


Overview of Digital Technologies in Removable Prosthetics

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	<p>Abstract</p> <p>One of the most important characteristics of the success of orthopedic treatment with a partial removable denture (BSP) is its fit. An unsatisfactory fit of a partial removable denture is the most common complaint of patients and can contribute to discomfort, damage to surrounding tissues, functional disorders, as well as unsatisfactory aesthetics, which can result in the refusal to use a denture. The fit density of a partial removable prosthesis is usually estimated in the patient's oral cavity or on the final model. Acquired defects are formed most often in adults as a result of diseases of the jaw bones (osteomyelitis, syphilis, tuberculosis), surgical interventions, traumatic injuries, gunshot wounds. Functional disorders are associated with communication of the oral cavity with the nasal cavity (speech is distorted, breathing, swallowing, chewing, sucking change). The function of the temporomandibular joint is impaired, the patient's psyche changes [1].</p>
<p>Keywords:</p>	

Introduction

Surgical interventions on the upper jaw differ in that, very often, even with minor defects, there are messages with the oral cavity and nearby cavities and sinuses: the nose, maxillary and wedge-shaped sinuses, and the eye cavity. After oncological operations, when there is a risk of recurrence, direct reconstructive plastic surgery is not desirable [9]. As a result of extensive surgical interventions, there is a shortage of hard and soft tissues, in which reconstructive surgical operations to exclude communication between cavities and restore the integrity of the jaw do not lead to desirable results. The use of modern elastic base materials makes it possible to expand the prosthetic bed and distribute the chewing load on the bone base adjacent to the defect, which is located above the hard palate. In addition, you can get a good stabilization and fixation of the prosthesis. For this purpose, the preserved part of the hard palate, the pterygoid process of the sphenoid bone, the bone base of the fundus of the ocular cavity, etc. are used [7]. Digital dentistry is a field where information technology is used to diagnose and treat oral diseases. Its purpose is to improve aesthetic results and patient comfort. Diseases of the oral cavity, such as caries or periodontitis, are widespread.

Goal

The purpose of the study was to review and analyze the literature for assessing the quality of fit of partially removable dentures made by the digital method, as well as a review of the digital method for evaluating the fit of partial removable dentures.

Materials and Methods

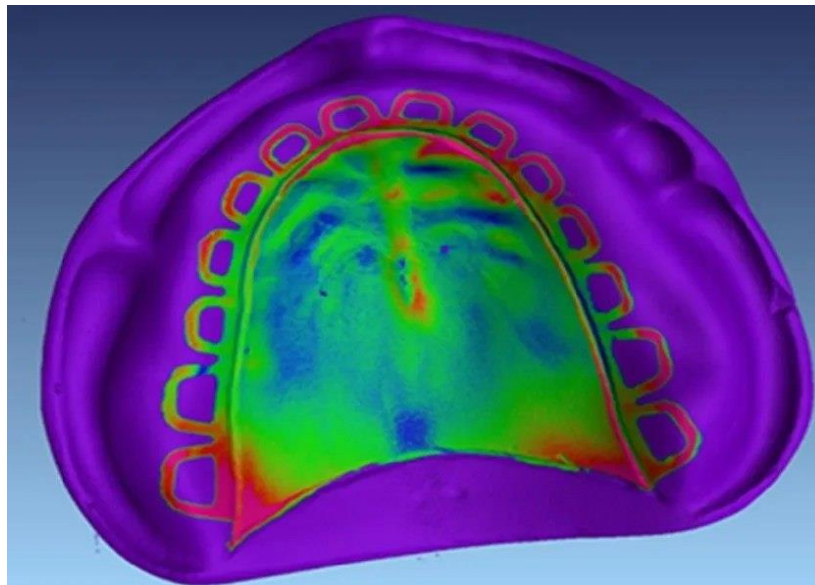
The relevant literature was searched using the databases MEDLINE, PubMed, Scopus and Science Direct. The planting quality of the BSPs made digitally or in the traditional way was evaluated using an analog landing assessment method using impression materials (silicone, polyvinylsiloxane), a microscope and a digital camera, as well as a digital method where the fit of the BSPs was evaluated using color maps.

Results

In 20 studies, the fit between the inner surface of the chip and the model, clamps/linings and hard tissues of the tooth was evaluated using polyvinyl silicone materials, a micrometer, photographs and a microscope, or a combination of several methods. In most studies, it was reported that the landing of the BSP ranged from satisfactory to excellent. However, when using the analog landing estimation method, material errors can lead to distortion of the result.

Two studies used the color map method. The color map method involves digitally overlaying images of the surfaces of the denture and the model, analyzing the data and then displaying inconsistencies in the form of a color map, where each color indicates the magnitude of the differences between the two surfaces in microns/millimeters. Despite the limited amount of data, the landing of emergency vehicles manufactured by the digital method was acceptable.

The principle of evaluating the fit of dentures using a color map is shown in Figure 1, where the correspondence of the surfaces of the cast plate made of Co-Cr alloy and the main model is visualized.



purple color – master model

blue color - landing area with high pressure

green color – good landing

The orange color is the gap

The color saturation describes the degree of fit of two surfaces in mm:

purple: from -0.5 to -0.1 mm,

blue: -0.1 to -0.05 mm,

green: -0.05 to 0.05 mm,

orange: 0.05 to 0.1 mm,

pink color: 0.5 to 0.25mm.

Conclusions

The results of research on the quality of planting of BSPs made by traditional and digital methods are contradictory. Nevertheless, with both manufacturing methods, an acceptable quality of the BSP fit is achieved. The new landing assessment method using digital maps provides an opportunity for a more objective quantitative assessment of an emergency landing.

References

1. Astanovich, A. D. A., Alimdjanovich, R. J., Abdujamilevich, S. A., & Bakhriddnovich, T. A. (2021). The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports. *Annals of the Romanian Society for Cell Biology*, 235-241.
2. Astanovich, A. A., & Ikrombekovna, A. N. (2024). IMPROVEMENT IN THE DIAGNOSIS OF CHRONIC PERIODONTITIS IN CHILDREN. *World Bulletin of Social Sciences*, 32, 68-70.
3. Astanovich, A. A., & Ikrombekovna, A. N. (2024). IMPLICATIONS OF TNF- α PRODUCTION ON TISSUE RESISTANCE INDEXES ORAL RESISTANCE IN CHRONIC GENERALISED PERIODONTITIS. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, 4(3), 232-235.
4. Asrorovna, X. N., Baxriddinovich, T. A., Bustanovna, I. N., Valijon O'g'li, D. S., & Qizi, T. K. F. (2021). Clinical Application Of Dental Photography By A Dentist. *The American Journal of Medical Sciences and Pharmaceutical Research*, 3(09), 10-13.
5. Bustanovna I. N., Sharipovna N. N. Research cases in women after menopause clinical and morphological changes in oral organs and their analysis // *Journal of biomedicine and practice*. – 2023. – T. 8. – №. 3.
6. Bustanovna I. N. Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women // *Thematics Journal of Education*. – 2022. – T. 7. – №. 3.
7. Bustanovna, I. N., & Abdusattor o'g, A. A. A. (2024). Analysis of Errors and Complications in the Use of Endocal Structures Used in Dentistry. *International Journal of Scientific Trends*, 3(3), 82-86.
8. Bustanovna, I. N. (2024). The Effectiveness of the Use of the Drug " Proroot MTA" in the Therapeutic and Surgical Treatment of Periodontitis. *International Journal of Scientific Trends*, 3(3), 72-75.
9. Bustanovna, I. N. (2022). Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women. *Thematics Journal of Education*, 7(3).

10. Bustanovna, I. N. (2024). Hygienic Assessment of The Condition of The Oral Mucosa After Orthopedic Treatment. *International Journal of Scientific Trends*, 3(3), 56-61.
11. Bustanovna, I. N. (2024). Complications Arising in the Oral Cavity after Polychemotherapy in Patients with Hemablastoses. *International Journal of Scientific Trends*, 3(3), 62-66.
12. Bustanovna, P. I. N. (2024). Further Research the Features of the Use of Metal-Ceramic Structures in Anomalies of Development and Position of Teeth. *International Journal of Scientific Trends*, 3(3), 67-71.
13. Islamova, N. B., & Sh, N. N. (2023, May). STUDY OF CHANGES IN PERIODONTAL DISEASES IN POSTMENOPAUSAL WOMEN. In *Conferences* (pp. 15-17).
14. Islamova N. B., Sh N. N. STUDY OF CHANGES IN PERIODONTAL DISEASES IN POSTMENOPAUSAL WOMEN //Conferences. – 2023. – С. 15-17.
15. Islamova, N. B. (2022). CHANGES IN PERIODONTAL TISSUES IN THE POSTMENOPAUSAL PERIOD. In *Стоматология-наука и практика, перспективы развития* (pp. 240-241).
16. Исламова Н. Б., Чакконов Ф. Х. Изменения в тканях и органах рта при эндокринных заболеваниях //Актуальные вопросы стоматологии. – 2021. – С. 320-326.
17. Исламова Н. Б., Исломов Л. Б. ОСОБЕННОСТИ РАЗВИТИЯ И ТЕЧЕНИЯ ЗАБОЛЕВАНИЙ ПОЛОСТИ РТА ПРИ ЭНДОКРИННОЙ ПАТОЛОГИИ //ББК. – 2021. – Т. 56. – С. 76.
18. Исламова Н. Б. СРАВНИТЕЛЬНАЯ ОЦЕНКА ПРОТИВОВОСПАЛИТЕЛЬНЫХ ЦИТОКИНОВ КРОВИ В РАЗВИТИИ ЗАБОЛЕВАНИЙ ПОЛОСТИ РТА ПРИ ГИПОТИРЕОЗЕ //Наука в современном мире: теория и практика. – 2016. – №. 1. – С. 41-44.
19. Исламова Н. Б. и др. СОСТОЯНИЕ КРИСТАЛЛООБРАЗУЮЩЕЙ ФУНКЦИИ СЛЮНЫ ПРИ РАЗЛИЧНЫХ ПАТОЛОГИЯХ //Молодежь и медицинская наука в XXI веке. – 2014. – С. 470-471.
20. Исламова Н. Б. Гемодинамика тканей пародонта зубов по данным реопародонтографии //IQRO. – 2023. – Т. 3. – №. 2. – С. 101-104.
21. Исламова Н. Б., Назарова Н. Ш. СОВЕРШЕНСТВОВАНИЕ ДИАГНОСТИКИ И ЛЕЧЕНИЯ ХРОНИЧЕСКОГО ГЕНЕРАЛИЗОВАННОГО ПАРОДОНТИТА У ЖЕНЩИН В ПЕРИОД ПОСТМЕНОПАУЗЫ //Conferences. – 2023. – С. 13-15.
22. Исламова Н. Б., Назарова Н. Ш. СУРУНКАЛИ ТАРҚАЛГАН ПАРОДОНТИТ БИЛАН КАСАЛЛАНГАН ПОСТМЕНОПАУЗА ДАВРИДАГИ АЁЛЛАРНИНГ ПАРОДОНТ ТЎҚИМАСИНИНГ ДАВОЛАШ САМАРАДОРЛИГИ ОШИРИШ //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 2.
23. Husanovich, S. F. (2024). RESEARCH ON THE ATTITUDE OF PEOPLE TO THE PREVENTION OF DENTAL DISEASES. *European International Journal of Multidisciplinary Research and Management Studies*, 4(02), 265-268.
24. Ортикова, Н. (2022). Тенденция эффективности профилактических мероприятий путем коррекции психологического стресса у детей на стоматологическом приёме. *Общество и инновации*, 3(6), 181-189.

25. Ортикова, Н. (2023). Влияние психоэмоционального напряжения детей на состояние здоровья полости рта. *Общество и инновации*, 4(7/S), 328-333.
26. Ортикова, Н. Х., Ризаев, Ж. А., & Мелибаев, Б. А. (2021). Психологические аспекты построения стоматологического приема пациентов детского возраста. *EDITOR COORDINATOR*, 554.
27. Ортикова, Н., Ризаев, Ж., & Кубаев, А. (2021). Психоэмоционального напряжения у детей на амбулаторном стоматологическом приеме. *Журнал стоматологии и краниофациальных исследований*, 2(3), 59-63.
28. Khusanovich, C. F. (2024). ANALYSIS OF ERRORS AND COMPLICATIONS FOUND IN THE USE OF ENDOCANAL CONSTRUCTIONS USED IN DENTISTRY. *Journal of new century innovations*, 51(2), 45-50.
29. Khusanovich, C. F. (2023). Improvement of the Orthopedic Method in Complex Treatment in Patients with Periodontal Diseases. *Progress Annals: Journal of Progressive Research*, 1(3), 27-30.
30. Nazarova N. S., Islomova N. B. postmenopauza davridagi ayollarda stomatologik kasalliklarining klinik va mikrobiologik ko'rsatmalari va mexanizmlari //Журнал" Медицина и инновации". – 2022. – №. 2. – С. 204-211.
31. Назарова Н., Исломова Н. Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women //in Library. – 2022. – Т. 22. – №. 1. – С. 60-67.
32. Содикова Ш. А., Исламова Н. Б. ОПТИМИЗАЦИЯ ЛЕЧЕБНО-ПРОФИЛАКТИЧЕСКИХ МЕРОПРИЯТИЙ ПРИ ЗАБОЛЕВАНИЙ ПАРОДОНТА БЕРЕМЕННЫХ ЖЕНЩИН С ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИЕЙ //Актуальные вопросы стоматологии. – 2021. – С. 434-440.
33. Sharipovna N. N., Bustanovna I. N. Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women //Frontline medical sciences and pharmaceutical journal. – 2022. – Т. 2. – №. 05. – С. 60-67.
34. Sharipovna N. N., Bustonovna I. N. Etiopatogenetic factors in the development of parodontal diseases in post-menopasis women //The american journal of medical sciences and pharmaceutical research. – 2022. – Т. 4. – №. 09.
35. Sevinch, E., & Zarafuz, B. (2024). ETIOLOGICAL TREATMENT FEATURES INFLAMMATORY PERIODONTAL DISEASE. *European International Journal of Multidisciplinary Research and Management Studies*, 4(03), 241-246.
36. Qobilovna, B. Z., & Nodirovich, E. A. (2023). EVALUATION OF ORTHOPEDIC TREATMENT WITH REMOVABLE DENTAL PROSTHESES FOR PATIENTS WITH PAIR PATHOLOGY. *Spectrum Journal of Innovation, Reforms and Development*, 11, 95-101.
37. Qobilovna, B. Z., & Hekmat, K. H. A. S. (2022). Clinic and treatment of acute and recurrent herpetic stomatitis in young patients. *Spectrum Journal of Innovation, Reforms and Development*, 10, 40-46.
38. Чакконов, Ф. Х. (2021). ЯТРОГЕННЫЕ ОШИБКИ В СТОМАТОЛОГИИ И ИХ ПРИЧИНЫ. In *Актуальные вопросы стоматологии* (pp. 925-930).
39. Zarafuz, B., & Hekmat, K. H. A. S. (2022). Manifestation of herpetic infection in the oral cavity and their timely elimination. *Spectrum Journal of Innovation, Reforms and Development*, 10, 47-52.