

# ***Finest Edge Knife Sharpening Guide***

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***Kota Japan***

# ***Kota Japan Finest Edge Knife Sharpening Guide***

## ***Introduction***

A sharp knife is a joy to work with but it is very scarce in many kitchens.

When you buy a new knife, you will notice that it loses its sharpness after a while. Even the most expensive knives become dull after a while and the majority of knives in most kitchens are in appalling condition.

How soon a knife loses its sharpness depends largely on the cutting surface used and how the knife is stored. However, all knives will eventually become dull even if well maintained.

One way to test the sharpness of your knife is to do the tomato test. If you can slice cleanly through the tomato without exerting any extra pressure, your knife is sharp. If your knife presses into the skin of the tomato without piercing it, your blade is dull and needs to be sharpened.

One solution is to have your knife sharpened occasionally by a professional knife sharpener. However, this could present 2 problems, namely:

1: Good knife sharpeners are very scarce;

2: If you wait until your knives are dull and only then have them sharpened, this means that you are actually using a knife that is not as sharp as it could be. This is such a pity when you could have been using a sharp knife all along.

There is, however, a simple solution to this problem: **Sharpen your knife yourself.**

You can always rely on a sharp knife if you have sharpened it yourself.

There are many products on the market that make sharpening look easy. All you are supposed to do is pull your knife through the slot and it is sharp again. Sadly, this is not the case! Even though the blade may seem sharp after you have pulled it through the knife sharpener, this sharpness only lasts for a short while because these types of sharpeners produce uneven, ragged edges.

The best method for sharpening your knife and maintaining its sharpness has not changed in years. Even though manufacturers are continually introducing a wide range of seemingly handy gadgets and devices to sharpen knives, the best way to achieve a sharp edge on your knife is to use an 'old-fashioned' sharpening stone. Just like Grandpa did many years ago.



Thanks to its large working surface, a good sharpening stone produces a long-lasting razor-sharp edge in a jiffy.

It is not difficult to sharpen your blade with a sharpening stone, although there are some things you need to know and bear in mind when sharpening your knives.

### The theory

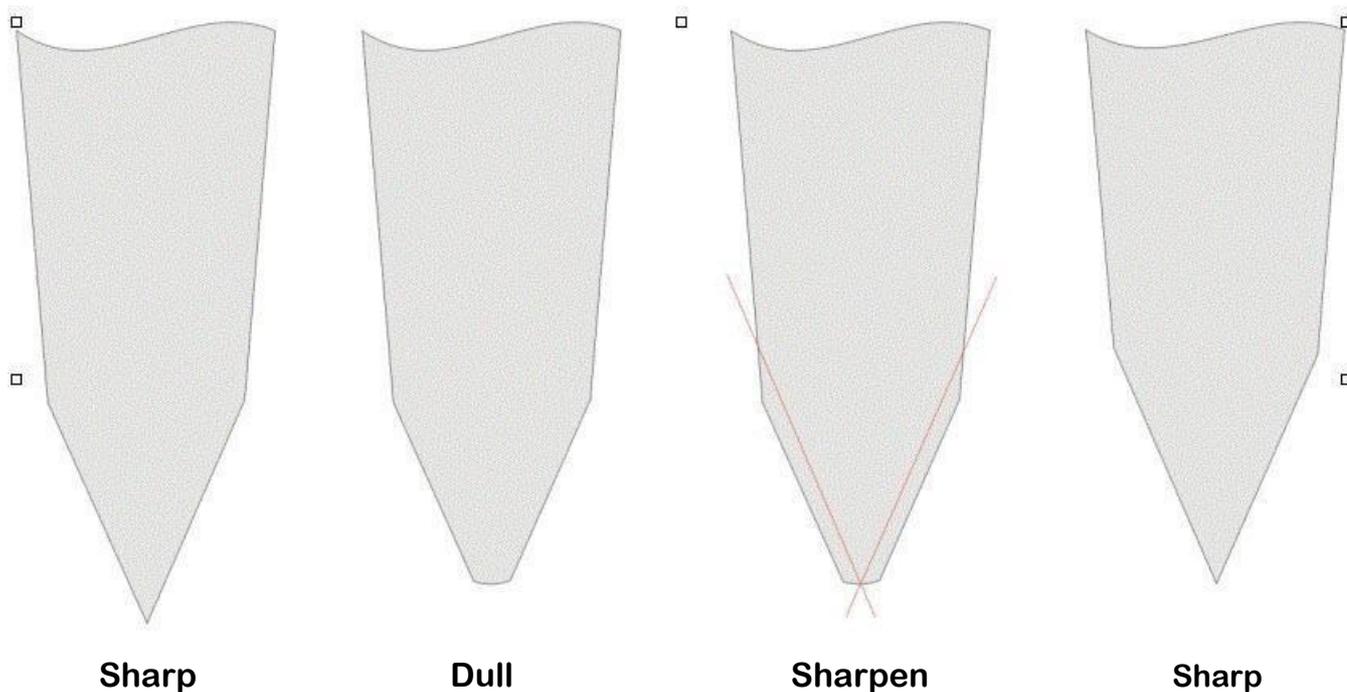
Sharpening a knife means creating a particular shape on its edge, namely a V-shape.

The contact surface between the V and the material that needs to be removed is actually very small, theoretically speaking, even infinitesimally small. The result is that the contact pressure is very great and the material that needs to be removed rolls over with very little force.

The edge of a dull knife has more of a U-shape than a V-shape. This results in a larger contact surface, which means that more force is needed to reach the pressure where the material rolls over.

### Sharpening with a sharpening stone

To restore the V-shape to your blade, you need to grind the correct angle on both sides. You begin with a coarse grit stone and continue using it until you have achieved the correct angle. Once you have done so, you can switch to a stone with a finer grit.

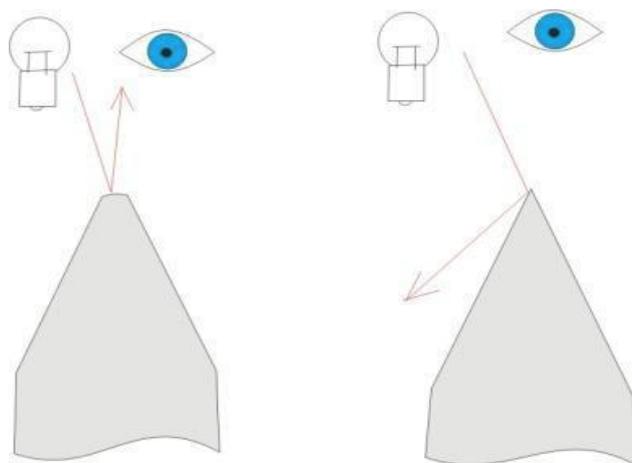


So, it is important that you learn how to assess whether you have achieved the correct shape. There are several ways in which to do this:

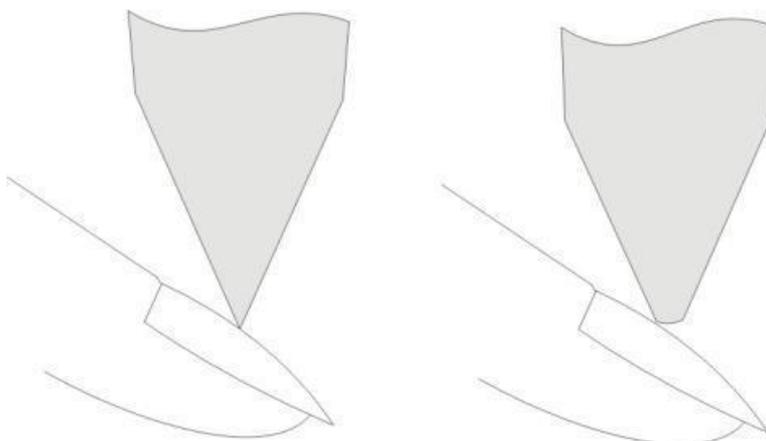
1: If you have achieved a V-shape and you sharpen the edge on one side, you will create a burr on the other side. This burr is tangible and visible in the light. The coarser the stone, the bigger the burr. In addition, the size of the burr depends largely on the type of steel used for the blade.



2: If you hold the edge of the knife face up directly under a lamp, you will see light reflected in the edge if it is U-shaped. However, if the edge is V-shaped, no light will be reflected.



3: If you place the blade on your nail at an angle of about 45 degrees, a blade with a U-shaped edge will slide down your nail but a blade with a V-shaped edge will catch in your nail.



Once you have ground your edge into the correct shape, you can switch to a stone with a finer grit to hone and polish it. The purpose of this is to achieve a perfect V-shaped edge at a microscopic level.

### **Which angle?**

After having read the above information, you could conclude that the angle of the V does not have any impact on the sharpness of the edge. After all, a narrow V and a wide V both have an infinitely small contact surface.

And your conclusion would be correct, for the most part. The sharpness of the blade depends much more on the thickness of a blade than it does on the angle of the V (known as the fold, in technical jargon).

In practice, however, knives are often ground at an angle of 30 to 40 degrees (15 to 20 degrees per side). This has to do with the strength of the edge, among other things. A smaller angle makes the edge somewhat sharper but it also makes it more prone to damage. 30 degrees is a good compromise for knives made of superior-quality steel, such as the finer Japanese knives and 36 to 40 degrees is more common for European knives.

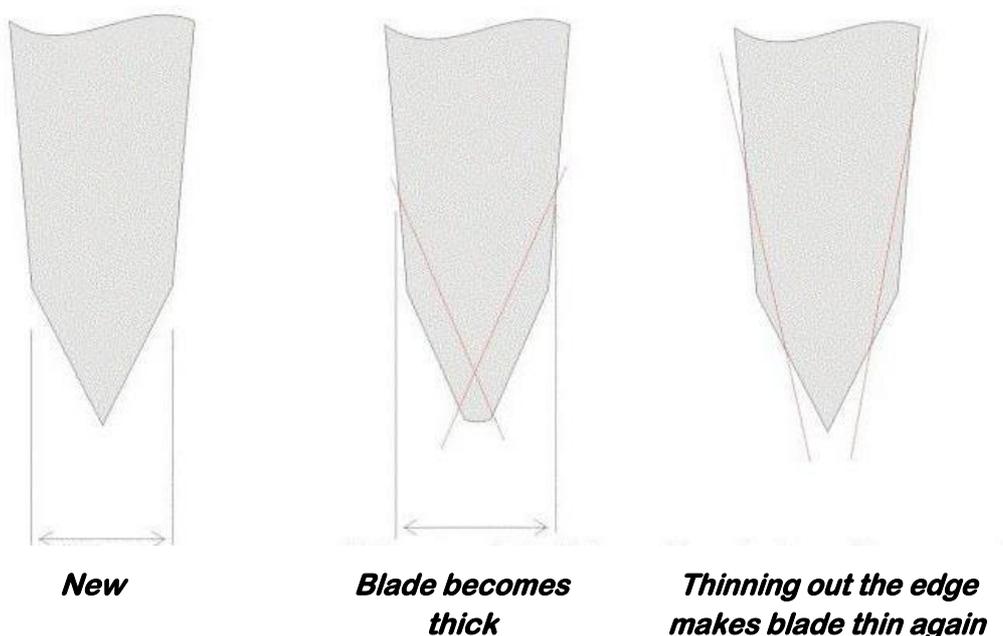
### **Do not allow your blade to become too thick!**

The sharpness of a knife is partly determined by the angle of the V and also for a large part by the thickness of the blade.

The thinner the blade, the better, especially right at the edge.

Knives with really thick blades (such as those often found in sets costing around € 50/ £ 40) are of no use and should be discarded immediately.

Remember that with thin-edged knives, the edge becomes thicker after repeated sharpening. You can counteract this by slightly thinning out the edge every time you sharpen it. You do this by holding the edge at a very small angle to the stone when sharpening it. If you hold the blade too flat, your blade will become scratched. However, this is virtually unavoidable and is something you just have to accept.



## **Kota Japan Whetstones**

There is no other company where the art of sharpening knives is so deeply entrenched in its culture than in Kota Japan. No wonder we make the finest sharpening stones in the world.

Sharpening stones are made up of sharp, rough, abrasive grains of a material much tougher than steel. This material is often aluminium-oxide but other materials are also used.

During sharpening, these grains scrape material off the steel and, obviously, only the grains on the outside of the stone actually do this.

Unfortunately, even though these grains are tougher than steel, they do become dull because the sharp edges break off during sharpening. In addition to this, the space between the stones becomes clogged up with steel particles. Both these phenomena result in a stone that soon becomes less effective and does not sharpen well.

Kota Japan whetstones are made of hard sharpening grits of a particular size that are incorporated into a softer material such as very fine clay. This soft material ensures that the stone wears away slowly. The dull sharpening grits break down and new sharp, abrasive grits replace them.

Kota Japan Japanese whetstones are always used wet. They must be so wet that they are covered with a layer of water during sharpening. This ensures that the stone does not clog up with iron particles and that the stone can continue to sharpen properly.

### **Grit size**

The grit size of a Kota Japan whetstone determines how quickly a stone sharpens a blade and also how fine the finish is. Like sandpaper, the the smaller the number, the coarser the grit and the higher the number, the finer the grit.

100-400: For reshaping dull knives

400-1000: 1st stage in maintaining knives

1000-3000: 2nd stage for honing and finishing knives

3000-10000: For ultra-fine finish.

From approx. grit size 5000, a polished mirrored finish is achieved.

Combination stones are often available and these are literally 2 stones glued together.

For example, 110-1000 for coarse sharpening and fine finishing or 1000-3000 for maintaining, honing and polishing.

Generally speaking, 2 or 3 different sized grits is enough.

### **Sharpening with a Kota Japan whetstone**

Always start by assessing the condition of your knife. If the blade is not really dull (which will not happen if you maintain your knives on a regular basis), then it is not necessary to use a 200-grit stone to sharpen it, for instance.

However, if the blade is really dull, start sharpening with a coarse grit stone (100-200).

Before you start sharpening, leave the stones to soak in a basin of water for a few minutes until they become thoroughly saturated. There should also be a film or layer of water on the stone during sharpening.

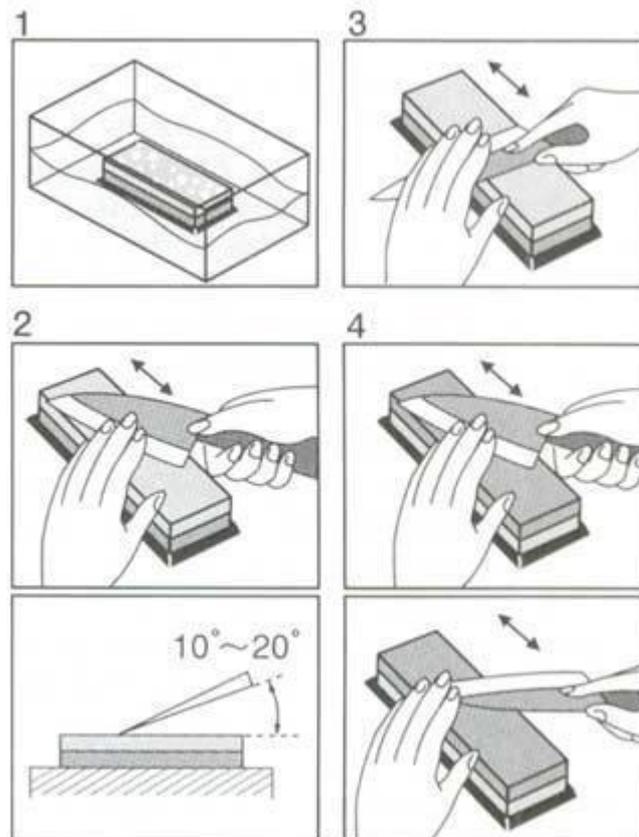
Then, place the stone on a stable, flat surface, making sure that it is firmly in place and cannot move. To ensure that your stone remains securely in place, you could use a plank or rubber feet, for instance.

Now comes the most important, yet trickiest, part, namely, finding and maintaining the correct angle for sharpening the knife. There are some accessories available that you slide onto your blade. However, although they may be helpful, they are not absolutely necessary. A fairly experienced knife sharpening expert will probably even find these accessories more of a hindrance than a help.

The secret to success here is to hold the knife properly. If you are right-handed, hold your knife with your right hand and place both your right thumb and your right index finger on the blade. Using both your thumb and index finger, exert some pressure on the blade. This action blocks your muscles and keeps the knife steady.

The next step is to position the knife at an angle of 10 to 15 degrees on the (wet) stone and place the fingers of your left hand on the blade. You use these fingers to press the knife against the stone and also to help you maintain a consistent angle.

If you want to sharpen the blade to an angle of 15 degrees, then you need to lift the back of a one-centimetre thick blade 2.5 mm. Similarly, you need to lift the back of a chef's knife with a four-centimetre thick blade 1 cm.

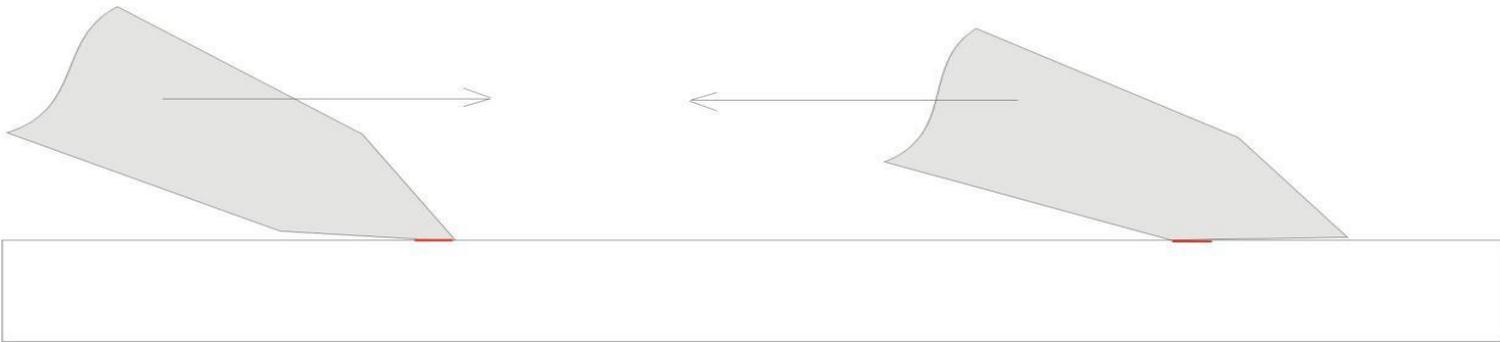


However, it is better to choose a slightly smaller angle since you are likely to wobble slightly when sharpening, making the actual angle somewhat bigger. Seven millimetres is fine.

It is often thought that any deviation from achieving the exact angle ruins the final result but this is not true. What does happen is that the side of the V-shape becomes slightly rounded (also known as convex) but this does not affect the sharpness of the blade whatsoever. I personally never use sharpening accessories to keep the angle consistent and my knives are always razor-sharp!

Sharpening the edge actually occurs when you push the blade along the stone without using any accessories, exerting pressure as you move forward, making a cutting motion. As if you want to cut something off the stone.

As you draw the knife back, you automatically tilt it over slightly. This is no problem whatsoever. In fact, it drastically reduces burrs from forming and is actually beneficial to the final result.



Make sure that you sharpen the knife along the whole length of the blade, from tip to hilt, changing sides often so that you remove the same amount of metal from each side.

Once you are completely satisfied that the entire length of the blade is sharp enough, you can then change to a finer grain stone. Switching to a finer grain stone too soon is the commonest mistake made in knife sharpening.

**Tip:**

Never exert too much pressure when sharpening. The grain size of the stone determines how much material is removed, not the amount of pressure exerted. Too much pressure can ruin the knife and produce a thin, weak edge.

**Useful tests to see whether you are on the right track**

The following tests are useful to see whether you are on the right track. However, these tests are only an indication and the results can differ slightly from knife to knife and from sharpening stone to sharpening stone.

Grain size 100-200: A burr often forms once the perfect V-shape has been achieved. This burr is clearly apparent and is visible in the light. Make sure that you have a burr along the entire length of the blade. Some types of steel do not form many burrs. If this is the case, you must make sure that no light can be reflected in the edge.

Grain size 1000: After sharpening with a 1000 grain, a knife should be able to cut extremely well. A knife should be able to slice a tomato effortlessly without mashing it and it should also be able to cut a sheet of paper cleanly and smoothly, without tears or jagged edges.

Grain size 3000: A 3000-grain stone should almost be able to shave hair. However, be very careful and never cut with the movement in the length direction of the knife! If your knife tugs at the hairs on your arm, then you are clearly on your way! However, if your knife glides over the hairs, then you have not yet reached the maximum level of sharpness. It may be necessary to go back to using a coarser sharpening stone to shape the edge properly.

Grain size 5000-10000: These fine grain stones are used to hone the edge until it reflects light and you should be able to shave effortlessly. If you are unable to do so, then the shape is not right. You have probably either switched over to a finer grain stone too soon or you have applied too much pressure.

## **Conclusion**

This document applies to normal, thin knives that have been sharpened on both sides (Western style). There are traditional Japanese knives, such as Debas and Sashimi knives whose edges are sharpened at other angles. These knives can also be sharpened quite easily on waterstones by positioning the angled side flat against the stone. The other side is also positioned flat against the stone just to remove any burrs.

All that remains is for us to wish you every success in your sharpening endeavours and may your knives always be sharp!

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*If you have any questions, please contact [len@gradeaglobal.com](mailto:len@gradeaglobal.com).*