**DIGESTION OF PROTEINS, ABSORBTION OF AMINO ACIDS. THE MAIN WAYS OF AMINO ACIDS CATABOLISM IN TISSUES. DEAMINATION AND TRANSAMINATION. GLUCOSE- ALANINE CYCLE. DECARBOXYLATION OF AA.**

Nitrogen is an essential component of many important biological molecules, and proteins (amino acids) are the main source of this element for humans. Nitrogen balance is a generalized characteristic of protein metabolism and can be calculated as the difference between nitrogen intake (with food proteins) and nitrogen excretion (mainly in urine). Healthy adults usually are in nitrogen equilibrium. Positive nitrogen balance is characterized by the retention of nitrogen in the body, e. g. in pregnancy, growth, recovery from metabolic stress (illness or starvation). Negative nitrogen balance, when more nitrogen is lost than is taken in, is observed in senility, certain disease states, starvation, poor or inadequate protein nutrition.

Individual protein daily requirements vary greatly depending on the age, gender, and activity level. On average, 0.8–1.0 g of protein per kg of ideal (!) body weight is enough to maintain nitrogen equilibrium. However, it should be kept in mind that under certain conditions (e. g., pregnancy, lactation, intense physical exercise) protein requirements increase. In addition, adequacy of protein nutrition strongly depends on the amino acid composition of the dietary proteins, particularly on the contents of essential amino acids, since they can‘t be synthesized in the human body in sufficient amounts. Eight of twenty proteinogenic amino acids are essential Leu, Ile, Val, Lys, Met, Phe, Trp, Thr (+ Arg, His for children). Bioavailability and possibility of digestion also influence on the nutritive value of food proteins. Animal proteins (eggs, milk, meat) are the best

source of amino acids for humans.