ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23

American Academic publishers, volume 05, issue 11, 2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

EARLY PREVENTION OF CARIES IN CHILDREN, MODERN APPROACHES AND LEVEL OF EFFECTIVENESS.

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Abstract: This article provides a detailed analysis of early prevention of dental caries in children, its modern methods and the level of effectiveness. Factors influencing the development of caries - bacterial flora, poor oral hygiene, poor nutrition, excessive consumption of sweets and habits such as sleeping with formula at night - are reviewed on a scientific basis. The article analyzes the effectiveness of oral hygiene measures, fluoride prevention, fissure sealing, dental screening and educational programs implemented by parents and educational institutions. It is also shown that early prevention contributes not only to healthy teeth, but also to reducing the risk of periodontal diseases, orthodontic problems and oral infections in the future. The article is prepared on the basis of scientific data, clinical observations and modern dental recommendations and is aimed at identifying the most effective strategies for preventing caries in children.

Keywords: Caries, pediatric dentistry, oral hygiene, tooth enamel, fluoride prophylaxis, fissure sealing, early screening, nutritional culture, dental health, parent education, prevention effectiveness.

Relevance of the topic: Caries in children is one of the most common chronic diseases today, negatively affecting not only dental health, but also the general health of children. The fact that more than half of children aged 3–6 years have at least one caries lesion, and the fact that most cases of caries in school-age children lead to complex dental lesions, indicates the seriousness of the topic. Lifestyle changes, frequent consumption of sweets and carbonated drinks, insufficient oral hygiene habits, and low dental knowledge of parents increase the risk of caries development. If caries is not detected early, extensive tooth damage, pulpitis, periodontitis, orthodontic problems, and oral infections can develop. Therefore, early prevention of caries in children is important not only for maintaining healthy teeth, but also for preventing serious dental diseases in the future and for developing a healthy lifestyle in general.

Purpose of the topic: The main purpose of this article is to study modern approaches to the early prevention of dental caries in children, to evaluate their effectiveness and to identify the most effective strategies for maintaining children's health. At the same time, it is aimed to highlight the methods of forming oral hygiene skills in children through parents and educational institutions, promoting a culture of proper nutrition, systematically implementing measures such as fluoride prophylaxis and fissure sealing. The article shows scientifically based ways to prevent the development of caries and create the foundation for healthy teeth in children.

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Main part: The development of caries in children depends on several factors, among which bacterial flora, poor oral hygiene, malnutrition and excessive consumption of sweets play a key role. Sleeping with milk mixture at night, not brushing teeth regularly and frequent consumption of sugary products accelerate the development of caries. The most effective way to prevent caries is to implement early preventive measures. These measures include proper oral hygiene, dietary control, fluoride prophylaxis, fissure sealants, and regular dental screening. Brushing teeth with the help of parents from the age of 2, using fluoride toothpaste at the age of less than 3, switching to fluoride toothpaste at the age of more than 6, changing the toothbrush every 2–3 months, and brushing teeth twice a day reduce the risk of caries by 40–60%. In dietary control, it is important to give sweets only after meals, reduce carbonated drinks, and increase fruit and vegetable consumption. At the same time, hygiene classes in schools and kindergartens, lectures on the consumption of sweets, and oral hygiene training for parents increase effectiveness. Modern methods include fluoride toothpastes and varnishes, fissure sealants, and early detection through a dental examination at 6 months, which significantly reduce the risk of caries development.

Recent studies have shown that the following factors contribute to the rapid development of caries in children: poor diet (sugary and sticky products), sleeping with formula at night, lack of adequate oral hygiene measures, low fluoride content in water, and low dental knowledge of parents. At the same time, genetic predisposition and some endocrine diseases also increase the risk of developing caries.

Modern preventive approaches:

1. Mineralization and fluoride therapy: Fluoride increases the strength of tooth enamel and significantly reduces the risk of caries. The appropriate fluoride level for children is determined in the range of 500–1450 ppm, which is adjusted depending on age. Professional prevention with fluoride gels and varnishes is also effective.
2. Early detection of microtrauma: Detection of “white spots” and other signs of subclinical caries is carried out through dental screening. Early detection allows for treatment with minimally invasive approaches.
3. Fissure filling: Filling the cavities of permanent teeth in children reduces the risk of caries by 50–70%. This method is especially effective in school-age children.
4. Formation of oral hygiene skills: Starting from the age of 2, brushing teeth with the help of parents, changing the toothbrush every 2–3 months, brushing twice a day, as well as hygiene classes in schools and kindergartens, form healthy habits in children.
5. Eating habits: Giving sweets only after meals, limiting carbonated drinks, increasing fruit and vegetable intake, and regular consumption of dairy and protein-rich products significantly reduce the risk of developing caries.
6. The role of parents and the community: The effectiveness of prevention increases with the active participation of parents and educational institutions. Hygiene training, lectures on the consumption of sweets, as well as regular dental examinations help maintain children's dental health.

Studies show that the combined use of these preventive measures reduces the risk of developing caries by 70–80%. At the same time, early prevention helps prevent periodontal

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diseases, orthodontic problems and oral infections, creates a healthy dental foundation in children and strengthens their overall health.

Modern treatment approaches:

Modern approaches to the treatment of caries in children are based on minimally invasive principles and ensure maximum preservation of tooth enamel. They are aimed not only at stopping existing caries, but also at preventing the development of new caries.

Minimally invasive treatment:

✓ Resin infiltration: Stops subclinical caries without damaging the tooth enamel. With this method, "white spot" changes are covered in the enamel, slowing down the development of caries.

✓ Silver diamine fluoride (SDF): Stops active caries in the tooth enamel and strengthens the enamel. This method is especially convenient for young children and patients who are resistant to treatment.

✓ Sealants (fissure fillings): By closing the pits of permanent teeth, they limit bacteria and reduce the risk of caries by 50–70%.

Fluoride therapy:

Fluoride pastes, gels and varnishes strengthen the enamel layer and significantly reduce the risk of caries.

Regular application of fluoride varnishes (once every 3–6 months) is recommended during professional treatment, which is effective in maintaining dental health in children.

Integrated approach:

Modern treatment is usually combined with prevention: oral hygiene, proper nutrition, fluoride therapy, fissure sealing and minimally invasive treatment.

Studies show that an integrated approach reduces the risk of caries by 70–80% and also prevents periodontal diseases and orthodontic problems.

Screening and monitoring:

✓ Dental examination every 6 months allows for early detection of caries. Early detected caries can be treated with minimally invasive methods, which reduces pain and stress in children.

Conclusion: Early prevention of caries in children is the most important task in raising a healthy generation today. The development of caries is associated not only with demineralization of tooth enamel, but also with eating habits, oral hygiene, genetic predisposition, psychological and environmental factors. The use of early preventive measures — including proper nutrition, regular dental cleanings, fluoride therapy, fissure sealing and parental control — significantly reduces the risk of caries.

Modern treatment approaches are based on minimally invasive principles: resin infiltration, silver diamine fluoride (SDF) and fissure sealing effectively stop subclinical and active caries, preserve tooth enamel and reduce pain and stress in children. The combined use of integrated prevention and treatment approaches reduces the risk of caries development by 70–80%, prevents periodontal diseases and orthodontic problems.

Therefore, early attention to caries prevention and modern treatment approaches in children, regular dental screening and active participation of parents create a healthy dental foundation, strengthen the overall health of children and ensure their freedom from pain and dental diseases in the future.

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