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PROTEIN FORMATION PROCESS

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Abstract

Many organic and inorganic substances are involved in the circulation of substances, and this process is very intensive. The digestive tract ensures the presence of leading components in its contents, changing the amino acid composition of the chyme, and with protein-free food it forms a mixture with the same, relatively constant composition of free amino acids. Naturally, these processes are possible only as long as there are reserves of irreplaceable materials in the body.

Introduction

If, according to the initial, very cautious calculations, the amount of excreted endogenous proteins fell from the daily content of proteins in food, now we are talking about much larger amounts. Some of researches indicate that pigs excrete 100 or more grams of protein per day. It has been observed that when labeled protein was fed, its dilution into the intestines with nitrogenous material was 4-5 times in dogs and 6-7 times in rats. When calculating the daily content of protein in various 7 times secrets, the author came to the conclusion that in humans, for every gram of food protein, there is at least a gram of endogenous protein, and, consequently, its total amount is about 100 g or even more per day.It was concluded that in the human gastrointestinal tract approximately 225 g of cellular elements are rejected per day, which corresponds to approximately 27 g of protein (Carlo Pinna, 2018). The total amount of endogenous proteins excreted per day is at least 60 g, which exceeds half of the daily intake of protein from food; in fact, it is even higher. With the release of endogenous proteins, the alignment of the amino acid composition of the intestinal contents is associated. Fluctuations in the amino acid composition of food proteins level out, and a more or less constant ratio of free amino acids is established in the absorbed mixture. If food with a defective protein, such as zein, which is poor in tryptophan and lysine, is given once, the ratio of amino acids in the contents of the intestine remains the same as when eating meat. With protein-free food, for example, one fat, the composition of free amino acids in the content is also close to the composition when eating meat. At the same time, it differs significantly from this composition of the proteins of the meat itself.

Various leading factors

Factors leading to changes in the composition of amino acids in the contents of the intestine have not yet been studied. We can only assume that these are the following.

1) Change in the intensity of the separation of a particular secret.

It is known that the amino acid composition of different juices is different, and the rate of cleavage of their proteins is also very different.

2) Changes in the chemical environment, mainly pH in the cavity of the gastrointestinal tract. As a rule, the pH content of the gastrointestinal tract for many enzymes does not correspond to their optimal action, which somewhat hinders their hydrolytic activity (Fallingborg, 1999). PHshift can affect the rate of activation, action and destruction of digestive enzymes.

3) Extravasation of protein from the blood into the lumen of the gastrointestinal tract, the intensity of which can also vary.

4) Motor activity of the gastrointestinal tract - a change in the rate of evacuation of partially hydrolyzed proteins from the stomach to the intestine, from one section of the intestine to another. It can also be assumed that there is a mechanism for coordinating the above processes (probably a nervous one).Alignment of the amino acid composition of the absorbed mixture, obviously, is important for the use of other nutrients in the body protein, but indirectly. Suffice it to say that the assimilation of nitrogenous substances is optimal with the simultaneous intake of various essential amino acids in a certain ratio (Lopez & Mohiuddin., 2022). Extravasation of proteins into the cavity of the gastrointestinal tract. Some protein passes into the gastrointestinal tract intestinal tract by transudation. It has been examinedsome patients with rarely expressed gastric achylia, observed the appearance of viscosity with very low acidity and weak petitivity, but with a significant content of protein substances. This was especially evident during the transfusion of blood serum to such patients. The separation of gastric juice of a similar composition was also established in an experiment on dogs during prolonged starvation, which led to the development of spontaneous secretion. Histologically an expansion of the capillaries and increased blood filling of the gastric mucosa were found. In the mucosal stroma, the presence of serous fluid was noted, which, apparently, is a transudate resulting from increased capillary permeability. Based on these facts, it was suggested that the extravasation of proteins, in particular albumin, from the blood into the cavity of the gastrointestinal tract is a normal physiological phenomenon, which under pathological conditions can be more pronounced.

Later, when it became clear that extravasation is not the main mechanism for the release of digestive proteins into the cavity, some researchers were inclined to deny its existence altogether. However, this process has recently been fully confirmed. Electrophoresis on paper shows the presence of albumin in gastric and intestinal juices. Under pore conditions, albumin is rapidly cleaved by pepsin, and the electropherogram shows mainly the fractions corresponding to the products of its digestion. Albumin can be detected by intragastric neutralization of gastric juice. The ability of some proteins to pass into the cavity of the digestive tract is also evidenced by the fact that amylase (a protein with a molecular weight of about 45,000) is released from the blood into the liquid part of the intestinal juice of dogs.

Protein extravasation

Protein extravasation in the blood increases sharply in pathological conditions and acquires the significance of a factor that leads to a breakdown in protein metabolism. When labeled albumin is injected into the blood of patients with hypertrophic gastritis, the latter appears in the contents of the stomach (Citrin et al., 1957). The process is so pronounced that, but the authors of this work, explains the loss of albumin in the blood and hypoproteinemia in these patients. Administration of a synthetic high molecular weight substance, polyvinylpyralidone, to patients also makes it possible to observe its enhanced transition in the blood into the cavity of the gastrointestinal tract. Particularly dramatic

changes are observed in exudative enteropathy (intestinal lymphangiectasia), characterized by hypoproteinemia and other signs of protein deficiency. After the introduction of labeled polyvinylpyrralidone into the blood in such patients, 4-5% or more of the administered amount is excreted in the faeces, while in healthy people it is only about 0.8%. An increased transition of albumin from the blood into the cavity of the gastrointestinal tract is observed in a number of diseases: regional naente. Nonspecific ulcerative colitis, some forms of secretory insufficiency, stomach cancer, etc.The secreted proteins are mainly the proteins of various digestive juices, enzyme proteins, fragments separated during the activation of proenzymes, mucoproteins, proteins of torn, decaying non-albumin cells, etc. A small part of the proteins, especially due to extravasation in the blood into the cavity of the digestive tract. Proteins of rejected cells should also be taken into account.

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