



## ALIGNERS IN MODERN ORTHODONTICS

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### Abstract

It is worth noting that aligners are a promising segment of orthodontics. Modern orthodontics has developed a comfortable option for eliminating malocclusion with the help of aligners, which are completely invisible on the teeth and do not cause any discomfort to the patient. All this facilitates cooperation on the part of patients and reduces fear of orthodontic treatment, the need for which increases every year. The article discusses the feasibility of using removable transparent aligners as an alternative to a fixed brace system.

**Key words:** orthodontic treatment, braces, periodontitis.

**Purpose.** The purpose of the article is to study the feasibility of using aligners.

**Methods.** Study methods - during the work on the scientific article, a review and analysis of domestic and foreign literature was carried out.

### Objectives:

- study the features of aligners;
- study the stages of treatment;
- analyze the feasibility of using removable transparent aligners as an alternative to a permanent brace system.

Special plastic is used to make aligners. During the application of the structure, a tactful but constant impact is exerted on the user's teeth. Gradually, the teeth move in the right direction along a certain trajectory. In order to manufacture the device, a specialist makes an exact impression. The finished product has a completely smooth surface. Thanks to this, the patient himself decides what to eat, without fear of damage to the structure. For those who, due to their work, must communicate a lot with clients, aligners will be most suitable. They do not attract unnecessary attention and quietly do their job[2].

Another point is more psychological than medical. It is difficult for mature people to adapt to anything. In this sense, braces are the least suitable for them. In addition to unpleasant sensations, they also cause aesthetic discomfort: which cannot be said about aligners. They will not cause complexes, as they are invisible to others.

Today the orthodontic market is quite diverse. Patients who decide to deal with crooked teeth can do so successfully. Invisalign systems have undoubted primacy in this field. The first mouthguards were invented by specialists from the USA back in 1998. Since then, the innovation has been constantly improved and has reached impressive parameters.

In 1989, Dr. Hinz of Germany received a US license to manufacture so-called resilient dental appliances and use a newly developed silicone elastomer. The highly elastic silicone rubber allowed teeth to move up to four millimeters and opened up entirely new areas of application[3].

Millions of children and adults begin orthodontic treatment every year. According to statistics, more than 80% of people over 15 years of age have one or another malocclusion [1]. It is the improvement in appearance that is the decisive factor in the decision to undergo orthodontic treatment.

However, it should be noted that inflated demands for improving aesthetics are coupled with the patient's desire to preserve his teeth as much as possible. An alternative to braces in some cases has become a system of aligners for straightening teeth [2]. The use of orthodontic brace systems obliges the patient to carefully and conscientiously observe individual hygiene with the use of additional means for preventive purposes. Often, patients, in particular children and adolescents, do not listen to the doctor's recommendations, so an important factor is the ability to choose the use of orthodontic appliances that do not have a significant impact on the level of hygiene.

Orthodontic treatment with aligners includes the following steps [4]:

1. Clinical and additional diagnostic methods for making a diagnosis and drawing up a treatment plan.
2. Taking impressions, making working plaster models or virtual impressions for printing the model in a 3D printer.
3. Obtaining a virtual setup model and drawing up a treatment plan with visualization of the final result. Familiarization and agreement of the treatment plan with the patient.
4. Making an individual set of mouth guards for the patient.
5. Clinical stages of patient management.

Based on this, it is possible to highlight certain advantages of aligners over other orthodontic systems [4, 5, 6, 7]:

1. Aligners look more aesthetically pleasing than conventional vestibular braces, which much more comfortable for the patient.
2. Aligners do not have a significant impact on the level of oral hygiene and do not complicate individual hygiene.
3. The doctor has the opportunity to show the patient all the planned stages of orthodontic treatment treatment and its outcome.
4. During treatment with aligners, the patient does not change his usual diet, which allows him not to limit the intake of various foods.
5. During orthodontic treatment with aligners, the oral mucosa is not subject to trauma.
6. Since the aligners are made of bioinert medical plastic, they are safe and are the method of choice for orthodontic treatment in patients with a history of allergies, in particular with an allergy to nickel, which is becoming more and more common. The safety of this method for correcting orthodontic anomalies in patients with nickel allergies is described in various publications by foreign authors, which sometimes makes it the only possible one.

### Conclusions

As a result of the above, it is worth noting that aligners are transparent dental aligners that follow the contour of the teeth and contribute to their gradual movement into the correct position. A mouthguard with activators fixed inside exerts pressure on the teeth, due to which they gradually move in accordance with a given treatment plan. Aligners are also used for mildly crowded teeth. The aligners are invisible to others (they are made of thin and transparent bioplastic).

Among the main advantages:

- high accuracy of treatment prognosis thanks to the use of computer technology;
- convenient hygiene.
- aligners are removed for eating and brushing teeth;
- do not affect diction;
- no discomfort for the patient.

Eventually, all of the above suggests that aligners are a worthy replacement bracket system.

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