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Obesity and protein exchange

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Objective: The body has a number of idle energy-dependent metabolic cycles that contribute to the conservation of energy balance. The protein turnover increases with excess intake of calories and decreases with their deficiency, so it can contribute to maintaining the energy balance.

Methods: The approach was to develop a model for establishing the key role of protein metabolism in coordinating the metabolism of carbohydrates and fats.

Results: There was developed a model for the relationship between proteins, fats and carbohydrates exchange. In the absorptive period, a decrease in protein synthesis with a protein deficit (low protein diet) leads to a reduction in glucose utilization, which is manifested by its increase in blood and an increase in the discharge of its carbon skeleton into lipids. On the contrary, on the high-protein diet the negative manifestations of the restriction of physical activity on the exchange of glucose and fats are smoothed out. In the post-absorptive period, proteins are the main supplier of the substrate for the process of gluconeogenesis, which is provided by the energy of fat oxidation, so fat oxidation increases on the high protein nutrition. This allowed us to offer a product for obesity diet therapy (Patent GB496119 January 22, 2014).

Conclusion: Thus, protein metabolism plays a coordinating role in the mechanism of carbohydrate and fat metabolism and in order to increase the effectiveness of technology in the prevention and treatment of obesity, adequate substrate support of the protein synthesis process (quantity and quality).

Biography

Emil Mukhamejanov is a doctor of medical sciences, professor. In 1964-1972, I worked in the Institute of Physiology, responsible for the regulation of muscle contraction. In 1974-1991, I worked in the Institute of nutrition, responsible for the regulation of energy metabolism and metabolic diseases. Developed metabolic model of balanced diet coupled with effects of toxic compounds, physical activity and dietary factors. Has developed specialized nutrition products for athletes and for the prevention and treatment of metabolic diseases. Currently working in the Scientific Center of anti-infective disorders, develop approaches of reducing the negative impact of drugs. I participate in a grant (JSC National Medical University named after S.Asfendiarov) for the study of polymorphism in diabetes mellitus. I am a scientific consultant at Fucoidan-World.

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