Shipp's Tips On Proper Instrument Cleaning, Handling and Maintenance

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Use instruments only for their intended purpose. Improper use can cause damage and breakage. Handle your instruments gently with proper technique and avoid overstraining them. Proper care and sharpening will help an instrument work properly and last longer to perform many, many procedures well. Using an instrument that is too dull can result in breakage or damage. Sharpen often (after every use is best) and at proper angles. If not well versed, leave it to a professional sharpening service. Replacing an instrument when it's time will insure that procedures go smoothly.

Stainless steel instruments are not impervious to stains or corrosion but with proper care and cleaning techniques they are extremely durable and resistant to all types of stains and imperfections. Immediately after use thoroughly rinse off all blood, tissue and other fluids with distilled or demineralized water. Unfiltered and tap water can leave stains and introduce minerals onto the surface which can then oxidize during sterilization. Do not use steel wool, wire brushes or high PH detergents. Clean and sterilize hinged instruments in the open position and lubricate prevent stiff movement, misalignment and cracks in the hinge. For carbide instruments use detergents and lubricants that are a neutral PH (7).

Manual Cleaning

Recommended for very delicate instruments like micro surgical and castroviejo patterns. If cleaning is not to be done immediately after use soak in a solution of water and neutral PH (7) detergent. Use stiff plastic or nylon cleaning brushes, do not use steel wool or wire brushes except for stainless steel brushes. Use only neutral detergent PH (7). If not rinsed properly low PH detergents will cause black staining. High PH detergents will cause a brown staining and surface deposits that will not allow smooth operations of hinged instruments. After thorough scrubbing rinse completely. Open and close hinged instruments and make sure all debris and cleaning solution are out of the hinge.

Ultrasonic Cleaning

Ultrasonic cleaning is one of the most effective cleaning methods, make sure to clean for the full recommended cycle time. If cleaning is not to be done immediately after use keep soak in a solution of water and neutral PH (7) detergent. Clean all hinged instruments in a fully open position. All instruments must be fully submerged in the cleaning solution for thorough cleaning. Do not mix sharp instruments (like scissors or chisels) with other instruments (such as non-stick composite instruments) in the same cleaning batch. The movement caused during cleaning can scratch the surface of the less sharp instruments. Clean different metals separately (don't mix stainless steel with chrome plated). Rinse thoroughly after cleaning with filtered/distilled water

to remove ultrasonic solution and change solution frequently.

Automatic Washers/Sterilizers

Using filtered water to rinse and wash instruments will provide the best care. Unfiltered water/tap water can introduce minerals which can oxidize during sterilization. Follow the manufacturer's recommendations for proper use of this type of equipment. Lubricate your instruments after the last rinse cycle and before the sterilization cycle.

Instrument Inspection

After cleaning and drying is a perfect time to inspect for signs of wear, for proper function and/or breakage. Check scissors to see that they work smoothly and are not loose when in the closed position. Test scissors for sharpness by cutting some thin gauze. Should be sharp from the tip to three quarters of the length of the blade and cut smoothly without hanging up in the gauze. Tissue and dental forceps should have properly aligned jaws and operate smoothly. Needle holders and hemostats should have jaws that close securely without wear on the jaw surface. Sharp edged instruments should have smooth unchipped blades and working surfaces. Elevators and similar instruments should have unbent shafts.

After Cleaning and Inspection

Store in a clean and dry place. If instruments are to be reused or autoclaved, lubricate hinged instruments with a surgical lubricant like instrument milk. DO NOT use WD-40 type oil or other industrial lubricants. Autoclave in disposable paper or plastic sterilization pouches are best making sure that the pouch is large enough for hinged instruments to remain in an open. When autoclaving sets of instruments place the heaviest instruments on the bottom of the pack to avoid damage to more delicate instruments. verloaded autoclaves can have places that the steam cannot penetrate and leave areas unsterilized. Using a towel in the bottom of the autoclave to absorb excess moisture can cause a problem since it may contain detergent or bleach residue and may not be PH (7). At the end of the autoclave cycle-before the drying cycle, open the door slightly (around 3/4 of an inch) and then run the dry cycle as recommended by the manufacturer.

Types of Instrument Discolorations and Causes

Spotting or staining can be avoided by using proper care techniques. Some of the types of stains that can occur and their causes:

Light/Dark Spots: Slow evaporation of water condensation. Mineral deposits are left behind as a result of using tap water. Spots can develop by opening the autoclave door before steam is completely gone and slow drying occurs. Spots can also be caused by reusable instrument wrappers. During laundering process make sure the wrappers are thoroughly rinsed of any detergent residues that can be carried onto the surface during steam sterilization.

Slight Brown/Blue Stains: Usually is a simple build-up of oxidation on the surface (more noticeable on matte finished instruments than high shine instruments) which results naturally from the formation of chromic oxide.

Blue Stains: Usually the result of cold sterilization solutions. Make sure it is mixed and changed according to the manufacturer's specifications and use distilled or demineralized water when

mixing.
Overly long use of the solution will make it corrosive.

Purplish/Black Stains: This results from exposure/contact with ammonia. Many cleaning solutions contain ammonia and will stains if not cleaned thoroughly. Can also occur from amine deposits from the autoclave. Clean your autoclave with a cycle of distilled water.

Rust Spots: It is unlikely that stainless steel instruments will rust. In most case sit is left behind organic materials or mineral deposits that have baked on during autoclaving. Electrolytic action will carry carbon particles to sterilized instruments with bad, cracked or chipped or badly plated carbon steel will oxidize and leave rust behind. The surface underneath these spots are intact and the stains can be removed with a pencil eraser. A rust colored film can also be left with the use of a water softener.

Corrosion: Can be caused by excessive moisture, blood or materials left in instrument hinges, foreign matter in the autoclave, and from not keeping hinged instruments open during sterilization. Make sure to preheat the autoclave and don't rush the drying process. Clean autoclave regularly with a solution of equal parts vinegar and distilled or demineralized water (acetic acid) to remove any impurities that can cause corrosion.

Pitting: Can occur if detergents with a high PH are used and instruments are not rinsed immediately after use. A pitted instrument should be replaced. The outer surface has been breached and further pitting and corrosion will occur.