The State of Protein Availability of Professional Athletes Involved in Kurash Wrestling

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ABSTRACT

Aim of the investigation - to learn protein providing condition of the professional sportsmen, who experience of the fight kurash in the background regulation nutrition. Have been studied findings of the professional sportsmen, who experience of the fight kurash in the background regulation. Examined men between 18-30, who are in regulation nutrition. Estimated increasing of the quota of creatinin in the general amount of the nitrogen, which testifies strengthen of the protein catabolism in the organism of the professional sportsmen. Have been determined redivision of the form of the nitrogen extracting with urine, expressing in the view of decreasing amount of the urine and increasing of the creatinin in the common amount urine, that allows to conclude about inadequate provision of the organism of the sportsmen with nutritional protein. Calculated creatin index (9.1) shows to weaken degree of the protein energetic insufficiency in fighters.

Keywords: sportsmen, fight kurash, nutrition, protein, nitrogen, urine, creatinin

The purpose of this study was to study the indicators of protein security of the body of professional male athletes engaged in the fight of kurash, against the background of regulated nutrition

Materials and methods. Men aged 18-30 years who are on a regulated diet were examined (the chemical composition of the diet was established by widely tested methods [1,2,3]) Depending on the Quetelet index, which characterizes the general state of nutrition of the body, three groups were identified in which biochemical studies were conducted to determine total nitrogen, urea nitrogen and creatinine in urine by generally accepted methods [5,6].

According to the results of biochemical studies, the indicator of the adequacy of protein nutrition (PABP) was determined. The creatinine coefficient (QC) and the creatinine-growth index (CRI) were calculated.

Results and their discussion.

One of the methods for assessing the protein security of the body is to determine the deficiency of muscle mass by the excretion of creatinine in the urine: the higher the value of muscle mass, the more creatinine is found in the urine.

According to the studies, the average body weight of athletes was 68.9±, with a height of 173±.0,71 кг2,2 см

According to the results of chemical analysis, the daily diet contained 98 g of protein with an energy value of 3400 kcal (the energy

fraction of protein is 11.5% of the daily caloric content). Nitrogen intake with the diet was 245.4 mg per day per 1 kg of body weight.

The studied indicators of nitrogen metabolism in athletes are presented in Table 1

Table 1 Resource requirements by component Some indicators of nitrogen metabolism in professional athletes involved in the fight of kurash, M±m

Indicators of nitrogenous aboutbmena	Amount of excreted nitrogen	
	mg per day on body weight1 кг	% of total nitrogen
Total nitrogen	167,8±11,27	100
Urea	132,6±10,1	78,85±5,47
Ammonia	5,8±0,42	3,54±0,35
Creatinine	4,38±0,32	2,64±0,25
Uric acid	2,6±0,24	1,6±0,11
Amino groups	11,2±0,81	5,92±0,54
Unidentified nitrogen	10,4±0,91	7,45±0,54

When studying the excretion of creatinine in the urine, it was found that of all the examined persons in 89.3% of cases, the amount of creatinine was in the redistribution of physiological values (4.4-17.6 mmol / day). Its amount was determined on average 11.58 ± 0.44 mmol / day (K = 8.82) (1.31 ± 0.5 g / day). Of the total number of cases examined in 3.7% of cases, the creatinine content in the urine was below the physiological norm. On average, the daily excretion of it in the urine was 3.1 ± 1.18 mmol.

Above the physiological values, an average of 17.82 ± 2.11 mmol / day, creatinine excretion was recorded among 36.8% of the athletes examined.

When considering the studied indicators of nitrogen metabolism in relative values, attention is drawn to a slight decrease in the proportion of urea nitrogen excretion in relation to total nitrogen (77%). According to a number of researchers, the percentage of urea nitrogen in total nitrogen normally varies between 80-90% [4].

An increase in the creatinine quota in the total amount of nitrogen indicates an increase in the catabolism of proteins in the body. Increased protein breakdown occurs both outside of muscle sources (proteins, T-lymphocytes) and muscle protein sources [5]. The noted tendency to increase the proportion of ammonia and amino acids in the total excreted nitrogen is a manifestation of signs of protein deficiency.

One of the most important biochemical indicators in the assessment of nutrient status is the state of excretion of creatinine, 98% of which is contained in skeletal muscle, mainly in the form of creatinine phosphate. To calculate muscle mass, the creatinine index (IR) is used. IR is the ratio of daily creatinine excretion (mg) to growth (cm). Normally, IR = 10.5. With a weak degree of protein-energy deficiency, IR = 9.5–8.4. In our case, the creatinine index was 9.1.

Thus, the data obtained indicate an inadequate provision of the body of fighters with food protein. The reason for this phenomenon lies, in our opinion, in the discrepancy between the energy costs associated with professional activities and the energy and nutritional value of regulated nutrition. To normalize the processes of protein metabolism and nutrient status, taking into account the results of this study, a diet was corrected based on the principles of adequate, balanced nutrition using biologically active food additives (BAA). .

Findings:

1. An increase in the creatinine quota in the total amount of nitrogen indicates an increase in the catabolism of proteins in the body of professional athletes.
2. Redistribution of the forms of excreted nitrogen in the urine, expressed in the form of a relative decrease in the content of urea and an increase in the creatinine quota in the total nitrogen of urine indicate an inadequate provision of the body of athletes with dietary protein.
3. The calculated creatinine index (9,1) indicates a weak degree of protein-energy deficiency in wrestlers.

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