Original Research

https://doi.org/10.36377/ET-0185

Importance of the associative estimation of increase caries intensities in depending of mineralization activities of oral liquid and nosology forms of the congenital cleft of maxillary complex

Gayur G. Ashurov[1], Akbarsho M. Olimov[1], Safarakhmad M. Karimov[1], Dzhurabek T. Makhmudov[1], Makhmud R. Gurezov[1], Gairat E. Mullodzhanov[1], Abdugaffor Z. Abdurakhmonov[2]

[1] Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan, Dushanbe, Republic of Tajikistan

[2] Avicenna Tajik State Medical University, Dushanbe, Republic of Tajikistan

✉ shakh92@mail.ru

Abstract

AIM. Conduct the associative estimation of the increase of caries intensities in depending of the level of mineralizing potential of the mixed saliva and nosology forms of the congenital unjoining of maxillary complex.

MATERIALS AND METHODS. Importance of mineralizing activities of oral liquid was studied with determination its intercoupling with expression of the increase tooth decay beside 98 children with congenita pathology of the upper lip and palate. In this connection were chosen 4 clinical groups in depending of mineralizing level activities of the mixed saliva and cariesresistance. 1st group has formed 19 children with high level of mineralizing potential of the mixed saliva and absence of tooth caries. In the second group entered 26 children with average level of mineralizing potential of the mixed saliva and carious of molars and premolars of the jaws. 28 children with low level of mineralizing potential of the saliva and carious defeat not only chewing teeth, but also maxillary incisor has formed the third group. In 4th group entered 25 children with very low level of mineralizing potential of the mixed saliva and carious defeat all function-oriented teeth segment.

RESULTS. Factors of the increase of intensities of the teeth caries amongst 6–7 years children with named by vice and with high level of mineralizing activities of oral liquid after 12 months from moment of the primary checkup have formed at the average 0.26 ± 0.02, amongst children of 8–9 years these factors in given period has formed at the average 0.40 ± 0.03, amongst 10–11 year's children they have formed 0.34 ± 0.06, amongst children of 12–13 years they have formed 0.41 ± 0.07, but amongst children of 14–15 years they have formed 0.47 ± 0.04. As a whole for three-year period of the observation from 2022 to 2024 years factors of the increase of caries intensities beside children in given age groups corresponded to importance's 0.59 ± 0.05, 0.73 ± 0.05, 067 ± 0.09, 0.74 ± 0.09 and 0.80 ± 0.05 accordingly.

CONCLUSIONS. Reliable dynamics of caries intensities temporary and permanent teeth beside children with congenital pathology of maxillary complex, probably, is connected with absence of the complex program of the preventive maintenance of main dentistry diseases. Maximum dynamics of caries intensities amongst examined persons is connected with disorders homeostatic balances of oral cavity because of anatomist-functional disorders beside children with congenital pathology maxilla-facial area.

Keywords: congenital cleft, lip, palate, mixed saliva, mineralizing activity, caries intensity

Article information: received – 04.02.2026; revised – 11.03.2026; accepted – 20.03.2026

Conflict of interests: The authors declare no conflict of interests.

Acknowledgments: There are no funding and individual acknowledgments to declare.

For citation: Ashurov G.G., Olimov A.M., Karimov S.M., Makhmudov D.T., Gurezov M.R., Mullodzhanov G.E., Abdurakhmonov A.Z. Importance of the associative estimation of increase caries intensities in depending of mineralization activities of oral liquid and nosology forms of the congenital cleft of maxillary complex. *Endodontics Today.* 2026;24(2):253–259. https://doi.org/10.36377/ET-0185

Значение ассоциативной оценки прироста интенсивности кариеса зубов, минерализационной активности ротовой жидкости и нозологических форм врожденной расщелины верхнечелюстного комплекса

Г.Г. Ашуров[1] ✉, А.М. Олимов[1], С.М. Каримов[1], Д.Т. Махмудов[1], М.Р. Гурезов[1], Г.Э. Муллоджанов[1], А.З. Абдурахмонов[2]

[1] Институт последипломного образования в сфере здравоохранения Республики Таджикистан, г. Душанбе, Республика Таджикистан

[2] Таджикский государственный медицинский университет им. Абуали ибни Сино, г. Душанбе, Республика Таджикистан

✉ shakh92@mail.ru

Резюме

ЦЕЛЬ. Провести ассоциативную оценку прироста интенсивности кариеса зубов в зависимости от уровня минерализационного потенциала смешанной слюны и нозологических форм врожденной расщелины верхнечелюстного комплекса.

МАТЕРИАЛЫ И МЕТОДЫ. Значение минерализационной активности ротовой жидкости было изучено с определением ее взаимосвязи с выраженностью прироста кариеса зубов у 98 детей с врожденной патологией верхней губы и неба. В связи с этим нами были выделены 4 клинические группы в зависимости от уровня минерализационной активности смешанной слюны и кариесоустойчивости. Первую группу составили 19 детей с высоким уровнем минерализационного потенциала смешанной слюны и отсутствием пораженных кариесом зубов. Во вторую группу вошли 26 детей со средним уровнем минерализационного потенциала смешанной слюны и кариозным поражением моляров и премоляров челюстей. 28 детей с низким уровнем минерализационного потенциала слюны и кариозным поражением не только жевательных зубов, но и верхнечелюстных резцов составили третью группу. В четвертую группу вошли 25 детей с очень низким уровнем минерализационного потенциала смешанной слюны и кариозным поражением всех функционально-ориентированных зубных сегментов.

РЕЗУЛЬТАТЫ. Показатели прироста интенсивности зубного кариеса среди детей 6–7 лет с названным пороком и с высоким уровнем минерализационной активности ротовой жидкости спустя 12 месяцев от момента первичного осмотра составили в среднем 0,26 ± 0,02, среди детей 8–9 лет эти показатели в данном периоде составили в среднем 0,40 ± 0,03, среди детей 10–11 лет они составили 0,34 ± 0,06, среди детей 12–13 лет они составили 0,41 ± 0,07, а среди детей 14–15 лет они составили 0,47 ± 0,04. В целом за весь трехлетний период наблюдения с 2022 по 2024 г. показатели прироста интенсивности зубного кариеса у детей в данных возрастных группах соответствовали значениям 0,59 ± 0,05, 0,73 ± 0,05, 0,67 ± 0,09, 0,74 ± 0,09 и 0,80 ± 0,05 соответственно.

ВЫВОДЫ. Достоверная динамика интенсивности кариеса временных и постоянных зубов у детей с врожденной патологией верхнечелюстного комплекса, по-видимому, связан с отсутствием комплексной программы профилактики основных стоматологических заболеваний. Максимальная динамика интенсивности кариеса среди обследованных лиц связан с нарушением гомеостатического равновесия полости рта из-за анатомо-функциональных нарушений у детей с врожденной патологией челюстно-лицевой области.

Ключевые слова: врожденная расщелина, губа, неба, смешанная слюна, минерализационная активность, интенсивность кариеса

Информация о статье: поступила – 04.02.2026; исправлена – 11.03.2026; принята – 20.03.2026

Конфликт интересов: Авторы сообщают об отсутствии конфликта интересов.

Благодарности: Финансирование и индивидуальные благодарности для декларирования отсутствуют.

Для цитирования: Ашуров Г.Г., Олимов А.М., Каримов С.М., Махмудов Д.Т., Гурезов М.Р., Муллоджанов Г.Э., Абдурахмонов А.З. Значение ассоциативной оценки прироста интенсивности кариеса зубов, минерализационной активности ротовой жидкости и нозологических форм врожденной расщелины верхнечелюстного комплекса. *Эндодонтия Today*. 2026;24(2):253–259. https://doi.org/10.36377/ET-0185

INTRODUCTION

Congenital clefts of the upper lip and palate are among the most severe developmental anomalies of the maxillofacial region. The majority of children affected by this condition are disabled from birth and require prolonged, comprehensive, specialized treatment, as well as dedicated care and upbringing [1–3]. This is обусловлено the complexity of functional impairments of the oral organs and tissues, the multitude of unresolved issues related to their prevention and treatment, and the subsequent development of the

patients' personality, educational and professional attainment, and social adaptation [4–5].

In the 21st century, a steady increase in the incidence of congenital malformations of the maxillofacial region has been observed. Over the past 40 years, the number of children with this pathology has increased, with significant variations across countries and regions. Currently, the incidence of cleft lip and palate varies considerably worldwide. In the Russian Federation, it ranges from 1:630 to 1:1280 [6]. The average prevalence among European children is approximately 1:500 [7], in the United States – 1:600 [8], in Japan – 1:588 [9], and on the African continent – 1:2440 [10].

Patients with congenital cleft lip and palate, as well as the challenges of their subsequent rehabilitation, represent one of the most significant issues in dentistry. Rehabilitation measures for such patients are long-term, complex, and involve multiple stages. The rehabilitation process extends from birth to adulthood and requires a multidisciplinary team approach involving numerous specialists [11–13].

Despite the large number of studies devoted to congenital cleft lip and palate [14–16], this issue remains highly relevant. To date, no clinical assessment has been conducted of the baseline mineralization potential of oral fluid in children with congenital maxillofacial anomalies in relation to dental caries intensity. Furthermore, there is a lack of data on the increment of dental caries intensity in children with cleft lip and palate depending on the level of mineralization potential of mixed saliva.

Despite significant advances achieved by oral and maxillofacial surgeons in correcting such defects, issues related to the provision of therapeutic dental care for these patients remain incompletely resolved. Investigation of the aforementioned aspects will enable optimization of treatment and preventive strategies, ultimately contributing to more effective rehabilitation of children with cleft lip and palate.

AIM

To perform an associative assessment of the increment in dental caries intensity depending on the level of mineralization potential of mixed saliva and the nosological forms of congenital clefts of the maxillary complex.

MATERIALS AND METHODS

The mineralization activity of oral fluid was investigated by assessing its relationship with the severity of the increment in dental caries in 98 children with congenital pathology of the upper lip and palate. To evaluate the mineralization activity of mixed saliva, a clinical method for assessing enamel remineralization rate (the KOSRE test) was used. This method is based on the evaluation of both the remineralizing properties of oral fluid and the condition of dental enamel.

The enamel surface of the examined tooth was thoroughly cleaned of plaque using a dental spatula and a 3% hydrogen peroxide solution, followed by drying with compressed air. A drop of hydrochloric buffer solution (pH 0.3–0.6) of a constant volume was then applied. After 1 minute, the demineralizing solution was removed with a cotton swab. The etched enamel surface was subsequently exposed for 1 minute to a cotton pellet soaked in a 2% methylene blue solution. The susceptibility of enamel to acid exposure was assessed based on the intensity of staining of the etched enamel area.

The degree of enamel staining was evaluated using a graded blue color scale, where the least stained enamel corresponded to 10% and the most intensely stained enamel to 100%. After 24 hours, repeated staining of the etched enamel area was performed without reapplication of the demineralizing solution. If the etched area stained again, the procedure was repeated after another 24 hours. The loss of the enamel's ability to stain was interpreted as complete restoration of the mineral composition of the examined area. Enamel resistance to acid was expressed as a percentage, while the mineralization activity of mixed saliva was measured in days.

Caries resistance was characterized by low enamel susceptibility to acid exposure (<40%) and high mineralization activity of saliva (24 to 3 days). In contrast, caries susceptibility was associated with high enamel susceptibility to acid exposure (>40%) and low mineralization activity of saliva (>3 days).

Based on these parameters, four clinical groups were identified according to the level of mineralization activity of mixed saliva and caries resistance. The first group included 19 children with a high level of mineralization potential of mixed saliva and no carious lesions, classified as caries-resistant. The second group comprised 26 children with a moderate level of mineralization potential and carious lesions affecting molars and premolars. The third group included 28 children with a low level of mineralization potential and carious involvement not only of posterior teeth but also of maxillary incisors. The fourth group consisted of 25 children with a very low level of mineralization potential and carious lesions affecting all functionally significant dental segments.

Depending on the clinical form of congenital pathology, the examined patients were also divided into four groups: isolated cleft of the upper lip; isolated cleft of the soft palate; isolated cleft of both the soft and hard palate; and complete clefts involving the upper lip, soft palate, and hard palate.

Statistical analysis was performed using applied statistical software (Statistica 6.0). A p-value of <0.05 was considered indicative of statistically significant differences, leading to rejection of the null hypothesis and acceptance of the alternative hypothesis.

RESULTS

Planning the provision of cariological care for children with congenital cleft lip and palate requires, in an integrated manner, an understanding of changing trends in the dynamics of caries intensity in both primary and permanent dentitions. The obtained data in

this regard make it possible to develop a comprehensive set of measures aimed at improving the therapeutic and preventive framework of cariological care. In this context, we present the results of a study on the dynamics of caries intensity in children with combined clefts of the soft and hard palate.

During the study, a comparative analysis of the dynamic indicators of dental caries intensity was carried out in patients with high (2.09 ± 0.22), moderate (4.21 ± 0.39), low (5.95 ± 0.71), and very low (9.03 ± 0.93) levels of mineralization potential of oral fluid (Tables 1–3).

Table 1. Dynamics caries intensities beside persons with high level of mineralizing potential of the mixed saliva

Таблица 1. Динамика интенсивности кариеса зубов у лиц с высоким уровнем минерализационного потенциала смешанной слюны

Age of patients, years	Caries intensities (CFMth + cfth)				Increase of caries intensities
	source importance	after 1 year	after 2 years	after 3 years	
6–7	3.94 ± 0.19*	3.99 ± 0.21*	4.20 ± 0.21*	4.53 ± 0.24*	0.59 ± 0.05
8–9	4.47 ± 0.23*	4.55 ± 0.26*	4.87 ± 0.26*	5.20 ± 0.28*	0.73 ± 0.05
10–11	2.15 ± 0.10*	2.17 ± 0.13*	2.49 ± 0.16*	2.82 ± 0.19*	0.67 ± 0.09
12–13	4.39 ± 0.22	4.51 ± 0.27	4.80 ± 0.29	5.13 ± 0.31	0.74 ± 0.09
14–15	5.95 ± 0.29	6.10 ± 0.33	6.42 ± 0.33	6.75 ± 0.34	0.80 ± 0.05
At the average	4.18 ± 0.21	4.26 ± 0.24	4.56 ± 0.25	4.89 ± 0.27	0.71 ± 0.07

* total importance CFMth and cfth

Table 2. Dynamics caries intensities beside persons with average level of mineralizing potential of the mixed saliva

Таблица 2. Динамика интенсивности кариеса зубов у лиц со средним уровнем минерализационного потенциала смешанной слюны

Age of patients, years	Caries intensities (CFMth + cfth)				Increase of caries intensities
	source importance	after 1 year	after 2 years	after 3 years	
6–7	4.71 ± 0.26*	4.94 ± 0.22*	5.31 ± 0.27*	5.59 ± 0.34*	0.88 ± 0.08
8–9	5.24 ± 0.26*	5.55 ± 0.28*	5.93 ± 0.33*	6.14 ± 0.37*	0.90 ± 0.11
10–11	2.63 ± 0.10*	2.80 ± 0.12*	3.13 ± 0.15*	3.34 ± 0.17*	0.71 ± 0.07
12–13	5.16 ± 0.24	5.45 ± 0.29	5.82 ± 0.31	6.11 ± 0.34	0.95 ± 0.10
14–15	6.72 ± 0.30	6.95 ± 0.32	7.27 ± 0.36	7.55 ± 0.42	0.83 ± 0.12
At the average	4.89 ± 0.23	5.14 ± 0.25	5.49 ± 0.28	5.75 ± 0.33	0.85 ± 0.10

* total importance CFMth and cfth

Table 3. Dynamics caries intensities beside persons with low level of mineralizing potential of the mixed saliva

Таблица 3. Динамика интенсивности кариеса зубов у лиц с низким уровнем минерализационного потенциала смешанной слюны

Age of patients, years	Caries intensities (CFMth + cfth)				Increase of caries intensities
	source importance	after 1 year	after 2 years	after 3 years	
6–7	5.63 ± 0.28*	5.72 ± 0.30*	6.55 ± 0.36*	6.93 ± 0.38*	1.30 ± 0.10
8–9	6.16 ± 0.31*	6.41 ± 0.35*	7.13 ± 0.39*	7.41 ± 0.43*	1.25 ± 0.12
10–11	2.95 ± 0.15*	3.29 ± 0.18*	3.55 ± 0.21*	3.73 ± 0.23*	0.78 ± 0.08
12–13	6.08 ± 0.29	6.73 ± 0.35	6.98 ± 0.37	7.17 ± 0.39	1.09 ± 0.10
14–15	7.64 ± 0.35	7.87 ± 0.38	8.49 ± 0.44	8.75 ± 0.47	1.11 ± 0.12
At the average	5.69 ± 0.28	6.00 ± 0.31	6.54 ± 0.35	6.80 ± 0.38	1.11 ± 0.10

* total importance CFMth and cfth

As shown in Table 1, in 2018 the baseline caries intensity among patients aged 6–7 years with congenital cleft lip and palate averaged 3.94 ± 0.19. Among children aged 8–9 years, this indicator was 4.47 ± 0.23; in those aged 10–11 years, 2.15 ± 0.10; in the 12–13-year age group, 4.39 ± 0.22; and in adolescents aged 14–15 years, 5.95 ± 0.29 per examined individual.

The increment in dental caries intensity among children aged 6–7 years with the specified condition and a high level of mineralization activity of oral fluid, 12 months after the initial examination, averaged 0.26 ± 0.02. Among children aged 8–9 years, this indicator during the same period was 0.40 ± 0.03; in those aged 10–11 years, 0.34 ± 0.06; in the 12–13-year age group, 0.41 ± 0.07; and in children aged 14–15 years, 0.47 ± 0.04.

Overall, over the entire three-year follow-up period from 2022 to 2024, the increment in dental caries intensity in these age groups amounted to 0.59 ± 0.05, 0.73 ± 0.05, 0.67 ± 0.09, 0.74 ± 0.09, and 0.80 ± 0.05, respectively.

In children aged 6–7 years with the same condition and a moderate level of mineralization activity of oral fluid, the three-year increment in dental caries intensity averaged 0.88 ± 0.08. Among children aged 8–9 years, it was 0.90 ± 0.11; in those aged 10–11 years, 0.71 ± 0.07; in the 12–13-year age group, 0.95 ± 0.10; and in children aged 14–15 years, 0.83 ± 0.12 (Table 2).

The results of the study demonstrated a significant increase in dental caries intensity indicators among children with the aforementioned developmental anomaly and a low level of mineralization activity of oral fluid. Thus, these indicators in children aged 6–7 years increased by 0.92 ± 0.08 12 months after the initial examination. In the 8–9-year age group, the increase was 0.97 ± 0.08; in the 10–11-year group, 0.60 ± 0.06; in the 12–13-year group, 0.90 ± 0.08; and in the 14–15-year group, 0.85 ± 0.09 (Table 3).

As shown by the table data, over the entire three-year follow-up period, a marked increase in caries intensity was observed in children with congenital cleft lip and palate and a low mineralization potential of oral fluid. For example, in the 6–7-year age group, this indicator increased by 1.30 ± 0.10. In the 8–9-year group, it increased by 1.25 ± 0.12; in the 10–11-year group, by 0.78 ± 0.08; in the 12–13-year group, by 1.09 ± 0.10; and in the 14–15-year group, by 1.11 ± 0.12 units.

The increment in carious lesions among children with the specified developmental anomaly and a high mineralization potential of oral fluid averaged 0.71 ± 0.07, while in patients with a moderate level it was 0.85 ± 0.10, and in those with a low level it reached 1.11 ± 0.10. It was also established that the increment in dental caries intensity in patients with congenital cleft lip and palate and moderate and low levels of mineralization potential of oral fluid was 22.5% and 66.2% higher, respectively, compared to patients with a high level.

During the observation period, statistically significant differences ($p < 0.001$) were identified in the dynamic indicators of dental caries intensity in patients with congenital cleft lip and palate and a very low level of mineralization activity of oral fluid. A similar pattern was observed across nearly all age groups. Specifically, three years after the initial examination, the increment in carious lesions among children aged 6–7 years with cleft lip and palate and a very low mineralization potential of oral fluid averaged 1.68 ± 0.14. In children aged 8–9 years, this value was 1.70 ± 0.13; in those aged 10–11 years, 0.99 ± 0.09; in the 12–13-year age group, 1.59 ± 0.15; and among adolescents aged 14–15 years, 1.64 ± 0.14.

Additionally, the dynamics of dental caries intensity were analyzed in relation to the nosological forms of congenital maxillofacial pathology. The possibility of extrapolating conclusions regarding the presence of a correlation between the dynamics of caries intensity and cleft lip and palate was assessed by comparing individual DMFT and dmft indices according to the nosological form of the congenital condition. The analysis revealed a substantial correlation between the prevalence of congenital cleft lip and palate and dental caries intensity.

DISCUSSION

In a comparative analysis of the increment in caries intensity among observed children aged 6–7 years with a moderate level of mineralization activity of mixed saliva, this indicator was higher by 0.29 ± 0.03 units (49.15%) compared with children of the same age with a high mineralization potential. Among children with congenital cleft lip and palate aged 8–9 years, this difference was 0.17 ± 0.06 (23.29%); in the 10–11-year age group, 0.04 ± 0.01 (5.97%); in the 12–13-year age group, 0.21 ± 0.01 (28.38%); and among adolescents aged 14–15 years, 0.03 ± 0.01 (2.4%).

In a three-year follow-up with examinations at fixed intervals, in the group of 6–7-year-old children with isolated cleft lip, the increment in caries intensity for primary and permanent teeth corresponded to 1.54 ± 0.40 and 0.77 ± 0.05, respectively. In the 8–9-year age group, the corresponding values were 1.76 ± 0.57 and 1.35 ± 0.24; in the 10–11-year group, 1.93 ± 0.14 and 1.70 ± 0.14; in the 12–13-year group, 1.99 ± 0.16 and 1.75 ± 0.15; and in the 14–15-year group, 0.03 ± 0.02 and 2.46 ± 0.20, respectively.

A similar protocol was applied for a comprehensive assessment of caries status in children with isolated cleft palate. Detailed processing of the obtained data revealed distinct patterns in dental caries intensity and allowed evaluation of its three-year dynamics. A consistent increase in caries intensity was observed. Over this period, the increment for primary and permanent teeth in children aged 6–7 and 8–9 years with isolated cleft palate was 1.78 ± 0.77 and 0.70 ± 0.05; and 2.06 ± 0.95 and 1.14 ± 0.15 per patient, respectively. In the 10–11 and 14–15-year age groups, these values were 1.86 ± 0.16 and 1.43 ± 0.41; and 0.07 ± 0.01 (reduction) and 2.54 ± 0.74, respectively.

Three years after the initial dental examination, the increment in caries of primary and permanent teeth in children aged 6–7 years with complete clefts of the

upper lip, soft palate, and hard palate was 1.34 ± 0.53 and 0.05 ± 0.01, respectively. Among examined children aged 8–9 and 10–11 years, the corresponding values were 1.82 ± 0.27 and 5.21 ± 1.99; and 2.74 ± 1.06 and 1.97 ± 0.68, respectively. In the 14–15-year age group, the increment for permanent teeth was 2.32 ± 0.59.

The observed positive dynamics of dental caries intensity in children with congenital cleft lip and palate across high, moderate, low, and very low levels of mineralization potential of oral fluid indicate the feasibility of increasing the scope of targeted therapeutic and preventive dental care.

CONCLUSION

The results of the dynamic follow-up demonstrate a clearly pronounced positive trend in cariological status, particularly in terms of caries intensity, depending on the mineralization activity of mixed saliva among children with congenital pathology of the maxillary complex.

The obtained data substantiate the feasibility of maintaining a differentiated approach in the planning and provision of cariological care for pediatric patients, taking into account the identified indicators of dental caries increment.

REFERENCES / СПИСОК ЛИТЕРАТУРЫ

1. Danilova M.A., Aleksandrova L.I., Sirina N.V. The analysis of individual results of early prosthodontic treatment of children with congenital clefts of the upper lip and palate. *Dental Forum*. 2017;(4):22–23. (In Russ.)
Данилова М.А., Александрова Л.И., Сирина Н.В. Анализ отдельных результатов раннего ортопедического лечения детей с врожденными расщелинами верхней губы и неба. *Dental Forum*. 2017;(4):22–23.
2. Rogozhina Yu.S., Blokhina S.I., Bimbas E.S. On the issue of surgical treatment of patients with congenital orofacial clefts combined with other organ and system comorbidities. *Pediatric Dentistry and Dental Prophylaxis*. 2023;23(3):281–294. (In Russ.) https://doi.org/10.33925/1683-3031-2023-658
Рогожина Ю.С., Блохина С.И., Бимбас Е.С. К вопросу хирургического лечения пациентов с врожденной расщелиной челюстно-лицевой области, сочетанной с аномалиями других органов и систем. *Стоматология детского возраста и профилактика*. 2023;23(3):281–294. https://doi.org/10.33925/1683-3031-2023-658
3. Násser L.S., Martelli D.R.B., Swerts M.S.O., Popoff D.A.V., Barros L.M., Martelli H. Jr. Ophthalmic changes in cleft lip and palate. *Rev Bras Ophthalmol.* 2016;75(2):94–98. https://doi.org/10.5935/0034-7280.20160021
4. Altunhan H., Annagür A., Konak M., Ertuğrul S., Ors R., Koç H. The incidence of congenital anomalies associated with cleft palate/cleft lip and palate in neonates in the Konya region, Turkey. *Br J Oral Maxillofac Surg*. 2012;50(6):541–544. https://doi.org/10.1016/j.bjoms.2011.08.001
5. Pereira A.V., Fradinho N., Carmo S., de Sousa J.M., Rasteiro D., Duarte R., Leal M.J. Associated malformations in children with orofacial clefts in Portugal: A 31-year study. *Plast Reconstr Surg Glob Open*. 2018;6(2):e1635. https://doi.org/10.1097/GOX.0000000000001635
6. Mamedov A.A., Maclennan A.B., Ryabkova M.G., DoninI.M., Volkov Y.O., Parfenov D.S. et al. Betweendisciplinary approach to treatment of children with cleft of the lip and palate at period of newborn. *System Integration in Health Care.* 2017;(2):52–59. (In Russ.) Available at: https://sys-int.ru/sites/default/files/sys-int-32-52-59.pdf (accessed: 12.03.2026).
Мамедов А.А., Макленнан А.Б., Рябкова М.Г., Донин И.М., Волков Ю.О., Парфенов Д.С. и др. Междициплинарный подход к лечению детей с расщелиной губы и неба в периоде новорожденности. *Системная интеграция в здравоохранении.* 2017;(2):52–59. Режим доступа: https://sys-int.ru/sites/default/files/sys-int-32-52-59.pdf (дата обращения: 12.03.2026).
7. Sanchez M.L.N., Benjamin R.H., Mitchell L.E., Langlois P.H., Canfield M.A., Swartz M.D. et al. Birth defect co-occurrence patterns among infants with cleft lip and/or palate. *Cleft Palate Craniofac J*. 2022;59(4):417–426. https://doi.org/10.1177/10556656211010060
8. Azadgoli B., Munabi N.C.O., Fahradyan A., Auslander A., McCullough M., Aflatooni N. et al. Congenital heart disease in patients with cleft lip/palate and its impact on cleft management. *Cleft Palate Craniofac J*. 2020;57(8):957–966. https://doi.org/10.1177/1055665620924911
9. Sato Y., Yoshioka E., Saijo Y., Kato Y., Nagaya K., Takahashi S. et al. Associated congenital anomalies and syndromes of 248 infants with orofacial clefts born between 2011 and 2014 in the Japan environment and children's study. *Congenit Anom*. 2023;63(1):9–15. https://doi.org/10.1111/cga.12496
10. Nagalo K., Ouédraogo I., Laberge J.M., Caouette-Laberge L., Turgeon J. Congenital malformations and medical conditions associated with orofacial clefts in children in Burkina Faso. *BMC Pediatr*. 2017;17(1):72. https://doi.org/10.1186/s12887-017-0833-9
11. Korolenkova M.V., Starikova N.V., Ageeva L.V. Risk factors for teeth aplasia and hypoplasia in cleft lip and palate children. *Stomatology*. 2016;95(1):59–62. (In Russ.) https://doi.org/10.17116/stomat201695159-62
Короленкова М.В., Старикова Н.В., Агеева Л.В. Факторы риска аплазии и гипоплазии зубов у детей с расщелинами губы и неба. *Стоматология*. 2016;95(1):59–62. https://doi.org/10.17116/stomat201695159-62
12. Mardanov A.E., Smirnov I.E., Mamedov A.A. Congenital cleft of the lip and palate in children: pathogenetical significance of matrix metalloproteinases. *Russian Pediatric Journal*. 2016;19(2):106–113. (In Russ.)
Марданов А.Э., Смирнов И.Е., Мамедов А.А. Врожденная расщелина верхней губы и неба у детей: патогенетическое значение матриксных металлопротеиназ. *Российский педиатрический журнал.* 2016;19(2):106–113.
13. Peat J.H. Effects of presurgical oral orthopedics on bilateral complete clefts of the lip and palate. *Cleft Palate J*. 1982;19(2):100–103.
14. Bogoroditskaya A.V., Sarafanova M.E., Radcig E.Yu., Prityko A.G. Clinical management of children with congenital cleft lip and palate: an interdisciplinary problem. *Pediatriya – Zhurnal im G.N. Speranskogo.* 2015;94(3):78–81. (In Russ.) Available at: https://pediatriajournal.ru/files/upload/mags/346/2015_3_4298.pdf (accessed: 12.03.2026).
Богородицкая А.В., Сарафанова М.Е., Радциг Е.Ю., Притыко А.Г. Тактика ведения детей с врожденной

расщелиной верхней губы и неба: междисциплинарная проблема. *Педиатрия. Журнал им. Г.Н. Сперанского.* 2015;94(3):78–81. Режим доступа: https://pediatriajournal.ru/files/upload/mags/346/2015_3_4298.pdf (дата обращения: 12.03.2026).

15. Freitas J.A., Garib D.G., Trindade-Suedam I.K., Carvalho R.M., Oliveira T.M., Lauris Rde C. et al. Rehabilitative treatment of cleft lip and palate: experience of the Hospital for Rehabilitation of Craniofacial Anomalies-USP (HRAC-USP) – part 3: oral and maxillofacial surgery. *J Appl Oral Sci*. 2012;20(6):673–679. https://doi.org/10.1590/s1678-77572012000600014
16. Greenhalgh K.L., Aligianis I.A., Bromilow G., Cox H., Hill C., Stait Y. et al. 22q11 deletion: a multisystem disorder requiring multidisciplinary input. *Arch Dis Child*. 2003;88(6):523–524. https://doi.org/10.1136/adc.88.6.523

INFORMATION ABOUT THE AUTHORS

Gayur G. Ashurov – Dr. Sci. (Med.), Professor, Head of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0000-0002-1853-5682

Akbarsho M. Olimov – Cand. Sci. (Med.), Postgraduate Student of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0009-0007-0568-7293

Safarakhmad M. Karimov – Dr. Sci. (Med.), Associate Professor, Professor of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0000-0002-3145-6225

Dzhurabek T. Makhmudov – Dr. Sci. (Med.), Associate Professor of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0009-0009-8588-213X

Makhmud R. Gurezov – Cand. Sci. (Med.), Associate Professor of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0009-0004-9761-2923

Gairat E. Mullodzhanov – Dr. Sci. (Med.), Associate Professor of the Department of Therapeutic Dentistry, Institute of Postgraduate Education in Health Sphere of the Republic of Tajikistan; 59 Somoni Ave, Dushanbe 734026, Republic of Tajikistan; https://orcid.org/0009-0003-4953-9218

Abdugafor Z. Abdurakhmonov – Cand. Sci. (Med.), Associate Professor, Head of the Department of Child Dentistry and Orthodontic, Avicenna Tajik State Medical University, 29–31 Sino Str., Dist. Sino, Dushanbe 734003, Republic of Tajikistan; https://orcid.org/0000-0001-6533-0279

ИНФОРМАЦИЯ ОБ АВТОРАХ

Ашуров Гаюр Гафурович – д.м.н., профессор, заведующий кафедрой терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0000-0002-1853-5682

Олимов Акбаршо Махмадшоевич – к.м.н., соискатель кафедры терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0009-0007-0568-7293

Каримов Сафарахмад Мунаварович – д.м.н., доцент, профессор кафедры терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0000-0002-3145-6225

Махмудов Джурабек Тешаевич – д.м.н., доцент кафедры терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0009-0009-8588-213X

Гурезов Махмуд Рахимович – к.м.н., доцент кафедры терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0009-0004-9761-2923

Муллоджанов Гайратжон Элмуродович – д.м.н., доцент кафедры терапевтической стоматологии, ГОУ «Институт последипломного образования в сфере здравоохранения Республики Таджикистан», 734026, Республика Таджикистан, г. Душанбе, пр. Сомони, 59; https://orcid.org/0009-0003-4953-9218

Абдурахмонов Абдугафор Зоирович – к.м.н., доцент, заведующий кафедрой стоматологии детского возраста и ортодонтии, ГОУ «Таджикский государственный медицинский университет им. Абуали ибни Сино», 734003, Республика Таджикистан, г. Душанбе, р. Сино, ул. Сино, 29–31; https://orcid.org/0000-0001-6533-0279

AUTHOR'S CONTRIBUTION

All the authors made equal contributions to the publication preparation in terms of the idea and design of the article; data collection; critical revision of the article in terms of significant intellectual content and final approval of the version of the article for publication.

ВКЛАД АВТОРОВ

Все авторы внесли равноценный вклад в подготовку публикации в части замысла и дизайна исследования; сбора данных; критического пересмотра статьи в части значимого интеллектуального содержания и окончательного одобрения варианта статьи для опубликования.