

## FACTORS PROMOTING PHYSICAL EXERCISE

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### ABSTRACT

All physiological functions and processes in the human body are hereditary in origin - they are programmed in the set of genes - genotype in the hereditary system. The development of movement functions and the quality of each individual are also carried out in accordance with the genetic program and are carried out by a set of genes in a stable state. Genes control the qualitative and quantitative indicators - hair formation. Phenotypes characterize individual features of structures, metabolism and functions of cells, tissues, organs, some systems and the whole organism. Therefore, the motility, qualitative characteristics and quantitative signs of strength development, speed, endurance, and the formation of coordination of movements are based on genetics.

**Keywords:** Physical training, exercise, sport, adaptive changes, muscle, movement system.

Some signs of physical qualities are completely controlled by the genotype, the limit of individual phenotypic variability and the limit of manifestation of movement possibilities. Genotype is the set of genes passed from generation to generation. Movement functions are distinguished by their qualitative and quantitative signs of the process of natural muscle activity and ontogenetic and adaptive changes observed under the influence of sports training. The ontogenetic variability of the locomotor system is a fundamental, irreversible process of alternating morphofunctional programming of the cerebral cortex and subcortical structures, performing sensory controls and controlling the developing peripheral neuromuscular system. This process provides forms of movement activity, complexity, speech-movement functions, writing, many functions that ensure the age-related development of the psyche. The movement system is characterized by the reaction of the individual genotype as a response to the adaptation, variability, repeatable processes, physical loads or special factors of the external environment.

Adaptation and phenotypic variation of physical exercise in accordance with the conditions occur at different stages of ontogenesis, depending on the level of biological maturation and development of the individual, the reaction norm of the genotype also changes. Therefore, we can consider it as a quality factor that optimizes the body's adaptation to sports activities. It is necessary to accept the human genotype passed from generation to generation as a norm of reaction and to emphasize that it is a typical response in accordance with the conditions of life. Flexibility is one of the main neurodynamic processes. Their typological features, higher mental functions, the dominance of the cortex of the brain hemispheres in the organization of sensorimotor functions and the proportion of behavior and body, the structure of locomotor organs, the size of the muscle mass and the typology of its fibers - external environmental conditions. Although it varies in a wide spectrum, it is carried out through genetic mechanisms, like an individual phenotype. Therefore, the variability between individual symptoms is limited

to a few typological groups among typological populations of people. There are narrow reactions that differ from each other in the qualitative characteristics of the genotype of different people. Qualitative signs of physical exercise include speed parameters, frequency of generation of rhythmic discharges of the functional centers of the brain, motor units of spinal motor neurons (motoneurons), their excitability, muscle receptors, differentiated sensitivity, the power of muscle metabolism and the speed of the recovery reaction, and other physical Descriptions differ by a significant variability and a wide norm of the reaction of individuals. For this reason, it is quite common to see the boundaries and movement qualities between people in different populations according to the quantitative characteristics of movement capabilities, that is, controlled by polygenic mechanisms. In turn, due to the activity of gene complexes, signals are combined with hormones that transmit and implement genetic information in the properties and structures of peptides. During the growth and development of the organism, the hormones controlling metabolic activity in all organs and tissues coordinate gene activity in connection with the influence of internal and external environmental factors on the organism. Therefore, among the reasons that affect the level of expression and manifestation of traits, there are genotypic, ontogenetic and environmental factors that manifest themselves in the phenotype, many accelerating, adaptive abilities and endurance traits that accelerate the development of traits or inhibit the expression of genes. it is necessary to pay attention to the sum. If the genotypic environment in which the intimate polygenic processes take place cannot be influenced from outside, the ontological environment, the living conditions in the family, social and cultural influences, rational nutrition, the size, character and conscious importance of mental motor activity in accordance with the individual's tendency to work allows you to optimize the full value of its capabilities. Depending on the stages of individual development, it has been determined that the gene complexes operating in the cells of some organs and tissues are clearly sequenced. Each polygenic system that controls the formation of certain characters periodically accelerates, slows down or completely stops their protein synthesis activity. Each "breaking" moment of development is a new, much improved level of interdependence of structural elements, energy processes and functions of the neuromuscular organ, reorganization of the central system coordinating movement, physical compared to previous phases of ontogenesis. As the motor system increases in performance, other systems also increase in adaptability. In such short-term transitory stages, genetic mechanisms selectively limit and reduce the reaction of the organism to certain external stimuli, or preserve the most important ones for the psychomotor development of the individual, or increase the acceptance of the effects. During periods of more prolonged excitability, during which some gene complexes temporarily change their reaction norm, their activity becomes very "sensitive" to neurohormonal and metabolic modulators, the tendency of the organism to loads of certain physical directions.

The effectiveness of special preparations increases, the morphofunctional "traces" of specific hormonal and muscle adaptations are formed, the body achieves acceleration strength, resistance to loads, the ability to master more complex coordination, and the stability of specific stress factors of sports activities. Critical in the development of each physical quality and sensitivity cycles are repeated several times. But if these favorable periods of preparation are not used to accelerate the corresponding qualities, then each successive period of sensitivity

does not fill the missed opportunities for the improvement of movement, because it is not possible to increase the structure and metabolic reserves of physical qualities. The development of specific forms of muscle hypertrophy, changes in the ultrastructure of motoneurons, the expansion of the region of nerve centers and synaptic connections in neuromuscular organs, the acceleration of the synthesis of enzymes and muscle proteins are under genetic control and are accelerated by loads, the organism at each stage of ontogenesis is physically causes adaptation of the level of maturation. Exceeding the normal loads, which causes the growing organism to decrease its plastic and energy reserves, which can lead to the prolongation of biological maturation, the decrease in the organism's ability to adapt, its re-tension and injury, and the violation of the genetic program of individual development. Differences in the genetic characteristics of individuals at the same chronological age can be manifested by the onset of critical periods in development such as individual strength, accelerating, harmonizing qualities and endurance at different times depending on the individual pace of biological maturation.

### CONCLUSION

Therefore, in the planning and individualization of preparations, the tempo of biological maturation of the chrono-historical organism of the ontogeny, the manifestation of acceleration or retardation of development in relation to the calendar age, the level of heritability of movement abilities according to more clearly visible signs, the complete genetic program characteristics must be taken into account.

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