

XXVI МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ

16 ИЮЛЯ

АНАЛИЗ ПРОБЛЕМ И ПОИСК ПЕРСПЕКТИВНЫХ НАУЧНЫХ РЕШЕНИЙ



САНКТ-ПЕТЕРБУРГ

2026

МЕЖДУНАРОДНЫЙ ИНСТИТУТ ПЕРСПЕКТИВНЫХ ИССЛЕДОВАНИЙ
им. ЛОМОНОСОВА

**СБОРНИК ИЗБРАННЫХ СТАТЕЙ
МЕЖДУНАРОДНОЙ НАУЧНОЙ КОНФЕРЕНЦИИ
"АНАЛИЗ ПРОБЛЕМ И ПОИСК ПЕРСПЕКТИВНЫХ
НАУЧНЫХ РЕШЕНИЙ"**

ИЮЛЬ 2026

Материалы конференции

Рекомендовано к публикации
редакционно-издательским советом
МИПИ им. ЛОМОНОСОВА
Протокол № 754 от 16.07.2026



Санкт-Петербург
2026

УДК [5+3+62] (082)
ББК 20я43+60я43+30я43
М 34

Анализ проблем и поиск перспективных научных решений: сборник статей международной научной конференции (Санкт-Петербург, Июль 2026). – СПб.: МИПИ им.Ломоносова, 2026. – 154с. URL: http://disk.yandex.ru/Архив_МИПИ/2026/260716 дата публикации: 16.07.2026)

ISBN 978-5-00234-365-2
DOI 10.58351/260716.2026.40.71.001

Сборник материалов конференции включает избранные научные труды участников конференции. Статьи рекомендованы к публикации редакционно-издательским советом Международным институтом перспективных исследований им.Ломоносова.

Материалы международной научной конференции "Анализ проблем и поиск перспективных научных решений" адресованы сотрудникам научно-исследовательских институтов, научно-педагогическим работникам образовательных организаций, руководителям и специалистам государственных и частных организаций в соответствующей тематике сфере деятельности.

Научное издание

МАТЕРИАЛЫ КОНФЕРЕНЦИЙ МИПИ им. ЛОМОНОСОВА
СБОРНИК ИЗБРАННЫХ СТАТЕЙ
ИЮЛЬ 2026

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Выпускающий редактор Е.П.Романова
Ответственный за выпуск А.С.Печенкин
Подписано к изданию с оригинал-макета 16.07.2026.
Формат издания: 210х297мм (А4). Гарнитура Time New Roman (статьи), Arial Narrow (оглавление, титул).
Усл.печ.л. 18,5. Объем данных 12Мб. Заказ № 42764.
Международный институт
перспективных исследований им.Ломоносова
197348, Санкт-Петербург, бизнес-центр Норд-Хауз
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ISBN 978-5-00234-365-2



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**THE EFFECT OF DIETARY SUPPLEMENTS:
DIETARY COLLAGEN AND OMEGA-3
ON THE REGENERATIVE CAPACITY
OF BONE TISSUE IN PATIENTS TREATED
IN A SURGICAL DENTISTRY CLINIC**

Аннотация. *One of the key challenges in modern dental implantology is the need to optimize reparative processes in the oral mucosa and alveolar bone tissue. Such optimization can improve the expected success rate of surgical interventions and help prevent undesirable postoperative complications and additional surgery. A promising approach is to investigate the use of dietary supplements whose consumption could reduce the potential risks of dental implantation and improve the effectiveness of the procedures performed. The omega-3 polyunsaturated fatty acid (PUFA) supplement used in this study is characterized by stimulation of collagen-fiber synthesis and anti-inflammatory activity. Dietary collagen, in turn, is a natural component of connective tissue and can activate the hemostatic system and induce osteogenesis. According to the study results, none of the patients diagnosed with generalized periodontitis and at risk of tooth loss who received dietary collagen and omega-3 PUFAs as dietary supplements developed complications involving bone tissue or the oral mucosa during the postoperative period after multiple tooth extractions, immediate dental implant placement, and subsequent immediate functional loading. These findings support consideration of dietary collagen and omega-3 PUFA supplementation to optimize bone healing during osseointegration of dental*

implants in the rehabilitation period of dental patients. Based on the results, clinicians at the I.R.I.S. Center for Maxillofacial and Dental Implantology developed practical recommendations for postoperative management of dental patients. The findings were also incorporated into the Center's clinical patient-management protocols and into the educational process of the Department of Propaedeutic Dentistry at Smolensk State Medical University of the Ministry of Health of the Russian Federation.

Ключевые слова: *Immediate dental implant placement, bone-tissue regeneration, postoperative complications, dietary collagen, omega-3.*

At present, when missing teeth are restored with dental implants, one of the principal issues requiring close attention in dental research and clinical practice is the regeneration of oral tissues after trauma caused by surgical procedures. Optimizing the healing of bone tissue and the oral mucosa can increase their regenerative potential and thereby help prevent undesirable postoperative complications and additional surgical interventions [2, 3].

Modern dentistry includes a number of studies aimed at identifying an optimal bone-grafting material that can minimize the undesirable consequences of surgery and facilitate restoration of the structure and function of bone tissue after dental implantation. Nanotechnological approaches to producing nanomaterials with desired properties are also being actively developed [1, 5, 14, 15]. At the same time, research on dietary supplements that could improve the regenerative capacity of bone tissue and the oral mucosa is extremely limited, even though their use might further reduce the potential risks of dental implantation and increase the effectiveness of the procedures performed. Some studies have examined, in particular, the role of vitamin C in wound healing after dental implant placement. According to their findings, vitamin C supplementation during the postoperative period improved the healing of oral tissues [16]. Other studies have analyzed the prospects of applying platelet-rich fibrin to periodontal and soft tissues [18], as well as the use of autologous plasma [7]. Investigation of new, readily applicable approaches that optimize bone regeneration after dental implant surgery can substantially expand the therapeutic possibilities of implant dentistry. In the present study, dietary collagen and omega-3 were evaluated as readily available dietary supplements for this purpose.

Collagen is regarded as a promising structural biomaterial and is widely used as a collagen matrix in implant surgery to increase soft-tissue volume [12]. In the body, collagen participates in formation of the extracellular matrix and basement membranes, providing tissues with mechanical strength. As a natural component of connective tissue, collagen is fully biocompatible and immunologically inert; it activates hemostasis and can increase the thickness of damaged tissues when it interacts with them [4, 9]. The regenerative properties of collagen are actively used in surgical dentistry [6, 10, 11]. Omega-3 fatty acids, in turn, are known for regenerative and anti-inflammatory effects. As constituents of phospholipids, they participate in cell-membrane formation and are used by the body to generate eicosanoids – mediators involved in inflammation that can reduce inflammatory activity. In addition, omega-3 fatty acids are precursors of potent bioactive anti-inflammatory lipids whose molecules act on signaling pathways to promote more effective resolution of the inflammatory response [8, 13, 17].

Materials and Methods

From 2021 to 2022, 144 patients were examined and received comprehensive treatment at the I.R.I.S. Center for Maxillofacial and Dental Implantology. They were diagnosed with generalized periodontitis with a risk of tooth loss and partial edentulism of the maxilla and mandible complicated by vertical bone deficiency in the posterior regions of the maxillary alveolar process.

The preoperative assessment included a dental interview, clinical examination, screening radiography, and laboratory blood tests.

Under anesthetic management, the following surgical procedures were performed: multiple extractions of maxillary and mandibular teeth; bilateral sinus lift with reconstruction of the maxillary alveolar process; and immediate dental implant placement using the LIKO-M (IRIS Evolution) system, followed by immediate functional loading.

During subsequent rehabilitation, the patients received recommendations concerning diet, personal oral hygiene, and speech-training exercises (recheplastika). As an additional dietary intake, they were prescribed OMEGA-3 PUFAs and PERVYI ZHIVOI KOLLAGEN (literally, “First Live Collagen”) dietary collagen hydrolysate to stimulate reparative tissue regeneration and improve immune status.

Six months after surgery, all patients underwent appropriate definitive prosthodontic treatment using the placed dental implants. No postoperative complications involving bone tissue or the oral mucosa were observed in any clinical case.

Clinical Case

Patient F., aged 74 years, presented to the I.R.I.S. Center for Maxillofacial and Dental Implantology with complaints of mobility of the maxillary and mandibular teeth; pain in the teeth and oral mucosa while eating; difficulty chewing; an aesthetic defect; impaired speech; and reduced quality of life.

The patient was interviewed and examined, and a comprehensive treatment and rehabilitation plan was prepared. Professional preoperative oral hygiene was performed.

Based on clinical and instrumental findings, the patient was diagnosed with generalized periodontitis with a risk of tooth loss and partial edentulism of the maxilla and mandible complicated by vertical bone deficiency in the posterior regions of the maxillary alveolar process. Figure 1 shows the patient's radiographic findings immediately before surgery.

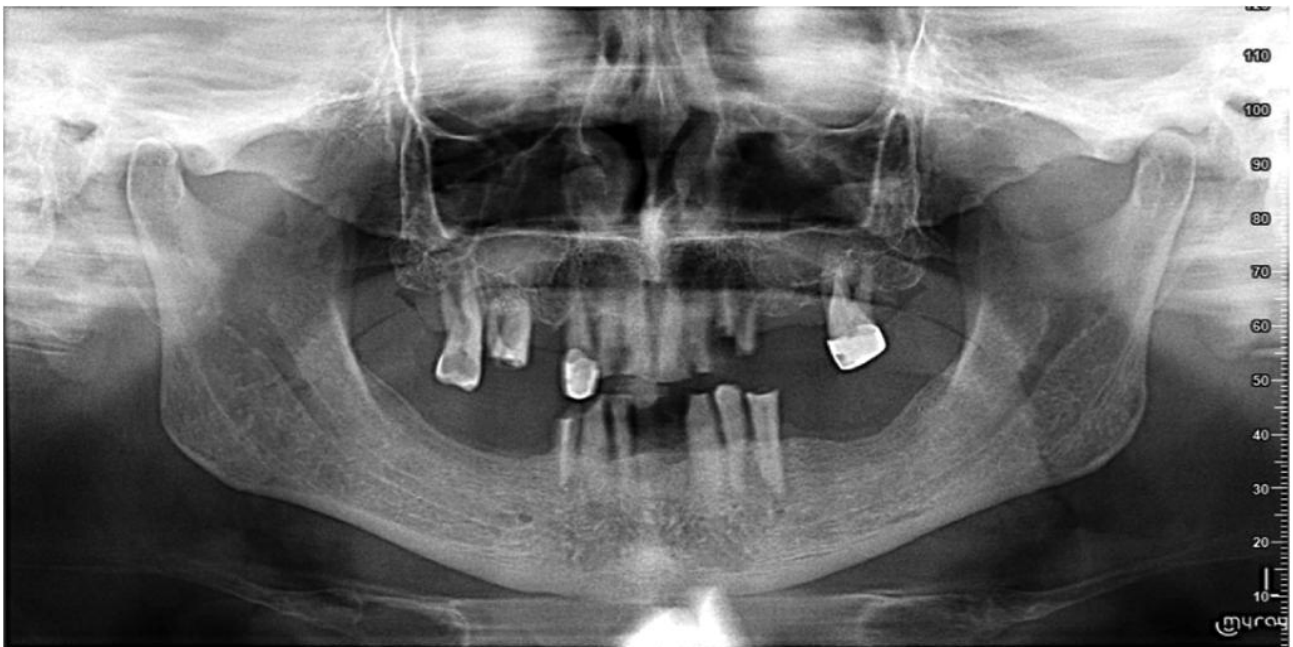


Figure 1. Radiographic examination of Patient F. before surgery

Under anesthetic management, surgery was performed as follows: extraction of teeth 1.1, 1.2, 1.3, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 2.7, 3.3, 3.4, 3.5, 4.2, 4.3, and 4.4; bilateral sinus lift with reconstruction of the maxillary alveolar process and simultaneous implant placement at tooth positions 1.7 and 2.7;

and immediate dental implant placement in the regions of missing teeth 1.4, 1.2, 2.2, 2.4, 3.2, 3.4, 3.6, 4.2, 4.4, and 4.6 using the LIKO-M (IRIS Evolution) system, followed by immediate functional loading (Figures 2 and 3).

The patient was followed on an outpatient basis and received intravenous anti-inflammatory, antibacterial, and desensitizing therapy according to the prescribed regimen in a day-hospital setting.

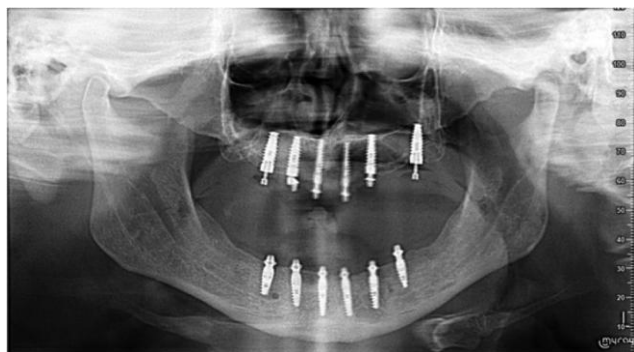


Figure 2. Radiographic examination of Patient F. after surgery

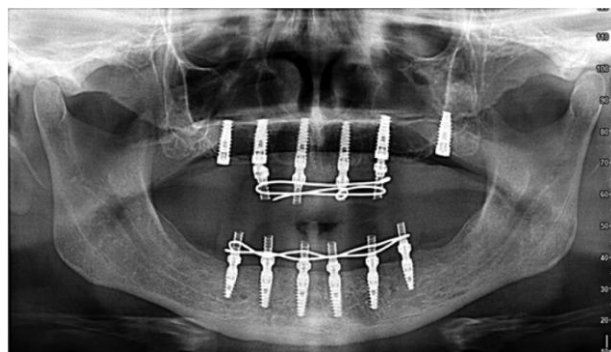


Figure 3. Radiographic examination of Patient F. after immediate functional loading

During rehabilitation, recommendations were provided regarding dietary habits, personal oral-hygiene practices, and speech-training exercises.

Oral administration of the OMEGA-3 PUFA supplement and PERVYI ZHIVOI KOLLAGEN dietary collagen hydrolysate was prescribed to stimulate reparative tissue regeneration and improve immune status.

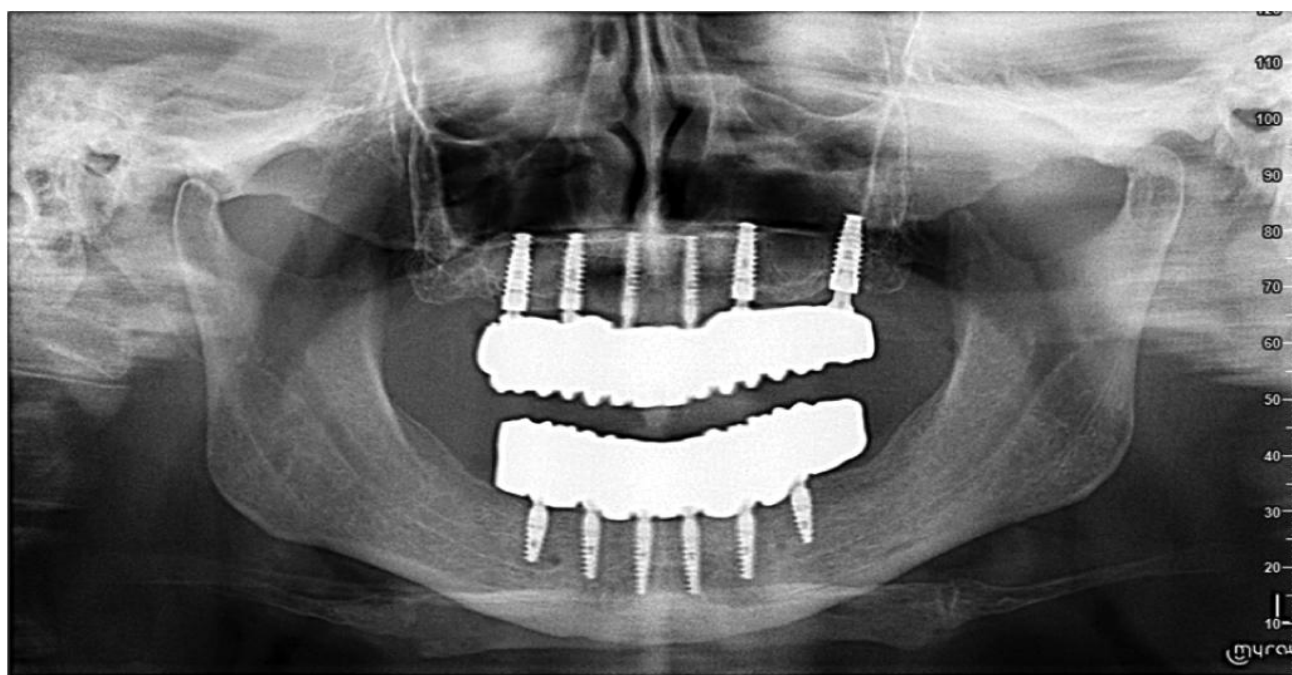


Figure 4. Radiographic examination of Patient F. after definitive prosthodontic treatment

Dosage Regimen

- OMEGA-3 PUFAs (EPA + DHA combined, 3,500 mg in total): taken in divided doses with food 3-4 times daily for 6 months.
- PERVYI ZHIVOI KOLLAGEN dietary collagen hydrolysate: add 1 tablespoon to the first meal of the day for the first 3 months.

Six months later, the patient underwent appropriate definitive prosthodontic treatment using the placed dental implants (Figure 4). No complications involving bone tissue or the oral mucosa were observed.

Conclusion

The clinical findings indicate that dietary supplementation with collagen and omega-3 PUFAs has a favorable effect on reparative processes in the oral mucosa and alveolar bone tissue, thereby helping to reduce potential complications of immediate dental implant placement with immediate functional loading. The supplements were selected because of their activity in stimulating reparative and anti-inflammatory processes in various tissues.

Thus, administration of OMEGA-3 and PERVYI ZHIVOI KOLLAGEN dietary collagen hydrolysate has a positive effect on reparative regeneration occurring in bone tissue during the postoperative period, optimizing tissue healing during the rehabilitation of dental patients and promoting successful osseointegration of dental implants.

Practical recommendations were developed on the basis of the study results. The findings were incorporated into the clinical patient-management protocols of the I.R.I.S. Center for Maxillofacial and Dental Implantology and into the educational process of the Department of Propaedeutic Dentistry at Smolensk State Medical University of the Ministry of Health of the Russian Federation.

Список литературы:

1. Abraamyan K.D., Bazikyan E.A., Chunikhin A.A. Study of the effect of new nanomaterial-based bioengineered constructs on osteoreparative processes in bone tissue in an experimental study. In: Nauchnyi avangard [Scientific Vanguard]: Proceedings of the 4th Scientific and Practical Conference and Interuniversity Olympiad for Residents and Postgraduate Students, Moscow, May 19-20, 2022. Moscow: State Research Center of the Russian Federation; 2022:69-72 [In Russian].

2. Abraamyan K.D., Bazikyan E.A., Chunikhin A.A., Klinovskaya A.S. Prospects for the use of nanomaterial-based bioengineered constructs in surgical dentistry. *Rossiiskaya stomatologiya* [Russian Dentistry]. 2022;15 (1):25-26. DOI: 10.17116/rosstomat20221501125 [In Russian].
3. Azarova O.A., Azarova E.A., Kharitonov D.Yu., Podoprigora A.V., Shevchenko L.V. Current aspects of the use of bone-grafting materials in surgical dentistry. *Nauchnye vedomosti Belgorodskogo gosudarstvennogo universiteta. Seriya: Meditsina. Farmatsiya* [Belgorod State University Scientific Bulletin. Series: Medicine. Pharmacy]. 2019;42 (2):215-223 [In Russian].
4. Borzykh O.B., Shnaider N.A., Karpova E.I., Petrova M.M., Demina O.M., Nasyrova R.F. Collagen synthesis in the skin: its functional and structural features. *Meditsinskii vestnik Severnogo Kavkaza* [Medical News of North Caucasus]. 2021;16 (4):443-450 [In Russian].
5. Galiev K.F., Gabdullin T.S., Mammetgulyeva M.G., Kornilov A.G. Review of modern bone-grafting materials. *Pridnestrovskii nauchnyi vestnik* [Pridnestrovian Scientific Bulletin]. 2022;4 (3):23-25 [In Russian].
6. Dolgalev A.A., Zelenskii V.A., Trubushkina E.M., Boiko E.M., Dotdaeva K.R., Avanisyan V.M. Study of bone-tissue repair using X-ray microtomography in experimentally created defects of the anterior wall of the maxillary sinus. *Glavnyi vrach Yuga Rossii* [Chief Physician of Southern Russia]. 2021;3 (78):10-13 [In Russian].
7. Dubchak M.A. Use of growth factor-enriched plasma in surgical dentistry. *Mezhdunarodnyi studencheskii nauchnyi vestnik* [International Student Scientific Bulletin]. 2019;5-2:68 [In Russian].
8. Kulikov V.A., Grebennikov I.N. Resolvins, protectins, and maresins: new mediators of inflammation. *Vestnik VGMU* [Vitebsk State Medical University Bulletin]. 2012;11:25-30 [In Russian].
9. Metsuku I., Muraev A.A., Gazhva Yu.V., Ivashkevich S.G. Comparative characteristics of different types of barrier membranes used for guided bone regeneration in dentistry and maxillofacial surgery. *Rossiiskii stomatologicheskii zhurnal* [Russian Journal of Dentistry]. 2017;21 (5):291-296 [In Russian].
10. Patshina M.V., Voroshilin R.A., Osintsev A.M. Analysis of the global biomaterials market to determine the potential of raw materials of animal origin. *Tekhnika i tekhnologiya pishchevykh proizvodstv* [Food Processing: Techniques and Technology]. 2021;51 (2):270-289 [In Russian].

11. Khramova N.V., Tseomashko N.E. Optimization of regeneration of deep soft-tissue defects using connective-tissue cells (experimental study). *Universum: meditsina i farmakologiya* [Universum: Medicine and Pharmacology]. 2021;7-8 (79):22-26 [In Russian].
12. Adzhieva A.B., Voronov I.A., Ivanov S.S., Nalchajyan N.M. Optiminization of regeneration at the stages of soft tissue augmentation using a collagen matrix. *Endodontics Today*. 2021;19 (4):317-319. <https://doi.org/10.36377/1683-2981-2021-19-4-317-319>.
13. Da Silva R.V., Oliveira J.T., dos Santos B.L.R., Dias F.C., Martinez A.M.B., Lima C.K.F., Miranda A.L.P. Long-chain omega-3 fatty acids supplementation accelerates nerve regeneration and prevents neuropathic pain behavior in mice. *Frontiers in Pharmacology*. 2017. DOI: 10.3389/fphar.2017.00723.
14. Giron J., Baldin E.K., Medeiros T. Biomaterials for bone regeneration: an orthopedic and dentistry overview. *Brazilian Journal of Medical and Biological Research*. 2021;54 (9). DOI: 10.1590/1414-431x2021e11055.
15. Haugen H.J., Basu P., Sukul M., Mano J.F., Reseland J.E. Injectable biomaterials for dental tissue regeneration. *International Journal of Molecular Sciences*. 2020;21:3442. <http://dx.doi.org/10.3390/ijms21103442>.
16. Li X., Tang L., Lin Y.F., Xie G.F. Role of vitamin C in wound healing after dental implant surgery in patients treated with bone grafts and patients with chronic periodontitis. *Clinical Implant Dentistry and Related Research*. 2018;20 (5):793-798. DOI: 10.1111/cid.12647.
17. Omega-3 fatty acids. Fact sheet for health professionals. National Institutes of Health, Office of Dietary Supplements. 2023. <https://ods.od.nih.gov/factsheets/Omega3FattyAcids-HealthProfessional/>.
18. Strauss F.J., Stähli A., Gruber R. The use of platelet-rich fibrin to enhance the outcomes of implant therapy: a systematic review. *Clinical Oral Implants Research*. 2018;29 (Suppl 18):6-19. DOI: 10.1111/clr.13275.

