Список литературы

1. https://uteka.ru/articles/detskoe-zdorove/pitanie-pri-beremennosti/
2. https://www.rmj.ru/articles/ginekologiya/Pitanie_vo_vremya_beremennosti/
3. https://heroine.ru/6-zapretov-dlya-beremennyh-iz-raznyh-stran-mira/
4. https://www.krascmp.ru/wp-content/uploads/2022/10/Pitanie-molodoj-semi.pdf
5. «Nutrition During Pregnancy / NCBI / IOM / научные руководства»
6. «Сбалансированное питание для беременных и кормящих» Людмилы Кирсановой

INNOVATIVE STRATEGIES IN THE MANAGEMENT OF COMPLETE EDENTULISM: DIGITAL TECHNOLOGIES, BIOACTIVE BIOMATERIALS, AND PATIENT-CENTERED APPROACHES

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Annotation: Complete edentulism, defined as the loss of all natural teeth in one or both jaws, remains a significant dental and public health challenge worldwide. According to the World Health Organization (WHO), 30–40% of individuals over the age of 65 experience edentulism. This condition negatively impacts chewing efficiency, speech, esthetics, psychological well-being, and social adaptation. In Uzbekistan, complete edentulism is also widespread, with conventional acrylic dentures being the most common treatment option. However, their limited retention, stability, and functional efficiency result in low patient satisfaction.

Recent advances in prosthodontics include implant-supported prostheses, digital workflows (CAD/CAM, 3D printing, intraoral scanning), and bioactive biomaterials. This study aimed to evaluate the clinical effectiveness of these innovative strategies compared to conventional dentures. A randomized clinical trial involving 60 edentulous patients was conducted. Results demonstrated that implant-supported overdentures provided superior outcomes in chewing efficiency, occlusal force, and patient satisfaction, while CAD/CAM dentures showed significant advantages in precision and esthetics. Bioactive biomaterials demonstrated promising potential for improving prosthesis biocompatibility and longevity.

Keywords: complete edentulism, implant-supported overdentures, CAD/CAM, 3D printing, bioactive biomaterials, patient satisfaction.

ИННОВАЦИОННЫЕ СТРАТЕГИИ В ЛЕЧЕНИИ ПОЛНОЙ АДЕНТИИ: ЦИФРОВЫЕ ТЕХНОЛОГИИ, БИОАКТИВНЫЕ БИОМАТЕРИАЛЫ И ПАЦИЕНТ-ОРИЕНТИРОВАННЫЙ ПОДХОД

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Аннотация: Полная адентия, определяемая как потеря всех естественных зубов в одной или обеих челюстях, остаётся серьёзной стоматологической и общественно-здравоохранительной проблемой во всём мире. По данным Всемирной организации здравоохранения (ВОЗ), 30–40% людей старше 65 лет страдают от адентии. Это состояние негативно влияет на эффективность жевания, речь, эстетику, психологическое состояние и социальную адаптацию. В Узбекистане полная адентия также широко распространена, и наиболее распространённым методом лечения являются традиционные акриловые протезы. Однако их ограниченная фиксация, стабильность и функциональная эффективность приводят к низкому уровню удовлетворённости пациентов.

Современные достижения в области ортопедической стоматологии включают имплант-опорные протезы, цифровые технологии (CAD/CAM, 3D-печать, интраоральное сканирование) и биоактивные биоматериалы. Цель данного исследования заключалась в оценке клинической эффективности этих инновационных подходов по сравнению с традиционными протезами. Было проведено рандомизированное клиническое исследование с участием 60 пациентов с полной адентией. Результаты показали, что имплант-опорные покрывные протезы обеспечивают лучшие показатели жевательной эффективности, окклюзионной силы и удовлетворённости пациентов,

тогда как протезы, изготовленные с помощью CAD/CAM, продемонстрировали значительные преимущества в точности и эстетике. Биоактивные биоматериалы показали перспективный потенциал в улучшении биосовместимости и долговечности протезов.

Ключевые слова: полная адентия, имплант-опорные покрывные протезы, CAD/CAM, 3D-печать, биоактивные биоматериалы, удовлетворённость пациентов.

TO‘LIQ BEZZUBLIKNI DAVOLASHDA INNOVATSION STRATEGIYALAR: RAQAMLI TEXNOLOGIYALAR, BIOFAOL BIOMATERIALLAR VA BEMORGA YO‘NALTIRILGAN YONDASHUVLAR

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Annotatsiya: To‘liq bezzublik - yuqori yoki past jag‘da barcha tabiiy tishlarning yo‘qolishi holati butun dunyoda jiddiy stomatologik va sog‘liqni saqlash muammosi bo‘lib qolmoqda. Jahon sog‘liqni saqlash tashkiloti (JSST) ma’lumotlariga ko‘ra, 65 yoshdan oshgan shaxslarning 30–40 foizi bezzublikdan aziyat chekadi. Ushbu holat chaynash samaradorligi, nutq, estetika, psixologik holat va ijtimoiy moslashuvga salbiy ta’sir ko‘rsatadi. O‘zbekistonda ham to‘liq bezzublik keng tarqalgan bo‘lib, davolashning eng keng qo‘llaniladigan usuli an’anaviy akril protezlardir. Biroq, ularning ushlanishi, barqarorligi va funksional samaradorligi cheklanganligi sababli, bemorlarning qoniqish darajasi past bo‘ladi.

Protezlashtirish sohasidagi so‘nggi yutuqlarga implantga tayanuvchi protezlar, raqamli texnologiyalar (CAD/CAM, 3D bosib chiqarish, og‘iz ichki skanerlash) hamda biofaol biomateriallar kiradi. Ushbu tadqiqotning maqsadi ushbu innovatsion yondashuvlarning klinik samaradorligini an’anaviy protezlar bilan solishtirishdan iborat edi. 60 nafar bezzub bemor ishtirokida randomizatsiyalangan klinik tadqiqot o‘tkazildi. Natijalar implantga tayanuvchi protezlar chaynash samaradorligi, okklyuzion kuch va bemorlarning qoniqish darajasi bo‘yicha ustun natijalar berganini, CAD/CAM texnologiyasi asosida tayyorlangan protezlar esa aniqlik va estetika jihatidan afzalliklarga ega ekanini ko‘rsatdi. Biofaol biomateriallar esa protezlarning biomoslashuvchanligi va xizmat muddatini yaxshilashda istiqbolli imkoniyatlarni namoyon etdi.

Kalit so‘zlar: to‘liq bezzublik, implantga tayanuvchi protezlar, CAD/CAM, 3D bosib chiqarish, biofaol biomateriallar, bemor qoniqishi.

Introduction. Complete edentulism — the loss of all natural teeth in either or both jaws — is a common global dental problem. According to WHO, 30–40% of individuals over the age of 65 are affected [1]. This condition leads to impaired masticatory function, speech difficulties, esthetic concerns, psychological stress, and reduced quality of life [2,3].

In Uzbekistan, the prevalence of edentulism remains high. Conventional acrylic dentures are widely used due to affordability, but their functional limitations reduce patient adaptation and satisfaction [4]. As a result, modern prosthodontics increasingly integrates innovative technologies, new biomaterials, and implantology to improve treatment outcomes [5].

This article explores innovative strategies in the management of complete edentulism, focusing on digital technologies, bioactive biomaterials, and patient-centered care approaches.

Literature Review. Over the past two decades, numerous studies have explored strategies for managing complete edentulism:

- **Conventional acrylic dentures.** While affordable and simple to fabricate, these dentures have major drawbacks, including poor retention, instability, and limited masticatory efficiency. Carlsson [4] highlighted that conventional dentures often fail to meet patient expectations due to discomfort and mucosal soreness.
- **Implant-supported overdentures.** Implant therapy represents a paradigm shift. Feine et al. [6] and Thomason et al. [7] reported that mandibular two-implant overdentures significantly improve chewing efficiency, speech, esthetics, and psychosocial well-being compared to conventional dentures.
- **CAD/CAM technology.** Goodacre et al. [8] demonstrated that CAD/CAM workflows enhance denture precision, reduce clinical chair time, and ensure reproducibility. Digital workflows also improve occlusal accuracy and esthetics.

- **Biomaterials.** Polymethyl methacrylate (PMMA) has long been the standard denture base

Group	Baseline	12 months	p-value
A – Conventional dentures	41.2 ± 7.1	61.8 ± 8.4	<0.05
B – CAD/CAM dentures	42.4 ± 6.5	73.9 ± 7.2	<0.01
C – Implant overdentures	43.6 ± 7.0	84.7 ± 6.3	<0.001

material. However, its limitations—brittleness, microbial colonization, and allergenicity—have driven the development of new materials. Thermoplastics, nanocomposites, and bioactive polymers provide superior mechanical strength, esthetics, and biocompatibility [9,10].

- **3D printing technologies.** Additive manufacturing has been increasingly applied in prosthodontics. Javaid & Haleem [11] emphasized the advantages of 3D-printed dentures, including accuracy, customization, and reduced fabrication time.

In summary, digital workflows, implant-supported prostheses, and advanced biomaterials represent superior alternatives to conventional dentures, offering enhanced patient outcomes.

Materials and Methods. Study Design. This study was conducted at the Department of Hospital Prosthodontics, Tashkent State Dental and Medical University, between 2022 and 2024. It was designed as a **prospective, randomized clinical trial** [12,13].

Participants. A total of 60 completely edentulous patients (32 females, 28 males; aged 50–75 years) were recruited.

- **Inclusion criteria:** complete edentulism for ≥1 year, ASA I–II health status, and no untreated oral diseases [14].
- **Exclusion criteria:** uncontrolled systemic diseases (e.g., diabetes, osteoporosis, malignancies), poor bone quality for implant placement, and parafunctional habits such as bruxism [15].

Patients were randomly allocated into three groups:

- **Group A (n=20):** Conventional acrylic dentures.
- **Group B (n=20):** CAD/CAM-fabricated dentures.
- **Group C (n=20):** Mandibular two-implant overdentures with ball attachments.

Evaluation Criteria

- **Masticatory efficiency:** evaluated using color-change chewing gum and peanut fragmentation tests [16].
- **Retention and stability:** assessed using the Kapur Index [17].
- **Patient satisfaction:** measured using the OHIP-EDENT questionnaire [18].
- **Occlusal force:** recorded with a digital occlusal force meter [19].
- **Psychosocial adaptation:** assessed through semi-structured interviews and a Likert scale [20].

Statistical Analysis. Data were analyzed using **SPSS 25.0**. Quantitative data were expressed as **mean ± standard deviation (SD)**. Intergroup comparisons were performed using ANOVA with post hoc Tukey tests, and intragroup differences were assessed using paired t-tests. A significance level of $p < 0.05$ was applied [21].

Results. Table 1. Masticatory efficiency (%)

- The highest efficiency was observed in **implant overdentures**.
- **CAD/CAM dentures** also significantly outperformed conventional dentures [16,17].

Table 2. Patient satisfaction (OHIP-EDENT scores)

Group	Baseline	12 months	p-value
A – Conventional dentures	3.1 ± 1.4	6.5 ± 1.5	<0.05
B – CAD/CAM dentures	3.4 ± 1.2	7.8 ± 1.3	<0.01
C – Implant overdentures	3.5 ± 1.1	8.9 ± 1.0	<0.001

- **Implant overdentures achieved the highest patient satisfaction**.

- CAD/CAM dentures were rated superior in **esthetics and comfort** compared to conventional ones [18,19].

Discussion. The findings of this study confirm that implant-supported overdentures provide superior outcomes in terms of chewing efficiency, occlusal force, and patient satisfaction. These results are consistent with the evidence reported by Feine et al. [6] and Thomason et al. [7], who established mandibular two-implant overdentures as the gold standard for edentulous patients.CAD/CAM dentures also demonstrated significant advantages over conventional methods, particularly regarding precision, esthetics, and adaptability, which aligns with the observations of Goodacre et al. [8]. Digital workflows allow for shorter clinical procedures and improved reproducibility. Bioactive and nanocomposite materials offer promising prospects for improving prosthesis biocompatibility, antimicrobial resistance, and long-term durability [9,10]. However, in developing countries, including Uzbekistan, economic barriers and limited access to advanced technologies remain challenges to widespread adoption [14].

Importantly, treatment of complete edentulism should not only focus on technological innovations but also prioritize patient-centered approaches. Psychosocial adaptation, speech comfort, and quality of life are critical components that significantly influence the overall success of prosthodontic rehabilitation [20].

Conclusion and Practical Recommendations

1. Implant-supported overdentures provide the most effective functional and psychological outcomes for edentulous patients.
2. CAD/CAM technologies improve accuracy, esthetics, and efficiency compared to conventional dentures.
3. Bioactive biomaterials ensure enhanced biocompatibility, durability, and oral health outcomes.
4. In Uzbekistan, gradual integration of advanced technologies alongside cost-effective alternatives is essential.
5. Large-scale clinical trials and national monitoring programs are recommended to further validate long-term outcomes.

References

1. WHO. (2020). Oral health: Key facts. World Health Organization.
2. Petersen, P. E., & Yamamoto, T. (2005). Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. *Community Dentistry and Oral Epidemiology*, 33(2), 81–92.
3. Gerritsen, A. E., et al. (2010). Tooth loss and oral health-related quality of life: a systematic review and meta-analysis. *Health and Quality of Life Outcomes*, 8(1), 126.
4. Carlsson, G. E. (2014). Critical review of some dogmas in prosthodontics. *Journal of Prosthodontic Research*, 58(1), 3–12.
5. Emami, E., et al. (2013). The impact of edentulism on oral and general health. *International Journal of Dentistry*, 2013, 498305.
6. Feine, J. S., et al. (2012). Mandibular two-implant overdentures as the first choice standard of care for edentulous patients. *International Journal of Oral & Maxillofacial Implants*, 27(1), 181–192.
7. Thomason, J. M., et al. (2016). Mandibular two implant-supported overdentures as the first choice standard of care for edentulous patients: an evidence-based consensus statement. *Gerodontology*, 33(1), 3–7.
8. Goodacre, C. J., et al. (2019). CAD/CAM complete dentures: concepts and clinical techniques. *Journal of Prosthodontics*, 28(2), 146–158.
9. Goiato, M. C., et al. (2018). In vitro evaluation of mechanical properties of flexible denture base resins. *Journal of Prosthetic Dentistry*, 119(5), 819–825.
10. Al-Dwairi, Z. N., et al. (2020). A comparison of the flexural and surface properties of conventional polymethyl methacrylate with high-impact and flexible denture base resins. *Journal of Prosthodontics*, 29(5), 418–425.
11. Javaid, M., & Haleem, A. (2019). Current status and applications of additive manufacturing in dentistry: a literature-based review. *Journal of Oral Biology and Craniofacial Research*, 9(3), 179–185.
12. Schulz, K. F., & Grimes, D. A. (2002). Generation of allocation sequences in randomised trials: chance, not choice. *The Lancet*, 359(9305), 515–519.
13. Moher, D., et al. (2010). CONSORT 2010 explanation and elaboration. *BMJ*, 340, c869.
14. Klineberg, I., & Eckert, S. (2019). Functional considerations for implant-supported prostheses. *International Journal of Prosthodontics*, 32(1), 43–52.

15.Emami, E., et al. (2013). The impact of edentulism on oral and general health. *International Journal of Dentistry*, 2013, 498305.

16.Fontijn-Tekamp, F. A., et al. (2000). Biting and chewing in overdentures, full dentures, and natural dentitions. *Journal of Dental Research*, 79(7), 1519–1524.

17.Kapur, K. K. (1967). A clinical evaluation of denture adhesives. *Journal of Prosthetic Dentistry*, 18(6), 550–558.

18.Slade, G. D., & Spencer, A. J. (1994). Development and evaluation of the Oral Health Impact Profile. *Community Dental Health*, 11(1), 3–11.

19.Ikebe, K., et al. (2006). Association of bite force with ageing and occlusal support in older adults. *Journal of Dental Research*, 85(6), 559–563.

20.Allen, P. F., & McMillan, A. S. (2003). A longitudinal study of quality of life outcomes in older adults provided with implant-supported overdentures. *Clinical Oral Implants Research*, 14(2), 173–179.

21.Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.

КАМНИ ЖЕЛЧНОГО ПУЗЫРЯ (ЖЕЛЧНОКАМЕННАЯ БОЛЕЗНЬ)

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Аннотация: В статье анализируется холелитиаз — одно из наиболее распространённых заболеваний жёлчного пузыря. Рассмотрены основные причины и механизмы образования камней, включая нарушения обмена веществ, состава жёлчи, моторики и влияние микробиоты. Отмечается многофакторность патогенеза и значение заболевания для клинической практики.

Ключевые слова: жёлчный пузырь; холелитиаз; камни жёлчного пузыря; холестериновые камни; пигментные камни; патогенез; жёлчь; кристаллизация; микробиота; жёлчные кислоты; генетическая предрасположенность; мотильность жёлчного пузыря; медицинское образование.

GALLBLADDER STONES (GALLSTONES)

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Annotation: The article analyzes cholelithiasis — one of the most common diseases of the gallbladder. The main causes and mechanisms of stone formation are examined, including metabolic disorders, changes in bile composition, impaired motility, and the influence of the microbiota. The multifactorial nature of pathogenesis and the clinical significance of the disease are highlighted.

Keywords: gallbladder, cholelithiasis, gallstones, cholesterol stones, pigment stones, pathogenesis, bile, crystallization, microbiota, bile acids, genetic predisposition, gallbladder motility, medical education.

O‘T PUFAGIDAGI TOSHLAR (O‘T PUFAGIDAGI TOSH KASALLIGI)

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Annotatsiya: Maqolada xoletiaz - o‘t pufagining eng ko‘p uchraydigan kasalliklaridan biri sifatida tahlil qilinadi. Toshlar hosil bo‘lishining asosiy sabablari va mexanizmlari, jumladan, modda almashinuvi