

Biomaterials in dentistry

The choice of material in dentistry always depends on its mechanical-physical properties, but also on biological tolerance. This criterion is very important especially in implantology. The implant can initiate an internal defense system, which will disrupt the material, dissolve and corrode. Microparticles of the material can be transferred to distant places in the body, this phenomenon is called metallose.

Základní požadavky

- harmlessness to the whole organism
- Biological compatibility and stability
- strength and electrochemical stability
- X-ray contrast, aesthetics, easy hygiene
- Affordability

Distribution

Basically, we divide biomaterials into:

- biotolerant
- bioinert
- bioactive

Biotolerant materials

The basic biotolerant materials are cobalt alloys. These materials are only tolerated by the tissues, fibrointegration occurs between the bone and the implant, which is not suitable for long-term function. Another disadvantage is the subject of corrosion.

Bioinert materials

This group includes titanium and its alloys. Healing takes place through osteointegration (under multiple prerequisites). Such materials are fully acceptable by the tissues.

Bioactive materials

Bioactive materials include:

- hydroxyapatite ceramics
- tricalcium and tetracalcium phosphate ceramics
- bioactive glass ceramics

Calcium and phosphate ions are released from the materials and thus give rise to osseointegration processes. There is complete biointegration.

Links

Bibliography

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