

**MATERIALS FOR THEIR MANUFACTURING IN DENTAL IMPLANTATION
TECHNOLOGY**

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Annotation: Losing teeth is a painful circumstance for any person, especially in young age. Dental implantation is common in the modern world, because it entirely replaces lost teeth. This scientific article examines materials used in dental implantation technology.

Key words: dental implant, tooth root, medical titanium, removable and bridge dentures, supporting teeth, comprehensive diagnostics.

Losing teeth is an unpleasant situation for any person, especially in young age. Restore a missing tooth or even a row of teeth possible with the help of prosthetics. This will ensure complete oral cavity functioning and aesthetic appearance. If lost teeth are not restored, this can lead not only to aesthetic and everyday discomfort, but also to atrophy of the jaw bone and a change in the shape of the face. Dental implantation is popular in the modern world, because it completely replaces lost teeth.

A dental implant is a tooth root that is artificially created from medical titanium. This material is biocompatible with the jaw bone mass. When implanting teeth, such components as an abutment are also used, on which the artificial tooth is fixed - the crown.

The material used to make a dental crown is ceramics, metal ceramics and gold. The implantation of implants is an important procedure that today is carried out using different methods depending on the individual characteristics of the patient's body. Let's consider the main methods dental implantation to restore the dental row.

Classic dental implantation takes place in two stages – implantation implants into the bone tissue and the crown is placed. Before starting classical implantation requires bone tissue to be built up for the implantation of artificial tooth roots. Grinding down adjacent teeth is not necessary. The treatment time with this method is long and can last about a year. However, you get a beautiful aesthetic contour gums. This is especially important if the implant is placed in the anterior region. teeth. Laser implantation also has a minimal impact on gums, which allows you to maintain its attractive appearance.

When cutting the gum with a laser, less blood is produced because the blood vessels are immediately removed. Laser dental implantation is less time and is less painful. The use of

laser for dental implantation also allows avoiding complications after implantation due to the antibacterial properties of the laser.

Transgingival implantation is a non-surgical method implantation of dental implants. Dental implantation is a special process that takes place as follows: the dentist makes a hole in the jaw bone using drills, and then implants an implant into the hole. Thus, the gum is not cut, and the installation of implants is possible in one visit to the dental clinic. But the installation of implants transgingival method is possible only if you do not it is necessary to build up bone tissue using a sinus lift operation and provided that osteoplasty (bone grafting) is not required.

2. Basic requirements for dental implantation

1. Implantation should be performed 9-12 months after

tooth extraction (but immediate implantation is also possible).

2. There should be no foci of chronic infection in the body.

3. Sanitation and good hygienic condition of teeth and oral cavity.

4. Minimal presence of various metals in the oral cavity and other bones.

5. Maximum use of the remaining bone tissue in the area defect of the dental row.

6. The type of implant and its design are determined by the requirements prosthetics, anatomical conditions and the state of the antagonist teeth.

7. The implant should not injure surrounding tissues.

8. The use of different metals in the manufacturing process of implants and carrying out the operation is unacceptable.

9. Preparation of the bone bed for the implant should be carried out with at moderate speeds of 5000-7000 rpm only with a carbide bur and at intensive cooling with isotonic solution.

10. Fixation and stabilization of the implant is ensured by traction.

11. When palpating, there should be no feeling of mobility of the inserted substance. implant, which is achieved by the precision and accuracy of the procedure operations.

12. The chewing surface of the prosthesis, the chewing load and the load on the implant must be mutually consistent.

13. The supporting teeth are prepared before the operation; fitting of the crowns are performed one week after the stitches are removed; prosthetics are completed after 3 weeks.

14. If the final prosthetics is postponed, it is necessary to manufacture temporary dentures.

The implant itself must meet the following requirements:

- 1) perform a supporting or fixing function;
- 2) do not injure surrounding tissues;
- 3) easily introduced and removed (if necessary) from body tissues;
- 4) be accessible for use by a wide range of specialists;
- 5) be resistant to damage from impacts

Dental implantation is a modern method of restoring a lost tooth by inserting a titanium or zirconium implant into the jaw bone, which acts as a root. An abutment-connecting element and a crown imitating a natural tooth are then installed on this implant.

Dental Implantation - Modern dentistry offers several alternatives, including removable and bridge dentures, as well as adhesive bridges. Find out how to choose the right option, considering the advantages and limitations of each method.

The loss of even one tooth entails serious changes in the oral cavity and the body. The destruction of adjacent units accelerates, the dental row shifts, the work of the gastrointestinal tract is disrupted, the natural oval of the face is deformed. Therefore, the question of whether it is necessary to restore teeth does not even arise. Here you should decide how to do it.

The total number of implanted patients was 40.

In 36 out of 40 patients, implant healing was successful.

In 4 out of 40 patients, healing was delayed due to the presence of certain diseases.

implant – a titanium rod that imitates a tooth root;

abutment – an element connecting the implant and the prosthesis;

crown – a prosthesis that replaces the crown part of a tooth.

A separate crown is installed on each implant. The method is used if 2-3 units in a row are missing. Advantages: reliable fixation, natural distribution of load on the jaw bone.

A bridge prosthesis is installed if more than two teeth are lost. The classic version is a bridge of 3 crowns on two implants.

Pros:

Fewer implants are installed, a more economical option.

Suitable for atrophy of some areas of the dental row.

Bridge structures are made from metal ceramics or zirconium.

In this article we will discuss which method of restoring the aesthetics and functionality of teeth is better to choose – prosthetics or implantation.

Diagnostics before dental implantation

Before implantation, a comprehensive examination is necessary, including a study of the condition of the dental system and the general health of the patient.

1. Clinical examination

Assessment of the condition of teeth, gums, and mucous membranes.

Detection of caries, inflammation, periodontitis.

Determination of bite and the presence of pathologies of teeth occlusion.

2. Radiation diagnostics

X-ray examinations

Orthopantomogram (OPG) is a panoramic image of the entire jaw, revealing the condition of the bone tissue, the position of adjacent teeth and roots.

Targeted X-ray – clarifies the condition of a specific area.

Computed tomography (CT)

Allows you to obtain a 3D image of the jaw.

Determines the density and volume of bone tissue.

Helps plan the exact position of the implant.

3. Laboratory tests

General blood test – reveals inflammatory processes and the general condition of the body.

Biochemical blood test – evaluates the functioning of the liver, kidneys and calcium metabolism.

Blood clotting test – important to prevent bleeding.

Determining glucose levels is necessary if diabetes is suspected.

4. Allergy tests (if necessary)

If there is a risk of allergy to anesthesia or implant materials.

5. Bone tissue assessment

If there is insufficient bone volume, bone grafting may be required.

6. Consultations with specialists

Cardiologist - for heart diseases.

Endocrinologist - for diabetes or hormonal disorders.

Immunologist - for chronic diseases and decreased immunity.

Comprehensive diagnostics allow us to assess risks, choose the optimal implantation method and increase the likelihood of successful implant engraftment.

Stages of implantation

1. Diagnosis and planning – X-ray or CT scan is performed to assess the condition of the bone.
2. Implant placement is a surgical procedure in which a titanium pin is inserted into the bone.
3. Osseointegration – the process of implant engraftment (takes from 2 to 6 months).
4. Installation of an abutment – a special structure connecting the implant to the crown.
5. Fixation of the crown is the final stage, after which the tooth is fully functional.

Contraindications to dental implantation are divided into absolute - when the procedure is impossible and relative - when implantation is possible after eliminating risk factors.

Absolute contraindications

1. Serious diseases:

Uncontrolled diabetes mellitus.

Oncological diseases (especially during chemotherapy or radiation therapy).

Autoimmune diseases

Severe mental disorders.

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