



INTERNATIONAL MEDICAL SCIENTIFIC JOURNAL

# **ART OF MEDICINE**

Founder and Publisher **Pascual Izquierdo-Egea / North American Academic Publishing Platforms**

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**ISBN: [978-0-578-26510-0](https://www.isbn-international.org/product/9780578265100)**

## **FEATURES OF ADAPTATION TO PHYSICAL LOADS OF THE CARDIORESPIRATORY SYSTEM IN CHILDREN PARTICIPATED IN SWIMMING**

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**Abstract:** The article considers the issue of functional changes in the respiratory and cardiovascular systems of the body of preschool children in the process of recreational swimming based on the use of breathing exercises in water. A comparative analysis of the functional indicators of the cardiorespiratory system of children participating in the experiment is presented. The functional tests used by us to study the parameters of the cardiorespiratory system of the systems made it possible to determine the functional reserve and the quality of the response to the load from the cardiovascular system and the indicators of the functional state of the respiratory system.

**Keywords:** urgent problems, preparatory period, cardiorespiratory system, functional reserve, respiratory system, physical loads.

Swimming works the heart and lungs. This trains the body to use oxygen more efficiently, which is generally reflected in declines in the resting heart rate and breathing rate. It uses the arms, the legs, and other muscle groups in between. This improves muscle strength and flexibility. Water supports and cushions the body, eliminating the kind of pounding associated with running. Because it's easy on the joints and muscles, swimming is often recommended for people with arthritis and other chronic conditions. The resistance of water also allows you to work out vigorously with little chance of injury.

Improving the efficiency of functional training of divers is currently one of the urgent problems in sports, which is extremely acute in modern diving, characterized by the intensification of training and competitive loads. Improving the effectiveness of functional training, mostly in the preparatory period, can be achieved in due to a more rational organization of training influences, taking into account the physiological patterns of development of adaptation to physical stress, the duration of its phases, a certain stage and sequence of mobilization of the body's physiological reserves and improvement of its functional properties.

There's also a relaxing, meditative side to swimming. It can come with letting your mind drift as, bathed by soothing water, you focus on your breathing and your movements. This stress-busting aspect could contribute to the cardiovascular benefits of swimming. In swimming, cardio-respiratory endurance and muscular endurance allow me to maintain a high level of intensity for a long period of time. Dynamic strength, speed and flexibility are also essential for me to develop effective stroke technique. Muscular endurance is the ability of a muscle group to continue to maintain the quality of its contractile strength for a certain period of time while working. In freestyle swimming, the same movements of the arms and legs are constantly repeated, so a high level of muscular endurance is required to avoid fatigue, which will lead to a deterioration in stroke. It is very important to maintain an efficient streamlined ride to reduce drag and allow me to move quickly through the water. It is important that my arms and legs can generate high power output while swimming in order for my performance to be effective.

The circulatory system, also known as the cardiovascular system is just one of the major organ systems that regulate our bodies. All of these systems have very specific functions yet, they can't function independently. Working in tandem, they rely on one another. The circulatory system includes the heart (cardiovascular); lungs (pulmonary); arteries, veins, coronary and portal vessels (systemic). Its main purpose is to move nutrients, oxygen and hormones to and from different cells and tissues throughout the body. Not only is it responsible for delivering the goods; the circulatory system also plays an important, secondary role in removing waste products from the body via the digestive and urinary systems.

Cardio-respiratory endurance is the ability of the cardio-respiratory system (heart & lungs) to supply the body with sufficient levels of oxygen when exercising. The stronger my heart is and the greater my lung capacity is, the better my cardio-respiratory endurance will be. This will make my heart and lungs more efficient at supplying oxygen to the muscles for a sustained period, reducing the effect of oxygen debt on my performance. The better my cardio-respiratory endurance, the longer I will be able to swim before oxygen debt has a noticeable impact on my performance. When oxygen debt affects my performance during distance swimming, I feel out of breath and this causes me to breathe more often, which disrupts the fluency of my stroke. I also find my breathing technique is poorer, as I lift my head right out the water rather than rotating it to the side, which causes disruption to the fluency of my stroke.

The cardiovascular system is a closed loop. It works congruously with the respiratory system. The respiratory system is responsible for exchanging carbon dioxide for oxygen within the blood. This cohesive relationship between the systems is known as pulmonary circulation. The heart pumps oxygen-depleted blood through the lungs in order to oxygenate it. When the blood reaches the lungs, the blood cells release carbon dioxide and absorb oxygen. Systemic circulation is responsible for

pumping the new oxygen-rich blood to cells and tissues throughout the body. Then back to the heart. Circulatory System Diseases

There are a number of diseases that can afflict the cardiovascular system. While some are congenital (such as a heart defect), many are deemed “lifestyle” diseases. Coined as such because they develop by unhealthy lifestyle habits over time. Otherwise preventable by way of a healthy diet and exercising.

A brief overview of the diseases that can affect the circulatory system:

Atherosclerosis is the buildup of plaque in the arteries. Acute Coronary Syndrome(s) is a blanket term that describes a range of conditions, the cause is a sudden reduction of blood flow to the heart. An example of this would be an aneurysm. Strokes can occur one of two ways; poor blood flow (lack of) to the brain or, hemorrhaging (bleeding), resulting in cell death. In both cases, cell death leads to improper brain functionality. Ischemic attacks are “mini” strokes resulting from a temporary disruption of blood supply to the brain. In 2018, a survey was conducted to determine how prevalent cardiovascular conditions in several select countries. Swimming for the Prevention of Circulatory System Diseases If you are concerned about your heart then regular swimming can help to guard against heart disease. According to swimming.org, being physically active can decrease the chances of a stroke by 31%. Just doing an hour of moderate physical activity each day can decrease the risk of cardiovascular disease by 20%. While all exercise that gets your heart beating and your blood pumping is good for your circulatory health, swimming is uniquely beneficial.

Power, flexibility and limb speed in my arms and legs all contribute to how fast I can swim. Power is important in as the greater force my muscles can exert on the water the faster I can swim. Limb speed is the ability to move an individual limb (arm or leg) quickly. In swimming limb speed in arms in legs will help generate more power in each pull or kick making you swim faster. Good range of movement in the shoulder joint will allow us to get a better reach forward on every stroke and therefore be able to pull back with greater force allowing us to swim faster. It will also increase the stroke rate and allow me to swim faster. Good range of movement in the hips will allow us to kick with more power and increase the speed of our kick.

Many skill-related aspects of fitness are vital for an effective performance in swimming. Coordination is vital when I am swimming front crawl to maintain a fluent stroke. I must coordinate the movement of my arms so that one arm begins the pull as the opposite arm finishes its pull. Similarly, the leg movement so that as the left leg is at its highest point in the water, the right leg is at its lowest. Coordination is also required so the arm and leg movement is continuous, without disruption. Balance is vital for keeping my body in the correct position in the water. Effective front crawl technique should see the body rotate 45 degrees to the left and right of a position horizontal to the water with each arm pull. Balance is required to avoid over-rotating which would disrupt fluency and timing of my stroke.

Agility is important during tumble turns at the end of each length. I need to move my body quickly into different positions, moving from a flat outstretched

swimming position, to a tight tuck to turn, then back to the swimming position after the turn.

A swimmer's heart pumps more blood with every beat, which lowers heart rate. The vigorous movements coupled with the water's resistance leads to increased levels of oxygen, and oxygen consumption. This means that more blood is pumped to your muscles with every beat. A greater blood supply with fewer heartbeats means more efficiency, and therefore a healthier circulatory system. This encourages blood vessels to remain flexible and elastic which is important for maintaining a normal blood pressure. If you have high blood pressure, swimming for half an hour a minimum of three times a week can significantly lower your blood pressure levels. In addition to that, swimming helps regulate cholesterol levels. More specifically, swimming can increase your levels of good cholesterol – high-density lipoprotein – and lower bad cholesterol – lipoprotein.

Recreational swimming lessons based on breathing exercises beneficially influenced the development of functional indicators of cardiorespiratory systems. Due to the use of a large number of breathing exercises in the experimental group, the rate of chest excursion at the final stage of the experiment was significantly higher than in the control group ( $p \leq 0.05$ ). The development of the intercostal muscles involved in the excursion of the chest is explained by the specifics of the chosen techniques associated with overcoming the forces of water pressure during respiratory movements swimmer. Statistically significant differences in the average values of the studied indicators swimmers-boys engaged in recreational swimming, indicate the fact that changes occurred not only due to the age development of the organism, but also were the result of purposeful training work. The pedagogical experiment made it possible to reliably assess changes in indicators of the functional state of the respiratory and cardiovascular systems of swimmers under the influence of loads according to the proposed method of recreational swimming based on breathing exercises in water and compare them with similar indicators boys old attending classes conducted according to the generally accepted curriculum. As a result, it turned out to determine the effectiveness of the use of breathing exercises in the water during health-improving swimming lessons and their role in the development of functional indicators of the cardiorespiratory system of preschool children and in their general recovery. Thus, in the process of directed use of systematic health-improving swimming classes based on breathing exercises in water create favorable opportunities for a complex effect on the body of preschool children. For the formation and strengthening of the health of preschoolers involved in classes in additional education centers, it is rational use training sessions in recreational swimming. The combination of exercises of varying intensity with breathing exercises in water, has a general strengthening effect on the function of the cardiorespiratory system, the body's adaptation to physical stress, and contributes to the normalization of the functional parameters of the respiratory and cardiovascular systems. Based on all these considerations, it can be confidently stated that recreational swimming should be among the main means of the physical fitness system.

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