легкоатлетів і неспортсменів. Нами виявлений певний дисбаланс в регуляції ритму серця у легкоатлетів. За результатами спектральних показників, параметрів варіаційної пульсометрії та вегетативного гомеостазу отримано неоднозначні дані, що характеризують вплив на легкоатлетів парасимпатичного і симпатичного контурів, що свідчить про напруження у них адаптаційно-регуляторних механізмів.

Ключові слова: кардіоінтервалографія, мезоморфний соматотип, легкоатлети, юнаки.

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неспортсменов. Нами обнаружен определенный дисбаланс в регуляции ритма сердца у легкоатлетов. По результатам спектральных показателей, параметров вариационной пульсометрии и вегетативного гомеостаза получены неоднозначные данные, характеризующие влияние на легкоатлетов парасимпатического и симпатического контуров, что свидетельствует о напряжении у них адаптационно-регуляторных механизмов.

Ключевые слова: кардиоинтервалография, мезоморфный соматотип, легкоатлеты, юноши.

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OPTIMIZED MEASURES FOR CORRECTION OF DENTAL STATUS IN PROFESSIONAL ATHLETES

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The clinical state of the oral cavity, the functional state of the salivary glands, and the effectiveness of therapeutic and preventive measures using propolis-based medicine (Balsam Pomegranate) were studied in 122 professional wrestlers aged 18 to 34 years. In the course of our observations it has been ascertained fact in digital values and a significant reduction of unfavorable background unstimulated salivary secretion in subjects athletes at the studied length of stay in prolonged intense psycho-emotional and physical condition. Status of oral hygiene and periodontal tissues in the study group of athletes who have practically healthy periodontium, deteriorated after an intensive training process at almost 1.5 times. Preparation "Balsam Pomegranate" has a very important, especially with the preventive point of view, antiinflammatory, organoleptic properties, as based on the natural stimulation help to improve the hygienic condition of the oral cavity, the state of periodontal tissues, as well as a pronounced stimulation of salivation and increasing salivary flow rate.

Keywords: periodontitis, saliva, hygiene, intense exercise, prevention.

The work is a fragment of the doctoral dissertation "Development of differentiated approaches to the prevention of inflammatory periodontal diseases in professional athletes".

Based on the results of clinical and epidemiological studies, the importance of close cooperation of specialists of various fields, including a dentist, a therapist, a sports doctor, a cardiologist, as well as a personal trainer, was determined for the successful development and increase of the effectiveness of medical and preventive measures in the field of sports medicine, which ultimately creates the conditions for choosing the optimal therapeutic tactics and further conducting a professional athlete with pathologies of various organs and systems of the body [1, 3, 7]. At the same time, according to scientists, the development and implementation of practical recommendations to improve the general condition, quality of life, health, increase efficiency with the subsequent increase in sports performance of the highest achievements should be carried out taking into account the period and correction of the training process, as well as the degree of development and pathogenicity of chronic infection [2, 6].

The most frequent periods of the training cycle, favorable for the occurrence and development of pathological processes in the periodontal soft and hard tissues among professional athletes, as indicated in some literary sources, are the pre-competitive and competitive periods, because during these periods the number of cases of occurrence and exacerbations of inflammatory diseases in periodontal tissues sharply increases, they against the background of deterioration of vital physical and emotional indicators, can cause certain disorders in the organs of the gastrointestinal tract, in the state of the local immune system, and thus increase the severity of somatic pathology [4, 5, 8].

The purpose of the work was increasing the level of dental care for professional athletes on the background of intense physical and psycho-emotional stress with the use of biologically neutral medicine.

Materials and methods. The prevalence of periodontal disease among 200 athletes aged 18–25, 26–30 and 31–38 years was determined using the CPITN (Community Index of Periodontal Treatment Need, WHO, 1980). Also, 122 professional athletes-wrestlers aged from 18 to 34 years old took part in these scientific studies to study the functional state of the salivary glands and the effectiveness of therapeutic and preventive measures. Salivation indicators were expressed in ml / min. Then a comparative statistical analysis was obtained by comparing the amount of saliva excreted in all experimental groups, excreted at rest and after completion of intense physical exertion and complex therapy.

Clinical studies included: an assessment of the hygienic state of the oral cavity (according to Quigley and Hein (1962): Silness-Loe plaque index (IPI Silness-Loe, 1964) and periodontal tissue condition ((iodine number of Svrakova, 1962), Bleeding index (Muhlemaim, 1971, Cowell I., 1975). In order to stimulate salivation and improve the oral hygiene in the examined athletes, the efficacy of using a propolis-based medicine (Pomegranate balm) was evaluated (composition: propolis, extracts of Leuzea carthamoides, Rhodiola rosea, Manchurian aralia, Abies) in the main Group I (n=16). In the control Group II (n=15) in the complex treatment the traditional antiseptic 0.05% chlorhexidine bigluclate was used.

To study the qualitative and quantitative composition of the microflora of the oral cavity were used: 5% Blood Agar for determining the total level of microbial contamination of the oral cavity, vitelline - salt agar for staphylococci, Glucose Broth and Mitis Salivarius Agar for streptococci, for Candida fungi - CandiSelect agar (Boi-Rad, France). The samples were immediately placed into the Stuart's transport environment and sent to a laboratory for further research.

The results of the study were processed by the method of variation statistics. To characterize the group of homogeneous units, their arithmetic mean values (M), its standard error (SE) - (m) and the range of changes (min-max) were determined. For statistical data processing, the nonparametric criterion U (Wilcoxon-Mann-Whitney) and the parametric data (Student T-test) were used as a method for assessing differences in indicators. We used signed-rank test to compare paired data, statistically significant *p*-values were considered $p<0.05$. Statistical processing of the obtained data was carried out on a personal computer using modern software - Microsoft Excel 2007 spreadsheet editor and application program Statistica 7.0.

Results of the study and their discussion. In the process of clinical studies of the oral cavity in professional athletes, a high percentage of the prevalence and intensity of inflammatory and destructive diseases of periodontal tissues was revealed, the main cause of the development and chronicity of these was the intense and prolonged physical activity (Table 1).

Moreover, a decrease in the number of persons with a healthy periodontal tissue was observed even in younger age groups. Thus, the average value of the CPITN index for the frequency of occurrence of intact periodontium in examined professional athletes aged 18–25 years was 15.38±4.48%, and for athletes belonging to older age groups, the number of intact periodontal soft tissues amounted to even smaller values - 9.3±3.36% and 5.00±2.81%, among athletes aged 26–30 and 31–38, respectively, that is, with an increase in age indicators, a pronounced dynamics was recorded in decline of indicators.

Table 1

CPITN index among professional athletes

Age groups	Number of examined	The number of examined, %				
		Healthy periodontium	Bleeding	Tartar	Periodontal pockets	
					4 –5 mm	More than 6 mm
18 – 25	65	15.38±4.48	21.54±5.10	49.23±6.20	13.85±4.28	-
26 – 30	75	9.33±3.36	12.00±3.75	37.33±5.59	32.00±5.39	9.33±3.36
31 – 38	60	5.00±2.81	6.67±3.22	41.67±6.36	35.00±6.16	11.67±4.14
Total	200	10.00±2.12	13.50±2.42	42.50±3.50	27.00±3.14	7.00±1.80

Note: Data are presented as n (%) of CPITN: Community Periodontal Index for Treatment Needs

When studying personal data and comparing with the results of the studies, it was revealed that the frequency of inflammatory periodontal diseases is directly correlated with sports experience, as well as with the qualifications of athletes. The salivation rate in almost all the examined professional athletes against the background of maximum physical exertion and stress disorders which are characteristic of the pre-competitive and competitive periods was low and indicated severe form of hyposalivation. In the presence of certain diseases of the gastrointestinal tract in individual cases, athletes with a pronounced and extremely low degree of secretion of salivary glands and salivation - xerostomia were detected.

The average salivary flow rate revealed almost in all groups of examined athletes testified to hyposalivation in the oral cavity. The main difference among professional athletes who are already in a psycho-emotional impaired state during intense training on the background of chronic stress and sometimes depression was that, unlike people who do not play sports professionally, there the amount of excreted saliva slightly increased in stimulating salivation. In the course of our observations, was found the fact of the digital values of a significant and unfavorable decrease in the unstimulated saliva secretion in the examined athletes during a prolonged intense psycho-emotional and physical state (2.14±0.020 ml / min in athletes with a healthy periodontal tissue without stimulation and before the start of training and 1.74±0.016 ml / min respectively after their completion, $p<0.001$).

To study the state of salivary glands, this stage of the research was carried out in several stages: at the initial stage of clinical observations, the dynamics of indicators changes was studied depending on the

nature of the therapeutic measures used during between the main stages of the training cycle (using data from a previous survey), at a later second stage, a comparative evaluation of the results obtained before training, as well as treatment and immediately after and after their finishing. The results are presented in the table below.

As can be seen from the obtained tabular data, in the examined athletes with an intact periodontium after stimulation, the salivation rate decreased a few hours after the training completion from 3.2±0.040 ml / min to 2.56±0.028 ml / min; in professional athletes with pathological changes in soft periodontal tissue, the salivation rate compared to the data before intense physical exertion also decreased and by the end of the study approximately was 1.34±0.019 ml / min versus 1.68±0.025 ml / min before training ($p < 0.001$). It is important to note that at all stages of the observations at the intergroup comparative assessment, the differences turned out to be statistically significant.

At the same time, at almost all stages of observation, stimulated saliva was muddy, what is explained by the lack of proper nutrition and hygienic oral care. At the more distant stages of intensive training and clinical observation, we recorded more notable inhibition of salivary secretion. We suppose that at this stage the problem should be considered as a result of side effects physical activity, at the same time, the intake of special low-calorie food on the body, which is expressed in the tendency to increase functional disorders in the organs and tissues of the oral cavity, in particular, in marked inhibition of saliva secretion. During clinical studies of the periodontal tissues state and oral hygiene, as well as the degree of development of pathological processes in peridontium, the following criteria were applied: hygiene indices E. Quigley, I. Hein, 1962, Silness, Loe, 1967, and iodic number of Svrakov. Index data was recorded at several stages of the general training cycle: before the training process and immediately after it (table 2). The results were statistically processed and presented in the table below.

Table 2

Dynamics of changes in the values of dental indices in professional athletes

Indices	Group I (healthy periodontium), n = 57		Group II (with periodontal disease), n = 65	
	before training	1 month after training	before raining	1 month after training
Quigley-Hein indices	2.14±0.027	2.35±0.023 p<0,001	3.44±0.019	4.19±0.012 p<0,001
Silness-Loe indices	1.36±0.009	1.55±0.008 p<0,001	2.14±0.020	2.75±0.010 p<0,001
iodic number of Svrakov	–	–	5.98±0.034	6.52±0.061 p<0,001

Note: p - statistically significant differences in the parameters from groups before and after treatment ($p < 0.001$).

The hygienic condition of the oral cavity and the condition of soft periodontal tissues in the group of professional athletes with an intact periodontium worsened almost by 2 times after completion of intensive training ($p < 0.001$). A completely different picture and dynamics in the studied hygiene index was recorded in athletes who were diagnosed with chronic generalized periodontitis of mild severity, what the received index values testified to: for example, if in this group the values of the Quigley-Hein index at the beginning of training were an average of 3.44±0.019 points, then after training completion they increased to the level of 4.19±0.012 points, that is, increased almost 1.3 times ($p < 0.001$). A significant deterioration in the hygienic state of the oral cavity was observed against the background of excessive physical exertion, what was expressed in a decrease in the Silnes-Loe index by almost 1.5 times ($p < 0.001$). Thus, during long and intensive trainings, was recorded defined strictly dynamics in a statistically significant increase in the hygiene and periodontal indices, as well as the iodic number of Svrakov.

In the group of athletes without any pathological changes in the periodontal tissues, the values of the Quigley-Hein hygiene index before the start of intensive training amounted to 2.14±0.027 points, and Silness-Loe - 1.36±0.009 points. After the completion of the basic preparatory part of the trainings and after the end of intense physical exertion, the obtained data differed in higher values and were determined respectively in the range of 2.35±0.023 points and 1.55±0.008 points ($p < 0.001$). Using for treatment and prevention of periodontal diseases and improving the functional state of the salivary glands, stimulating salivation of an alternative anti-inflammatory drug in the oral cavity, the examined athletes of all three groups were diagnosed with significant improvements in oral hygiene and the condition of periodontal tissues, as evidenced by the results of an index assessment and statistical analysis of the obtained results (table 3).

Based on the study of the obtained questionnaire data, it should be emphasized that at certain stages of training professional athletes, when, during the absence of special pre-competitive and competitive training cycles, they take relatively higher-calorie food and liquid, in very rare cases there were pronounced

deviations in the studied factors, indicating the functional state of organs and tissues of the oral cavity, including the salivary glands. After the use of a natural therapeutic and prophylactic agent based on propolis, the amount of excreted saliva and the rate of its secretion increased, but still they did not reach the values recorded in clinical studies of the oral cavity in the control group, which consisted of healthy people who did not play sports professionally.

Table 3

Changes in the condition of the oral cavity in professional athletes, before and after treatment

Stages / Observations Parameters	Before treatment		At 1 month after treatment	
	Group I (n=16)	Group II (n=15)	Group I (n=16)	Group II (n=15)
Silness-Loe indices	1.35±0.016	1.69±0.026	0.51±0.014 p<0,001	0.75±0.021 p<0,001
Bleeding index (Muhlemaim, 1971, Cowell I., 1975)	1.75±0.022	2.23±0.036	0.56±0.034 p<0,001	0.78±0.031 p<0,001
The speed of salivation, ml / min	1.56±0.018	2.24±0.036	1.81±0.029 p<0,001	2.43±0.029 p<0,001

Note: p - statistically significant differences in the parameters before and after treatment ($p < 0.001$).

Functional state of the salivary glands significantly changes both with a healthy periodontium and with the development of inflammatory processes in its soft tissues, as evidenced by the rate of background salivation, which underwent certain positive changes in all three observation groups. So, prior to the start of applications with a biologically neutral drug in the first group salivary flow rate was determined within the range of 2.24±0.036 ml / min, at the final stage of clinical trials, was observed a significant increase in rates up to 2.43±0.029 ml / min ($p < 0.001$). In professional athletes with chronic catarrhal gingivitis, the state of oral hygiene significantly improved, which was proved by the results of a statistical analysis of the hygiene indices data. At the same time, the digital values of the Silness-Loe index almost doubled and, if before the start of treatment, amounted to 0.51±0.014 points, then after the completion of therapeutic procedures using a biologically neutral drug, the indicators increased to 1.35±0.016 points, which indicated a significant improvement in the "environmental" situation in the oral cavity of qualified athletes.

As for the clinical assessment of periodontal soft tissues condition, in the main group was diagnosed a positive dynamics in the correction of pathological changes that were observed in the periodontal tissues against the background of intensive physical training, and that were manifested in a decrease in the values of the Müleman-Cowell bleeding index.

A statistical analysis of the data of microbiological studies in oral cavity before and after the course of basic therapy revealed a decrease in the frequency of seeding of representatives of opportunistic and pathogenic microflora in biological samples taken a month after completion of treatment in both groups of examined qualified athletes (table 4). In the course of studies, microorganisms Streptococcus haemolyticus, Staphylococcus aureus, Candida were less common in the main group than in patients of the comparison control group.

Table 4

CFU of bacteria in the oral cavity of professional athletes before and after treatment

Microbial associations	(CFU)/ml			
	Group I Before treatment (n=16)	Group I 1 month after treatment (n=16)	Group II Before treatment (n=15)	Group II 1 month after treatment (n=15)
Streptococcus haemolyticus	$1.07x10^4$ ±0.046	$1.18x10^2$± 0.037 (p<0.001)	$1.18x10^4$±0.029	$1.03x10^4$±0.060 (p<0.05)
Staphylococcus aureus	$1.04x10^5$ ±0.065	$1.11x10^2$± 0.029 (p<0.001)	$1.15x10^5$±0.071	$0.92x10^5$±0.028 (p<0.01)
Candida albicans	$1.17x10^4$ ±0.071	$1.06x10^2$± 0.042 (p<0.001)	$1.04x10^4$±0.029	$0.89x10^4$±0.050 (p<0.01)

Note: Significant differences between parameters before and after treatment ($p < 0.05$).

It should be noted a significant ($p < 0.001$) decrease in the number of the microbial associations which facilitates to the beginning and development of major dental diseases at the final stage of research after the use of natural preparations. After the complex treatment carried out using the Pomegranate Balm preparation, a more pronounced normalization of the microflora of the oral cavity contributed to a more pronounced improvement in the state of hygiene and periodontal tissues in athletes in the treatment of periodontitis. Some authors have compared the antimicrobial (antibacterial, antifungal and antiviral) activities and chemical composition of propolis of various origins. The results showed that, despite the large differences in the chemical composition of propolis from different geographic areas, all samples have

antibacterial, antifungal and antiviral effects. Studies have shown antibacterial activity against Micrococcus luteus, Salmonella typhimurium, Klesbsiella pneumoniae [10, 15]. Some studies have demonstrated antimicrobial activity of propolis extract against gram-positive (Staphylococcus aureus, Streptococcus piogenes), gram-negative microorganisms (Escherichia coli, Pseudomonas aeruginosa) and yeast-like fungi (Candida albicans), as well as its antiviral activity in respiratory diseases [14]. Many authors have reported the sensitivity of some Candida yeasts, such as Candida albicans, to propolis [11, 12, 13].

As a result of a number of clinical and laboratory studies was determined the anti-inflammatory, antibacterial and immunomodulating efficacy of drugs based on propolis and its active biological components in the treatment and prevention of various dental diseases. Experimental studies of propolis extracts have shown that they improve the condition of the gums and periodontium [9].

Conclusions

One of the achievements of these studies is the fact of widespread introduction propolis-based preparations in modern practical dentistry, due to the presence in its composition of biologically active macro- and microelements, especially for preventive purposes, for increased work ability, body defenses and stress resistance of professional athletes, for improving their quality of life and sports performance.

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Реферати

ОПТИМІЗАЦІЯ ЗАХОДІВ КОРЕКЦІЇ СТОМАТОЛОГІЧНОГО ЗДОРОВ'Я У ПРОФЕСІЙНИХ СПОРТСМЕНІВ

Сафаралієв Ф.Р.

У 122 професійних спортсменів-борців у віці від 18 до 34 років було вивчено клінічний стан порожнини рота, функціональний стан слинних залоз і ефективність лікувально-профілактичних заходів з використанням ліків на основі прополісу (Гранатовий бальзам). В ході наших спостережень було констатовано факт значного і несприятливого зниження фонової нестимульований секреції слини у обстежуваних спортсменів-єдиноборців в досліджувані терміни перебування в тривалому напруженому психоемоційному та фізичному стані. Стан гігієни порожнини рота і

ОПТИМИЗАЦИЯ МЕР ПО КОРРЕКЦИИ СТОМАТОЛОГИЧЕСКОГО ЗДОРОВЬЯ У ПРОФЕССИОНАЛЬНЫХ СПОРТСМЕНОВ

Сафаралиев Ф.Р.

У 122 профессиональных спортсмена-борца в возрасте от 18 до 34 лет были изучены клиническое состояние полости рта, функциональное состояния слюнных желез и эффективность лечебно-профилактических мероприятий с использованием лекарства на основе прополиса (Гранатовый бальзам). В ходе наших наблюдений был констатирован факт значительного и неблагоприятного снижения фоновой нестимулированной секреции слюны у обследуемых спортсменов-единоборцев в исследуемые сроки пребывания в длительном напряженном психоэмоциональном и физическом состоянии. Состояние гигиены полости рта и

околозубних тканин в досліджуваній групі спортсменів, що мають практично здоровий пародонт, погіршилися після закінчення інтенсивного тренувального процесу майже у 1,5 рази. Препарат «Бальзам гранатовий» володіє дуже важливими, особливо з профілактичної точки зору, протизапальними, органолептичними властивостями, які на підставі природної стимуляції сприяють поліпшенню гігієнічного стану і мікрофлори порожнини рота, стану тканин пародонта, а також вираженній стимуляції слиновиділення і підвищенню швидкості слиновиділення.

Ключові слова: пародонт, слина, гігієна, фізичні навантаження, профілактика.

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околозубных тканей в исследуемой группе спортсменов, имеющих практически здоровый пародонт, ухудшились по окончании интенсивного тренировочного процесса почти в 1,5 раза. Препарат «Бальзам гранатовый» обладает очень важными, особенно с профилактической точки зрения, противовоспалительными, органолептическими свойствами, так как на основании естественной стимуляции способствуют улучшению гигиенического состояния и микрофлоры полости рта, состояния тканей пародонта, а также выраженной стимуляции слюноотделения и повышению скорости слюноотделения.

Ключевые слова: пародонт, слюна, гигиена, физические нагрузки, профилактика.

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DETERMINATION OF THE RISKS OF INFERTILITY IN WOMEN WITH THYROID PATHOLOGY AND HYPOANDROGENIC OVARIAN DYSFUNCTION

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The purpose of the study was to determine the effect of thyroperoxidase antibody levels on the fertility of women with sexual dysfunction and reduced ovarian androgen levels. A study of the risks of infertility in women with pathology of the thyroid gland based on the analysis of the results of hormonal tests and the development of recommendations for planning a pregnancy in conditions of hypoandrogenic ovarian dysfunction. The presence of clinically significant levels of antibodies to thyroperoxidase in young and middle-aged women with sexual dysfunction has been shown to adversely affect the early stages of folliculogenesis. This factor indicates a risk of decreased steroid-producing ovaries and the development of susceptibility to infertility. It is desirable for women with clinically significant levels of antibodies to thyroperoxidase to plan their pregnancy at an earlier reproductive age (18-25 years), because at this time the optimal conditions for fertility are maintained. For women with clinically low levels of antibodies to thyroperoxidase, pregnancy planning is more appropriate in middle reproductive age.

Keywords: infertility, antibodies, androgen deficiency.

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The quality of life of a person depends on the realization of its reproductive and sexual function. There are studies of the negative effects of hyperandrogenism on female fertility[11]. Much attention is paid to the study of the sexual health of women, since a woman's sexual health is part of her reproductive health [10].

The endocrine and nervous systems regulate the main physiological processes that ensure sexual function of a person. The neuroendocrine system is the basis of female sexuality: it provides excitement of the relevant nervous structures responsible for sexual reactions, supports the energy component of sexual desire, sexual motivation (sexual centers of the hypothalamus, which affect the sexual centers of the spinal cord, which are subject to the regulatory effects of the limbic system and the cerebral cortex)[2, 11].

Reduced women sexuality is noted against the backdrop of various endocrine diseases as they alter the levels of estrogen and progesterone in the female body One of the most common diseases of reproductive age women is atoimmune thyroiditis (AIT), an organ-specific autoimmune disease of the thyroid gland, which is the main cause of hypothyroidism. The value of the hypothyroid condition for fertility is due to the high frequency of this pathology - up to 78.4% in women with infertility [1, 9]. It is difficult to estimate the prevalence of AIT, since in the state of euthyroidism it has almost no exact diagnostic criteria. Many authors point out that the number of carriers of both antibodies to thyroid peroxidase and hypothyroidism due to autoimmune thyroiditis is about 10 times higher among women in comparison with men [5]. Quite often, the hypothyroid state is accompanied by hyperprolactinemia. According to the article for women with hyperprolactinemia there is an increase in the frequency of depressive disorders and disorders of the menstrual cycle in combination with a decrease in sexual desire,