



Рис. 1. Число корекцій базису протезів

**Висновки:** Отримані дані дали можливість констатувати факт зменшення числа корекцій базису протезів з безкламерною фіксацією  $0,5 \pm 0,5$  ( $p < 0,05$ ) порівняно з кламерною  $2,2 \pm 1,8$  ( $p < 0,05$ ). Результати дослідження можна пояснити тим, що протези з безкламерною фіксацією за рахунок своїх властивостей менше травмують слизову оболонку порожнини рота, що позитивно впливає на процес адаптації, який відбувається швидше.

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## MICROECOLOGY OF THE ORAL CAVITY IN THE PERIOD OF ADAPTATION TO REMOVABLE DENTURES

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**Abstract.** The oral cavity is an open ecosystem for various microorganisms and is one of the most populated biotopes of human. Removable dental prosthesis creates favorable conditions for the breeding of various microorganisms, including fungi. Stomatitis of dentition (SOD) refers to a group of the most frequent pathologies of the mucous membranes of the oral cavity inflammatory character, due to the presence of the patient's dental prosthesis. In this regard, the **aim of this work** was to study the dynamics characteristics of the microbiota of the mucous membranes of the oral cavity when performing prosthetic rehabilitation of patients with complete removable acrylic dentures with the use of adhesive and without its use. The formation of the clinical groups of the patients occurred

according to the following criteria: the study group comprised 23 patients with complete edentulous upper and lower jaw, which produced full removable laminar dentures on the upper and lower jaw, which used water-resistant adhesive based on polyvinyl acetate and karboksimetiltseļļuloza (pads and/or cream "Fittydent") according to the instructions of the manufacturer, the control group consisted of 12 patients with complete edentulous upper and lower jaw, which produced full removable laminar dentures on the upper and lower jaw, in the period of adaptation to removable dentures has not applied the adhesive to improve the fixation of dentures. Microbiological studies included determination of the qualitative and quantitative composition of the biocenosis. It is established that the microflora of the alveolar ridge in patients with edentulous consisted of associations of yeasts from 2-5 representatives of the microbial world. It is established that in patients of the experimental group on the 7th day of withdrawal 3-component microbial associations has decreased in 1.3 times, whereas the 4-component associations were recorded in 1.4 times more often compared with the initial period of observation. For patients with adhesive frequency of detection of 2-component microbial associations 30-the day of the research was 1.3 times higher than prior to the setting of the prosthesis. Identify 5 component associations for 30-the day, has decreased in 2 times. In patients without adhesive (control group) 4-component microbial associations in the mouth after a week of adaptation to the prosthesis were detected in 1.6 times, and 30 days – in 2 times more often than to prosthetics. The weight 5 component associations through the week remained at the initial level, while after 30 days has increased in 1,5 times. The structure of microbiocenosis of the mucous of the oral cavity of patients with edentulism are represented 13 genera of bacteria and morilioid fungi of the genus *Candida*, allocated in secondary amounts by lg (2,5±0,19) to lg (5,4±0,17) CFU/g).

**Keywords:** microflora of oral cavity, adaptation, adhesive, removable dentures.

**Actuality.** The oral cavity is an open ecosystem for various microorganisms and is one of the most populated biotopes of human. Removable dental prosthesis creates favorable conditions for the breeding of various microorganisms, including fungi. Stomatitis of dentition (SOD) refers to a group of the most frequent pathologies of the mucous membranes of the oral cavity inflammatory character, due to the presence of the patient's dental prosthesis [1, 3].

The consequences of SOD are negative: violation of adaptation to removable laminar dentures, unstable, stabilization, balancing of the prosthesis and disruption of the articulation of artificial teeth [5].

For the prevention of SOD due to removable prostheses are used proper hygiene of dental prostheses, manufacture of technologically optimal designs of dentures, the shielding of the prosthesis and the use of cushioning materials [2, 4, 5, 8]. Most effective are measures aimed at reducing the contact of the denture base with the mucous membrane of the alveolar ridge, and increased resistance of the oral tissues. For this purpose, various seals between base and mucosa. Latest improve stabilization of the denture, eliminate side effects - irritation, sensitization. In this case significantly reduced the time of adaptation to partial dentures.

Highly effective in orthopedic treatment is the use as shims of various adhesive compositions, which, along with the strengthening of the stabilization of dentures and the positive effect on the mucosa of the prosthetic bed, reduce microbial aggression and accelerate adaptation to removable dentures

In this regard, the **aim of this work** was to study the dynamics characteristics of the microbiota of the mucous membranes of the oral cavity when performing prosthetic rehabilitation of patients with complete removable acrylic dentures with the use of adhesive and without its use [1, 3, 6, 7].

**The materials and methods of research.** The formation of the clinical groups of the patients occurred according to the following criteria: the study group comprised 23 patients with complete edentulous upper and lower jaw, which produced full removable laminar dentures on the upper and lower jaw, which used water-resistant adhesive based on polyvinyl acetate and karboksimetiltseļļuloza (pads and/or cream "Fittydent") according to the instructions of the manufacturer, the control group consisted of 12 patients with complete edentulous upper and lower jaw, which produced full removable laminar dentures on the upper and lower jaw, in the period of adaptation to removable dentures has not applied the adhesive to improve the fixation of dentures. Microbiological examination of patients was carried out in dynamics before developing the prosthesis, after a week and after a month's stay of the prosthesis in the oral cavity.

**Results and discussion.** Microbiological studies included determination of the qualitative and quantitative composition of the biocenosis. It is established that the microflora of the alveolar ridge in patients with edentulous consisted of associations of yeasts from 2-5 representatives of the microbial world (Tabl.1).

Table 1. Quantitative characterization of microbial associations, isolated from the alveolar ridge of patients

Group surveyed patients	Time observations	The frequency of removal of microbial associations %			
		two-component	three-component	four-component	five-component
The main group, n=23	Before the imposition of the prosthesis	26,1	34,8	21,7	17,4
	7 days	30,4	26,1	30,4	13,1
	30 days	34,8	30,4	26,1	8,7
The control group, n=12	Before the imposition of the prosthesis	25,0	33,3	25,0	16,7
	7 days	16,7	25,0	41,6	16,7
	30 days	8,3	16,7	50,0	25,0

It is established that in patients of the experimental group on the 7th day of withdrawal 3-component microbial associations has decreased in 1.3 times, whereas the 4-component associations were recorded in 1.4 times more often compared with the initial period of observation. For patients with adhesive frequency of detection of 2-component microbial associations 30-the day of the research was 1.3 times higher than prior to the setting of the prosthesis. Identify 5 component associations for 30-the day, has decreased in 2 times. In patients without adhesive (control group) 4-component microbial associations in the mouth after a week of adaptation to the prosthesis were detected in 1.6 times, and 30 days – in 2 times more often than to prosthetics. The weight 5 component associations through the week remained at the initial level, while after 30 days has increased in 1,5 times.

The structure of microbiocenosis of the mucous of the oral cavity of patients with edentulism are represented 13 genera of bacteria and morilioid fungi of the genus *Candida*, allocated in secondary amounts by lg (2,5±0,19) to lg (5,4±0,17) CFU/g (Tabl. 2, 3). When adhesive between denture base and mucosa of the alveolar ridge frequency of withdrawal and the density of microbial colonization in the adaptation period were not statistically different. But the density of the microbial population among the control group increased 1.5 times for *Enterococcus* spp., 1.4 for the *Klebsiella* spp. and 1.6 times for yeast fungi *Candida* spp. Found a significant decrease in microbial density of the representatives of the resident microflora in 1.4 times for *Neisseria* spp., 1.6-fold for *Lactobacillus* spp. (p<0.05).

Table 2. Characterization of the microbiota of the oral cavity in the adaptation period to full removable plate denture

Frequency withdrawal (%)	Representatives of aerobic and facultative anaerobic microflora	The main group, n=23			The control group, n=12		
		Before the imposition of the prosthesis	7 days	30 days	Before the imposition of the prosthesis	7 days	30 days
		The number of withdrawal strain (%)					
>50,0%	<i>Streptococcus</i> spp with a-Hemolytic properties	73,9	69,6	69,6	66,7	58,3	66,7
30,1 -50,0 %	<i>Corynebacterium</i> spp	39,1	39,1	39,1	50,0	41,6	50,0
	<i>Neisseria</i> spp	43,5	7,8	43,5	41,6	33,3	41,6
20,1 - 30,0 %	<i>Lactobacillus</i> spp	26,1	26,1	26,1	33,3	33,3	25,0
	<i>S. pyogenes</i>	21,7	21,7	21,7	25,0	33,3	33,3
	<i>Micrococcus</i> sp	21,7	26,1	21,7	25,0	25,0	25,0
	<i>Moraxella</i> spp	21,7	21,7	21,7	33,3	33,3	33,3
	<i>E. coli</i>	21,7	21,7	21,7	25,0	25,0	25,0
	<i>M. morgani</i>	21,7	26,1	26,1	33,3	33,3	33,3
10,0 -20,0 %	<i>Haemophilus</i> spp	17,4	17,4	13,1	16,7	16,7	16,7
	<i>Enterococcus</i> spp	13,1	17,4	13,1	8,3	8,3	16,7
	<i>Klebsiella</i> spp	13,1	13,1	13,1	8,3	8,3	8,3
	<i>Candida</i> spp	17,4	17,4	13,1	16,7	16,7	16,7
	<i>Staphylococcus</i> spp	13,1	13,1	13,1	8,3	8,3	8,3

Table 3. Density of microbial colonization of the oral cavity in the adaptation period to full removable plate denture

In order	Representatives of aerobic and facultative anaerobic microflora	The main group, n=23 (lg CFU/g)			The control group, n=12 (lg CFU/g)		
		Before the imposition of the prosthesis	7 days	30 days	Before the imposition of the prosthesis	7 days	30 days
1	<i>Streptococcus spp</i> with a hemolytic properties властивостями	4,6±0,15	4,5±0,19	4,8±0,21	4,3±0,18	3,8±0,15	4,2±0,2
2	<i>Corynebacterium spp</i>	4,2±0,26	4,1±0,2	3,9±0,18	4,3±0,1	3,8±0,16	3,6±0,11
3	<i>Neisseria spp</i>	5,2±0,22	5,0±0,12	4,9±0,1	5,1±0,14	4,6±0,1	3,6±0,18*
4	<i>Lactobacillus spp</i>	3,4±0,17	3,2±0,1	3,2±0,25	3,6±0,11	2,7±0,12	2,3±0,18*
5	<i>S. pyogenes</i>	3,2±0,29	3,6±0,2	3,4±0,18	3,3±0,2	3,8±0,12	4,0±0,18
6	<i>Micrococcus sp</i>	3,2±0,2	3,5±0,1	3,8±0,09	3,3±0,24	3,8±0,19	4,1±0,23
7	<i>Moraxella spp</i>	4,2±0,21	4,6±0,25	4,8±0,11	4,3±0,2	4,8±0,27	5,4±0,17
8	<i>E. coli</i>	3,4±0,1	3,2±0,2	3,4±0,09	3,3±0,22	3,9±0,1	4,1±0,09
9	<i>M. morgani</i>	3,0±0,13	3,0±0,1	2,7±0,2	3,1±0,17	3,2±0,1	3,7±0,14
10	<i>Haemophilus spp</i>	3,6±0,19	3,8±0,1	3,8±0,22	3,3±0,1	3,8±0,14	3,7±0,1
11	<i>Enterococcus spp</i>	2,5±0,19	2,7±0,1	3,0±0,21	2,6±0,1	3,1±0,12	4,0±0,1*
12	<i>Klebsiella spp</i>	2,8±0,15	3,0±0,11	3,2±0,13	2,5±0,1	3,0±0,13	3,6±0,18*
13	<i>Staphylococcus spp</i>	4,1±0,23	4,0±0,2	3,8±0,11	4,2±0,09	3,7±0,09	3,5±0,16
14	<i>Candida spp</i>	3,1±0,09	3,3±0,1	3,6±0,2	3,0±0,1	3,7±0,19	4,7±0,1*

Note: \* reliable difference between the indices ( $p < 0,05$ ).

**Conclusions.** The results of these studies indicate significant changes of qualitative and quantitative structure of microbiocenosis of oral cavity in patients with edentulous representatives *Moraxella spp.*, *Klebsiella spp.* and *E. coli*. Comparison of frequency of discharge and the density of microbial colonization showed persistence in a given habitat representatives of 13 genera of bacteria and yeast fungi of the genus *Candida* in medium quantities from lg (2,5±0,19) lg (5,4±0,17) CFU/g). For patients who used adhesive (fixative cream and/or strip Fittydent) on the basis of karboksimetilcelljulozy and polivinilatsetat in the period of adaptation to removable prosthesis characteristic was reduced in 2 times revealing the 5 component associations on 30 the day. Frequency of withdrawal and the density of microbial colonization of the experimental group were not statistically different. Among patients in the control group increased the density of microbial colonization for *Enterococcus spp.*, *Klebsiella spp.* and yeasts of *Candida spp.* Found a significant decrease in microbial density of the representatives of the resident microflora in 1.4 times for *Neisseria spp.*, 1.6-fold for *Lactobacillus spp.*

Identified microbiological characteristics dictate the need for inclusion in the treatment of patients with edentulous circuit correction of microbiocenosis of the oral cavity, with the use of the funds are directed anti-inflammatory action and ensure the restoration and preservation of normal biocenosis of the specified biotope.

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## ВЛИЯНИЕ ЭМОЦИОНАЛЬНОГО ИНТЕЛЛЕКТА И БИОЭЛЕКТРИЧЕСКОЙ АКТИВНОСТИ ГОЛОВНОГО МОЗГА НА ЭФФЕКТИВНОСТЬ РАБОТЫ ОПЕРАТОРОВ

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**Abstract.** In this work it is shown that the effectiveness of the operator's activities is higher in individuals with medium emotional intelligence than in those with low emotional intelligence. This is achieved due to the greater expression of the alpha rhythm by 69 % in amplitude and by 78 % in the index, low-frequency beta-rhythm amplitude by 50 %, lower expression of the delta-rhythm in the index by 22 % at rest. In addition, the group of medium emotional intelligence compared to the group of low emotional intelligence demonstrates 10.5 % higher capacity for emotional assessment of faces, 8.9 % more developed ability to understand emotional transitions, 13.6 % better capacity for emotional assessment of the images and 75.9 % higher ability to describe their emotional state.

**Keywords:** emotional intelligence, bioelectrical activity, operator's activity, efficiency of work, sensorimotor tracking.

**Введение.** Неуклонное увеличение темпов научно-технического прогресса, повышение роли автоматизированных систем управления в различных отраслях, значительное увеличение объёма информации, анализируемой диспетчерским персоналом, приводит к неизбежному повышению нагрузки на операторов систем человек-машина, и, как следствие, к ужесточению требований, предъявляемых к операторам. В этих условиях особую актуальность приобретает оптимизация труда операторов в целом, а также различных способов воздействия информации на решения, принимаемые человеком, на его трудовую деятельность и поведение, в частности. В связи с этим в настоящее время разработка психофизиологической стороны проблемы повышения эффективности и надёжности труда операторов является одним из основных направлений инженерной психологии и физиологии труда [1, 2, 3].

Появилась настоятельная необходимость детального анализа не только внешних технических средств оптимизации операторской деятельности, но также и ориентированных на человеческое звено системы психофизиологических средств. На первый план при этом выходит поиск новых высоко информативных критериев, позволяющих оптимизировать профессиональную ориентацию и профессиональный отбор лиц для выполнения операторской работы [4]. На роль подобного критерия, на наш взгляд, подходит эмоциональный интеллект (EI, EQ) высокий уровень которого является критически важным фактором успешной работы во многих областях деятельности человека, в том числе в системах управления.

**Цель.** Изучить степень влияния эмоционального интеллекта и отдельных его составляющих, а также биоэлектрической активности головного мозга на эффективность труда человека-оператора.

**Материалы и методы.** В работе приняли участие 31 человек: 9 (29 %) – лица мужского пола и 22 (71 %) – женского. Все участники на момент включения в исследование были в