

What about Patient Information?

Periodontitis, Periimplantitis, Heart Attack, Carcinoma

Upto now with implant surgery screw implants have been made of titanium or zirconium.

To screw in an implant, high pressure is required. Today up to 70 Ncm torque and more is recommended.

After the screw thread has destroyed the cell walls of the bone, the surface energy of the destroyed bone sharply decreases (secondary stability)^{1,2}. The static friction of the implant to the bone decreases the same way, and it leads to a gap formation and micromovements³. Thus, the remodeling phase can last for 3 - 6 months. Osseointegration can take place only after this phase.

In contrast to periodontally anchored teeth, the connection of implant to the bone is a connective tissue scar with high collagen content.⁴ Due to the low vascularity of the damaged bone (avascularity) the immune defence is reduced.⁴ In general the implant must heal before chewing.⁵

Blocking of several freshly placed implants with each other can not prevent micromovements between the bone and implants. Only the movements between the implants themselves can be avoided through a bridge but not movements between bridge to bone.

Periodontitis is a chronic bacterial infection that leads to the release of nitrosamines, which can be carcinogenic. If the patient suffers from periodontitis, these individuals have a 15 to 55 percent higher chance of cancer.

Often lung cancer, pancreatic cancer, hematologic cancer. Head, neck and esophageal tumors (in analogy to periimplantitis) can occur.⁶

Each millimeter of alveolar bone loss increases the risk of head, neck, or tongue carcinoma by a factor of 4 to 5⁷.

In several long term studies (up to 20 years) periodontitis and bone loss, the risk of all forms of non-haemorrhagic stroke, particularly for younger patients was five times higher.⁸ (Analogy to periimplantitis).

"I'm afraid, there's a meltdown on us," said *Thomas Imfeld*, a professor at the Department of Preventive Dental Medicine, University of Zurich. "At the beginning periimplantitis was not taken so seriously, but now this is a big issue." *George Bach*, Board Member of the German Society of Dental Implantology even speaks from a "tsunami". "The manufacturers do not like to talk about it," says *Bach*.

Titanium nanoparticles were detected after implantation of titanium screws with special surface roughening in various organs⁹.

Apparently nanoparticles of titaniumoxide are dissolved by abrasion when inserting the screw.

An osteoclastogenesis (bone loss) is the result.^{10, 11} Moreover, different genetic damage can occur^{12, 13}. A study has shown resistance of bacteria¹⁴ against antibiotics, which calls for complete reassessment of the implant in the future¹⁴.

To clarify these problems a multicenter study with patients should verify titanium allergy¹⁵.

Thus it is reasonable that a new law in Germany, develops patients' rights and duties of the practitioners.

The EU has already ordered mandatory labeling of nano-particles.

The future lies in the oval-conical, non-rotating implant system. The problem how to create an oval cavity is resolved with the ROSI®-Implant System.

A great advantage is that only one single surgery is needed. Therefore certain risk groups are more easily treated.

These oval-conical implants are inserted into the bone without squeezing the bone and without a chance of rotating. Micro-movements are nearly impossible due to the shape.

Oval-conical implants can be made of hard, biocompatible special polymere (polyetheretherketone PEEK), which has been tested successfully for 30 years in surgery. This material is castable and therefore of low cost.

Other advantages of these new implants in addition to safety and the much shorter healing time (immediate implantation is possible) are higher stability, less space is required, low overall cost and effectiveness with outstanding simplicity.

These oval-conical implants have only benefits for the patient and dental surgeon.

"The problems with screw implants can be derived in the analogy of the available literature of scientific knowledge"



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