Instrument Sharpening

Objectives
• Explain the advantages of using sharp instruments
• State the purposes of sharpening instruments
• Discuss the importance of maintaining design characteristics during sharpening
• Determine how to detect a dull cutting edge
• Explain how to sharpen any instrument without damage

Goal of Instrument Sharpening
• Restore sharp cutting edge
• Remove minimum amount of metal
• Maintain original design characteristics
• What are some of design characteristics you need to be aware of when sharpening an instrument?
• Consider differences between sickles, universals, and area-specifics

Advantages of Sharp Instruments
• Discuss 5 advantages in keeping your instruments sharp

How Do You Determine Your Instrument is Sharp?
A sharp cutting edge has no thickness, and therefore does NOT reflect light.
A dull cutting edge is rounded and will reflect light

Sharp Cutting Edge
• Is a line
• It has length
• But, no width
When is an Instrument Dull?

- Performance during use
- Tactile evaluation
- Acrylic test stick
- Visual evaluation
- Sound
- Comparison to a new instrument

- A dull cutting edge will slide over the test stick
- A sharp cutting edge will grab, bite or scratch the surface of a sharpening test stick

Results of Using Dull Instruments

- Stress & frustration
- Wasted time & effort
- Loss of control (more likely to slip)
- Loss of patient’s confidence in clinician
- Work-relate injuries (hand & wrist fatigue)
- More pressure & strokes
- Less tactile sensitivity
- Costs more money
- Burnished calculus

When do you sharpen?

- First sign of dullness
  - Before, during, or after each procedure
  - Sterile vs. non-sterile instruments
  - Infection control
  - Compare advantages of routine instrument sharpening to infrequent sharpening
  - What stones are recommended for chairside sharpening?

Equipment

- Dedicated sharpening work area (ideal)
- Stable work surface (flat)
- Good light source
- Loupes or magnification
- Sterile stones and test sticks
- Lubricant (oil or water)
- Gauze & cotton tip applicators
- Safety glasses
- Gloves & masks if instruments are contaminated

Lubricant

- Water or oil
  - Reduce friction and heat
  - Prevents metal shavings from sticking to stone
  - Sharpening during treatment
  - Synthetic stone and water

Three Types of Sharpening Stones

- Arkansas:
  - used for scalers & curets
  - used for light re-contouring & regular maintenance
  - flat wedged, cylindrical, or conical
  - must use lubricant (oil)

- India:
  - re-condition dull blades
  - fine, medium, course grit
  - can use oil or water
  - have filings but no sludge
  - synthetic man-made in variety of shapes & sizes
Three Types of Sharpening Stones

- Ceramic:
  - reconditioning dull blade edges
  - used for light re-contouring & regular maintenance
  - medium or coarse grit; singular, or dual
  - oil not needed- dry or water
  - used at chairside because oil not needed

Questions to Ask Before Sharpening?

- Are the cutting edges straight or curved from the heel to the toe
- Is the toe pointed or rounded?
- How many cutting edges does each instrument have?

Maintain the Lateral Surface, Tip, or Toe Design

- Sharpening the cutting edges in sections is a strategy to preserve design characteristics, whether it has straight or curved cutting edges

CROSS SECTIONS

Divide the cutting edge into three imaginary sections: Heel-third, Middle-thrid, Toe-third

Technique

- Stationary flat stone: moving instrument
  - Explorer
- Moving flat stone: stationery instrument
  - Sharpening by the "clock"
  - Sharpening periodontal files, chisels, or hoes

Wire Edges

- Always finish with down stroke
- Use round stone lightly across face
- Wipe with gauze
Optional Sharpening Choices

- Manual sharpening
  - Unmounted stones
  - Flat
  - Cylindrical
- Power-driven sharpening
- Mandrel-mounted stones
- Cylindrical, fit in handpiece
- Sharpening machines
- Professional sharpening

Instrument Tip Breakage

- Consequences of broken tip
- Retrieving a broken tip
- Follow up

- Frequent sharpening will eventually create need to replace an instrument—they have limited useful life.
- When a working-end becomes too thin from use & sharpening, it should be discarded.

References