

# The Influence of Natural and Artificial Feeding of Children on the Formation of Teething Disorders and Bite Formation in Young Children

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**Abstract** In connection with negative trends in the health of children, the importance of natural feeding of a young child is of particular importance for public health. Rational nutrition is one of the decisive conditions for ensuring the harmonious growth and development of children and their resistance to infections and other unfavorable external factors. The main principle of rational nutrition for children in the first year of life is children and their resistance to infections and other unfavorable external factors. The main principle of rational nutrition for children in the first year of life is children and their resistance to infections and other unfavorable external factors. The main principle of rational nutrition for children in the first year of life is and contains not only all the nutrients he needs (in an ideally balanced ratio), but also a whole complex of protective factors and biologically active compounds. Replacing natural feeding with artificial feeding leads to a very common pathology of the maxillofacial area in the form of disruption of the development of the dental system, absence of teeth and subsequent crowded teething, which disrupts the aesthetic appearance and affects the digestive system and nutritional status of the child.

**Keywords** Teeth, Children, Teething, Caries, Disease prevention

## 1. Relevance

In connection with negative trends in the health of children, the importance of natural feeding of a young child is of particular importance for public health. Rational nutrition is one of the decisive conditions for ensuring the harmonious growth and development of children and their resistance to infections and other unfavorable external factors. The main principle of rational nutrition for children in the first year of life is to provide the child with breast milk for as long as possible, which is the most adequate food for infants and contains not only all the nutrients he needs (in an ideally balanced ratio), but also a whole complex of protective factors and biologically active compounds. In recent years, all over the world there has been a tendency to replace natural feeding with artificial feeding. Modern research in the field of medicine is currently revealing several approaches to solving the problem of artificial feeding of children. This includes finding out the reasons why mothers refuse to breastfeed, timely prevention and educational work with pregnant and breastfeeding mothers about the benefits of breastfeeding and monitoring children who are still bottle-fed. Absence or insufficient

breastfeeding can lead to the development of dysbacteriosis, contribute to the occurrence of periodontal and dental diseases, and negatively affect digestive processes. A number of studies have proven greater activity of the masticatory muscles when a child sucks at the breast, which obviously affects the formation of the maxillofacial apparatus in early childhood. Retrospective studies have shown that malocclusion is 1.84 times more likely among bottle-fed infants, and the effect increases with the duration of this type of feeding. Children who were breastfed for at least 12 months had significantly higher mean chewing scores regardless of whether they were given a bottle or a pacifier. Scientists in Germany have suggested that formula feeding increases the risk of obesity throughout life. This may be explained by the fact that conventional formula contains a high protein content compared to breast milk - the "early protein exposure hypothesis". Leptin in breast milk protects breastfed infants from obesity. Thus, formula-fed babies gain more weight than breastfed babies. German scientists have determined that formula-fed babies have a twice as high risk of dying from Sudden Infant Death Syndrome (SIDS) than breastfed babies. SIDS is one of the leading causes of infant mortality in developed countries. Not breastfeeding compared with breastfeeding for more than 6 months was significantly associated with an increased likelihood of autism in all cases [1-6].

Natural feeding is the optimal way of feeding a child, formed and consolidated during a long process of evolution. There is no doubt that breast milk is the key to the normal development of all organs and systems, including the microecological one. With its deficiency or complete absence, the microbiocenoses of open biotopes, including the oral cavity, differ in the composition of the microflora and the direction of biochemical processes. Lack of milk from the mother or insufficient breastfeeding can lead to the development of oral dysbiosis, contribute to the occurrence of periodontal and dental diseases, and negatively affect digestive processes.

## 2. Materials and Methods

To improve the prevention of major dental diseases in bottle-fed children, we conducted a dental examination of 120 children aged 6 to 12 years. Parental consent was obtained for the examination of children. All examined children were divided into 2 groups depending on the nature of feeding in the first year of life: group I - 54 children who were breast-fed for 6 months or more from birth, group II - 70 children who were bottle-fed and mixed-fed from birth. Clinical examination of children began with the collection of data from anamnesis, heredity, and concomitant diseases. During an objective examination, attention was paid to the hygienic condition of the oral cavity, the presence of caries and its complications, fillings and missing teeth. The location of the frenulum of the upper and lower lips, the condition and color of the tongue, the presence of erupted teeth and their condition were recorded. The intensity of caries of primary teeth was determined by the index of dental CP, the prevalence was calculated separately within the age group, and also during conversations with mothers, and we analyzed outpatient records of children, child development in first year of life. The questionnaire we compiled contained 10 questions about the nature of feeding and identifying risk factors for dental diseases. Using a survey method, we studied the duration of breastfeeding of a child. Data were collected on the timing of meals and drinks before bedtime. Pay attention to continued breastfeeding. The age of the child at which complementary foods were introduced and up to what age a pacifier and bottle were used to feed the child were recorded. All clinical and laboratory data obtained were recorded in the medical record.

## 3. Results

In the course of this study, based on questionnaire data, it was established that 88% of children in the study group were breastfed from the moment of birth, but were transferred to artificial nutrition after the age of 6 months. Of these, 26% of children were breastfed for no more than 2 months. 43% children transferred to artificial feeding at the age of 3–6 months, 13% at the age of 6 months. The main reason why I

had to give up breastfeeding is the lack of breast milk; 45% of respondents answered this question positively. Second place.

Among the reasons for refusing breastfeeding is the child's refusal to breastfeed, this reason was indicated by 32% of respondents. The next most important factor is the mother's early going to work (12.8%). In artificially fed infants, swallowing rather than sucking predominated.

Movements of the lower jaw, the head was thrown back during feeding, which led to delayed growth of the lower jaw, which can lead to the formation of distal occlusion. It was interesting that formula-fed children developed their first teeth earlier. The intensity of caries of primary teeth was determined by the CPU index. In children under 7 years of age, a compensated form of caries is observed. Not all children visited the dentist regularly. In the third year of life, isolated localization of caries on the upper incisors was observed in 22% of cases. The incisors on the lower jaw are not affected, since they are protected by the tongue, which tightly covers the nipple from below when sucking. In children aged 3 to 6 years, the following was revealed: distal occlusion in 24%, open bite in 8%, cross bite in 11% of patients. It was noted that in 67% of cases, children who were breastfed had no malocclusion pathology [7-10].

Artificial feeding of children in the first year of life leads to earlier eruption of their primary teeth, thereby exposing the hard tissues of the tooth to the development of caries, tooth loss, and also negatively affects the formation of a permanent bite. Characteristic for children who have been bottle-fed since birth is earlier eruption of the canines of the lower jaw (on average by 2 months) and the second molars of the lower jaw (by 3 months). As a result of scientific research, it was revealed that late eruption of children's primary teeth was observed in 5.8% of cases, while the lower central incisors appeared after a year, which was associated with the influence of a genetic factor on the process of eruption of primary teeth in a child. The characteristics of physiological teething include not only the timing, but also the pairing and sequence of teething.

## 4. Discussion

Breastfeeding is the basis of a baby's health and protection from infections. However, in the modern world, for various reasons, more and more mothers are switching to artificial feeding. Sometimes this is caused by health problems, lack of milk, but sometimes young mothers refuse this, wanting to quickly make their life easier. Advertising assures that modern artificial infant formulas contain everything necessary for the growth and health of a child. However, this is not entirely true, and you need to know about all the dangers of artificial feeding. The main disadvantage of artificial feeding is the lack of necessary protection. Mother's breast milk is a natural source of protection, immunoglobulins that fight infections by destroying pathogens. With artificial feeding, the risk of infectious diseases increases, since feeding bottles are poorly sterilized, or if used insufficiently

carefully, they can be contaminated with pathogenic bacteria. Children who do not receive breast milk are at greater risk of developing various diseases - infectious, colds and allergies, as well as otitis media, colic, obesity dysbiosis and other diseases that can manifest themselves throughout life. The risk of intestinal infections increases 10 times, even if the mixture is prepared in compliance with all sanitary standards. At the same time, the mixtures do not contain leukocytes, lymphocytes and lysozyme, which protect the child's body from bacteria, antibodies that strengthen the baby's immunity and hormones that are responsible for metabolism. When artificial feeding, control is important in everything, from the choice of formula, the size of the nipple and ending with the slightest reaction of the baby to a new type of food. Any, even the most carefully verified and tested transition to artificial feeding of a child and milk formulas can lead to gas formation, constipation in infants, and poor stool. Compared with children who were not breastfed or who were breastfed for less than 4 months, infants who were exclusively breastfed for 6 months or longer significantly reduced the risk of gastrointestinal infections and had a higher risk of dehydration compared with those who were bottle-fed. Logistic regression analysis showed that feeding artificial breast milk substitutes was the most significant predictor of acute otitis media and otitis media with effusion [1,11,12,13]. Breastfeeding affects adolescents' mental performance and health, and thus affects long-term academic achievement. Breast milk from mothers with respiratory allergies protects babies from allergies. Children acquire antigen-specific Chinese protective factors from milk. Breastfeeding promotes the stability of the lymphoid tissue at the base of the appendix, and this may be a protective factor against acute appendicitis. Breast milk protects against the early development of inflammatory bowel disease. A decrease in the duration of breastfeeding in children in the first year of life leads to an increase in their susceptibility to *Enterobius vermicularis* in preschool age, which is manifested by an increase in the incidence of pinworms in children and the intensity of enterobiasis invasion during infection. Breastfeeding for longer than six months protects against childhood lymphocytic leukemia, especially acute myeloid leukemia and acute lymphocytic leukemia. Breastfeeding has positive effects on long-term health of cardio-vascular system. Breastfeeding for at least 4 months affects lung capacity in children. Compared to babies who breastfeed, bottle-fed babies have smaller lung capacity and expel air from their lungs more slowly [1,7,14,15].

## 5. Conclusions

Based on data from literary sources, we can come to the conclusion that mothers' refusal to breastfeed has a direct impact on the health of the body as a whole, both in early childhood and throughout life. Therefore, the indicators of numerous scientific studies regarding breastfeeding are a

powerful incentive for its active promotion by specialists in consultative and therapeutic medical centers. Active promotion of breastfeeding should be carried out not only by pediatricians, but also by pediatric dentists, since the nature of feeding affects not only the development of the dental system, the state of the microbiocenosis of the oral cavity, the formation of occlusion, the timing, pairing and sequence of eruption of primary teeth, but also the health of the whole body.

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