

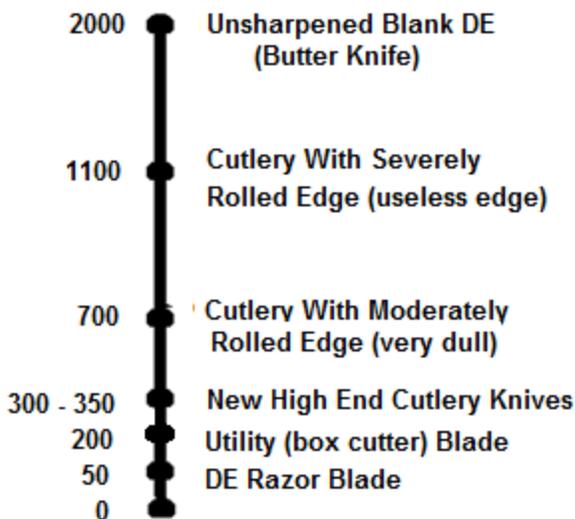
Sharp Pad Operating Manual

Thank you for purchasing a Sharp Pad™ manufactured by Edge On Up (EOU). EOU is a manufacturer of sharpness testing instrumentation utilized by professional sharpeners, knife makers, and industrial/medical manufacturers worldwide and the only manufacturer of sharpness testing instrumentation that works in concert with a universal quantifiable sharpness scale. The BESS (Brubacher Edge Sharpness Scale).

A little more on the BESS. At EOU we don't determine sharpness levels by cutting paper and shaving the hair off our arms. At EOU we talk sharpness numbers (0 - 2000 grams of pressure). All the information and sharpness levels asserted in this manual are based on actual sharpness data collected by our instrumentation and then expressed in BESS numbers (the BESS score). You don't have to know anything about knife sharpening to understand the BESS because it is based on the sharpness of a double edge razor blade, the sharpest edge that most of us will ever encounter. Since much of the information given in this manual is expressed as a BESS score please take a few seconds to familiarize yourself with the scale.

Typical Examples Of BESS "C" Scale Measurements

numerical values expressed in
grams of pressure



Sharp Pad was designed for kitchen enthusiasts who realize the importance and joy of sharp knives but may have little experience or knowledge of knife sharpening and maintenance techniques. You don't have to be physically strong to use Sharp Pad but a little knowledge never hurt anyone so please study this manual thoroughly. We're going to talk about some new things and destroy a few commonly held notions about knives and knife edges here so you may even find it interesting.

If you have purchased a **PT50 Series sharpness tester** as well then allow us to thank you on our behalf and the behalf of your knives. Your PT50 allows you to precisely gauge the edge sharpness level of your knives so that you can judge the efficacy of your sharpening efforts and know exactly where your knives stand with regard to sharpness at all times

The Sharp Pad Technique

Before moving on to burr removal, "work hardening" and straightening edges let's learn the very simple technique of holding and moving the knife over the various Sharp Pad conditioning plates. The movement and methodology is the same no matter what Sharp Pad function you might be performing. The only variance when performing an individual process might be a slight change in angle or applied pressure.

Sharp Pad employs a novel "edge trailing" approach on a resilient surface. This methodology was developed to both simplify conditioning process and to promote safety. With edge trailing techniques your hands and fingers are always preceding and pulling away from the knife edge.



All sharpening stone, ceramic rods, sharpening steels etc. utilize an "edge leading" approach. When one hard object (the knife edge) is pressed against another hard object (the abrasive surface) for sharpening purposes the angle the knife attacks the abrasive surface becomes very critical. 1° to flat and you'll be grinding on the side of the knife as opposed to the edge. 1° to steep and you'll be gouging the edge into the abrasive surface. Dragging the edge back over a resilient surface greatly reduces this issue because SHARP PAD's various

plate surfaces tend to conform to the shape and angle of the knife edge. You can be several degrees off during this movement and still produce excellent edges. Think of a small boat being pushed toward the beach by a single large wave. That's "edge trailing". Now think of that same boat bucking against the waves as it heads out to sea. That's "edge leading".

How to Hold and Position the Knife

The knife is always held by both hands and the trailing motion should usually be begun near the top of the (widest part) of the Sharp Pad. Try to avoid dragging the edge off the bottom (narrowest portion) end of your Sharp Pad. Hold the knife by the handle with one hand and then place your fingers of the other hand (we'll call this your off-hand) near the mid-point of the blade and well away from the edge. Keep your off-hand, as much as practical, directly above the Sharp pad surface. You never have to apply extreme downward pressure. Most Sharp Pad functions are accomplished using only moderate downward pressure. You can drag the blade back slowly or quickly it's up to you.

You will be asked to hold the knife at either a 15° or a 20° angle. Don't fret over the preciseness of this angle. Sharp Pad will compensate for most of your errors in this regard but try your best to closely approximate these angles in order to maximize your results. It is difficult not to be successful in your sharpening endeavors when using Sharp Pad and nearly impossible to damage a knife.



Generally speaking the 20° angle will be used for de-burring operations and the 15° angle will be used for edge straightening and periodic maintenance procedures. Remember...don't worry a lot about the preciseness of these angles because the SHARP PAD design has your back. If in doubt, error on the side of less angle and not more. Too much angle can reduce the sharpness of your edge.

The single most important thing to remember when using Sharp Pad is to just keep it simple. Drag the edge straight back with moderate downward pressure while maintaining something close to the specified angle. Don't raise the back edge (spine) of the knife up as you complete the dragging motion and no fancy flourishes at the end. Drag it straight back then lift, set back down near the top, and then drag again. That's all there is to it.

A little terminology now. Some knives i.e. paring knives, are short bladed and one motion over the Sharp Pad surface may cover the entire blade. Conversely a longer carving knife may require three motions (blade base, belly, point) to work one entire side of the edge completely because the carving knife is longer than your SHARP PAD is wide. In either case, paring or carving, 1 repetition means one complete coverage of one side of a blade. Even though it took you three strokes to work one complete side of the carving knife from handle to tip, it's still just 1 repetition. When instructed to "flip" the knife it means its time to work on the opposite side of the edge. Now your "handle-hand" is going to become your "blade-hand" and vice versa.

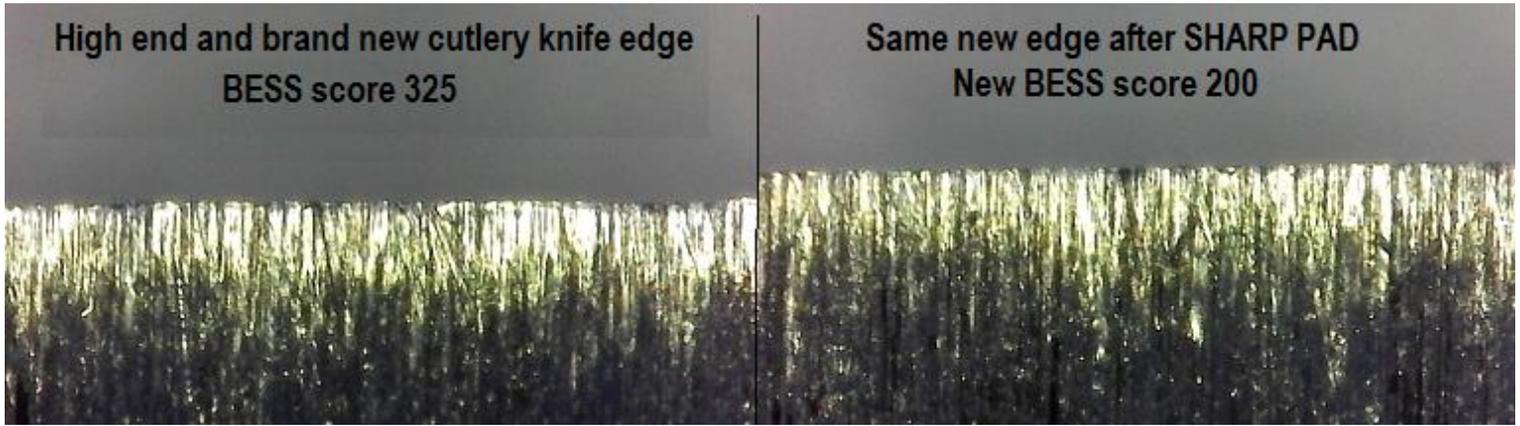
NEVER WRAP YOUR FINGERS OVER OR AROUND THE CUTTING EDGE!!! That's just common sense isn't it? Absolutely none of the movements required to operate your SHARP PAD require you to do so.

Sharp Pad uses no abrasives. That's because abrasives create burrs and one of SHARP PAD's primary responsibilities is to remove burrs. Remember! Any device or methodology that removes metal (sharpening) will create a burr and that burr must be removed or the edge will not be sharp and you risk ground metal ending up in your food.

One very important fact! Before we begin let's get this out on the cutting board. Cutting fruits, vegetables and meats on wooden cutting boards do not wear the edges of your knives away! In a durability contest between fruits, vegetables, meats and wood - steel is the hands down winner on any reasonable time scale. Your primary enemy is the "rolled" edge and you don't have to grind a rolled edge away to fix it. Just straighten it with Sharp Pad!

So where are you and your knives at right now? Do you Have:

New or Nearly New Knives - Sharp Pad will increase the sharpness level of new or almost new knives by 30 - 40%. If you thought your new knife was sharp wait until you see the results after Sharp Pad. New knives come to you out of the package with slightly rolled and oxidized cutting edges. There may also be, even likely, some residual burr left on the factory edge. Conditioning with Sharp Pad will remove the burr and oxidation as well as straighten the edge. It is very important that new knives get started on the right foot. If a new knife edge is first conditioned and then maintained by Sharp Pad your edges will last much longer. So what's a burr? Burrs are edge killers. Look in the definitions section of this manual. We've got plenty to say about burrs. Here's a couple of magnified images of a brand new edge before and after SHARP PAD use. You can see the difference in the edge but what really tells the story are the BESS scores. Remember...the BESS is like golf - the lower the score the better.

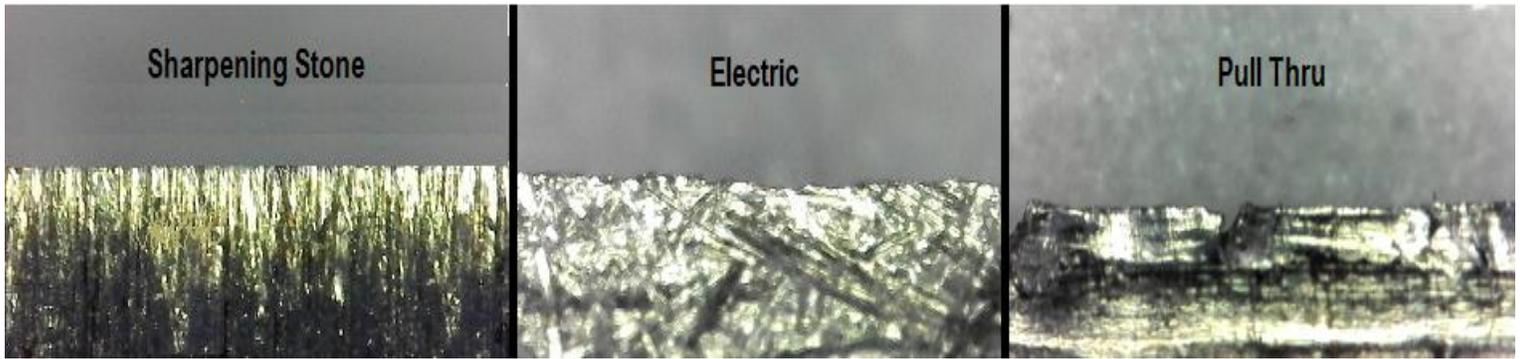


Knives That Are "Sharpened" by Electric Sharpeners or Pull Thru Style Sharpeners - If you're getting ready to sharpen with either of these sharpener styles, or sharpening steels, stones, ceramic rods or whatever we're glad we got your SHARP PAD to you in time. Sharp Pad will increase the sharpness level of knives "sharpened" on these devices by 30 - 300% and "work harden" those edges at the same time. Please watch our SHARP PAD video "Work Hardening Edges" for a better understanding of this process.

In the reference above to home sharpeners "Sharpened" is in quotation marks because at EOU we regard grinding (forming) a new edge and sharpening as two separate steps. An edge that has been ground but not de-burred is dull not sharp. It might "feel" sharp because of all the little metal wires sticking out of it but those wires end up in your food soon enough and now your knife edge "is" dull and feels and cuts like dull as well. Proper burr removal is where "the rubber meets the road" in knife sharpening and the most common household sharpeners make no provision for burr removal. Here are a few magnified images of the type and magnitude of burrs and edge damage left behind by abrasive surface, electric and pull thru sharpeners.



Here are some "after SHARP PAD" images of these same edges.



Sharp Pad is designed to improve the edges on your knives in many ways but an important part is Sharp Pad's ability to keep sharp knives sharp. Knives with edges "work hardened" with Sharp Pad and then maintained by Sharp Pad in ordinary home kitchen settings often show no signs of losing *any* of their sharpness quality even after a year of use. This testing includes all kinds (except serrated) types and brands of common steel kitchen knives. However, the better quality the knife the better your results will be. As little as fifteen seconds per knife every few weeks will yield months and months of perfectly sharp edges. Sharp Pad was designed to remain on your counter top. You and Sharp Pad are going to become good friends so keep your good friends close.



How to De-Burr and "Work Harden" a Knife Edge After Sharpening with a Home Sharpener

The rubber base and white polymer plates are used for de-burring and "work hardening" edges. Work hardening is not a separate process but occurs simultaneously as you de-burr.

The white polymer plate is also used to straighten edges and to maintain edge straightness. The red cover plate is just that, a cover plate, but you may use it as a handy cutting board surface for small jobs.

De-burring after sharpener use:

Find a comfortable place for you and a good place to rest your Sharp Pad. A sitting position will offer the most comfort and the best stability. The anti-slip

base of Sharp Pad works best on smooth surfaces. Start with the white polymer plate mounted directly on the rubber base.

Using moderate pressure set the edge of the knife down just below the silver mounting pegs. Hold the knife with both hands at about a 20° angle in a manner approximating the position shown in the illustration.

Never allow any portion of the hand or fingers to actually touch the edge! Now pull the knife edge evenly back toward you across the white plate. **Please don't add any flourishes or fancy motions during this process!** Just keep the knife at about 20° and drag it straight back while maintain the 20° angle. Then lift it up, reset it at the top and then drag it again. If the knife is longer than the Sharp Pad is

wide (likely) repeat by resetting the knife at the top a little to the left or right so that the entire blade edge, tip to handle, is subjected to the same process. You can repeat this process two or three times on one side then flip the knife over to do the other side. By doing this you are working the burr from side to side until a majority of it just falls off. You will often (but not always) see the evidence of this by the accumulation of a black powdery residue on your white polymer plate. That's burr coming off on your Sharp pad instead of in your food. Repeat this process at least 6 times per side (more if you feel like it). If you have a PT50 Series tester you can take a measurement now. If the measurement is 350 or below you can proceed to the next step. If not, repeat the process again. If it is still not below 350 after a second series then you have to consider whether or not your grinding instrument has done its job properly. You may either proceed to the next step or try grinding the edge again.

Now remove the white polymer plate. Sharp pad's black rubber base is not just another pretty face! On the rubber pad repeat the same process you used on the white polymer plate except now hold the knife a little flatter at about 15°. About five or six repetitions per side will remove the last and tiniest fragments of the burr. Straighten the edge on the white plate with a few quick swipes at a little flatter angle (15 degrees) and you should be solidly in the 200's (BESS score) now. Most new cutlery edges come to you with a 275 - 350 BESS score edge so now your knife could be sharper than new! **Note: In order to create a new and sharp edge on a knife you must first create a burr (with your sharpener) and then remove that burr (with SHARP PAD). If your sharpener is worn or ineffective it may not be able to create a burr. Read the section entitled "Does Your Sharpener have Enough Muscle " later in this manual.**

Conditioning Brand New Knives

It's very important that new knives get started off on the right foot. Follow the same procedures, methods and materials as when de-burring a newly sharpened knife and you'll be off to a good start with your new cutlery, *and with a "work hardened" edge!*

Maintaining Sharp Edges

All knife edges tend to roll with ordinary use. As the edge rolls, your knife will require more applied force to do its job. Work hardening the edge makes the edge resistant to rolling but not immune. So this is the simplest procedure of all.

On the white polymer plate and using moderate pressure at 15°, strop the knife edge two repetitions on one side and then two repetitions on the other side and then two more repetitions again on the first side. Literally 15 seconds and that's it. Follow these steps immediately before you are ready to use the knife either (A) each time you use the knife or (B) at least after every fourth or fifth use. Maintenance frequency depends on how particular you are about your edges because the sharpness of the knife will degrade slightly with each use. SHARP PAD doesn't care if it's every time or every fourth time because SHARP PAD will bring the edge back to its original sharpness under either scenario. Just don't get *too* far behind on your maintenance though or you will be grinding a new edge on your knife again.

Does Your Home Sharpener Have Enough Muscle to Create a Burr on Your Edges?

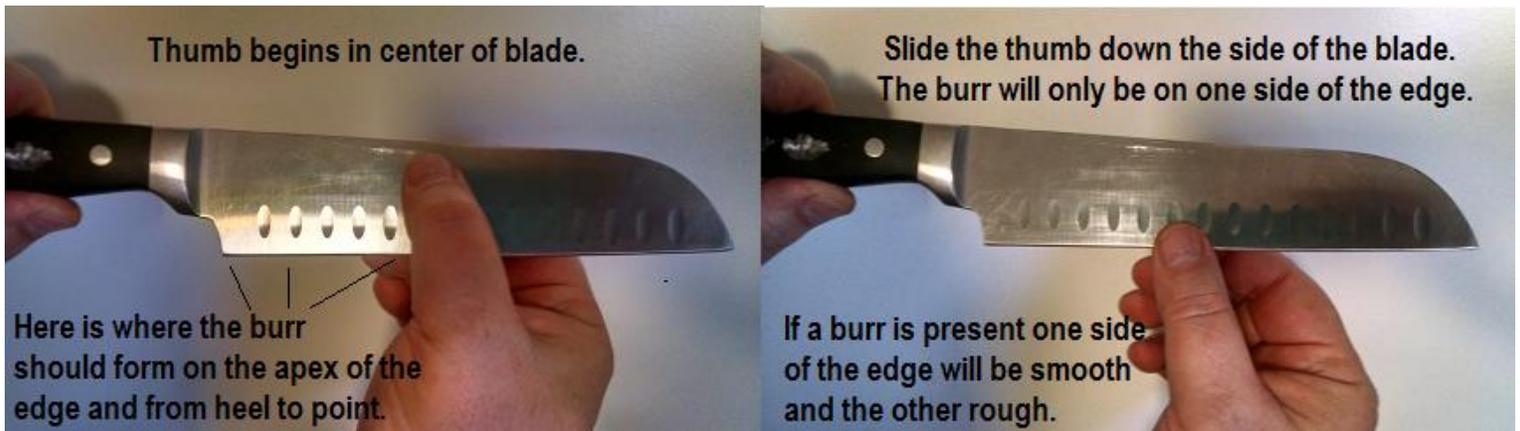
We apologize in advance for taking all the mystery out of knife sharpening but I'm afraid we're just going to have to do it. Knife sharpening is just this simple:

Step One - Raise (create) a burr on the edge of the knife.

Step Two - Remove the burr you just created. The end.

Sorry but that is all there is to it. Now, admittedly, you can't perform these two steps just any old way but interestingly enough, raising the burr is the much easier of the two tasks and affords the greatest leeway in both materials and technique. Removing the burr properly requires more skill and more attention to the technique and materials used. That's why 99% of all home sharpening systems don't even attempt to remove the burr even though it's the most critical and important part of the sharpening process. Even though raising a burr is a simple process those little bitty electric motors wear out and diamond abrasives eventually fall off the little spinning metal wheels they were stuck to so the question is...can your sharpener raise a burr or not? If it can't... you're just spinning your little abrasive wheels for naught. Here's how you find out:

For electric sharpeners run your knife through the coarsest stage only and according to the manufacturer's instructions. For pull thru sharpeners do whatever the manufacturer of the sharpener tells you to do. Now conduct the following test:



Every professional knife sharpener is going to feel for the burr once he has ground the edge. It's an easy test to insure his/her task has been completed successfully. Slide your thumb down the *side* of the blade (**not down the edge!**) until it is about to drop off the edge. Note the beginning and ending thumb positions in the images above. That's how it is done. That's where the burr resides. At the very apex of the edge. The burr will always be on just one side and it's roughness is very noticeable. Even more noticeable though is the "difference" in the way the two sides of the edge feel. One side will be smooth and the other side rough. The difference is unmistakable when a well formed burr is present. If both sides are relatively smooth, there has been no burr formed and your knife cannot be made sharp. If you have an electric sharpener and no burr was evident then try it once or twice more and then test again. If there still is no burr this would be an excellent time to call a professional knife sharpener. Have your knives sharpened professionally and then keep them sharp with Sharp Pad.

Usually pull thru sharpeners have little problem raising a burr. Quite often, they raise "too good" a burr and literally can tear metal out of your edges (note pull thru picture in the section preceding). Even pull thru's wear out though so check for the burr.

If the coarse side of your electric sharpener was successful in raising a burr we're in good shape. Run the knife through the second stage and then de-burr with SHARP PAD. If your electric sharpener has three stages don't use the third stage. The final (third) stage of some electric sharpeners is an inadequate attempt at burr removal. Our tests show that it is an edge killer. Just use the first two stages and then SHARP PAD for a healthy and sharp edge.

Definitions

The "Burr" - A metal burr is created during the grinding process when the two sides of the blade meet at a very thin point on the ground edge. For the knife sharpener the creation of a burr is the signal that the grinding operation was successful and that no further grinding is required. The ground metal edge has become so thin that it no longer can resist the grinding pressure placed on it so it rolls over and away from the abrasive force. This is why a burr may be reduced by further grinding with finer abrasives and/or lighter pressure but not removed.

A "Rolled Edge" - While modern stainless steels are incredibly tough and durable very thin slices of it are fairly easy to bend. The steel at the very extreme extent of a sharp kitchen knife is likely to be sub-micron in thickness. The cutting edge of a double edge razor blade is only 100 nanometers thick. A good analogy of these same durability characteristics might be Kevlar. Kevlar is so flexible that it may be used in the form of wearing apparel yet so strong that a bullet can't pass through it. When a cutting edge is bent and rolls to the side it presents a much wider cutting edge. Wider equals duller when it comes to cutting edges. If the edge is not straightened then the roll increases with use.

The "Bent Edge" - Bent edges are rolled edges as well but the bend was caused usually by some trauma as opposed to normal use. The "bend" of a bent edge originates much deeper in the steel. Bent edges may or may not be able to be straightened but it makes little difference because the same trauma that caused the edge to bend almost always destroys the cutting edge at the same time.

Repetition - A short knife may only require one dragging motion in order to cover the entire edge. A very long knife may require you to position the blade in three different locations to cover the entire blade. When we speak of "one repetition" we mean covering the entire blade one time. So even if it took you three strokes to cover the entire blade on one side its still just one repetition.

Handle-Hand - The hand you are holding the handle of the knife in.

Off-Hand or Blade Hand - The hand that rests on the blade of the knife.

Flip the Blade - Turning the blade over so that the opposite side of the edge can be worked. When this motion occurs your off-hand becomes your handle-hand and vice versa.

Oxidation - Its basically rust. Machining operations like grinding tend to raise the inherent iron content of your stainless steel knife to the surface. Iron rusts and a rusted edge is duller.. Sharp Pad removes this oxidized metal from the surface of your knife edge resulting in sharper edges.