Ceraball® is en marche.

Local Tissue Engineering.
In Weeks instead of Months.

PRODUCT INFORMATION - ORTHO

boneArtis AG

swiss made
The dream of reconstructing cancellous bone scaffolds has a long history which now came true. The newly formed bone is based on:

- a cancellous bone scaffold carrying the load from the beginning.
- an osteoconductive ceramic suctioning-in blood and bone marrow.
- full interconnectivity of the ceramic.
- a maximum specific surface for cell colonization.

**Ceraball** (fig. 1) presents a pure and fully synthetical ceramic material, providing high porosity up to 85% and at the same time an unachieved strength of the material. **Ceraball** allows to reconstruct any kind of bone defects, regardless of its etiology; i.e. of trauma, osteosynthesis, bone defects, tumor cavities, traumatic bone loss, dental bone defects, bone loss in parodontology and augmentation of jaw bone in implantology. Independent from its size by yielding a physiological architecture, the ceramics are changing the bone-healing time span tremendously. The ceramics are available as hydroxyapatite (HA) and β-tricalcium-phosphate (β-TCP) or a mélange of both; due to its strength and its primary cancellous bone formation no biphasic material is necessary.

**2. Interconnectivity**

The challenge of ceramic bone substitutes is considered the strength of the material combined with the maximum of porosity and interconnectivity (fig. 4). There is a trend transferred to combine the HA and β-TCP raw materials yielding so-called biphasic implants. There is, however, no longer any predictable resorption in those implants and no advantage. **Ceraball** as a fully interconnected ceramic implant providing high capillary forces suctioning-in blood and bone marrow provides:

- suctioning-in blood and bone marrow and stops bleeding (fig. 2,3).
- colonization by marrow stem cells (MSCs).
- Primarily formed mature cancellous bone carrying the load from the early beginning.
- Reconstructing even large tumor cavities in a physiological manner
- bone healing in weeks instead of months.
3. Primary Formation of a Cancellous Scaffold

The unique properties of Ceraball® yield early bone formation and reconstruction of a primary cancellous bone scaffold comprising mature lamellar bone\(^3,4\).

The striking features are:

- Early bone healing in weeks instead of months\(^2\).
- Full reabsorption of the \(\beta\)-TCP beads.
- There is no need for morcellized bone.
- Ceramic disease will not appear.
- Fully synthetical ceramic.
- Stable fixed implant after coagulation.
- Providing millions of adult stem cells for early bone healing (fig. 5, 6).

4. Unique Osseointegration

Whereas bone substitutes of bovine origin present an anisotropic architecture resulting in newly formed woven bone (fig. 7), mainly presented in the form of beadlike formations, which have to be remodeled during the following six months, Ceraball® succeeds to reconstruct a cancellous bone scaffold within the early stages (fig. 8), thus forming loaded structures in weeks instead of months, compared to an HTO without load (fig. 11).

The striking features are:

- no iliac crest bone grafts any longer.
- the suctioned blood and bone marrow provide own body defense against infections.
- healing in weeks with early rehabilitation.
- full reabsorption depending upon the load acting on it, which defines the so-called turnover rate.

Ceraball®.

The new Gold Standard for reconstructing cancellous scaffolds. Not in months, but in weeks.


1 Gluck (1891), Dreesman (1892), Tarsoy und Timory (1963), Draenert (2015).

*Literature on request
This instruction is for Medical Doctors and authorized persons only trained in the operating theatre or a dental office.

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