Trabecular structure

Raomed Trabecular Structure™

The Trabecular Structure Raomed[™] is a highly porous conformation made of titanium alloy type Ti6Al4V - ELI. This structure is a 100% interconnected matrix permeable to growth of bone tissue and its vascularization.

Characteristics

- Osteoconductive.
- High hardness and resistance.
- Allows for the manufacture of customised parts.
- It can change its porosity according to the need.
- Can be combined with solid structure.
- Possible to combine with osteosynthesis elements.

Concepto

Stability and elasticity are two fundamental elements in the process of bone repair, even though it seems difficult to make them coexist in the same environment.

According to the literature (2006-7, Leucht et al.):

- The stability of the implant guarantees the continuity of the extracellular matrix. - The elasticity allows micro-movements and cyclical micro-elongations that provide a stimulus that calls the osteocondro-progenitor cells of the adjacent tissue to the bone-implant interface.







Engineering Principles of Clinical Cell-Based Tissue Engineering G.F. Muschler et alt.



Traditional implants have the disadvantage of being more rigid than the bone (greater elastic module), which generates the effect known as "stress shielding".

The literature reports elastic modulus values of 5 to 10 GPa for cancellous bone (Hodgkinson et al.) and 5 to 25 GPa for cortical bone (Choi et al., Rho et al.).



The structures used by Raomed vary between 4 and 10 GPa.

Variation of the trabecular design

Affected by 0% Behrens et al. BioMedical Engineering OnLine 2009

Test performed on Sheep





Post-surgery



9 month







Surgery Post-op





12 month

9 month



technology & health



Histological Results





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