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FOREWORD

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PHYSIOLOGICAL NUTRITION NORMS IN THE LIGHT OF THE DECISIONS OF THE TWENTY-FIRST CONGRESS OF THE COMMUNIST PARTY OF THE SOVIET UNION*

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G. M. Makhkamov

The leaders of Soviet physiology I. M. Sechenov and I. P. Pavlov repeatedly stressed the significance of nutrition for the normal vital activity of the organism.

Extensive research, particularly that of Soviet scientists, has demonstrated that nutrition is one of the more important and active environmental factors that exert a variety of influences on the human organism, its growth and development, retention of work capacity and health, and longevity.

The Communist Party and the Soviet Government have devoted, and are continuing to devote, much attention to the problems involved in organizing nutrition of the people on a scientific basis. The program of the Russian Communist Party (b) adopted in 1919 at the eighth congress of the Party designated the organization of nutrition in accordance with scientific hygienic principles one of the major problems of public health. Accordingly, the Party and Government raised the question of working out scientifically sound norms for feeding the various groups of people. Special scientific institutions - nutrition institutes - were therefore set up and the conditions created for fruitful scientific research.

*Presented at a session of the scientific and theoretical conferences of workers in the theoretical departments of the Tashkent State Medical Institute in May 1959.

We learned from the extensive research of Soviet scientists (M. N. Shaternikov, V. I. Slovtsov, O. P. Molchanova, I. P. Razenkov, P. V. Palladin, V. V. Yefremov, S. Ya. Kaplanskiy, and others), who studied the problem in all its aspects, that proper diet is determined not only by its caloric value, but also by the content and proportions of such substances as proteins, fats, carbohydrates, vitamins, and mineral salts. Their work determined the organism's requirements for the various foods and the Institute of Nutrition, Academy of Medical Sciences USSR, formulated the so-called physiological nutrition norms for the different age and occupational groups of the population according to their physiological needs. Unlike those previously recommended by various authorities, the physiological norms were based on many years of research on animals and, above all, on people taking into account age, nature of work, and other things affecting the physiological condition of the organism.

The norms of Voight (?), Rubner, and other foreign scientists were derived from statistical data of nutritional studies of the population or of individual observations and thus did not meet the needs or take cognizance of the bodily characteristics of persons in the various age groups and occupations.

The norms adopted in the United States differ markedly from those recommended by Soviet scientists. The Committee on Food and Nutrition of the National Research Council recommended 2400 cal. for men and 2000 cal. for women doing light physical work, 3000 cal. for men and 2400 cal. for women doing moderately heavy work. The differences are just as substantial with respect to protein norms, especially for adults.

Soviet scientists believe that protein should average 100 g in a daily diet of 3000 cal. As the calorie volume grows, the protein norm is increased, reaching an average of 140 to 160 g a day in a diet of 4500 to 5000 cal. for persons in the fourth category of occupations.

The Americans recommend for adults regardless of occupation and, consequently, of calorie volume 1 g of protein per kg of body weight a day, i.e., 70 g of protein for men weighing 70 kg, 60 g for women whose average weight is taken at 56 kg. Even during pregnancy the protein content doesn't amount to 100 g. American norms for children are somewhat lower than ours. They are particularly low for adolescents.

According to Soviet researchers, the population can be broken down into several groups according to their food requirements. There are six age categories of children: from 6 months to 1 year, from 1 year to 3 years, from 3 to 7 years, from 7 to 11 years, from 11 to 15 years, and adolescents 15 to 18 years.

The adult population is divided into four groups according to calorie expenditures. Those in the first group should obtain 3000 cal; they include all engaged in intellectual activity (scientists, engineers, artists, writers, teachers, office workers, etc.). The second group, consisting of workers in mechanized industries (metal workers operating lathes, tools, and other mechanized equipment, chemical and textile workers, truck drivers, etc), should obtain 3500 cal. The third group - with an energy expenditure of 4000 cal. - consists of persons doing fairly heavy work (fitters, plumbers, farmers, miners, carpenters, joiners, plasterers, etc.). Members of the fourth group should obtain 4500 to 5000 calories - persons engaged in heavy physical labor (lumberjacks, construction workers, stevedores, etc.).

The child population is divided into five groups according to calorie requirements. Group 1 (1 to 3 years old) - 1315 cal. Group 2 (3-7 years old) - 1871 cal. Group 3 (7 to 11 years old) - 2291 cal. Group 4 (11 to 15 years old) - 2940 cal. Group 5 (15 to 18 years old) - 3340.

According to the physiological norms, the energy to be obtained from protein should amount to 14% of the daily calories, from fat - 30%, and from carbohydrate - 56%; the ratio between proteins, fats, and carbohydrates should be 1:1:4. When the ratio is changed, both the assimilability and utilization of the food by the organism is impaired. The vitamin needs of the organism change in exactly the same way.

Proteins of animal origin should constitute 50 to 70% of the total protein required by adults and 80% by children. The younger the child, the higher the percentage of animal protein.

In addition to these items, the daily diet should contain mineral salts: calcium - 1000 mg, phosphorus - 1500 mg, iron - 15 mg (both for adults and for children); vitamins: A-1-2 mg, B_1 - 1 mg, B_2 - 2 mg, PP - 15 mg, C - 100 mg (during pregnancy the vitamin requirement is increased).

At this time when our country following the historic decisions of the Twentieth and Twenty-first Congress of the Communist Party is on the way to create an abundant of goods the prospects for a successful solution of the problems involved in developing efficient nutrition are exceedingly promising.

The decisions of the Twenty-first Congress of the Communist Party on the seven-year plan for expanding the national economy of the USSR between 1959 and 1965 specify the measures to be taken for the swift growth of agriculture, particularly the production of food. The plan calls for a rise in agricultural productivity to completely satisfy the needs of the population for the major foodstuffs. The gross output of agriculture is to be raised about 1.7 times, including an increase of cereals to 10 to 11 billion poods, sugar beet to 76 to 84 million tons, meat (slaughter weight) at least to 16 million tons, milk to 100 to 105 million tons, potatoes to 147 million tons. On a per capita basis this will amount approximately to 2450 g of cereal, 200 g of meat, 1000 to 1100 g of milk, and 2000 g of potatoes a day.

The daily per capita requirement according to the physiological norms are: meat - 167 g, fish products and fish - 51 g, milk - 484 g, potatoes - 275 g, grain (converted into flour) - 350 - 400 g.

The real earnings of the workers will increase substantially during the next seven years. The national income in 1965 will be 62 to 65% higher than in 1958. It will lead to a 60 to 63% increase in national consumption.

Increased national consumption will result both from higher wages, pensions, and allowances and from lowered prices on general food products. This means that the income of office and manual workers will rise (calculated for a single worker) by 40%. The real income of collective farmers will be at least as high.

The seven-year plan provides for a substantial increase in the production of consumer goods. The economy of our country will make it possible to achieve more rapid rates of development of light industry and the food industry than in the preceding period while according highest priority to heavy industry.

The Soviet people have set out to fulfill the plan ahead of time. During the very first year the collective farmers, state farmers and workers in machine and tractor stations, and agricultural experts of our republic assumed the responsibility for obtaining substantially higher yields of meat, milk, potatoes, vegetables, fruits, etc. A considerable amount of food products is shipped into Uzbekistan from the other republics of the Soviet Union.

The recent decree of the Supreme Soviet of the Uzbek SSR "On Providing Cultural and Welfare Facilities for the People of the Uzbek SSR" specifies measures aimed at improving nutrition. The Ministry of Agriculture and executive committees of oblast and rayon Soviets of Workers' Deputies have been ordered to produce in 1960-1961 enough vegetables and potatoes to meet all the needs of the population for these products. The Ministry of Trade has been ordered to improve the distribution of vegetables, fruits, and milk products in the cities and to build between 1959 and 1965, 4500 stores and shops and 3000 public dining facilities.

Thus, it seems quite possible, even at this early date, to satisfy the people's needs for food products according to the physiological norms recommended by science.

Continuing efforts to establish differential nutritional norms for Uzbekistan conditions with due regard for native food habits and customs are particularly important in connection with implementation of the far-reaching plan for developing the national economy and organizing nutrition on scientific hygienic principles. This will require the formulation of differential norms for food consumption. A change in working and living conditions will make it necessary to review and refine certain standards in the field of nutrition. For example, the proposed school reform with the introduction of labor processes will cause an increase in the energy expenditure of the organism, thereby entailing changes in the nutritional norms for students of different ages. Refinement and supplementation of the norms and diets will inevitably affect the various children's facilities, especially since nurseries and kindergartens are going to be combined into single institutions. At the same time we must systematically study the existing diet, health, and physical development both of children and of adults in the republic.

Propaganda, introduction of the principles of effective nutrition into the daily way of life of the local population, and the use of correct methods of feeding children are important. We must intensify our efforts to popularize scientific knowledge in this field with the help of the press, radio, lectures, movies, and television.

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