



**New Day in Medicine**  
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НОВЫЙ ДЕНЬ В МЕДИЦИНЕ  
NEW DAY IN MEDICINE**

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## IMPROVING CARIES PREVENTION DURING ORTHODONTIC TREATMENT

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### ✓ *Resume*

*Orthodontic treatment, dental caries, risk factors, and dental examination methods are among the urgent problems awaiting solution in dental practice. Eliminating the risk factors that cause dental caries is essential for effective treatment of this disease.*

*Keywords. Orthodontic treatment, dental caries, risk factors, dental methods.*

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### ✓ *Rezyume*

*Ortodontik davlash jarayonida tish kariesi tarqalishi va ularning yoshga bog'liq o'zgarishlarni aniqlash stomatologiya amaliyotida yechimini kutayotgan dolzarb muammolardan biridir. Tish kariesini keltirib chiqaruvchi xavf omillarini bartaraf etish kasallikning samarali davolash uchun ahamiyatlidir.*

*Kalit so'zlar: Ortodontik muolajalar, tish kariesi, xavf omillar, stomatologik tekshiruv usullari.*

## СОВЕРШЕНСТВОВАНИЕ ПРОФИЛАКТИКИ РАЗВИТИЯ КАРИЕСА ПРИ ОРТОДОНТИЧЕСКОМ ЛЕЧЕНИИ

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### ✓ *Резюме*

*Ортодонтическое лечение, кариес зубов, факторы риска, методы стоматологического обследования одними из актуальных проблем, ожидающих решения в стоматологической практике. Устранение факторов риска, вызывающих кариес зубов, имеет важное значение для эффективного лечения этого заболевания.*

*Ключевые слова. Ортодонтическое лечение, кариес зубов, факторы риска, методы стоматологического.*

### The relevance of the topic

Significant changes have taken place in Russian orthodontics recently. Previously, removable devices were used in 90% of cases, but now they are used only in 16% of observations. Today, 84% of patients are treated using non-removable equipment. In this regard, the problem of prevention of dental caries and periodontal diseases during orthodontic treatment is particularly acute. The practical significance of the issue is determined by the high prevalence of dental caries among the population and the incidence of periodontal tissue. Braces, rings, and arches fixed on teeth significantly complicate oral hygiene, which leads in 32.7% of cases to damage to the hard tissues of the teeth, mainly surfaces immune to caries, and in 92% of cases there is an unfavorable state of periodontal tissues. Poorly performed orthodontic treatment also contributes to these changes.

To prevent the development of these complications, various preparations containing calcium and fluoride have been proposed. However, these drugs do not always give the desired effect, as 65-67% of the examined patients have poor oral hygiene, and local fluoridation is not effective enough due to the rapid loss of calcium fluoride crystals. For the prevention and treatment of dental hard tissue lesions, a method of deep fluoridation with tiphenfluorides has been proposed, which release fluoride in high concentrations for a long time, contributing to reliable remineralization. Currently, many fundamental aspects of prevention in the process of orthodontic treatment have not yet been fully resolved. There is no data on the use of deep fluoridation in orthodontics [1.3.5.7.9].

The issues of assessing the resistance of tooth enamel and the effectiveness of remineralizing agents using the electrometric method in the process of orthodontic treatment have not been sufficiently highlighted. There are no effective motivational methods for teaching and self-monitoring the quality of dental cleaning for orthodontic patients. In this regard, the urgent task is to further develop preventive measures in the process of orthodontic treatment.

**Objective:** To develop and implement a set of preventive measures aimed at preventing the development of complications in the orthodontic treatment of patients using a non-removable device. The following tasks have been set: 1. To study the hygienic condition of the oral cavity of patients treated with non-removable orthodontic devices and to identify the level of hygienic knowledge and skills. 2. To examine the condition of the tooth enamel before and after the use of various preventive methods to prevent the development of complications during orthodontic treatment. 3. To conduct a comparative analysis of the effectiveness of the deep fluorination method and traditional preventive measures. 4. To develop a set of practical recommendations for the prevention of complications at the stages of treatment with fixed orthodontic devices.

### Material and methods

To achieve this goal, an examination of the oral cavity of schoolchildren in the city of Bukhara will be conducted in order to assess the hygienic condition of the oral cavity. Identified students with orthodontic devices will be examined and registered at the Dental Research, Educational, Medical and Practical Center at the Bukhara State Medical Institute named after Abu Ali ibn Sino.

### Result and discussions

-dental research methods; -clinical research methods; -statistical research methods. Based on the preventive examination of the oral cavity of pupils in schools in the city of Bukhara, patients with caries during orthodontic treatment will be identified. For the first time, based on in-depth clinical and epidemiological studies, the need to develop and implement active preventive measures in the process of orthodontic treatment in children will be objectified.

The parameters of the coverage of children with orthodontic care and the objective need for it will be determined, as well as the availability of hygienic knowledge among parents on the prevention of dental diseases and dental deformities, which is an important condition for planning preventive measures at the individual level. Improving the prevention of dental caries with braces includes enhanced home hygiene with special brushes, professional cleaning every 3-4 months, the use of deep fluoridation and remineralizing gels, as well as regular monitoring by an orthodontist. An integrated approach reduces the risk of enamel damage by 80-90% [2.4.6.8.9.10].

The main methods of improving dental protection are based on several interrelated stages:

1. Professional training and supervision • Pre-installation sanitation: Before starting orthodontic treatment, it is necessary to cure all carious cavities and replace old fillings, as braces create additional stress on the teeth.

- Advanced hygiene: Professional cleaning is required before fixing the equipment to remove tartar and soft plaque. Clinic of aesthetic orthodontics Confidentialia
  - Remotherapy: Patients with immature enamel or a high risk of caries are pre-treated with deep fluoridation, for example, with drugs such as Bifluoride 12.
2. Improved home hygiene Wearing braces significantly increases the number of hard-to-reach places where plaque accumulates. To prevent demineralization, the following methods are used:
- Special brushes: Orthodontic toothbrushes with a V-shaped recess in the center of the bristles.
  - Additional gadgets: Interdental brushes of different diameters and dental floss (superfloss) for cleaning under the arch and between the teeth.
  - Irrigators: A powerful jet of water effectively flushes leftover food from the locks.
  - Fluoride-containing pastes and mouthwashes: Regular use helps strengthen the enamel throughout the treatment period.
3. Preventive measures in the dentist's office
- Frequent checkups: Professional orthodontic cleaning should be performed every 3-4 months.
  - Coating with varnishes and protective creams: The doctor can use special varnishes (for example, VOCO Profluorid Varnish or Biscover LV) and creams (like Remin Pro) that release fluoride ions and create a protective barrier on the teeth.
  - Orthodontic treatment of caries: If caries does develop, it is not necessary to remove braces — small lesions on the chewing or internal surfaces are successfully treated.
4. Diet correction Nutrition plays a key role, as the accumulation of carbohydrates under the equipment accelerates the formation of acids. Sticky foods (toffee, caramel) should be excluded, as well as carbonated drinks and solid foods that can damage the braces system.

### Conclusions

Inform the patient about the diagnostic results of the initial data, their effect on the progression of caries activity, especially in combination with orthodontic treatment; about the mandatory implementation of preventive measures. Monitor the level of oral hygiene every visit. Perform a controlled and professional dental cleaning. To etch the enamel of teeth, use orthophosphoric acid only in the form of a gel, since its ideal viscosity and color contrast clearly limit the etching site. After applying the bracket system, carefully remove excess adhesive system, thus reducing the number of retention points for the accumulation of microorganisms and food residues. Seal the area around the support area of the braces with sealant on the day of application of the equipment. Regardless of the initial form of caries and the patient's level of oral hygiene, the condition of the enamel should be monitored every three months after the application of the equipment. To carry out remineralization of dental hard tissues depending on the activity of the carious process.

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