

General Principles of Surgical Tool Management

1. Because all surgical tools are provided in a non-sterile condition, they must be cleansed and sterilized before use.
Caution - Wrong cleansing and sterilizing process causes corrosion and damage to the tools and if used directly, it may be the cause of 2nd infection.
2. The recommended number of use of a drill is 20–30 times based on the bone status, and it must be replaced if the blade has been damaged or transformed.
Caution - If damaged drill is used, Heat Necrosis may occur
3. When managing the surgical tool, one must wear a mask and a glove to prevent infection.

Before sterilization

1. To prevent contaminants such as blood, tissue cell or bone residue from attaching to the surface of the instruments, the instruments must be immersed in an antiseptic solution right after use.
2. When using antiseptic solution, to prevent corrosion or bronzing, one must follow directions given by the manufacturer of the concentration of the antiseptic and the duration of the instrument immersion in the antiseptic.

Check

Concentration : Completely liquefy the concentrate before placing the instruments in the antiseptic solution.
Immersion Duration : The instruments must not be immersed more than a day

3. The instruments must be fully immersed in the antiseptic solution.
4. For a decrease in sterilizing power and to prevent corrosion, the antiseptic solution must be replaced every day.

Before rinse

To prevent protein from clotting in 45 degrees temperature Celsius, the instruments must be rinsed in running cold water.

Caution

Cleanse the instruments right after preliminary rinse

Sterilization

1. Must only use antiseptic solution that is FDA and CE approved, and you must follow the manufacturer's directions
2. When cleansing metal instruments, corrosion free antiseptic solution and cleansing product use is recommended.
3. For safety, one must always wear personal protection gear such as gloves, glasses, and masks.
4. The user has an obligation to be responsible for the sterilization and management of the instrument.
5. Restriction and limitation of the instrument reuse:
 - With repetition of cleansing, the life expectancy of all instruments will decrease. If the instruments show corrosion, transformation or discoloring of the marking area, it means that they have exceeded the safety criteria that is required for use.
 - Product with a disposable mark cannot be reused.
 - Tungsten carbide burs, plastic composition and NiTi instruments can be damaged with hydrogen peroxide, and aluminum material instruments can be damaged by caustic soda solution.
 - Acid solution (pH < 6) and alkaline solution (pH > 8) must not be used.

Caution

After use, if the contaminants such as residual bone or blood stain are not completely removed, it may lead to corrosion; therefore all separable instruments must all be disassembled before the cleansing process.

Cleanse / Dry

1. Contaminants must be completely removed using a soft brush.
Do not use a wire brush or stainless material brush, and do not put too much pressure.
2. Immerse the products in the antiseptic solution of their characteristics and clean with an ultrasonic cleaner. However, do not cleanse the different materials together. Also, when immersing the instruments in the ultrasonic cleaner, make sure that the instruments do not touch each other.
3. Make sure that debris is not seen with the naked eye.
 - Products that are fractured or transformed must be discarded.
 - One should follow the recommendations for the level of concentration or the length of time provided by the manufacturer.
 - The antiseptic solution must not include aldehyde, di- or tri-ethanolamines component to control the corrosion.
4. After cleaning, the products must be rinsed with distilled water or deionized water for at least a minute. If the antiseptic solution contains corrosion inhibitor, rinsing before placing in the sterilizer is recommended.
5. To prevent corrosion or water stain on the instruments, completely dry with a dryer or filtered compressed air
6. To prevent corrosion, decrease in sterilizing power, and contamination, antiseptic must be supplemented every day.

Caution

If the instruments are not properly rinsed, residue is left behind, or is not properly dried, the sterilization process might discolor or corrode the instruments, and therefore the whole process must be gone through again.

Caution

Corrosion may start if debris such as blood stain or bone residue is not completely removed. They must be cleansed right after use and the debris must be completely removed when cleaning.

Check

Check on the instruments for faults (fracture, transformation, or corrosion). If necessary, assemble the instruments.

Contaminated instruments must be cleansed or disinfected. Transformations that may affect the safety, performance or tolerance of the instruments; in other words, bent, damaged (fractured, corroded), or faulty products (discoloration of marking area, Loss) must be destroyed.

Packaging

1. Check on the dry status of the instruments and pack in the sterilized wrapping paper.
2. On the sterilized wrapping paper, attach a direction tape to check the date of sterilization. Check on the expiration date on the sterilized wrapping paper. Wrapping paper must be able to withstand up to 141 degrees that coincides with the EN ISO 11607.

Pasteurization

1. The product is packaged cleaned, and should be sterilized before its use. To correctly sterilize the products, use a steam sterilizer with pre-vacuum process, at a temperature of steam sterilizer at 132° C for 4 minutes, dry for 20 minutes with a validated cycle according to the standard ISO 17665-1 following the auto-clave manufacturer instructions.
2. Instruments and plastic components must be sterilized based on their packaging label.
 - Sterilizer must coincide with the requirements of EN 13060 and EN285.
 - Sterilization process must regard the ISO 11607.
 - One must follow the sterilization process and maintenance process of the sterilizer provided by the manufacturer.
 - Efficiency management (Proper packaging, no humidity, change in color of the sterilization dashboard)

Caution

- The products must not touch the inner part of the sterilization equipment, and the sterilization degree must be lower than 150
- The products that were not properly cleansed or dried may generate corrosion. If they were not cleansed, not properly dried or corroded, separate them from the rest or remove the faults. (Do not sterilize the corroded instruments with the noncorroded products together)
- For sterilization, use only salt-free water or distilled water for the solution. (Do not use tap water)
- Check if the instruments are fully dried, and do not leave them in a place with high moisture.

Storage

Instruments must be stored in a sterilized container in a dry and clean environment. If the packaging is opened or damaged, we cannot guarantee the instruments' sterilization status.