic or leather guards to walk between your seat and the ice. When you get back to your seat, remove plastic guards, and store your skates in leather guards or cloth soakers. Skate towels with pockets are a good option, too.