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Retipping Hand Instruments: The Myths



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Objectives

Upon completion of this CE course, you will be able to:

1. Define the term “retipping”.
2. Identify the steps involved in “retipping” a hand instrument.
3. Describe the key features in the original manufacturing process.
4. Contrast “retipping” with the original manufacturing process.
5. Cite FDA guidelines for “retipped” instruments.
6. Identify potential risks of using “retipped” instruments.
7. Compare the cost of “retipping” with replacing instruments.



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Are you Retipping?



Let's Take a Closer Look



What “Retipping” Means

- It is **NOT** simply the replacement of the “tip end” of a scaler or curette with a new blade.
- “Retipping” is a process requiring the removal of the “turning” (the continuous piece of metal comprising the entire shank and working end) from the handle.
- A new turning must then be reinserted into the same “used” handle.



What Retipping is NOT

To clarify some common misunderstandings and misconceptions, “retipping” does **NOT** involve any of the following:

- The “recycling” of instruments
- Trade-in programs
- Resharpening
- Resale by the manufacturer
- Restoration of the instrument by the original manufacturer

In fact, **none** of the major U.S. instrument manufacturers will “retip” instruments.



The Craft of Creating Scalars

In order to better understand why the major manufacturers do not retip instruments, we need to examine the process of creating hand instruments.





The Craft of Creating Scalers

- 1) The “turning” (metal which will ultimately become the shank and blade) is manufactured from a custom-blended stainless steel.
 - Turnings vary widely in sizes, diameters, and designs based on the specific instrument.
 - The diameter of the turning must be slightly larger than the diameter of the specific handle for a secure fit.
 - The turning is made of a proprietary blend of steel.





The Craft of Creating Scalars

- 2) The **entire turning** is placed in a **bending device** to create bends and angles in the shank and the working end.
- The turnings are bent either by hand or by robotics according to the manufacturer's specifications for precise angles and lengths.
 - Instrument-makers create a **unique** bending device for each individual instrument design, according to exact specifications required by each manufacturer.



The Craft of Creating Scalers

3) Punch Press

- **Punch out** the angles based on instrument design.
(Example: Gracey curette vs. Sickle scaler)

4) Heat Treating – Turnings go through a **proprietary** process as determined by each manufacturer.

- High temperature furnace
- Cryogenic freezing – stabilizes internal structure of metal
- Tempering – heating to design specifications
- Each batch is sampled in compliance with ISO standards for validation



The Craft of Creating Scalers

5) Surface Finishing

- Further processing of the turning
- Ensures corrosion resistance





The Craft of Creating Scalars



Left: Turning set in handle
Right: Final assembly - turning press-fit into handle

6) Press-fit turnings into the handle:

- The most critical step to ensure quality and integrity of the instrument.
- Turning diameter is slightly larger than diameter of the handle.
- **Press fit** – turning is squeezed into the cone of the handle.
- Process is semi-automated and manual.



The Craft of Creating Scalers

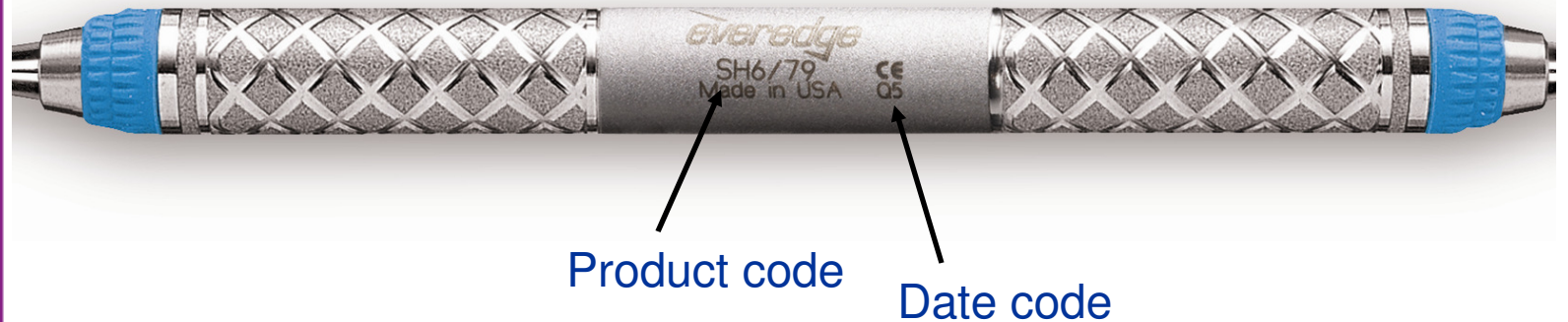
- 6) The press fit ensures secure placement and balance.
- Once press fit, the turning will not fall out or rotate.
 - Internal surface of handle is pre-glued, providing a complete seal to prevent microleakage of bacteria into the handle.
 - The turning is set into place.
 - The handle is positioned in line with the blade to ensure perfect balance.



The Craft of Creating Scalars

7) Laser marking – allows easy identification and tracking.

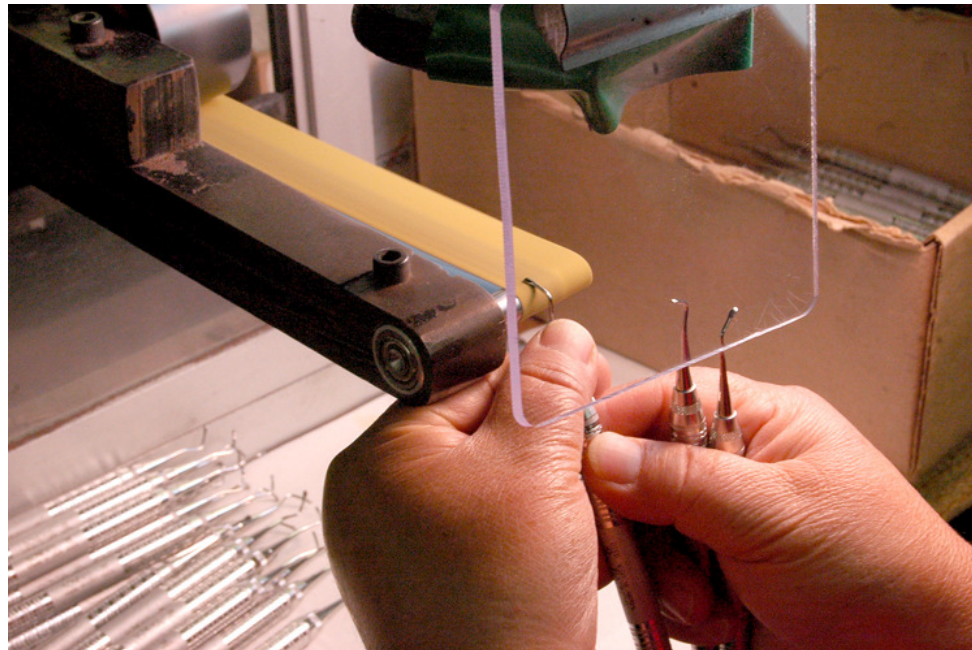
- Product code
- Date code





The Craft of Creating Scalars

- 8) **Finishing** – Final clean out and finish of working end.
- Working end is sharpened by hand and finished to specifications.
 - Final sharpening and finishing is completed by highly skilled instrument artisans.





Steps in the “Retipping” Process

- 1) Acquire raw materials & manufacturing tools.
- 2) Heat the ends of the handle (the collar) to loosen or melt the glue.
- 3) Forcibly extract the turning from the handle.
- 4) Reinsert a comparable turning with new adhesive.
- 5) Stamp “Retipped” per FDA guidelines.



The Perils of Retipping

Retipping Step 1:

Raw Materials & Manufacturing Tools

Key Questions & Considerations

Based on the fact that manufacturers each have their own customized, **proprietary** tools designed for every instrument:

- Where and how do retippers obtain their tools?
- Do they have specifications?
- What kind of metal do they use?
- Is it a medical grade stainless steel?
- Will the metal rust and corrode?



The Perils of Retipping



Left: Retipped Instrument
Right: Original Instrument



The Perils of Retipping

Retipping Step 2:

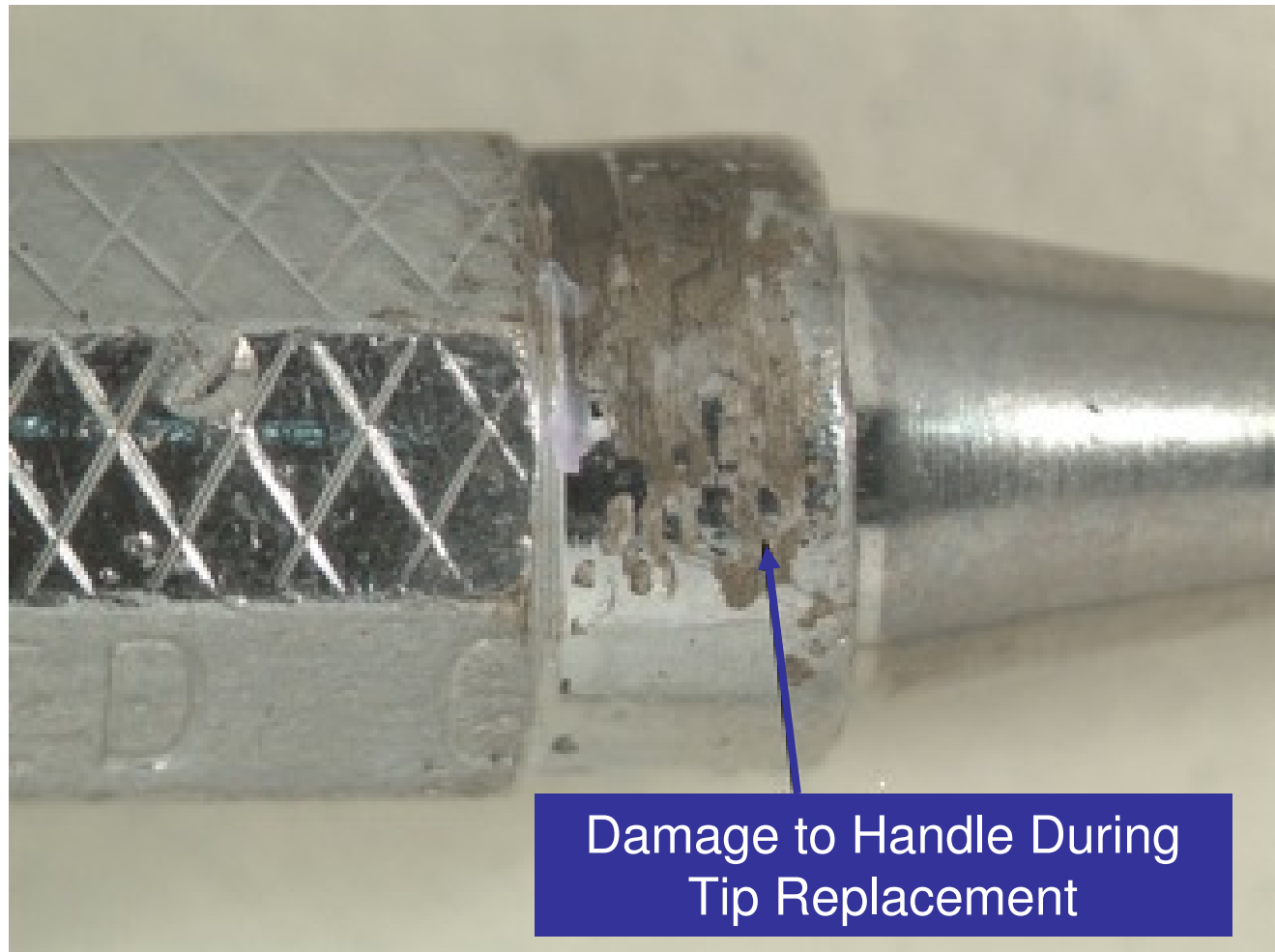
Heat the end of the handle

Key Questions & Considerations

- Once the instrument is altered, it is legally considered remanufactured and voids the original manufacturer's warranty.
- Reheating the instrument at high temperatures will negatively affect the temper of the metal at the collar of the handle.



The Perils of Retipping



Damage to Handle During
Tip Replacement



The Perils of Retipping

Retipping Step 3:

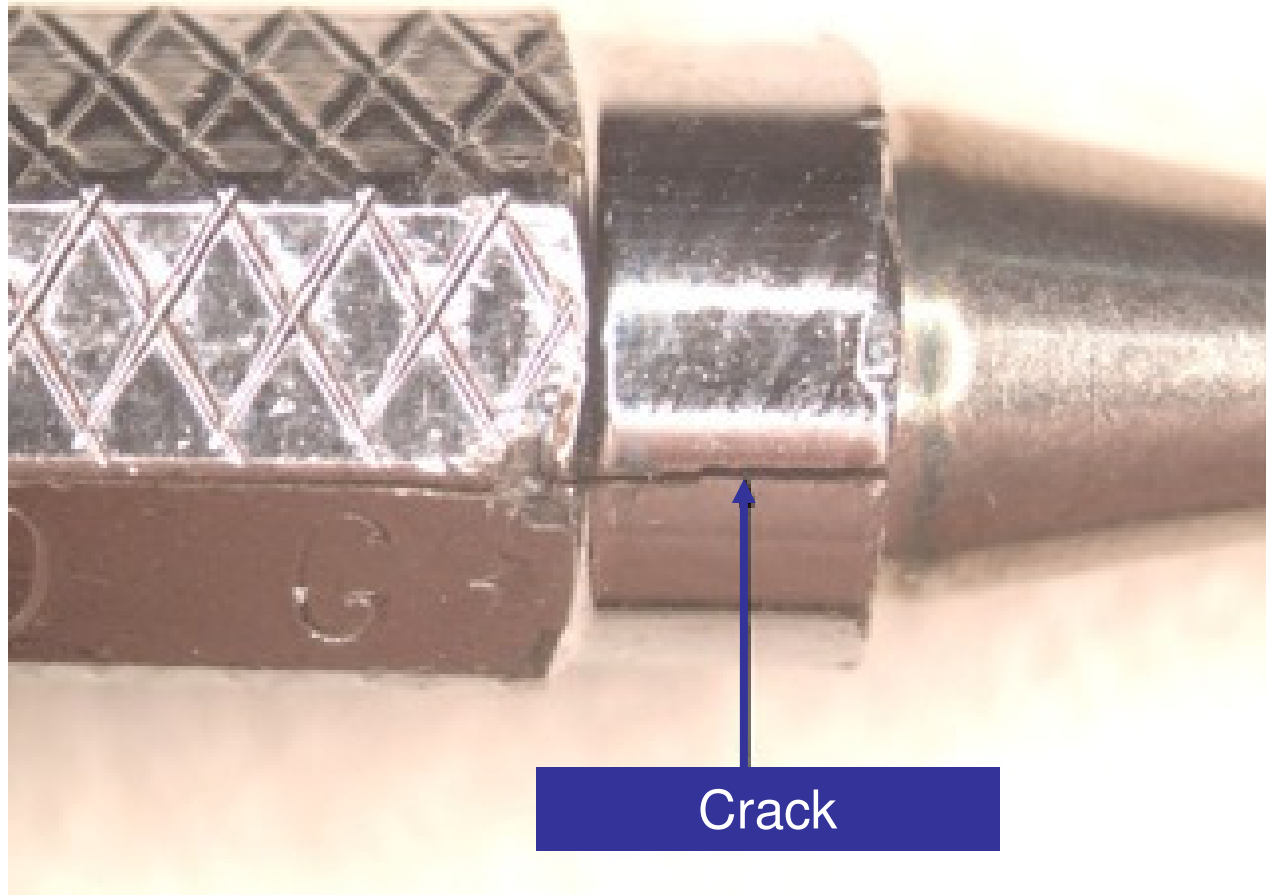
Forcibly extract working end

Key Questions & Considerations

- Once the turning has been press fit, the turning must be forcibly extracted from the handle, compromising the strength of the collar.
- Potentially creates micro cracks in the collar of the handle allowing microleakage of bacteria into handle.



The Perils of Retipping





The Perils of Retipping

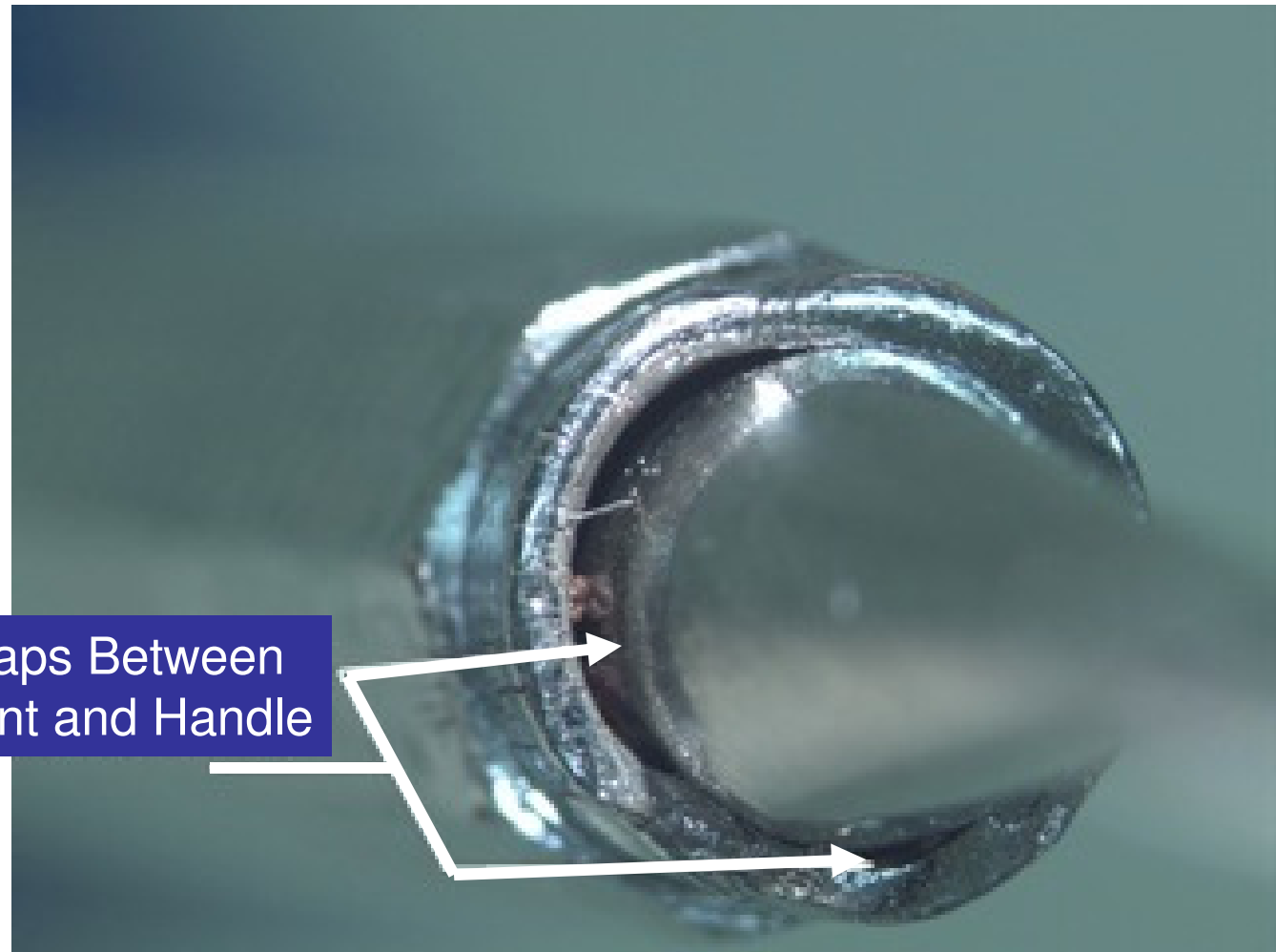
Retipping Step 4: Apply new adhesive

Key Questions & Considerations

- No guarantee on the quality of the adhesive, or the quantity of adhesive needed.
- Potential for gaps compromise a complete seal which could allow the working end to swivel or rotate in the handle, or fall out.
- An incomplete seal around the junction of the turning with the handle provides a portal for the leakage of bacteria and debris into and out of the handle.



The Perils of Retipping



Gaps Between
Point and Handle



The Perils of Retipping

Retipping Step 5:

Reinsert a comparable turning

Key Questions & Considerations

- Reinsertion may cause further damage to handle with nicks, chips and cracks from pressure.
- Turning is not to manufacturer specifications (size, bend and finish).



The Perils of Retipping





The Perils of Retipping

Retipping Step 6: Stamp “Retipped”

Key Questions & Considerations

- The label “retipped” or “remanufactured” notifies the professional end user that this is NOT the same instrument as originally purchased.
- The “retipped” stamp signals this instrument has been compromised with a different metal, design, and performance level.





FDA Guidelines

- The FDA has drafted guidelines to **warn** the professional end user that retipped instruments have been altered or remanufactured from their original state.
- The original manufacturer is absolved of any liability.
- The FDA requires that all retipped instruments should be stamped “Retipped” or “Refurbished”.





FDA Guidelines

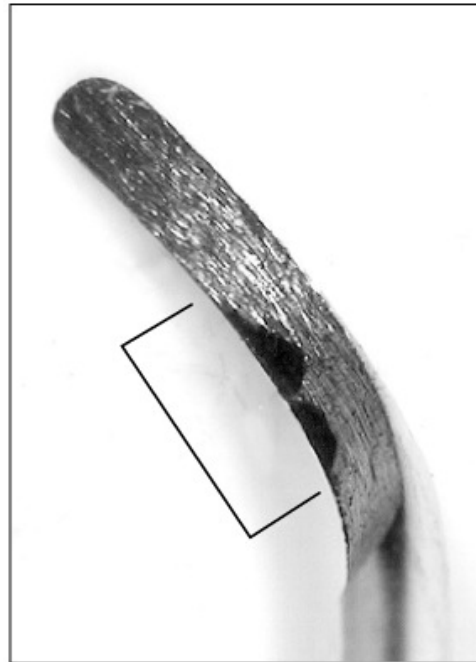
The guidelines can be found at
www.fda.gov/MedicalDevices





The Risks of Retipping

- Retippers do not have access to the specially formulated metals that the original manufacturers have created for their turnings.
- Lesser quality stainless steel alloys can wear and corrode easily.



Retip with corrosion



The Risks of Retipping

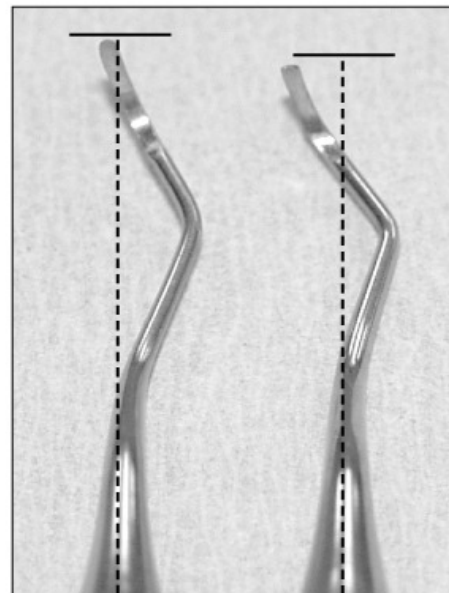
- “Turning” is not press-fit into the handle
 - Imprecise fit may cause the working end to rotate when lateral pressure is applied during scaling.
 - Working end may fall out of the handle during use.
 - Gaps or incomplete seal at junction may allow microleakage of bacteria, debris, and contaminated ultrasonic cleaner detergent into handle.





The Risks of Retipping

- Instrument may be unbalanced
 - Bending devices for each scaler design with the original manufacturer's exact specifications for angles and lengths are not available.
 - The blades are not finished to the precise specifications of the original design and may not be aligned with the long axis of the handle.



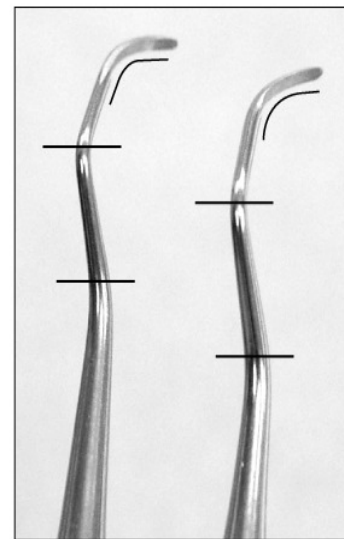
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Retip



The Risks of Retipping

- The variations in the bends, angles, and lengths of the shank and working ends do not duplicate the design features and benefits intended by the original manufacturer.



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Retip

- The clinician may be required to alter the adaptation of the blade to the tooth resulting in potentially awkward hand and fulcrum positions.



The Risks of Retipping

- Compromises in positioning, activation and lateral pressure may result in ergonomic challenges to the clinician.
- Variations in blade adaptation may lead to ineffective and inefficient scaling procedures.
- These challenges may cause a significant increase in physical, mental, and emotional stress for the clinician, and discomfort for the patient.





The Hidden Costs

Clinicians frequently think “retipping” is more economical than purchasing new instruments, but hidden costs must be considered:

- Frequency of replacing the tips
 - Retipped instruments need to be replaced more often than new instruments, 2-3 times per year.
- Resharpener Time
 - Blades do not hold a sharp edge as long as new instruments.
 - Retipped instruments tend to be more difficult to sharpen.



The Hidden Costs

Cost to the clinician – What are you worth?

- The handle of an instrument has the least amount of technology associated with it. Why sacrifice to salvage that, while discarding the precision of the original blade and shank design?
- The clinician may experience subtle ergonomic challenges with even slight variations in the working end specifications.
- It may be more difficult to perform the same procedure requiring more mental and physical energy in an effort to achieve desired results.



The Hidden Costs

Liability of the dental office

- The inferior quality of the tips lend themselves to greater risk of breaking or falling out during an intraoral procedure.
- Retipping voids the original manufacturers' warranty and liability.





The Hidden Costs

Processing Time for Retipping

- Staff time collecting/boxing up/shipping/ keeping track of the instruments.
- Tips of retipped instruments need to be replaced more frequently.
- Additional inventory of instruments on hand required for use while instruments are being retipped.



Alternatives to Retipping

There are alternatives to retipping that provide environmentally friendly disposal of used and worn instruments, while providing **financial** benefits for clinicians.

Manufacturers offer recycling programs for used instruments to protect our environment from non-degradable waste.



Alternatives to Retipping

For example, **Envirodent** from Hu-Friedy

- Customers send old instruments to the recycling center.
- The recycling center converts the metal instrument into a non-medical grade stainless steel through a melting process.
- The recycled steel is then sold to different industries, such as the auto industry.
- Recycled steel is NOT used to make new instruments.
- Customers receive a free instrument for participating.

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Envirodent[®]
Hu-Friedy Instrument Recycling Program



Conclusion

What are the factors that help you select an instrument, or a manufacturer?

- Comfort
 - Experience
 - Familiarity
 - Performance
 - Value for the price
 - Confidence in the brand
-
- Clinicians invest in technology and innovation to create positive experiences for the best clinical outcomes.
 - Avoid compromising these outcomes. Do not retip instruments.



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Sherry is the Senior Education Consultant with Hu-Friedy Mfg. Co., Inc. Her distinguished career started with a B.S. degree in Dental Hygiene from the University of Michigan in 1967 and a Masters degree from the University of Missouri at Kansas City in 1972. Her extensive professional experience spans four decades as a private practice clinician, educator, researcher, author and community health dental hygienist.

Sherry has gained international recognition as an expert on instrument design, sharpening and clinical techniques. She has collaborated with Hu-Friedy on numerous instrument designs and holds a U.S. patent. She is the originator of the design concept for the After Five® curettes and the simplified sharpening strategy known as "It's About Time to Get On the Cutting Edge." Her most recent creative efforts contributed to the innovative concept of the Satin Swivel™ Ultrasonic Insert and the Gracey 17/18 curette. Sherry has lectured extensively around the world and authored numerous articles and textbook chapters.

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Born and raised in a dental office with over 35 years of experience in dentistry. Judy travels extensively as a national speaker. She is on the faculty at Temple University-Maurice H. Kronberg School of Dentistry as well as an advisory board member at Harcum College School of Dental Hygiene in Bryn Mawr PA. She is a long standing member of ADHA and Distinguished Academy member of the Pennsylvania Dental Hygiene Association. She worked for many years in clinical hygiene followed by over twelve years in sales for Interplak Toothbrush Co. and Hu-Friedy Mfg. Co., Inc. She is an educational consultant for Hu-Friedy



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