



DEPENDENCE OF ANTHROPOMETRIC INDICATORS ON NUTRITION IN CHILDREN

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ABSTRACT

Control of anthropometric indicators is one of the traditional directions of age hygiene, formed in the last third of the XIX century. In this article highlights of dependence of anthropometric indicators on nutrition in children.

Anthropometry is the simplest, most economical and widespread method of obtaining information that allows you to judge the features of physical development and nutrition of a person or population. Comparing the specific values with the standards established for this age-sex group, the specialist can make a primary conclusion about the status of an individual or group, confirm or reject the assumption of the presence of certain deviations, decide on the need for in-depth research. Such significant discrepancies can only be due to the inconsistency of research methods. If representatives of different organizations and scientific schools use different approaches both in conducting surveys and in processing and interpreting the data obtained, the information obtained locally is unsuitable for generalization and subsequent statistical analysis.

In the proposed analytical review, we will focus on the problem of choosing methods for evaluating anthropometric indicators, paying special attention to two main approaches. On the one hand, it is the establishment of the boundaries of the norm(standards) based on data on the local (population) variability of the relevant characteristics, on the other- the definition of uniform (reference,reference) parameters suitable for use in most regions of the country or the world.

Disagreements in terminology, among other things, prevent reaching agreement. In this review, we adhere to the terms and their equivalents adopted by the World Health Organization (WHO). Accordingly, further reference values (in some cases less accurately defined as reference values) are understood as indicators of a specific group (population, sample), sufficient in volume and consisting of healthy and well-fed children. Standards are recommended parameters of growth and development, for which certain health outcomes and minimal risk of developing diseases have been empirically confirmed. The choice of anthropometric methods for assessing the physical development of children and adolescents is



influenced by a variety of factors. Without pretending to create an exhaustive list, let's briefly focus on some of them.

First of all, these are opportunities and limitations on the part of logistics. The instrumental equipment can vary significantly. For a minimum set, only an anthropometer or a height meter and weights are sufficient, but the set can be supplemented with a measuring tape, caliper compass, equipment for bioimpedance analysis, etc. However, the increase in the number of measurements and the expansion of the program affect the duration and cost of the study, increase the volume of data requiring processing and analysis.

The objectives of mass examinations are primary screening of deviations in physical development (individuals at risk are sent for in-depth medical research) and assessment of nutritional status and physical development at the population level. Based on this, we should strive to cover the largest number of children with minimal loss of effort and time, i.e. use a program that includes a minimum set of necessary but sufficient indicators. Taking into account these circumstances, WHO experts suggested using a set of indicators to assess the physical development and nutritional status of children and adolescents, among which the main ones are age, weight and body length (height), and additional ones are the thickness of the skin-fat folds and the circumference of the head and shoulder.

Anthropometric indicators recommended by the World Health Organization for assessing the physical development and nutritional status of children and adolescents. The volume and regularity of surveys, the variety of tools and techniques used, the formation and introduction into practice of accumulating databases largely depend on the economic factor. WHO experts emphasize that the assessment of economic efficiency is an important stage in the preparation of screening programs for mass surveys, both when completing logistics and when choosing statistically valid reference values for the population of a particular country or region. Planning shortcomings lead to the inadequacy of the forces and means allocated to solve the tasks set and often to formal, uninformative reports on the surveys conducted.

Summarizing, we can conclude that the orientation to local standards of anthropometric indicators of physical development has a number of disadvantages. The creation of such documents requires a large amount of preliminary research-collecting not only anthropometric, but also anamnestic data, as well as analyzing their connection with a complex of medical, physiological and social factors, which is necessary to establish the boundaries of variation of signs in children of the appropriate gender and age. Given that the standards should be based on the characteristics of healthy normally developing children, individuals who do not meet these requirements should be excluded from the "model" samples, which requires a very significant number of those surveyed at the stage of primary data collection.

In addition to forming significant samples of each age and gender, it is necessary to compare the characteristics of representatives of not only ethnic, but also social groups. In modern, differences in income, level and quality of life of parents, their awareness, desire and ability to provide their children with comfortable enough conditions for growth and development are becoming a factor

That can no longer be ignored, singling out only urban and rural populations, as was previously practiced. When identifying statistically significant differences, regulatory



materials should be developed for each of the different groups, even on a region. Accordingly, this will lead to the need to increase the number of published normative documents and methodological materials. Comparable labor costs will be required every 5-10 years to monitor the sensitivity of the evaluation tables and, if necessary, update them.

In general, it can be concluded that the criticism of the WHO uniform standards and reference indicators is based on the position of the statistical norm—the idea that the age norm should be calculated as a set of averages. The WHO approaches, on the contrary, are based on the views according to which the hygienic norm reflects the range of morphofunctional features within which the organism at a certain stage of ontogenesis is able to respond optimally to the influence of environmental factors. The standards proposed by WHO do not reflect how children develop, but are standards of how they should develop in favorable conditions, with adequate nutrition and care.

The adoption of these documents means that practical pediatricians and hygienists in the field should move on to assessing the nutritional status of children, focusing on the established and verified characteristics of healthy well-fed representatives of the corresponding age and sex groups, and not on statistically average values of the total population size of individual regions. Medical statistical services will be able to operate with unified data, which will facilitate monitoring of the physical development and nutritional status of the child population.

Traditional approaches for domestic hygiene to the compilation of local (local, regional) standards of anthropometric characteristics of children and adolescents in most cases are based on the use of average statistical values and indicators of variation of signs in this sample. This approach allows us to obtain information about changes in the characteristics of the child population of a

particular locality in a number of successive birth cohorts, but not about how healthy children should develop. In particular, the rapid spread of overweight and obesity in children with this approach leads to a right-sided shift in the average values of body weight, reflecting the statistical, but not the physiological and hygienic norm. This reduces the diagnostic value of the final documents.

The data on the assessment of the physical development and nutritional status of children obtained in different regions using non-matching (local) criteria are difficult to generalize when forming both a general picture on a national scale and when assessing the dynamics of indicators of the health status, nutrition and physical development of children of different birth cohorts due to the change of evaluation criteria over time.

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