Material construction of Bioretec RemeOs™

RemeOs™ implants are made of unique and patented bioresorbable metal alloy constructed from Magnesium, Calcium and Zinc, which are all essential elements of new bone formation in human body. Noteworthy RemeOs™ does not contain any materials foreign to human body like Yttrium, Gadolinium, Neodymium nor any other rare-earth elements (REE).

Differences between the Activa™ implants and the new Bioretec RemeOs™ implants

Bioretec RemeOs™ implants and Activa™ implants are both biodegradable implants. Since RemeOs™ is a metallic material, it has metallic properties as well i.e. higher strength, rigidity and hardness than Activa™ implants. Higher mechanical properties allow novel surgical techniques with the RemeOs™ implants and they can be used in indications where higher strength and rigidity is required.

Resorption of RemeOs™ implants

RemeOs™ implants resorb through oxidation to Magnesium-, Calcium- and Zinc-minerals, which are all essential elements of new bone formation in human body. Resorption initiates on the surface of the implant and the implant's dimensions start to decrease gradually. The osteoconductive effect of the resorption minerals induces new bone formation which happens simultaneously with the implant resorption. This ensures firm connection between the implant and the bone during the entire healing period.

What are the advantages of RemeOs™ implants for the patient?

The resorbable metal alloy used in RemeOs™ implants does not contain any rare-earth elements (REE) or rare-earth metals (REM), such as Gadolinium (Gd), Yttrium (Y) or Neodymium (Nd) and others. The patient does not have to worry about the long-term effects of these rare-earth elements and their possible negative reactions in the body. According to our pre-clinical studies, the RemeOs™ material is well suitable for paediatric patients, since it is constructed only from Magnesium, Calcium and Zinc, which are all essential elements of new bone formation in human body.

In many cases, traditional metal implants have to be removed due to e.g. movement limitation, pain, irritation, palpability, patient sensitivity or imaging interference. Removing surgery increases patient's discomfort and risk of complications. RemeOs™ implants eliminate the need for implant removal. Stress-shielding associated with traditional metallic implants may result in the bone atrophy and the osteolysis. Bioresorbable RemeOs™ implants resorb to bone, assisting in the healing process. Due to the implant resorption, the risks of any implant-related long-term complications are eliminated.

What are the advantages of RemeOs™ implants for the operating surgeon?

Now for first time surgeons have the possibility to use safe bioresorbable materials in high load-bearing indications. Strength of RemeOs™ implants is close to traditional (stainless steel, titanium) metal implants. With the new RemeOs™ implants surgeon can achieve similar fixation as with traditional metal implants. Also operation technique principles with RemeOs™ implants are same as with traditional metal implants. According to our pre-clinical studies, the RemeOs™ material is safe and well suitable also for paediatric patients. The Magnesium alloy used in the material is constructed only from Magnesium, Calcium and Zinc, which are all essential elements of new bone formation in human body.