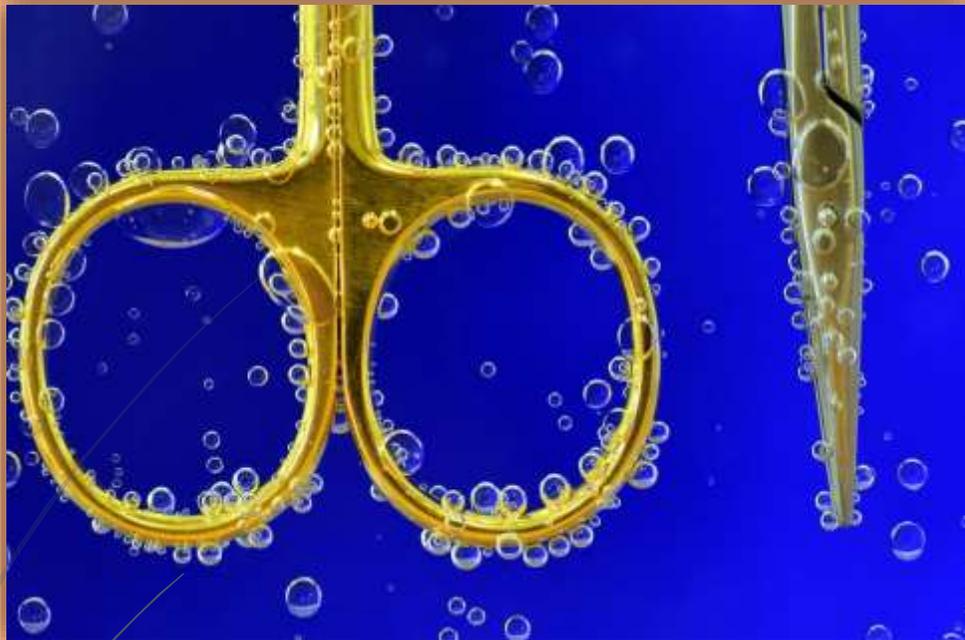


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Advanced Techniques Used For Sterilization



Before discussing the advanced techniques that are used for the sterilization of the instruments let's discuss "What Is Sterilization?"

What Is Sterilization?

It is a process used to effectively eliminate all the transmissible micro-organisms. These micro-organisms may include viruses, bacteria, & fungi. With the help of this procedure, all the micro-organisms present on the surface of the equipment used in the operating room are eliminated.

Advance Technique Used For Sterilization:

The process of sterilization is approximately 120 years old but there were advances in the techniques which are used for sterilization. These techniques progressively improved from the early times of steam sterilizers to modern microprocessor-controlled machines which are automatic.

Still, the performance, reliability, and efficiency of these types of equipment are improving day by day. While the fundamental processes are still the same.

Steam Sterilization:

It is a simple and very effective method used for the sterilization of surgical instruments.

The goal of sterilization using this method can be achieved simply by exposing the surgical instruments to saturated steam at high temperatures of 121°C to 134°C.

Products are exposed to this high-pressure steam in a device commonly known as "an Autoclave".

For this method, the air should be completely removed from the device's chamber because air and steam do not easily mix which may result in temperature variations in the chamber.

Air can be eliminated either by "**Gravity Displacement**" or "**Pre-vacuum cycle**"

Autoclave:

The autoclave was invented by "Charles Chamberland" in 1879.

In that period the researchers started to find out the advantages of sterilization and sterile surgery because the doctors needed more reliable methods for sterilization than open flaming the instruments.

An **autoclave** is a sterilization device which is used to sterilize the surgical instruments and all other equipment used in clinical & hospital sites.

Autoclaves use the power of steam to kill bacteria, spores, and germs that are resistant to boiling water and even the powerful detergents.

Ethylene Oxide Sterilization:

In this type of sterilization, **Ethylene Oxide Gas** is used to sterilize the equipment and products that cannot tolerate high steam pressure & temperature. It is a common gas used for low-temperature sterilization.

The temperature used in this method of sterilization ranges from 25°C to 55°C.

Glutaraldehyde:

Glutaraldehyde is a saturated dialdehyde commonly used as a high-level disinfectant for the surgical site equipment especially for the endoscopic instruments, transducers, respiratory therapy equipment, & anesthesia equipment as well.

It is non-corrosive to metal equipment and does not damage lensed equipment.

Peracetic Acid

Peroxyacetic/peracetic acid is characterized by rapid action against all microorganisms. Peracetic acid is commonly used in an automated machine to chemically sterilize the medical and surgical site equipment. Peracetic acid is diluted with 0.2% filtered water at a temperature of 50°C.



THANK YOU!