CERAMIC BRACES - INDICATIONS, CHARACTERISTICS, PROS AND CONS

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Braces are non*–removable structures for bite correction. They consist of two main elements – the braces themselves and a metal arc.*

Braces are miniature pads that are attached to the surface of the teeth.

The metal arc is made of a shape memory alloy. First, it is given a shape corresponding to the desired result. The arc "remembers" this shape and will strive for it until it is achieved.

When installing a bracket system, a metal arc is superimposed on the teeth and connects all the braces together. In an effort to return to the initial shape, the arch through the braces exerts constant pressure on the teeth, slowly moving them to a predetermined position. This is the essence of orthodontic treatment.

In modern orthodontic practice, braces made of metal, ceramic or synthetic sapphire are used.

Ceramic braces are made of dental ceramics (porcelain), which has its advantages and an optimal application area.

Indications

Ceramics have lower strength compared to metal and are not designed for significant loads. Therefore, it is not suitable for correcting significant malocclusion.

This means that if there is a large crowding of teeth in combination with their reversals (rotation), metal braces will be the best choice.

On the other hand, ceramic braces are almost invisible on the teeth. The use of ceramics makes it possible to choose the right color shade so as to achieve a complete visual fusion of the bracket system with the enamel. A metal arc can also be made virtually invisible by applying a white coating on it.

A ceramic bracket system is installed for correction:

• abnormal occlusion (occlusion),

• dystopia (incorrect position) of teeth,

• Interdental gap(s),

• slight or moderate crowding of teeth.

Contraindications

Ceramic braces have the same contraindications as all braces, namely:

• mental illness,

• lack of a large number of teeth,

• decompensated diabetes mellitus,

• blood clotting disorder,

• oncological diseases,

• bruxism,

• tuberculosis,

• serious cardiovascular diseases,

• serious endocrine and immune disorders.

A relatively large number of contraindications to orthodontic treatment is explained by the fact that the displacement of teeth in the right direction is accompanied by a restructuring of bone tissue and an increased load on the ligamentous apparatus holding the tooth in the alveoli.

The presence of caries, pulpitis, periodontitis is a relative contraindication to the installation of braces. This means that all periodontal and dental diseases must be cured before starting orthodontic treatment.

The group of relative contraindications also includes dysfunctions and diseases of the temporomandibular joints (TMJ).

To achieve optimal results, orthodontic treatment should be carried out taking into account the individual characteristics of the anatomy and biomechanics of the dental system. Therefore, before starting to correct the bite, it is recommended to

undergo a diagnosis and get advice from a gnathologist. A gnatologist examines the work of the temporomandibular joints and the biomechanics of the dentition system as a whole using condylography, occlusion studies on the articulator, telerentgenogram and other methods and, based on the data obtained, will give his conclusion, diagnose, identify pathologies and recommend ways to eliminate them before starting orthodontic treatment.

The temporomandibular joints connect the mandible to the temporal bone. TMJ dysfunction calls into question the possibility of correcting the bite with braces or any other method. If this circumstance is ignored, the situation can dramatically worsen.

Diagnosis and treatment of TMJ pathologies is carried out by a gnatologist, whose consultation is a desirable, if not mandatory stage at the stage of preparation and planning of orthodontic treatment.

TMJ dysfunction can occur due to arthritis, arthrosis or injury - dislocation, subluxation, displacement of the articular disc. A gnatologist will diagnose the pathology, determine its cause and ways to eliminate it.

Pros and cons of ceramic braces

Positive:

1. The main advantage of ceramic braces is aesthetics.

Ceramic braces have miniature dimensions and visually almost completely merge with the surface of the teeth.

Ceramic braces do not form plaque, they do not darken or turn yellow, their surface is always kept smooth and shiny.

2. The second advantage is comfort.

Ceramic braces have a smooth, rounded surface and are practically not felt on the teeth. Getting used to them happens quickly, they do not interfere with eating and talking.

3. The third advantage is the price.

If you use ceramic braces, the price of orthodontic treatment will be less than when using sapphire braces with the same level of aesthetics.

4. The fourth advantage is hypoallergenic.

Dental ceramics, in principle, cannot cause an allergic reaction.

Minuses

1. The main disadvantage of ceramic braces is fragility.

Due to the fragility of ceramics, it must be constantly monitored so as not to expose it to excessive loads. This means not to eat dense, hard, coarse food, to protect from any shock loads.

The fragility of ceramic braces limits the scope of their application. They cannot withstand, and therefore exert significant loads, therefore, in case of serious malocclusion with rotations, large crowding of teeth, they are not used.

The fragility of braces means an increased risk of their breakage, formation of chips, cracks. Meanwhile, replacing a broken bracket is a serious and difficult procedure.

2. The second disadvantage is the price.

Ceramic braces are cheaper than sapphire ones, but more expensive than metal ones.

Types of ceramic braces

A ceramic bracket system can be ligature or ligature-free (self-ligating).

In the first case, ceramic braces are attached to a metal arc by means of rigid locks and fixed on it.

In the second case, the braces are connected to the arc by means of clips, which leave the possibility of sliding movement.

The advantage of self-ligating braces is that they put less stress on the teeth, which means less risk of side effects of orthodontic treatment.

Ligature-free braces look less noticeable on the teeth and have better aesthetics.

Ligature-free braces do not require frequent correction.

It is important

Ligature braces require correction once every 3 weeks. When using non-ligature structures, you need to visit an orthodontist four times less often – once every 3 months.

On the other hand, ligature braces provide a faster result. Ligature–free designs will have to be worn 1.5 - 3 times longer. This means that it will take not a year to correct the bite, but 2-3 years. So the total number of visits to an orthodontist may be about the same.

And secondly, ligature-free braces are much more expensive.

Installing braces

1. Inspection, consultation, diagnosis.

At the initial appointment, the doctor examines the teeth, oral cavity, identifies the presence of caries, periodontitis and other dental and periodontal diseases, determines the degree and nature of tooth curvature, malocclusion and the optimal method of correction.

After that, an X-ray (panoramic image) and / or CT scan is performed, as well as diagnostics and consultation of a gnathologist to study the individual features of the structure and biomechanics of the dental system.

Computed tomography provides more detailed data on the structure of the root system of teeth, helps to identify hidden cysts, granulomas, poorly visible on a conventional X-ray. In addition, CT scans show the structure of bone tissue. All this helps to make an optimal orthodontic treatment plan and avoid medical errors, both at the preparation stage and at the stage of bite correction

2. Rehabilitation.

Before starting to correct the bite, it is necessary to cure all dental diseases (caries, pulpitis), periodontitis and periodontitis (periodontitis, periodontitis), remove plaque and calculus.

In the presence of dental pockets, they are thoroughly cleaned by curettage, tartar is removed by ultrasound, antiseptic and anti-inflammatory treatment is carried out. In the case of tooth instability, which is often accompanied by periodontitis and periodontitis, they are fixed by splinting during treatment.

It is important to identify and cure all existing dental and periodontal diseases before starting orthodontic treatment, since it will be much more difficult to do this after installing braces.

It is important

Regular visits to an orthodontist to correct the bracket system will help to detect caries at the earliest stage (if it occurs) and eliminate it without using a drill.

All unusable crowns and fillings are removed and replaced before braces are installed.

3. Installation.

The doctor consistently glues a ceramic bracket on each tooth. After that, he installs a metal arc that connects them into a single structure.

The installation of braces usually takes 1-2 hours. Self-ligating braces are installed faster than ligature braces.

4. Consolidating the results.

After the teeth take the required position, it must be fixed. Otherwise, they will tend to return to their previous position.

To consolidate the results, a metal retainer structure is applied to the teeth, which will hold the teeth in a new position for a year or longer. Only after that, orthodontic treatment can be considered complete.

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