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Influence of aerobic workout on decreasing military personnel's overweight and on enhancing their capacity for work

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Abstract: According to the research in sports medicine in recent years it is recommended that cardio workouts last for half hour and are repeated 4 or 5 times a week. It is known that regular exercise reduces the risk of cardiovascular disease. Cardio workouts have a significant impact on the risk of cardiovascular disease. Their benefits include improvement of blood pressure, reducing the risk of stroke and acute coronary syndrome, as well as the total mortality caused by cardiovascular diseases. Cardio workouts can definitely be classified as a benefit.

Key words: Health, breathing, oxygen, muscles, cardio training, physical ability.

Influence of aerobic exercise on performance and health of military personnel.

Many scholars are of the opinion that the civilized world suffers from three major diseases: mental stress, sedentary lifestyle and unbalanced diet. The rest of the diseases are only consequences of the abovementioned ones.

Physical activity is one of the elements that regulate the body functions of military personnel and people in general, and increases their adaptation capacities. Studies of research institutes have proved that one of the most powerful factors to deal with the problems is increasing the physical exercise and sport in the lives of people as essential components of the modern model for a healthy lifestyle in the broadest sense. Physical training is an indispensable component in any human activity and is one of the constructive factors that determine the optimal realization of every member of society.

The physiological basis of the overall human endurance is the aerobic capabilities. In their developing three issues are solved:

- Developing the maximum level of oxygen consumption;
- Developing the ability to maintain that level for a long time;
- Increasing the speed of deployment of respiratory processes to maximum values.

The means for developing respiratory capabilities include exercises that allow reaching the maximum values of performance of the cardiovascular and respiratory system and maintaining a high level of consumption of oxygen for a long time. Especially beneficial for developing respiratory capabilities are skiing, swimming, rowing, cross country skiing, and sports games. When possible, classes should be held in places rich in oxygen (forests, rivers, etc.). The running speed while developing aerobic capabilities (overall endurance) must be approximately 1000 m in 6-7 min [1].

In developing aerobic capabilities, what is widely used is the steady method, which is particularly effective in the initial stage of the training. This is explained by the fact that synchronization in the operation of the systems providing oxygen consumption increases directly in the process of the work itself. These improvements are carried out more efficiently if the training exercises influence of the body continuously.

It is particularly important that the functional "ceilings" of some organs and systems (which are signaled by the pain in the liver and the spleen) is most effectively increased during less intensive but continuous operation. Aerobic exercise provides the body with more oxygen, as a result of which it begins to burn fat more effectively. Any physical exercise that accelerates heart rate and breathing to the extent where it is possible to sustain the load for more than one minute is called aerobic. Anaerobic exercise is a highly intense exercise without any significant quantity of oxygen to reach the muscles (weightlifting, sprinting). Dancing, swimming, water aerobics, cycling and walking are great examples of aerobic exercise. However, these activities may become anaerobic if performed too intensively. If you cycle at 10-15 kph, the intensity is low, therefore the exercise is aerobic and vice versa, if you ride at 40-45 kph, the exercise becomes is anaerobic. Hence, the intensity of the exercise determines whether it is aerobic or anaerobic. The effects of aerobic exercise include the following: enhances the consumption of oxygen consumption in the body; increasing the living endurance; the total and reserve lung volume; increase and improvement of blood circulation. During these operations activities, the flow of blood circulating in the body increases, thus providing more oxygen necessary for the processes occurring in cells and tissues. [2,4]

There will always be supporters of the both types of cardio training. When choosing the right training we can try both ways or combine long monotonous cardio with intensive short cardio workouts. Some people just want to improve their health and resilience, others aim at reducing weight, while others try to achieve the shape necessary for participation in competitions.

Prolonged monotonous cardio training is, for instance, running or riding a stationary bike at the same rate or rotation of the exercise bicycle with the same rate for the same defined period of time. The short interval is cardio training is the workout where the high and low maximum loads alternate. For example, alternating sprints with walking or sprinting and cross-country runs. Which is a more effective method for burning fat - monotonous cardio where the heart rate is within the "optimal fat burning" range, or interval training, which alternates anaerobic and aerobic activities? There is the idea that the longer the cardio workout, the more fat you burn, so cardio training should be continuous [3].

There has been much debate on what the duration of a cardio workout should be. Depending on the preferences and the reason, it may vary within wide limits. It must correspond both to the purpose of the training as well as with the experience of the individual. It is believed that a cardio workout 40 to 50 minutes is a good option. Fat burning starts, during the first 20-30 minutes the energy comes from carbohydrates - glucose, glycogen in the muscles and liver. Hence, the training should be longer than 30 minutes, since the fat has not been used as fuel. It is better not to eat anything before cardio, because this workout uses body fat as fuel, and the presence of carbohydrates into the bloodstream prevents fat burning to the highest possible degree. If there are many carbohydrates left from the last meal, fat burning is reduced and vice versa, when carbohydrate levels are low, fat burning increases. That is why cardio in the morning on an empty stomach is so effective. After a night's sleep the level of carbohydrates in the blood is low, and the fat burning rate is much higher. On the other hand, a workout lasting for an hour or an hour and a half, or more, is counterproductive, especially if the body is not provided with enough protein, liquids and calories. A cardio for an hour, or two, or more will not only cause burning unwanted fat, but may also lead to the loss of muscle mass and will slow down the metabolism This will make fat loss a more difficult task in future [2,3,5].

Experts believe that aerobic exercise is the best way to control body weight. Of course, one can lose weight without exercise, but regular workouts help to keep the weight low. The benefits of cardio are known, and therefore will only enumerate them:

- Reduces the percentage of subcutaneous fat and helps weight loss;
- Improves the functioning of the heart and of the cardiovascular system;
- Enhances blood circulation, which leads to better muscle functioning, and increased blood flow in the muscles speeds the disposal of toxins;
- Reduces stress and the risk of diabetes;
- Increases stamina, physical stress and endurance, and the condition of the body;;
- Boosts metabolism;
- Stimulates the functioning of the lungs and increases its capacity, improves breathing while at rest;
- Decreases blood pressure and affects normalization of cholesterol levels.

A regular exercise program, keep your body healthy. Many studies have shown that the performance of the physical activity reduces the risk of cardiovascular disease. A body that is trained daily resists better than an untrained one when challenged with a disease. The benefits of regular aerobic exercise on the health of the body really are many, and we will mention some of them:

Studies of colon cancer have shown that for men and women who maintain high physical activity the risk of disease is 30% - 40% lower than for people with sedentary lifestyle. Physically active women are subjected to 20-30% lower risk of breast cancer, as compared with women who do not take the time to exercise. As with colon cancer, a 30 to 60-minute workout a day is recommended. In cases of lung cancer, results indicate that people who exercise regularly are exposed to a smaller risk of lung cancer. Smokers and people who are lead a sedentary lives face a higher risk of developing the disease [1,5] . Osteoporosis is a disease characterized by low bone density, which increasing the risk of breaking of the bones. Physical activity is a good strategy for prophylactics against the development of osteoporosis. Aerobic exercise strengthens the musculoskeletal system and reduce the loss of bone mass. This applies to both adults and children. Physically active children have higher bone density than those who do not exercise and this protects them from fractures also later life. [2]

The study of the prevention of diabetes of the "American Institute for diabetes, digestive and kidney diseases", conducted for a period of three years with over 3,000 participants, shows that people who have reduced their weight by 5 to 7 kilograms through diet and moderate exercise (30 minutes walking, five times a week) reduce the risk of developing type 2 diabetes by 58%.

Aerobic exercise can also improve insulin resistance. There are a number of medical evidence of the positive impact of aerobic exercise on insulin sensitivity. In a study carried out for a period of 16 weeks with 28 overweight menopausal women suffering from type 2 diabetes, the results show a 20% improvement of insulin resistance with all women doing a 45-60 minute aerobic workout 3 times per week.

One reason for cardiovascular disease is the sedentary lifestyle. People who do not exercise are often obese, which is a major cause of diseases such as hypertension, coronary heart disease, heart failure and others. Regular exercise reduces the risk of cardiovascular disease by reducing body fat and lowering blood pressure.

In recent years, interesting material for the study for specialists have become the effect of aerobic exercise on the cognitive function. Although the human brain cells are difficult to study, it has been proven that the risk of the early development of dementia and Alzheimer's disease is significantly lower for people who train 3 or more times per week, rather than for people who do not take the time for regular physical exercise.

A number of studies demonstrate the positive effects of aerobic exercise on depression. People who exercise regularly know that exercise can improve mood and raise self-esteem.

The inclusion of sport in everyday life leads to the emergence of adaptive effects shown as:

- muscles increase their efficiency through more economical use of energy resources;
- fatigue appears later;
- improves the rate of energy recovering after the workout;
- improves bone density and hardness;
- reduces the risk of degenerative disease, such as arthritis;
- better oxygenation of the whole body and avoidance of cardiovascular diseases;
- efficient fat burning and reduction of cholesterol levels;
- activation and maintenance of good health and shape by endorphin release;
- maintaining healthy mental and psychic status and reducing the symptoms of anxiety and depression;
- better oxygenation of the brain and increase of concentration;
- increase the likelihood of longer and better-quality life;
- reduction of the risk of diabetes and reduction of body weight;
- increase of testosterone levels and the libido;
- significant improvement of the quality of sexual life.

Cardio workouts, with their numerous benefits, are suitable for both healthy people and for people belonging to many "risk" groups. It is important to properly assess the individual, especially if he has special needs or conditions, as some types of exercise are contraindicated for certain patient groups or are difficult for beginners in the particular sport.

The following conclusions can be drawn on the basis of the above analysis:

1. Physical activity is one of the methods for regulating body functions of military personnel and for increasing their adaptation capabilities.
2. Studies of scientific institutes have proved that one of the most powerful factors to dealing with various problems is the introducing extensive physical exercise in the lives of people.
3. Aerobic exercises are the best way to control weight.

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