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Macronutrients and their Role in a Healthy Diet for Pregnant Women

Samadova Nozima Negmat qizi
Karshi state university
nozima.9095@mail.ru

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Annotation: The article provides data on the demand of pregnant women living in the Kasbi district of the Kashkadarya region for proteins, fats and carbohydrates. According to the results, the supply of proteins, fats and carbohydrates of respondents 18-29 and 30-39 year olds living in this territory amounted to 77.2 g, 69.4 g, 315.2 g and 79.5 g, 82.1 g, 367.6 g, respectively.

Keywords: macronutrients, proteins, fats, carbohydrates, normal level, total power.

It is known that the main nutrients: proteins, fats and carbohydrates are crucial for the normal functioning of tissues and cells in the body. This condition is clearly manifested in the life of the fetus and pregnant woman during pregnancy. In particular, proteins actively participate in the growth and development of the fetus, development of the uterus, placenta and mammary glands, amniotic fluid and blood circulation of the above-mentioned organs. Generally, protein requirements do not change significantly during the 1st trimester. It increases at the end of the 2nd trimester and in the 3rd trimester, and it is 30 g per day on average [4; 5; 8; 9]. Studies conducted in this regard show that in most cases, up to 30% protein deficiency was observed in the daily diet of pregnant and non-pregnant women of fertile age [5; 6; 7].

How much food pregnant women eat in a day depends on such factors as their height, weight, age, reserves in the body, the work they do, climatic conditions and seasons. Depending on the woman's height, body mass, activity level, each pregnant woman consumes 60-90 g per day on average, protein, 50-70 g fat and 325-450 g carbohydrate consumption, and the total energy value of these nutrients is 2200-2700 kcal. Moreover, 15-30% of the total energy received with food should be accounted for by proteins, 25-30% by fats and 40-45% by carbohydrates [2; 3].

In the second half of the pregnancy, due to the increase in weight of the fetus and the functioning of the liver, kidneys, intestines and nervous system, their demand for the listed nutrients increases slightly. In particular, it is 80-110 g for proteins, 50-70 g for fats and 350-450 g for carbohydrates [3]. The total calorie content of these nutrients is 2300-2800 kcal. 60% of proteins in a pregnant woman's diet are animal proteins, and it is recommended to cover 30% of it from

meat and fish, 25% from milk and dairy products, and 5% from eggs [3; 8].

Purpose of work. To study the provision of macronutrients to pregnant women in rural conditions of the southern regions of the Republic of Uzbekistan (Kasbi district).

Material and methodology. Observations were conducted on 58 18-29-year-old and 41 30-39-year-old pregnant women living in Kasbi district of Kashkadarya region. Their actual diet was studied using a traditional questionnaire-survey method.

The obtained results and their analysis. During our observations, we studied the provision of macronutrients to pregnant women living in Kasbi district. Below we present the results obtained in pregnant women living in Kasbi district in the table:

Provision of essential nutrients to pregnant women

(Kasbi district)

Indicators	18-29 year olds (n=58)		30-39 year olds (n=41)	
	Norm	Result	Norm	Result
Total proteins, g	91	77,2±1,8*	89	79,5±0,88*
Of this,animal protein, g	54	34,2±1,4*	53	34,6±0,35*
General fats, g	79	69,4±2,1*	75	82,1±1,1*
Total carbohydrates	319	315,2±7,4	304	367,6±4,9*
Total calories, kcal	2320	2191,2±42,8	2320	2527,3±21,2*

***P<0.001 compared to normal**

As can be seen in the table, the amount of macronutrients in the daily food of 18-29-year-old respondents is less than the standard level. In particular, the amount of proteins in their daily food is equal to 77.2 ± 1.8 g on average, which is 84.8% of the norm. Their supply with animal proteins is equal to 63.3%. The average amount of fat in the daily food of pregnant women is 79 g. instead, it was noted that it was equal to 69.4±2.1 g on average. This indicator shows an average of 12.2% less than the norm. Also, the amount of total carbohydrates in their daily food is equal to 315.2 ± 7.4 g on average, which indicates that they are supplied by 98.8% compared to the norm.

The supply of proteins, especially animal proteins, of 30-39-year-old pregnant women under observation is less than the standard level. In particular, the average amount of protein in their daily food is 79.5±0.88 g, which is 10.7% less than the norm. Animal proteins are 53 g instead it is 34.6±0.35 g, which shows that it is 34.8% less than the norm. The supply of fats and carbohydrates of women in this age group is explained by an average increase of 9.0 and 20.9% from the standard level, respectively. Also, the energy value of daily food is 2527.3±21.2 kcal.

In understanding the obtained results, it should be taken into account that in the conditions of our Republic, especially in the conditions of our region, the proximity of carbohydrates from the main nutrients in the diet of women living in rural areas is mainly due to their abundant consumption of bread and flour products, the total energy and although the value is close to the standard level, it was noted that proteins, especially animal proteins, are much less than the standard. If such deficiency is not eliminated in time, defects may be observed in the normal continuation of the pregnancy process, or it may have a negative impact on the development of the fetus, low body mass of the child, and its physical and mental development.

As can be seen from the above-mentioned points, the percentage of daily food calories of the respondents in relation to proteins, fats and carbohydrates also differs from the normative indicators accordingly. In particular, the contribution of proteins and fats is low, and that of

carbohydrates is high. This situation is explained by the fact that pregnant women in rural areas eat a lot of bread and flour products (various pastries, gilmindi, manti, somsa, etc.), and pasta. At the same time, the quantitative ratio of protein, fat and carbohydrates is 1:0.9:3.5 (SanPiN #0347-17) [1] instead, the average is 1:1:4.6.

Such inconsistencies in the nutrition of pregnant women indicate the need for a wider promotion of nutrition culture in order to raise the modern level of rational nutrition and healthy lifestyle among them.

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