

Why healing components must always be single-use

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Healing components (healing abutments, closure screws, healing caps, and closure caps) play an important role in the early phase of implant treatment by supporting soft-tissue healing and protecting the implant-abutment interface to maintain a clean and stable interface for the definitive abutment placement. All major implant manufacturers, including Straumann, specify in their instructions for use that these sterile components are intended for single use only. Reuse, therefore, deviates from validated manufacturer protocols. From a biological and mechanical perspective, healing components are neither designed nor intended for reuse. Reusing a healing component previously placed in a patient's mouth compromises both treatment outcomes and patient safety.

Below, we explain the main reasons why only new, sterile components should always be used.

1. Risk of infection and contamination

Once a healing component has been in the oral environment, it is exposed to saliva, blood, inflammatory exudate, bacteria and other infective agents as well as food debris. Even after cleaning and sterilization, it is not possible to restore it to its original contamination-free condition.

Why this matters:

- **Residual contamination:** Complex surface features and internal geometries make thorough decontamination of used healing components impossible under routine clinical conditions. As a result, microscopic biological material may remain on surfaces and within screw channels. Because sterilization is only fully effective on completely clean surfaces, any residual debris can compromise the reliability of the sterilization process.
- **Cross-infection risk:** As healing components cannot be effectively sterilized, their reuse between patients increases the risk of cross-contamination and infection.
- **Local inflammation:** Remaining biofilm or debris may trigger inflammatory reactions in the peri-implant tissues, potentially affecting healing.
- **Soft-tissue healing:** Contamination can interfere with predictable mucosal healing around the implant.
- **Patient safety:** Using a new sterile component supports predictable healing and minimizes the risk of local or systemic complications.

2. Material and mechanical damage

Healing components are precision-engineered and validated for single use. Reprocessing methods such as cleaning, sterilization, or mechanical treatment alter their surface and mechanical properties.

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Potential consequences of reuse:

- **Surface alterations** Exposure to heat, chemicals, or mechanical cleaning can change the component surface. This may affect how soft tissue attaches to and heals around the component.
- **Thread wear and deformation:** Repeated use will cause wear of screw threads or the implant-abutment interface, eventually affecting the fit and stability of the connection.
- **Debris in the screw channel:** Residual material inside the screw head can prevent proper engagement of instruments, making removal difficult.
- **Precision fit:** Mechanical cleaning methods such as air-particle abrasion can damage the precisely manufactured interface, which may compromise long-term stability.
- **Risk of component jamming:** In rare cases, contamination or wear may cause a healing component to become stuck in the implant, increasing the risk of disturbing the implant in the bone during removal.

References

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Following single-use protocols is therefore not only **a legal obligation**, but a basis of safe, modern, evidence-based implant dentistry. Using new sterile healing components for every patient and every clinical indication is a simple, effective measure to protect clinical outcomes and patient safety