What to Teach a New Technician, Part IV: Orthopedic Instruments

BY RICK SCHULTZ

The three previous Instrument Whisperer™ columns have addressed various key focal areas of new technician training, and this issue's topic in the series focuses on orthopedic instruments. As with scissors, all orthopedic cutting instruments must be sharpened frequently. The most common orthopedic instruments should be sharpened four to six times per year. These instruments include:

- Osteotomes;
- Chisels;
- Gouges;
- Single- and double-action rongeurs;
- Bone cutting forceps; and
- Curettes.

An osteotome is an orthopedic instrument that is typically used for cutting bone. A chisel is used for shaping bone. Functionally, the primary difference is that a chisel has one beveled edge (Figure A), while an osteotome has two beveled edges (Figure B).

These instruments must be kept sharp, as the sharpness of an osteotome is directly related to the amount of force needed to cut. The less force needed, the more easily a surgeon can control his actions. A sharp osteotome allows the surgeon more precise and controlled bone cuts and is safer for patient use.

Osteotomes should be inspected for sharpness and damage after every use. To test an osteotome, visually inspect the edges and corners. To test the sharpness of an osteotome, place the instrument at a 45° angle on the dowel rod/sharpness testing rod (Figure C). When forward force is applied, the osteotome should grab the dowel rod/sharpness testing rod without sliding.

Figure A

Figure B

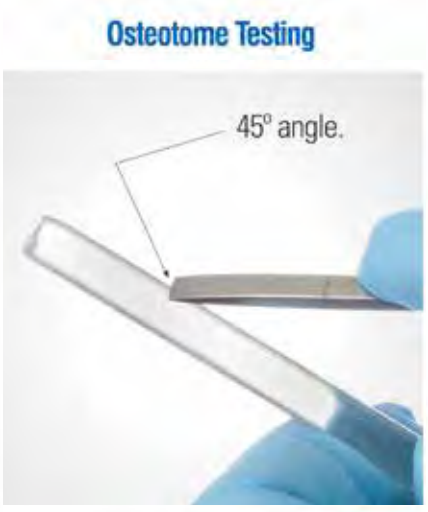

Figure C

It is recommended that osteotomes be sharpened a minimum of four to six times per year, depending on the usage, number of sets, and surgeon satisfaction. Osteotomes must be sharpened to have 90° corners (Figure D) and should have a sloped or tapered edge rather than a beveled edge (Figure E).

After years of sharpening, the effectiveness of the osteotome decreases because it becomes shorter and thicker. Once this happens, the osteotome should be replaced. A good way to protect the tips of an osteotome from damage is to use either a protective case or tip protectors.

As part of the inspection and sharpening process, a technician must also measure the length and suggest replacement, if necessary. The overall length is measured from base to tip in inches. The width of the cutting edge is measured in inches (e.g., 1⁄2") (Figure F).

Another commonly used orthopedic instrument is the rongeur. Rongeur is a French word meaning nibbler. The front one-third of the rongeur's jaw is where the cutting takes place. To test the sharpness of a rongeur, the front/distal third of the jaw should cut cleanly –

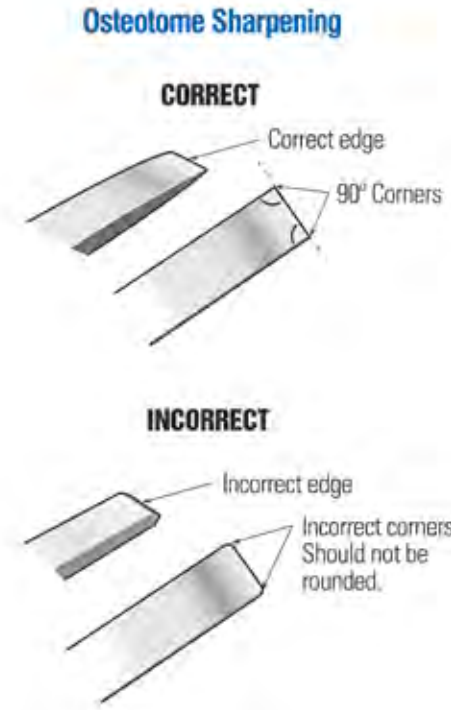

Figure D

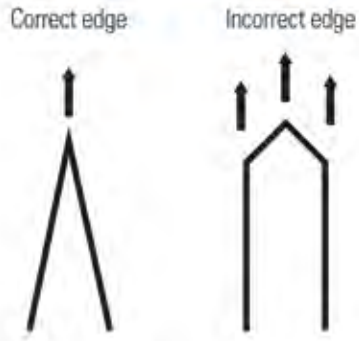

Figure E

Figure F

Figure G

two consecutive times – through one thickness of an index card or card stock (Figure G).

The size of the cups on a rongeur depends on its anticipated use. For example, the cups on the Leskell rongeur are designed for removing bits of cortical bone during spinal surgery. The width and length of the cup jaw is measured in mm (Figure H). In addition, the overall length of the entire instrument is measured from proximal end to distal tip.

The final orthopedic instrument to be discussed is the pin cutter. This instrument cuts wire and pins used in orthopedic surgical procedure. Large-diameter pins require a larger pin cutter to prevent damage to the instrument. Many pin cutters have the maximum-sized pin marked on them (for example, 7⁄64" indicates the largest pin size that can be cut). Never cut a pin at the tip of the pin cutter; only use the middle of the pin cutter jaw. Testing the sharpness is similar to a rongeur. The instrument

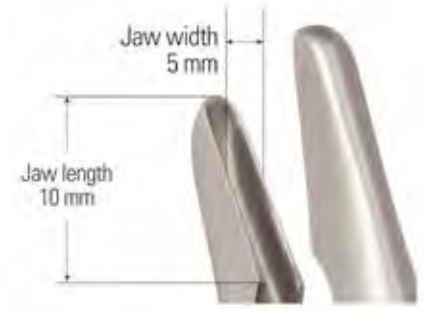

Figure H

should cut cleanly though a single thickness of an index card or card stock.

The next Instrument Whisperer™ article in this new technician training series will address ear, nose and throat (ENT) and obstetric/gynecology (OB/GYN) surgical instruments.

Q My new technicians are having trouble identifying and remembering common instruments. Do you have a tip for teaching them and helping them remember?

A Concept I've found that works well is memorization and repetition of showing them the instruments they are struggling with. I developed the Instruments Coaching Cards™ to help facilitate this type of learning.

RICK SCHULTZ, the Instrument Whisperer™, is an author, inventor and lecturer, and the retired Chief Executive Officer of Spectrum Surgical Instruments Corp. He served as contributing editor of IAHCSMM's Central Service Technical Manual (Fifth, Sixth, Seventh, Eighth Editions). Rick authored the textbooks *Inspecting Surgical Instruments: An Illustrated Guide and The World of Surgical Instruments: The Definitive Inspection Textbook*, which was released in June 2018. Schultz was named IAHCSMM's Educator of the Year in 2002, and in 2006, was named American Hospital Association Educator of the Year. In 2007, he was named by Healthcare Purchasing News as one of the 30 Most Influential People in Healthcare Sterile Processing. Schultz currently provides educational lectures to Central Service professionals at IAHCSMM's annual conferences and conducts operating room personnel lectures across the country.