A plate denture is an orthopedic device in the form of a "plate" that fits snugly to the mucous membrane. Represents a prototype of a gum with artificial teeth. On the upper jaw, the plate covers 2/3 of the palate, and on the lower one it passes a wide strip under the tongue.

Construction of a removable plate prosthesis

Components of a removable plate prosthesis:

• Artificial gum (base) made of polymer in which artificial teeth are placed. The basis transfers the chewing load to the mucous membrane of the prosthetic bed.

• Retaining clamps for fixation (only for partial prostheses). These "hooks" cover the dental unit. They can be metal, plastic or combined.

• Artificial teeth (crowns) perform the functions of chewing. The crown material is selected individually — plastic, metal ceramics, ceramics or metal alloys.



The boundaries of the plate denture

Upper jaw

On the toothless part of the jaw, the border of the basis passes along the transitional fold of the gum, bypasses the buccal strands of the mucosa and the fold of the upper lip. The base is adjacent to the dental necks, covers the frontal group by 1/3 of the height, and the chewing department by 2/3 of the height, overlaps the palatine tubercles. The edge of the base is fixed on the posterior edges of the upper jaw tubercles.

Lower jaw

The border of the basis passes in a toothless gap along the transitional fold of the gum between the frenules of the tongue and lip. The base of the lower jaw prosthesis covers 2/3 of its teeth, so the plate does not sag and preserves the integrity of the mucous membrane. On the vestibular side of the lips and cheek, the base of the chewing teeth is rounded. The tubercles of the lower jaw are always completely or partially covered.

Indications for plate prostheses

• there is no one tooth (an immediate "butterfly" prosthesis),

• violation of contact between the dentition (bite plate for orthodontic treatment),

• the extent of the defect cannot be restored with a dental bridge,

• too many teeth were removed (direct prosthetics),

• restoration of injury or fracture of teeth (splinting prosthesis),

• patient's refusal or inability to perform permanent prosthetics,

• contraindications to implantation,

• replacement of a broken removable structure,

• galvanism or allergy of the body to metal parts.

Plate prostheses: contraindications

Contraindications depend on the properties of the orthopedic material, as well as the general somatic state of the patient's health.

Absolute

(the procedure is not carried out)

• allergy to plastic or intolerance to the components of the basis;

• diseases of the circulatory system;

• other diseases — schizophrenia, alcoholism, epilepsy.

Relative

(prosthetics are postponed)

• dental diseases — gingivitis, periodontitis, gum inflammation;

• diseases of the oral mucosa that cannot be eliminated therapeutically;

• caries or pulpitis on the support units.

Advantages and disadvantages

Positive:

• restores any defect of the dentition;

• it is installed without preparation (grinding) of dental tissue from the support units;

• easy to manufacture, therefore inexpensive;

• aesthetic + relatively hygienic.

Disadvantages or side effects:

• Blood circulation in the gingival tissue is disrupted, bone is atrophied from the mucosa and the alveolar process. Gum shrinkage requires adjustment of the prosthesis.

• The position of healthy teeth changes, which are "pushed" by the basis. At first, the speech function is disrupted.

• The mucosa exfoliates from the frontal units with the formation of periodontal pockets in the gum. On the teeth, next to the pathology, cervical caries develops. Periodontitis treatment may be required.

• Support units are injured, clasps overload periodontal tissues, teeth are loosened. Cracks appear on the hooks that require repair.

• Taste, tactile and temperature perception in the mouth is disrupted, the mucosa is more difficult to clean, and healthy teeth become more sensitive. The ability to chew with a lamellar gum is weaker, the chewing efficiency is 35-45% of native units.

• Small food particles fall under the basis due to the balance on the gum. To relieve discomfort, additional care and skill of use are required.

Types of plate prostheses

According to functional features , there are two types of plate construction:

Partial plate

Permanent prostheses with retaining clamps. It is fixed on the jaw when part of the teeth is removed, but there are healthy units. Orthopedic construction restores toothless areas, aesthetic defects are hidden without the need to grind the enamel from the support units. Partial prosthetics may be temporary (during implantation).

Full removable plate

It is installed on a completely toothless jaw. The plate version of full prosthetics allows you to simulate the structure of the upper or lower jaw. The basis of a full prosthesis is more voluminous than that of a partial one, so that it fits more tightly to the gum.

Fixation of plate prostheses

The orthopedic structure is fixed with the help of adhesion between the base and the oral mucosa, as well as preserved anatomical structures. For example, healthy alveolar ridges of the jaw, as well as the height of the palate, can stop the horizontal movement of the base.

Partially lamellar are fixed in the mouth with:

• Retaining + support-retaining clamps. The shoulder of the hook covers a healthy crown, and the "body" is located on the contact surface, fixed by the process of the clamp on the base plate. Metal hooks can destroy enamel.

• Telescopic crowns. The supporting tooth is prosthetic with a metal cap, on which the crown is fixed, connected to the base of the prosthesis. The fixation is tighter, so chewing is not so painful.

• Lock or garnish attachments are fixed mechanically to the remaining teeth, roots or implants.

Full plate requires special fixation with:

• Cream or gel. The product is applied to a plate that is pressed against the gum. The tool forms a fixing pad between the base and the gum. The cream freezes, excluding the ingress of food pieces under the plate. The duration of the remedy is up to 2 days, it is recommended for excessive salivation.

• Glue. The product is suitable for temporary fixation, after solidification it becomes a cushioning pad at the gum. Water does not dissolve glue, you can chew solid food with it, but its excess irritates the mucous membrane.

• Gasket. Fixing strips are recommended for malocclusion pathologies or prolonged habituation to the prosthesis. The product securely holds the plate, prevents gum chafing. The strip is moistened with water for 5-10 seconds, applied to the base, and then fixed in the mouth.

Types of materials for plate prosthesis

Acrylic

Acrylic plastic is the most common base plate material in removable devices. Plastic crowns are fixed on the acrylic base. The full acrylic prosthesis is fixed using the "suction cup effect", and the partial one is fixed with metal clasps. The acrylic version of prosthetics is inexpensive, they can be chewed well. Some patients do not like metal hooks visible in the mouth.

Nylon

Nylon is used as a substitute for traditional plastic. A more elastic nylon prosthesis repeats the structure of the gum, and the clasps are invisible in the mouth. The nylon base plate is thin, takes up little space in the mouth, so it does not cause discomfort when worn. Unlike acrylic, nylon does not contain methyl methacrylate, so it does not cause allergies. But the nylon construction is demanding on the condition of the gums and the health of the teeth.

Learn more about the cost and installation of a nylon prosthesis.

Acry free (Acry free)

A modern new generation material is used when a patient is allergic to acrylic plastic. It is recommended for chronic diseases of the gingival tissue (periodontitis, periodontal disease). Akri Free is more flexible, the thin basis is fixed with pads without hooks. The requirements for installation are a dense gum with fixed teeth.

Learn more about the types and cost of Acry Free.

The plate orthopedic construction should:

• Fix tightly on the gum. The acrylic base is quite hard, has micro-mobility, which is why it rubs the gums. Nylon is elastic, it sags quickly. The best option is Acry fries, because it is created by casting, repeats the structure of the gum, fits snugly.

• Have a smooth surface without pores. Acrylic and nylon are rough, quickly polluted by bacterial plaque. Acry free has a smooth surface, the risk of infection is less.

Indicator Acrylic Nylon Acry Free

Hypoallergenic is possible, allergic to plastic hypoallergenic does not contain acrylic, biocompatible with the oral cavity

The extent of the defect with full or partial adentia is not recommended if there are no more than 8 teeth on the jaw, it is optimal for partial and extended defects

Aesthetics metal hooks create a cosmetic defect more aesthetically pleasing than acrylic, the hooks are made of polymer and are invisible against the background of the gum

Strength is strong enough, can be repaired quickly deformed due to elasticity stronger than acrylic, does not shrink

The convenience of wearing covers the palate, diction is disturbed, elastic adapts for a long time, it is not felt in the mouth, but it can absorb the smell the plate fits snugly to the gum, feels comfortable in the mouth

Service life up to 4 years up to 2 years up to 7 years