

**ANALYSIS AND EVALUATION OF PHYSICAL FITNESS AND DEVELOPMENT OF
PRESCHOOL AND SCHOOL-AGED CHILDREN**

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Various types of physical exercises affect the body differently and place specific demands on our motor abilities to manifest them at the required or possible level. Typically, we classify physical exercises based on their impact intensity as strength-demanding exercises, speed-manifesting exercises, and others. There are situations where we reluctantly accept why a particular movement must be performed exactly as demonstrated. This is due to several factors: physical load, mood, whether the stomach is empty or full, equipment, facilities, conditions, etc. If the physical load applied through exercise matches our body's readiness and does not cause difficulty in execution, we quickly feel its effect after the session.

One of the key factors is our psychological state. If we sense a poor mood before starting a workout, we must immediately pay attention to the load intensity and its total volume in the session. Excessive load negatively affects mood. Forcing, intimidating, or engaging when the mind is occupied with other stimuli yields no results.

We must not forget that running or other exercises on an empty stomach or immediately after a heavy meal can negatively impact our physical capabilities or other abilities.

If the body is not properly warmed up (warm-up) for performance, muscle pain occurs. A warm-up prepares the organs for work and comes in two types: **general** and **specific**. The general warm-up readies all body systems. The specific warm-up activates the muscles involved in the exact movement or exercise to be performed.

Another factor influencing our ability to demonstrate capabilities is the conditions created or selected for performing exercises. For example, an unsuitable running track, or an improperly chosen object for lifting (barbell, kettlebell, dumbbell, sandbag, etc.), or sports equipment can cause various negative consequences and discomfort.

Running exercises can cause pain in the forefoot or sole, potentially impairing the manifestation of motor abilities. Causes may include a hard surface (asphalt, gravel), extreme air temperature (hot or cold), etc.

Our initial knowledge of which physical qualities a given exercise develops also affects the manifestation of bodily motor capabilities.

Physical exercises influence the formation of the body's work capacity through the manifestation of physical abilities. During prolonged (mental or physical) work at a certain intensity, the body must demonstrate a corresponding level of performance. Achieving high work capacity is difficult without strengthening breathing, the cardiovascular system, blood circulation, and other

functional processes through physical exercises. Below, we describe the development of your physical abilities at different school-age stages.

Younger School Age (6–7 years)

This period (ages 6–7) involves the active development of physical abilities — strength, speed, agility, endurance, flexibility, and muscle elasticity — as well as the improvement of previously acquired motor skills. At this age, physical development is primarily influenced by loading large muscle groups in the legs, arms, and torso. Strength-demanding exercises require caution. Prolonged muscle tension under load should be avoided. Resistance-overcoming exercises are highly beneficial. At 6–7 years, throwing exercises are not very effective; avoid spending much time on them, as muscles are not yet ready for such loads. If used, throwing implements should not exceed 100–150 grams. In speed and speed-strength training, focus on movement frequency. Agility development is best achieved through exercises with large amplitude and quick reaction.

Endurance is developed by increasing duration, distance, repetitions, and using stretching exercises, including 5–7 minute jogging during long walks. Only flexibility naturally decreases with age — but 6–7 years is an exception. Table 5 presents approximate normative standards for physical fitness indicators at ages 6–7.

Table 5 Physical Fitness Indicators for Younger School-Age Children (6–7 years)

No. Indicator	Normative Standards	
	Boys	
1 Standing long jump (cm)	100	
2 Bench push-ups (elbows bent/straightened, reps)	10	
3 Swimming any style (no time limit, m)	50	
4 Brisk walking 5 km (min)	70	
5 1000 m run (min:sec)	5:20	
6 3 km cross-country (min)	35	
7 10 km cycling race (min)	60	
8 Tennis ball throw (m)	18	

Second Childhood Period (7–10 years)

The age of 7–10 is a critical period for forming and developing physical abilities — time should not be wasted. This is when the foundation of motor culture is laid. You successfully master new movements and enrich your knowledge of physical culture.

Due to changes in lifestyle from attending school, careful planning of strength and endurance loads on your still-developing motor apparatus (arms and legs) is required. During this period, your individual attitude toward physical exercises begins to change. Questions arise about why movements must be repeated exactly as shown by the teacher — your desire to understand the “motive” (reason) intensifies.

At younger school age, your motor range expands through mastering new movement techniques. The variety of your movement repertoire increases. Developing movement coordination becomes a primary task in training. By the end of the 7–10 age period, you will understand the level of your motor abilities, which sports they can be applied to, and what results can be achieved through physical training. Lack of full awareness of your body’s capabilities may lead to errors in independently choosing a sport or type of exercise for many years. At your age, only preparatory group training in swimming, gymnastics, acrobatics, etc., is permitted. Do not miss the optimal time to start.

A key feature of this period is the accelerated anatomical and physiological formation of organs and structures critical for motor activity. Although not yet fully mature, their intensive growth and strengthening continue at a high level.

Your enthusiasm for mastering movement techniques is so high that many motor skills form quickly even without special instructions or preparation. You master complex exercises more easily than adolescents or adults. By generalizing sensations in movements requiring rhythm, amplitude, or force, you grasp technical details — astonishing your coaches. This “phenomenon” is best utilized by teaching movements holistically (“as a whole”) rather than breaking them into parts. This is why, at 7–10 years, you face little difficulty in independently learning to ride a bicycle, roller skate, play ball games with rackets, or demonstrate and consolidate necessary skills.

During this age, movement biodynamics — especially coordination components — develop rapidly. Scientific research has proven that the 7–10 age period is when all physical qualities and coordination abilities forming the basis of human motor activity reach a high level of development [1]. Failure to establish the necessary physiological potential during this period disrupts the harmony of motor activity development.

According to your physical ability level at younger school age, the Physical Culture and Sports Training (PCST) program requires you to know:

1. Personal hygiene rules;
2. Performing morning gymnastics with adult assistance;
3. Basic knowledge of body hardening;
4. Creating and following a daily routine with adult help;
5. Mastering basic motor skills: proper posture, walking, running, jumping, throwing, climbing, swimming, catching and passing a ball, roller skating, skiing in winter, etc.;
6. Preparing to meet control norms for physical fitness and passing them based on Table 9 (see p. 116);
7. Knowing the rules of one simplified mobile or mini-sport game (mini-football, mini-volleyball, mini-handball, mini-basketball);
8. Interest in assessing your own physical fitness level;

9. Interest in sports events, participating in family discussions on physical culture and sports, leading athletes, and their achievements;
10. Knowing basic rules of independent training, simple methods of self-monitoring physical condition, and elementary knowledge of load selection;
11. Transitioning to independent morning gymnastics, physical culture breaks, and individual training;
12. Organizing sports or mobile games with peers;
13. Striving to acquire theoretical knowledge and practical skills in techniques, tactics, and methods of various sports exercises;
14. Preparing to meet norms in Table 6 and participating in competitions;
15. Training in teams with peers, getting used to independent practice under a coach or physical education teacher's guidance;
16. Strengthening constant interest in improving physical fitness and body hardening;
17. Knowing interesting facts about school, district (city), and national sports history; participating in meetings with physically accomplished individuals and learning examples of health achievements through physical culture and sports;
18. Staying informed about daily sports events — a leading tool in growing into a physically cultured individual.

Table 6 Control Indicators of Physical Abilities for Younger School-Age Children (7–10 years)

No. Indicator	Normative Standards	
	Boys	
1 2000 m run (min)	10	
2 1000 m run (min:sec)	–	
3 Walking 10 km (hours)	2	
4 60 m sprint (sec) / 5 km cross-country (min:sec) / 20 km cycling	10.8	
5 Floor push-ups (reps)	8	
6 Standing triple jump (m)	4.9	
7 Standing long jump (cm)	165	
8 Running long jump (m)	2.9	
9 Running high jump (cm)	90	
10 Tennis ball throw (m)	25	

Middle School Age

The formation and improvement of physical abilities in middle school-aged children coincide with the biological maturation of the body. Individuality in movements characteristic of adults is fully formed. Unlike the intensive development of speed and speed-strength, adolescence is marked by some disruption in movement coordination. The formation and stabilization of psyche and character are difficult processes, ending with the development of specific traits and taste.

Adolescence is a period when we particularly enjoy drawing attention to ourselves through physical exercises and demonstrating abilities. Systematic training and understanding its benefits should lead you to seriously engage in a chosen sport. If you haven't started by this age — it's not too early or too late. Begin immediately.

The foundation for manifesting physical abilities is created by the functional activity of the body. This activity peaks during the daytime. From morning, the adrenal glands (endocrine glands) release adrenaline and noradrenaline into the blood, increasing nervous system activity, accelerating heart function, improving muscle contraction efficiency, enhancing gastrointestinal function, raising body temperature and heart rate, maintaining optimal blood pressure, increasing maximum oxygen consumption — and by 15:00–17:00, functional state drops to a minimum. Note that only one pair of glands has such significant influence. Thus, we must study the role of our glands.

Research shows that adolescence is a period of maximum and intensive formation of all body organs and systems, including physical abilities. This is not only a period of biological maturation but also of social personality formation. Your thinking expands from concrete and logical to abstract. The second signaling system develops rapidly. New conditioned reflexes and skills emerge intensely. Excitation and inhibition processes alternate more dynamically. Due to inhibition in the cerebral hemispheres, self-control issues arise — inability to manage high emotional states. Managing stress or near-stress situations becomes very difficult. This leads to inappropriate manifestations of abilities (mental or physical).

Such sharp mood swings and instability cause conflicts with educators, coaches, peers, adults, and even parents. This is why an adolescent may be seen as a “good child” by some and a “bad child” by others — or elicit conflicting opinions simultaneously.

Considering the above is crucial when evaluating physical abilities or using them in motor activity. On the other hand, during adolescence, when aiming to improve sports or physical fitness — especially in competitions — you enjoy demonstrating high abilities to gain attention, receive praise, prove superiority, and dislike losing. In reality, your health is primarily important for yourself and society — it is the nation's wealth. Victory is not always on your side. Respecting the weak or physically inferior, showing kindness, avoiding humiliation, or using physical superiority to dominate — such negative concepts may arise in an adolescent's mind. Therefore, involving physically gifted and capable adolescents in PCST events on a voluntary basis, creating conditions for them to conduct mass health-promoting activities with younger schoolchildren, encouraging their initiatives, and using them as a leading tool in adolescent moral education is a pressing issue today.

Literature:

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