

# Selection and Care of Knives

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## Introduction

A sharp knife makes meat cutting easier and safer. If this basic tool of the meat industry, which is one of the cheapest and the most frequently used, is kept sharp, the task of cutting meat is less tiresome. A sharp knife cuts through meat with less required force and is safer because it is less prone to slip and accidentally cut the operator or others. To ensure that a knife is sharp for faster, easier, and safer work, one should follow these basic principles:

1. Select an appropriate knife for the task.
2. Select a knife of quality construction and materials.
3. Use appropriate sharpening tools.
4. Use an appropriate sharpening technique.

## Knife Selection

### I. Examples of Knives

It is important to select an appropriate knife for the task(s) to be performed. A skinning knife, boning knife, and steak knife will fulfill most needs. Generally, a skinning knife is used for sticking and skinning farm animals. The boning knife, which can be used for sticking, is most frequently used for muscle boning, trimming meats, slicing small cuts, and cutting a chicken carcass. Sometimes this knife is used for trimming vegetables and slicing cooked meat if appropriate knives for these tasks are unavailable. The steak knife is most frequently incorporated in the slicing of larger meat cuts and may be used for the separation of a carcass into smaller cuts, carving, and even slicing other foodstuffs, if the appropriate knives are unavailable.

### II. Knife Materials

The construction material is a major factor that determines the acceptability of a knife. A plastic handle is preferred over wood because of it being more sanitary and easier to clean. Most knives are

constructed from carbon steel, stainless steel, or carbon steel with a special finish or coating. The merits and limitations of knives made from carbon steel and stainless steel will follow.

#### A. Carbon steel

##### 1. Merits

- (a) Usually lower priced than high quality stainless steel knives.
- (b) Easily sharpened
- (c) Remains sharp longer than stainless steel knives

##### 2. Limitations

- (a) Rusts easily
- (b) Vulnerable to tarnish and discoloration

#### B. Stainless steel

##### 1. Merits

- (a) Resistant to rust, tarnish and discoloration

##### 2. Limitations

- (a) Usually more expensive than similar carbon steel knives
- (b) low priced stainless steel knives are difficult to sharpen and do not easily maintain a sharp edge
- (c) Poorly constructed stainless steel knives may be too thin and too flexible

## Knife Sharpening Procedure

A description of the procedures employed will follow.

### A. Grinding

If a new or used knife is not sharp enough to effectively cut, grinding may be necessary. If grinding is needed, a sand stone or emery stone may be used. The stone should be water or oil cooled to avoid over-heating of the knife. The blade should not be ground more than 1/4 inch from the edge to form the proper bevel. The preferred bevel is 5 degrees on each side (Figure 1). The bevel should be

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the same on both sides so that the knife may be used with either hand. The knife should be ground by holding it against the stone at a right angle to prevent scarring of the blade beyond the bevel. A scarred finish is more vulnerable to rust formation than a smooth finish.

## B. Honing

Honing is conducted by the use of carborundum or water stones on which oil or water is incorporated to maintain a scum-free abrasive surface, and to prevent overheating of the blade and excessive wear on the stone. Oil keeps the stone clean and floats away steel particles. Single stones should be secured by setting them in a block of wood or on a damp cloth to prevent sliding. A recommended stone for use should have a coarse side and a fine side. If the knife is dull, place a few drops of oil on the rough side of the stone and pull the knife into the stone as shown in Figure 2. If one is right handed, hold the handle of the knife in the right hand with the blade edge pointed away from the body. Left handed people should use the left hand. A position parallel to the side of the stone should be assumed with subsequent placement of

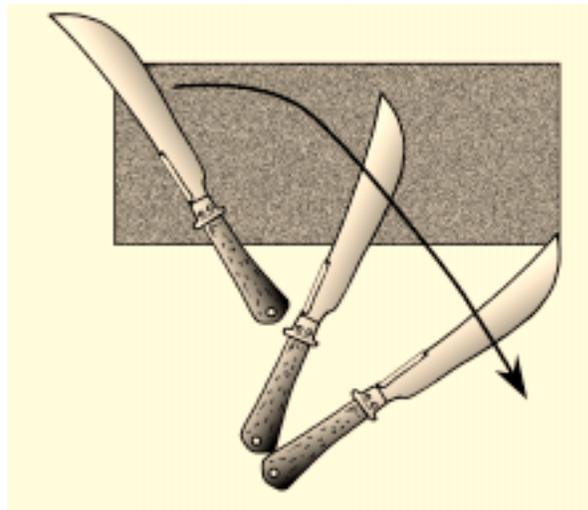


Figure 2. Honing

the heel of the knife blade on the left end of the stone. If one is right handed, place the finger tips of the left hand on the flat of the blade toward the tip and near the back edge to apply pressure to the blade. The cutting edge of the knife should be drawn with a sweeping motion toward the right of the stone. The correct motion is attained when that portion of the blade nearest the handle begins the stroke and the extreme tip of the blade ends the stroke. During the return stroke, the opposite side of the blade edge is exposed. For this movement invert the hand by twisting the right wrist to turn the palm upward. Turn the knife over, lift the left hand off the initial side, reach across the right wrist with the left hand and place the fingers on the blade tip. This stroke is made by proceeding right to left in the manner previously discussed.

During honing, it is important not to tilt the knife too high on the stone just to obtain a quick sharp edge. The next time the knife is sharpened, it is necessary to tilt the blade more to attain a quick sharp edge. Repeated tilting too high causes shoulders on the blade which should be removed as illustrated in Figure 1. This problem can be avoided by taking more time and keeping the knife edge nearly flat during honing.

## C. Steeling

A steel is a metal rod attached to a handle with a small hand guard. It is used to complete the knife sharpening process and maintain a sharp cutting edge. This step is necessary to straighten the knife edge by lining up the little teeth that are not readily visible. Frequent steeling will keep the knife edge straight and sharp. The mirror smooth steel for razor sharp edges is the best suited for meat knives. The ideal length of the steel is 10-12 inches.

The steel should be held firmly in the left hand (if right-handed) or right hand (if left-handed) almost diagonal to the body but with a slight upward tilt. This permits the free movement of the knife across the steel without

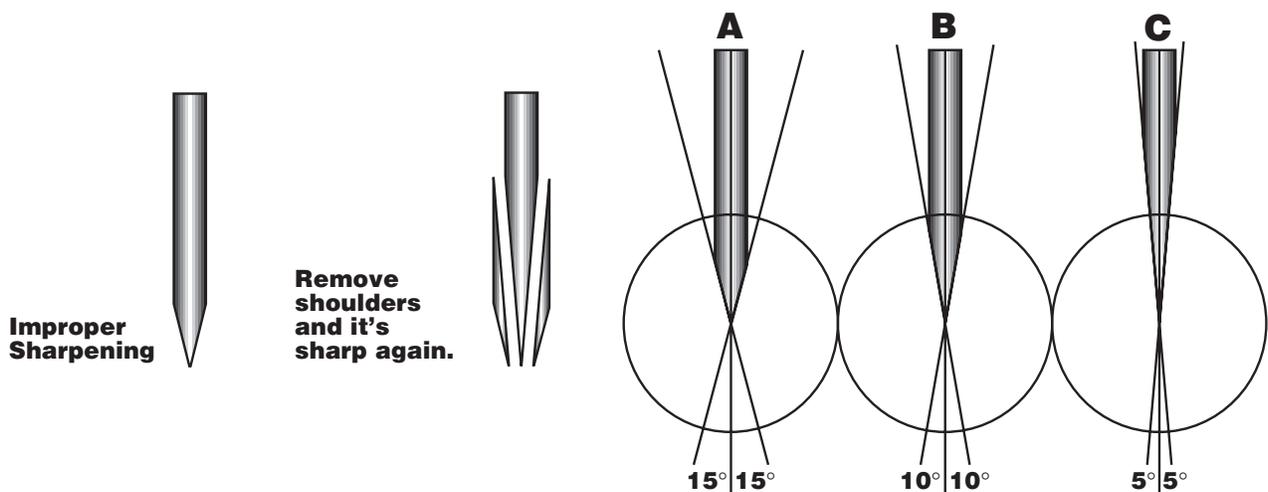


Figure 1. Bevel Illustration (The bevels in A and B are too short. C is correct.)

drawing it too close to the supporting hand. The heel of the blade should be placed against the near side of the tip of the steel at a 5-10 degree angle, with a sweep of the blade down along the steel toward the left hand during a quick, swinging motion of the right wrist and forearm. The entire blade should pass lightly over the steel. The knife should be returned to a position on the opposite side of the steel with the same motion repeated. A double stroke procedure can be used which permits the knife to contact the steel on both the downward and return strokes. A dozen strokes of the knife are usually sufficient to return the edge on a knife that is not very dull. Most workmen continuously steel the knife (once every few minutes) while work is being performed. To test the knife for sharpness and smoothness of edge, run the edge of the blade lightly over the flat of the thumb nail. If the knife slides easily, it lacks the proper sharpness. A sharp edge will dig into the nail and a rough or wire edge will rasp the nail. Another method for testing sharpness involves moving the ball of the thumb lightly over the blade edge, while the amateur usually tests the knife by shaving the hair of the forearm.



Figure 3. Steeling

## Care And Storage

During cleaning, the point of the knife blade should be held and the handle should be washed first. Subsequently, hold the handle and wash the blade with warm water. The blade and handle should be dried thoroughly to avoid rust and tarnish. Knives should be stored where they will be clean and dry with the cutting edge protected. An inexpensive knife holder may be devised from two pieces of cardboard taped together. A piece of cardboard folded in a V shape twice the width of the blade makes a good protection device.

## Summary

The time spent in careful selection, grinding, honing, steeling, cleaning, and storage of knives will ensure increased safety and efficiency during their use.

## References

A portion of the information provided in this publication was obtained from:

Hahn, R. 1983. Knife Sharpening. Meat Plant Magazine. Vol. 44, No. 5, p. 14.

Reddish, R. L. Selection, Care, and Use of Meat Knives. Extension Circular 349. University of Florida.

Savell, J.W. and Smith, G. C. 1998. Meat Science Laboratory Manual. p. 2-4. American Press, Boston, Massachusetts.

