



**Florida State University
Animal Care and Use Committee**

Policy on Use of Hot Bead Sterilizers and ‘Tips Only’ Technique

The policy below describes the use of glass bead (‘hot bead’) sterilizers and tips only technique in rodent and avian survival surgery.

CDC’s Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008 (updated 2019) states, in part, regarding the use of these units: “the FDA believes there is a risk of infection with this device because of potential failure to sterilize dental instruments and their use should be discontinued until the device has received FDA clearance.” While units that have submitted premarket approval information to FDA continue to be manufactured and used, there is conflicting data regarding their effectiveness for true sterilization. This is due, in large part, to variable temperature within the well of glass beads.

Therefore, glass bead (‘hot bead’) sterilizers may be used to re-sterilize instrument tips for batch rodent and avian surgical procedures but are not acceptable as an initial method of sterilization. Instruments must be initially sterilized by autoclaving, chemical or gas sterilization. These sterilizers may also be used between animals when one set of initially sterilized instruments is used on a group of up to 5 animals, provided the instruments are cleaned of debris prior to insertion in the glass bead well, and the instrument tips have not penetrated any possible contaminated organ (e.g. gastrointestinal tract).

Use of glass bead sterilization must be described in the approved Animal Use Protocol and must describe use of tips only technique.

Glass bead sterilizers may only be used in accordance with the specific manufacturer’s recommendations. This includes cleaning and/or replacement of the glass beads.

Glass bead sterilizer general instructions:

- Remove cover from well. Ensure that the glass beads level is within 2 mm of the top of the well.
- Turn on the unit and allow adequate time for the beads to heat (15-30 minutes, depending on the unit).

- Remove all debris from instruments prior to inserting into the glass beads. Care should be taken to remove debris from the teeth of forceps, the box locks of needle holders and the hinge area of scissors. Wipe or rinse instruments with alcohol and allow to air dry before insertion.
- Insert tips at least ½” below the surface of the beads.
- Allow contact time between 30-60 seconds. Larger instruments require more time to achieve sterilization (2-3 minutes). Longer contact times may damage instruments.
- Do not overload well with instruments. Proper decontamination cannot be assured if the glass bead well is overloaded. Do not place more than 3-4 instruments in the well at a time.
- Instrument tips become extremely hot and must be cooled before use. This will require a minimum of 15 seconds (possibly as long as 1 minute) before the instrument can be used.
- Before using instruments, check that no glass beads are adhered to their surface.

Notes:

1. If the instrument tips become contaminated by contact with a non-sterile surface or non-sterile portions of the body, the tips must be rinsed with alcohol and re-sterilized in the glass bead sterilizer.
2. If an instrument’s tips become contaminated with the contents of the gastrointestinal tract, a new sterile (initial sterilization as described above) set of instruments must be used for subsequent surgeries.
3. Do not heat hollow instruments in a glass bead sterilizer. The inner surface will not be in contact with the heated beads and improperly decontaminated. In addition, high heat may cause such instruments to explode.
4. Glass beads must be cleaned and/or replaced in accordance with the manufacturer’s recommendations.
5. All glass bead sterilizers must be checked semiannually to ensure that the equipment reaches the manufacturer’s certified temperature range. The date a unit is checked should be kept either in a log available for review by the ACUC or on a label affixed to the unit.

Tips Only Technique

- A “tips-only” technique restricts the surgeon to using only the sterile working ends of the surgical instruments to manipulate the surgical field.
- The surgeon’s non-sterile gloved hands and non-sterile sections of instruments must never touch the working end of the instruments, the suture, suture needle, wound clips, or any part of the prepped surgical field.
- If the surgeon lays an instrument down, the sterile tips must only be placed on a sterile surface. The instrument handle should not come in contact with the sterile surface to avoid contamination of that surface.
- If the tip of a surgical instrument becomes contaminated (with the exception of entering the gastrointestinal tract), the tips may be re-sterilized by rinsing away

blood or tissue using alcohol or sterile water and placing the tips in a hot bead sterilizer.

Any deviation from the above must be described and scientifically justified in the approved Animal Use Protocol.

References

CDC Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008; Update: May 2019 (accessed November 23, 2022)

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Revision History

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