ADVANTAGES ANDA DISADVANTAGES OF LASER THERAPY TREATMENT OF DISEASES OF THE ORAL MUCOSA IN CHILDREN

Orifkhujaeva Mekhriniso Valijonovna

Trainee-teacher of the Department of Clinical Sciences, Faculty of Dentistry, Asian International University.

E-mail: *orifxujayevamehrinisovalijonovna@oxu.uz*

https://doi.org/10.5281/zenodo.14709552

Abstract*. Lasers have been practiced in dental surgery for almost 30 years, and have now become commonplace in dental treatment, both as an additional method of treatment and as a separate addition to dental equipment. What is usually called dental laser treatment is subject to the category of laser dentistry. Laser dentistry includes periodontal treatment, auxiliary periodontal regeneration, oral implants, minimally invasive oral surgery, restorative dentistry, endodontic treatment, external oral and maxillary treatment, orthodontics and other areas.*

Keywords: *dentistry, epithelization, radiation, dental procedures, anesthesia, teeth.*

ПРЕИМУЩЕСТВА И НЕДОСТАТКИ ЛАЗЕРНОЙ ТЕРАПИИ ЗАБОЛЕВАНИЙ СЛИЗИСТОЙ ОБОЛОЧКИ ПОЛОСТИ РТА У ДЕТЕЙ

Аннотация. *Лазеры применяются в стоматологической хирургии уже почти 30 лет и в настоящее время стали обычным явлением в стоматологическом лечении, как в качестве дополнительного метода лечения, так и в качестве отдельного дополнения к стоматологическому оборудованию. То, что обычно называют стоматологическим лазерным лечением, относится к категории лазерной стоматологии. Лазерная стоматология включает пародонтологическое лечение, вспомогательную пародонтальную регенерацию, имплантацию полости рта, малоинвазивную хирургию полости рта, восстановительную стоматологию, эндодонтическое лечение, внешнее лечение полости рта и верхней челюсти, ортодонтия и другие направления.*

Ключевые слова: *стоматология, эпителизация, излучение, стоматологические процедуры, анестезия, зубы.*

Laser radiation significantly increases the proliferative activity of cells by 1.3-3.5 times. It turns out that laser light has an anti-inflammatory effect on damage to the oral mucosa, contributes to the acceleration of epithelization and the restoration of mucous membrane tissues in the area of the defect. This effect is primarily due to increased DNA synthesis in cells. It turns out that during irradiation, the intensity of blood supply increases by 20%. The optimal dose of vasoconstrictor radiation is 100 mW/S2 (for GNL). With the development of the Constrictor reaction, some researchers also associate the deterministic effects of laser radiation observed in the clinic.

In an experiment on the post-traumatic regeneration model of the mucous membrane of the tongue, faster and better epithelization of the wound (power density 200 mW/cm2, with single exposure) and 1 mW/cm2 with daily exposure) was recorded after exposure to helium-neon laser light[3]. A study of the microstructure of the gum after 1, 3 and 6 sessions of daily radiation with GNL rays showed that there is a clear reaction by its main elements. In the epithelial cells of the Stratum corneum, there are light vacuoles and strong osmotic fragments, and in the granular layer the number of osmotic granules increases. Large amounts of mitochondria appear in muscle fibers and erythrocyte accumulation in blood vessels is detected. All this is evidenced by the increased synthesis of substances in cells under the influence of laser radiation.

All lasers work by transferring energy in the form of light. When used in surgical and dental procedures, the laser acts as a cutting tool or vaporizer for the tissue it comes into contact with.

When used in teeth whitening procedures, the laser acts as a heat source and enhances the effect of bleaching agents.

What are the pros and cons of using a laser in dentistry?

Positive

Compared to the traditional dental drill, lasers:

In some cases, it may cause less pain, so the need for anesthesia is reduced.

It can reduce anxiety in patients who experience discomfort when using a dental drill.

Minimize bleeding and swelling during soft tissue treatment

Minuses

The disadvantages of lasers are as follows:

Lasers cannot be used on teeth with fillings already installed.

Lasers cannot be used in many common dental procedures. For example, lasers cannot be used to fill cavities located between teeth, around old fillings and large cavities that need to be prepared for crowns. In addition, lasers cannot be used to remove defective crowns or silver fillings, or to prepare teeth for bridges.

Even when using a laser, traditional drills may be required to shape the seal, adjust the bite, and polish the seal.

Lasers do not eliminate the need for anesthesia.

Laser treatment is usually more expensive — the cost of a laser is much higher than the cost of a dental drill. Compared to about $600 for a standard drill, lasers can cost anywhere from a few thousand dollars to over $100,000 for one that can be used for cutting teeth.

Until now, most patients have often experienced psychoemotional stress before visiting the dentist and during dental procedures. The current stage of dental development involves the creation of comfortable conditions for the patient during high-quality modern treatment.

The use of laser technologies is a promising area in dental practice. The interest in laser technology is explained by the many advantages over other treatment methods.

Anti–inflammatory effect, biostimulating effect that enhances tissue regeneration and promotes rapid healing and prevention of postoperative scarring, antibacterial effect, excellent hemostatic effect, analgesic and immunostimulating effects - this is a fairly small list of positive properties of laser radiation, which are so necessary for use in medical dental practice. When using laser radiation in the treatment process, there is no pressure, friction and vibration, since the process takes place without direct contact with tissues. Laser radiation has virtually no effect on nerve cells, which allows for treatment with a minimum amount of anesthetic, and in some cases without the use of anesthesia, which is a huge advantage in the dental treatment of pregnant women and children.

REFERENCES

1. Axmedova, M. (2025). DISEASES OF THE TEMPOROMANDIBULAR JOINT AND FORMULATION OF DIAGNOSIS. *Modern Science and Research*, *4*(1), 290-3.
2. Valijonovna, O. M. (2023). Aseptic and antiseptic in therapeutic dentistry. Best Journal of Innovation in Science, Research and Development, 2(10), 517-521.
3. Valijonovna, O. M., & Bahodirovna, N. M. (2023). TREATMENT OF HYPERESTHESIA AFTER TEETH WHITENING. Научный Фокус, 1(1), 459-465.
4. Valijonovna, O. M., & Bahodirovna, N. M. (2023). PREVENTION AND TREATMENT OF COMPLICATIONS AFTER WHITENING. PEDAGOGICAL SCIENCES AND TEACHING METHODS, 2(23), 216-218.
5. Valijonovna, O. M., & Bahodirovna, N. M. (2022). PREVENTION AND TREATMENT OF COMPLICATIONS AFTER WHITENING. Scientific Impulse, 1(4), 1201-1207.
6. Valijonovna, O. M. (2023). ROLE OF ICON TREATMENT IN MODERN DENTISTRY. Best Journal of Innovation in Science, Research and Development, 117-120.
7. Valijonovna, O. M. (2024). BASIC AND ADDITIONAL METHODS OF EXAMINATION OF DENTAL PATIENTS. IMRAS, 7(1), 322-327.
8. Орифходжаева, М. В. (2024). ФИЗИОТЕРАПЕВТИЧЕСКИЕ ПРОЦЕДУРЫ, ИСПОЛЬЗУЕМЫЕ В СТОМАТОЛОГИИ ДЛЯ ЛЕЧЕНИЯ ЗАБОЛЕВАНИЙ ПОЛОСТИ РТА. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(5), 144-151.
9. Valijonovna, O. M. (2024). WORKERS OF INDUSTRIAL ENTERPRISES ORAL MUCOSA AND PREVENTION OF OCCUPATIONAL DISEASES IN DENTAL CAT

DISCHARGE. SCIENTIFIC APPROACH TO THE MODERN EDUCATION SYSTEM, 2(22), 158-163.

10. Valijonovna, O. M. (2024). ORAL MUCOSAL INFLAMMATION AND PRIMARY TREATMENT METHODS CAUSED BY VARIOUS DUST PARTICLES IN PLANT AND FACTORY WORKERS. TADQIQOTLAR, 31(1), 188-194.
11. Valijonovna, O. M. (2024). TYPES OF OCCUPATIONAL DISEASES FOUND IN THE ORAL MUCOSA AND THEIR DESCRIPTION. TADQIQOTLAR, 31(1), 181-187.
12. Valijonovna, O. M. (2024). Dental Condition Trainees of Grain and Grain Products Combine Workers. Research Journal of Trauma and Disability Studies, 3(3), 284-288.
13. Valijonovna, O. M. (2024). Normal Microflora and Sanation of the Oral Cavity. JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH, 3(5), 302-306.
14. Valijonovna, O. M. (2024). MODERN METHODS USED IN THE PREVENTION OF CARIES. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 4(4), 178-183.
15. Orifkhujaeva, M. V. (2024). Antiseptic andDisinfectants, Their Use in Dentistry. Journal of Science in Medicine and Life, 2(6), 159-165.
16. Orifkhujaeva, M. V. (2024). Treatment Using the Method of Laser Therapy in Dentistry. American Journal of Bioscience and Clinical Integrity, 1(10), 58-63.
17. Orifkhujaeva, M. V. (2024). Use of Ozone Therapy in the Treatment of Diseases of the Mucous Membrane of the Oral Cavity. International Journal of Alternative and Contemporary Therapy, 2(9), 111-115.
18. Valijonovna, O. M. CANCER OF ORAL MUCOSA: ETIOLOGY, DIAGNOSIS AND TREATMENT.
19. Valijonovna, O. M. (2024). Antiseptic and Disinfectants, Their Use in Dentistry.
20. Khalilova, L. (2024). GLASS IONOMER CEMENTS USED IN DENTISTRY. Modern Science and Research, 3(12), 443-450.
21. Ravshanovna, X. L. (2021, June). MINIMALLY INVASIVE METHODS OF TREATMENT OF DENTAL CARIES IN ADULTS. In " ONLINE-CONFERENCES" PLATFORM (pp. 118-119).
22. Qilichovna, A. M., Nematilloyevna, X. M., & Ergashevich, I. I. (2024). THE ROLE OF CARIOGENIC AND PROTECTIVE FACTORS IN THE PREVENTION OF CARIES. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *43*(8), 45-51.

23. Qilichovna, A. M., Nematilloyevna, X. M., & Ergashevich, I. I. (2024). KARIYESNING OLDINI OLISHDA KARIOGEN VA HIMOYA OMILLARNING ROLI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *43*(8), 52-59.
24. Qilichovna, A. M. (2024). FACTORS CAUSING THE WIDE SPREAD OF DENTAL CARIES. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(4), 154-160.
25. Nematilloyevna, X. M., & Qilichovna, A. M. (2024). MORPHO-FUNCTIONAL CHANGES IN ACUTE FORMS OF APHTHOUS STOMATITIS: Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari. *Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari*, *6*(4), 177-186.
26. Qilichovna, A. M., & Nematilloyevna, X. M. (2024). METABOLIK SINDROMI VA QON BOSIMI BOR BEMORLARDA O'ZGARISH XUSUSIYATLARI BAHOLASH: Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari. *Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari*, *6*(4), 187-196.
27. Qilichovna, A. M., & Nematilloyevna, X. M. (2024). TIBBIYOT TILI HISOBLANMISH LOTIN TILINI SAMARALI O'RGANISH OMILLARI: Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari. *Yangi O'zbekiston taraqqiyotida tadqiqotlarni o'rni va rivojlanish omillari*, *6*(4), 197-206
28. .Qilichovna, A. M., & Vahidovna, K. N. (2024). FACTORS CAUSING DISEASES OF PERIODONTAL TISSUES. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, *3*(5), 196-201.
29. Qilichovna, A. M., & Abdumutalib o'g'li, U. A. (2024). KARIES PROFILAKTIKASI NAZARIYASI VA AMALIYOTI. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, *3*(5), 202-209.
30. Vahidovna, K. N., & Kilichovna, A. M. (2024). FACTORS CAUSING PERIODONTAL TISSUE DISEASES. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, *3*(5), 185-195.
31. Qilichovna, A. M. (2024). THEORETICAL FUNDAMENTALS OF CARIES PREVENTION. *Journal of Science in Medicine and Life*, *2*(5), 222-226.
32. Qilichovna, A. M., & Safarboy o'g'li, T. S. (2024). 4-AVLOD ADGEZIV SISTEMA. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, *3*(5), 307-313.
33. Axmedova, M. (2024). CONDITION OF THE ALVEOLAR PROCESS AND PERIOSTE WHEN USING REMOVABLE DENTURES. *EUROPEAN JOURNAL OFMODERNMEDICINEAND PRACTICE*, *4*(11), 528-538.

34. Qilichevna, A. M. (2024). COMPARATIVE ANALYSIS OF NUTRITIONAL DISPARITIES AMONG PEDIATRIC POPULATIONS: A STUDY OF CHILDREN WITH DENTAL CAVITIES VERSUS THOSE IN OPTIMAL HEALTH. *Central Asian Journal of Multidisciplinary Research and Management Studies*, *1*(2), 30-34.
35. Qilichovna, A. M. (2024). CLINIC FOR PATIENTS WITH DENTURES COMPARATIVE DIAGNOSIS AND PATHOGENESIS. *TADQIQOTLAR*, *30*(3), 127-135.
36. Ahmedova, M. (2023). COMPARATIVE ANALYSIS OF NUTRITIONAL DISPARITIES AMONG PEDIATRIC POPULATIONS: A STUDY OF CHILDREN WITH DENTAL CAVITIES VERSUS THOSE IN OPTIMAL HEALTH. *International Bulletin of Medical Sciences and Clinical Research*, *3*(12), 68-72.
37. Ahmedova, M. (2023). DIFFERENCES IN NUTRITION OF CHILDREN WITH DENTAL CARIES AND HEALTHY CHILDREN. *International Bulletin of Medical Sciences and Clinical Research*, *3*(12), 42-46.
38. Axmedova, M. (2023). TISH KARIESINING KENG TARQALISHIGA SABAB BO'LUVCHI OMILLAR. *Центральноазиатский журнал образования и инноваций*, *2*(12), 200-205.
39. Ахмедова, М. (2023). ИСПОЛЬЗОВАНИЕ КОМПЬЮТЕРНЫХ ТЕХНОЛОГИЙ НА ЭТАПАХ ДИАГНОСТИКИ И ПЛАНИРОВАНИЯ ОРТОПЕДИЧЕСКОГО ЛЕЧЕНИЯ НА ОСНОВЕ ЭНДОССАЛЬНЫХ ИМПЛАНТАТОВ. *Центральноазиатский журнал образования и инноваций*, *2*(11 Part 2), 167-173.
40. Axmedova, M. (2023). USE OF COMPUTER TECHNOLOGY AT THE STAGES OF DIAGNOSIS AND PLANNING ORTHOPEDIC TREATMENT BASED ON ENDOSSEAL IMPLANTS. *International Bulletin of Medical Sciences and Clinical Research*, *3*(11), 54-58.
41. Ахмедова, М. (2020). НАРУШЕНИЯ ЭНДОТЕЛИАЛЬНОЙ ФУНКЦИИ ПРИ РАЗВИТИИ АФТОЗНОГО СТОМАТИТА. *Достижения науки и образования*, (18 (72)), 65-69.
42. Axmedova, M. (2023). THE IMPACT OF SOCIOCULTURAL FACTORS ON THE PERVASIVENESS OF DENTAL CARIES AS A COMPLEX HEALTH CONDITION IN CONTEMPORARY SOCIETY. *International Bulletin of Medical Sciences and Clinical Research*, *3*(9), 24-28.
43. Ахмедова, М. К. (2024). ОБЩИЕ ПРИЧИНЫ КАРИЕСА ЗУБОВ. *Лучшие интеллектуальные исследования*, *14*(4), 77-85.

44. Qilichovna, A. M. (2024). CLINICAL SIGNS WHEN ACCOMPANIED BY DENTAL DISEASES AND METABOLIC SYNDROME. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(5), 116-24.
45. Ахмедова, М. К. (2024). Профилактика Стоматологических Заболеваний У Беременных. *Research Journal of Trauma and Disability Studies*, *3*(3), 66-72.
46. Ахмедова, М. К. (2024). ОСНОВНЫЕ ПРОФИЛАКТИЧЕСКИЕ МЕТОДЫ ТКАНЕЙ ПАРОДОНТА У ДЕТЕЙ И ПОДРОСТКОВ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *41*(5), 254-260.
47. Qilichovna, A. M. (2024). PREVENTION OF PERIODONTAL DISEASES IN CHILDREN AND TEENAGERS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *41*(5), 234-239.
48. Qilichovna, A. M. (2024). PREVENTION OF PERIODONTAL AND GUM DISEASES IN PREGNANT WOMEN. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *41*(5), 240-245.
49. Qilichovna, A. M. (2024). HOMILADOR AYOLLARDA TISH VA PARADONT KASALLIKLARINING OLDINI OLISH. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *41*(5), 246-253.
50. Ахмедова, М. К. (2024). ИЗУЧЕНИЕ ПРИЧИННЫХ ФАКТОРОВ ПАРОДОНТИТА. *Journal of new century innovations*, *49*(3), 47-53.
51. Qilichovna, A. M. (2024). TO STUDY THE FACTORS THAT CAUSE PERIODONTITIS. *Journal of new century innovations*, *49*(3), 40-46.
52. Qilichovna, A. M. (2024). THE ROLE OF PATHOGENESIS IN THE GROWTH FACTORS OF PERIODONTITIS DISEASE. *Journal of new century innovations*, *49*(3), 25-32.
53. Qilichovna, A. M. (2024). TISH KARIYESI BO'LGAN BOLALAR VA SOG'LOM BOLALARNING OVQATLANISHIDAGI FARQLAR. *Ta'limning zamonaviy transformatsiyasi*, *6*(2), 213-223.
54. Ахмедова, М. К. (2024). РАЗЛИЧИЯ В ПИТАНИИ ДЕТЕЙ С КАРИЕСОМ ЗУБОВ И ЗДОРОВЫХ ДЕТЕЙ. *Ta'limning zamonaviy transformatsiyasi*, *6*(2), 224-234.
55. Ergashevich, I. I., Bahronovich, B. F., & Qilichevna, A. M. (2024). ASTMATIK STATUSDAN BEMORLARNI CHIQARISHNING ZAMONAVIY TAMOYILLARI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *43*(8), 36-44.

56. Axmedova, M., & Neymatov, D. (2025). TERAPEVTIK STOMATALOGIYADA BEMORLARNI QO'SHIMCHA TEKSHIRISH USULLARI (PARAKLINIK USUL). *Modern Science and Research*, *4*(1), 268-278.
57. Axmedova, M., & Neymatov, D. (2025). TERAPEVTIK STOMATALOGIYADA BEMORLARNI ASOSIY TEKSHIRISH USULLARI. *Modern Science and Research*, *4*(1), 257-267.
58. Ахмедова, М., Кузиева, М., & Курбанова, Н. (2025). ЗАБОЛЕВАНИЙ ВИСОЧНО-НИЖНЕЧЕЛЮСТНОГО СУСТАВА И ФОРМУЛИРОВАНИЕ ДИАГНОЗА. *Modern Science and Research*, *4*(1), 279-289.
59. Ахмедова, М., Кузиева, М., & Халилова, Л. (2025). СОСТОЯНИЕ АЛЬВЕОЛЯРНОГО ОТРОСТКА И ПЕРИОСТА ПРИ ИСПОЛЬЗОВАНИИ СЪЕМНЫХ ПРОТЕЗОВ. *Modern Science and Research*, *4*(1), 301-310.
60. Кузиева, М., Ахмедова, М., & Халилова, Л. (2025). СОВРЕМЕННЫЕ АСПЕКТЫ ВЫБОРА МАТЕРИАЛА ДЛЯ ОРТОПЕДИЧЕСКОГО ЛЕЧЕНИЯ БОЛЬНЫХ, НУЖДАЮЩИХСЯ В ПРОТЕЗИРОВАНИИ ЗУБОВ. *Modern Science and Research*, *4*(1), 322-333.