



THE SHARPER EDGE OF Instrument Technology

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technology

Recreating or restoring a sharp cutting edge on a delicate blade with the same precise internal angle as the original blade design may be perceived as an intimidating, time-consuming challenge. As an instrument is frequently used, however, more metal is worn away from the cutting edge. When applied to a tooth surface, this dulled (blunt) edge is difficult—even impossible—to control since it slips and slides. The natural reaction is to grip the

instrument more tightly, exert excessive force, and increase the number of strokes (repetitive motions) in a futile attempt to remove calcified deposits. From a physical or mechanical perspective, however, a blunt edge is incapable of cleaving under a deposit to remove it. Additionally, the blade will only slide over the outer surface, resulting in a burnished deposit. Quality periodontal therapy cannot be provided, and a potentially hazardous situation involving discomfort for the patient as well as an ergonomically related trauma for the clinician may result.

Although the relationship between sharp instruments and quality periodontal debridement (ie, scaling and root planing) procedures is clear, maintaining exquisitely sharp edges is rarely identified as a priority. Most practitioners are familiar with handheld sharpening techniques that recommend gripping the instrument in one hand and then attempting to place the stone, held in the other hand, against the blade at a specific angle of 110 degrees. This visual estimate of the relationship of the stone to the blade introduces a wide margin of error. The traditional freehand approach to sharpening may instill a sense of uncertainty in the knowledge that grinding metal away from the blade may result in distortion.

Dental practitioners have long expressed the need for sharpening mechanisms that provide assurance of accuracy, speed, and simplicity. Manufacturers have responded, and several sharpening devices that offer realistic alternatives to the traditional freehand methods have been developed.

New Technology in Sharpening Devices

There are several sharpening devices currently available on the market:

- Sidekick™ (Hu-Friedy, Chicago, IL)
- PerioStar® (Kerr-Sybron, Orange, CA)
- InstRenew™ (Nordent Manufacturing, Elk Grove Village, IL)
- The Ultimate Edge Kit (Paradise Dental Technologies, Missoula, MT)

Suggested Sequence for Sharpening Instruments

- Avoid sharpening contaminated instruments. Prepare and sterilize favorite instruments to be used as “back-ups” for quick access during an appointment.
- Sterilize instruments.
- Test individual cutting edges on each blade.
- Sharpen the dulled edges.
- Repackage and sterilize.

Benefits of Using Sharp Instruments

The ability to reproduce razor-sharp cutting edges with the same dimensions has “clear-cut” advantages for the intricate, procedures in periodontal instrumentation:

- Increases efficiency in deposit removal.
- Reduces lateral pressure.
- Decreases residual, burnished deposits.
- Enhances patient comfort level.
- Elevates level of operator confidence.
- Improves tactile sensitivity.
- Minimizes operator stress and fatigue.

These high-tech, sophisticated sharpeners can help restore and recreate the cutting edge on periodontal scalers and curets. The preset parameters of consistent angles and constant pressure help to eliminate or reduce the margin for error. In fact, novice users can produce sharp edges in the same length of time that may have required months, or even years, of practice to accomplish with a free-hand approach. The sharpening procedures can now be delegated to the dental team member responsible for instrument processing to ensure that the clinician has sharp instruments for each patient. It should be noted, however, that these devices are not intended to recondition blades that have been badly distorted by incorrect sharpening angles or usage.

The currently available sharpening devices provide options to meet each dental professional's individual preferences and needs. The original cutting ability of periodontal instruments can be regained with speed and precision. The quality of patient care is enhanced with more efficient, accurate, and comfortable procedures. □

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The “Myth” of Retipping

Since the beginning of their careers, hygienists have been faced with the dilemma of what to do with an instrument when the working end becomes too thin, worn down, or even broken. For years, it was assumed that the instrument could simply be sent to the manufacturer, and it would be fixed or restored with new tips in the old handle.

This scenario, however, is truly a “myth.” The “fact” is that NONE of the major manufacturers of dental instruments in the US will retip an instrument. The company may replace the instrument with an entirely new one, but be assured that the top-quality instrument manufacturers will not provide their customers with a retipped product.

This “legend” has also been addressed by the Food and Drug Administration, the federal agency responsible for monitoring dental instruments under the category of medical devices. In general, refurbished devices are available at a reduced cost, but come with an increased risk that the safety and effectiveness of the original device may be compromised. The FDA is aware of the existence of the potential risks related to device remanufacturing and published a compliance policy guide in 1987, revised in 1995, for reconditioners and rebuilders of medical devices that include dental instruments. The FDA requires, among other regulations, that such a manufacturer clearly and conspicuously disclose its name and address, and the fact that the device was reconditioned or rebuilt. This is intended to serve as a warning to the professional end-user that the device (ie, instrument) has been remanufactured.

Instrument fabrication is a complex process, not simply just placing a tip into a handle. There are issues of balance, alignment, unique characteristics inherent in each company's individual designs, and special procedures to ensure the strength and integrity of the junction of the turning (which consists of the entire shank and blade, commonly referred to as tip) inside the handle. This is the major safety issue in the retipping process. When a turning (ie, tip) is removed from a handle, it must be forcibly extracted to break the inherent mechanical and chemical locking features of the original instrument. Small, almost microscopic, cracks may occur in the hub of the handle. Lateral pressure by the clinician during the scaling process may snap the turning out of the weakened handle. In addition, the microcracks are a portal of entry for the microleakage of organisms and debris into the hollow handle. When a new turning is force-fit into the weakened handle, further damage may result. The original dimensions at the hub of the handle may have been altered, making it impossible to replicate the precision-fit with small gaps occurring at this critical junction. The handle is the least expensive segment of an instrument. Is it worth using an old handle that has been compromised in the refurbishing process? Why would a professional knowingly pay for such risks? Remember, the FDA has “warned” the end-users by requiring specific labeling.