

## THE ROLE OF INDIVIDUAL MEMBERS OF THE FAMILY STREPTOCOCCACEAE IN THE HEALTH OF THE ORGANISM UNDER DIFFERENT TYPES OF NUTRITION

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*Streptococcus* bacteria, genera *Streptococcus*, *Lactococcus* and *Enterococcus*, are always isolated from the intestinal contents of children and young mammals. They are mostly beneficial for the host organism and their quantitative and species composition depends on the health statute. The objective of our studies was to continue the work on elucidating the role of the genus *Enterococcus* in the health of the organism under different types of nutrition.

The studies were performed in three stages: 1) determination of the frequency of *Enterococci* in the digestive tract of humans and animals; 2) establishment of their number in the rectum content of healthy children and adults of different ages (1-3 and 20-80 years) and 3) determination of quantitative and qualitative indicators of *Enterococci* in the intestines of white rats fed diets with different contents of proteins, fats and carbohydrates.

182 strains of streptococci isolated from human and animal intestines, after identification, 135 belonged to the genus *Enterococcus* (this constituted 74.14 %). Regarding their numbers, it was found that in healthy children in the postnatal period of life (1-3 years) the number of *Enterococcus* was  $5.53 \pm 0.12$  to  $5.92 \pm 0.11$  log/g, and in children with intestinal disorders -  $8.45 \pm 0.18$  to  $8.46 \pm 0.20$  log microbial cells in 1 g of the intestinal content. Differences in the number of enterococci in the intestine were also noted in adults, but in people with a healthy status of 20 to 50 years it was in the range of  $7.54 \pm 0.16$  to  $7.90 \pm 0.11$ , and with a pathological health status - enterococci were found in the range of  $9.38 \pm 0.22$  and  $9.60 \pm 0.22$  log/g.

In people over 50, the total quantitative values of streptococci in the intestine increased, being in the range of  $8.20 \pm 0.13$  -  $8.77 \pm 0.17$  in healthy and  $9.77 \pm 0.20$  -  $9.88 \pm 0.23$  log microbial cells in 1 g of intestinal content - in patients. In these individuals, the proportion of enterococci - decreased, amounting to only 35.39%. Differential studies confirmed the prevalence of *Enterococcus faecalis* species in relation to *Enterococcus faecium* species by a factor of 3.5 (were 77.77 and 22.23 %, respectively).

Further we studied the quantitative and qualitative indicators of *Enterococcus faecalis* in the intestines of white rats, against the background of the application of diets with different compositions of proteins, fats and carbohydrates. The experiments were carried out using four versions of diets (1) including the above components in 8, 35 and 37%; 2) 11, 29 and 60%; 3) 12, 27 and 61% and 4) 14, 25 and 61%, which were tested in four experimental groups. The first was the control (I), and the second, third and fourth groups (II, III and IV) were experimental, and the data obtained are reflected in the table.

**Table 1. Quantitative indicators of enterococci in the contents of the rectum of rats on which different food diets were tested**

Group	Nr of bacterial cells in 1 g of intestinal contents, log		Difference, %	
	Start of the experiment	End of the experiment	Start of the experiment	Control group
I	5,11±036	8,65±0,42	+ 69,27	
II	5,50±0,39	6,58±0,48	+19,63	- 23,93
III	5,67±0,41	6,63±0,39	+ 16,93	- 23,35
IV	5,23±0,22	6,17±0,41	+ 17,97	- 28,67

Based on the data in the table, we can note that the ration tested in the control group (I) had a negative effect on the reproduction process of the determined microbial representatives. This led to intensive development of facultative microorganisms of *Enterococcus* genus, which was confirmed by their quantitative indices at the end of the experiment, which were higher (by 69.27 %) in comparison with the beginning of the experiment. But at the same time, we note that the food rations tested in the experimental groups had a positive impact, and this is confirmed by the number of studied bacteria, which in groups II, III and IV was lower by 23.93; 23.35 and 28.67%, respectively.