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HEART RATE VARIABILITY AND MYOCARDIAL HEART CONDITION IN OBESE MILITARY PERSONNEL

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Abstract

Heart rate variability (HRV) is a simple, non-invasive, real-time analyzable, and highly reproducible measurement that captures incidences for assessing a person's health and physical condition. Public security jobs are characterized by major exposure to risk factors known to influence the cardiovascular response to stimuli, e.g., night shifts, highly physically demanding activity, and acute stress activity. This study aimed to evaluate the HRV parameters in a population of 112 male personnel of the special forces and public order of the Carabinieri, aged 25–59, when engaged in several duty tasks, such as paratroopers, night shift police station officers, night shift patrol, dynamic precision shooting evaluative team, dynamic precision shooting non-evaluative team, and office clerks (used as control group). During the specific task of each participant, the HRV parameters were collected with wearable devices and processed.

Keywords: occupational medicine; public health and safety; special forces personnel; heart rate variability (HRV);

Myocardial status in military personnel with obesity

Obesity adversely affects the condition of the myocardium (heart muscle) of military personnel. Let's look at some key points about the mechanisms and effects of this condition.

1. Structural changes of the myocardium

Hypertrophy: Obesity can cause the heart muscle to stick (hypertrophy). This complicates the stimulation and operation of the heart.

Vasodilatation: Excess weight reduces the efficiency of the heart, which leads to changes in conduction.

2. Functional state of the myocardium

Systolic and diastolic function: Obesity reduces the systolic (blood transport) and diastolic (blood intake) functions of the heart. This, in turn, increases the risk of heart failure.

Coronary diseases: Obesity accelerates the development of coronary artery diseases, which worsens the work of the myocardium.

3. Metabolic syndrome

Insulin resistance: Obesity leads to insulin resistance, which puts the myocardium under high stress. Insulin resistance disrupts the metabolic state of the myocardium.

Negative effects of the condition: Your minister reduces the functioning of the organs, which has a negative effect on the general health.

4. Clinical signs

Blood pressure: The risk of hypertension (heart pressure) in military personnel who are obese is often associated with heart problems.

Arrhythmia: Weight gain can cause symptoms of arrhythmia, especially tachycardia (fast heart rate).

5. Prevention and treatment

Physical activity: Regular exercise is important for improving myocardial health.

Healthy diet: A healthy diet can help reduce obesity and improve myocardial health.

Medical control: Regular medical examinations are important to monitor heart function, prevent and implement necessary treatment methods.

Obesity adversely affects health and performance among military personnel. Heart rate variability (HRV) is a measure of how the heart adapts to movement, stress, physical activity, and other factors.

1. Heart rate (HR)

Normal heart rate is 60-100 beats/minute. UUT variability is high, which indicates the balance between the automatic and parasympathetic nervous systems of the heart.

Obesity: Patients with obesity often have a low UT because the sympathetic nervous system may be increased and the parasympathetic system may be decreased. This, in turn, reduces the efficiency of the heart.

2. Effects of obesity on CVD and heart health

Pathogenesis: Obesity leads to cardiac excitability, tension and hypertrophy. In this case, the heart muscle may weaken and myocardial functions may decrease.

Clinical studies: Studies have shown that obese patients with low heart rate variability may have an increased risk of heart disease and decreased appetite.

3. Variability and myocardial function

Functional status: low UUT may indicate deterioration of the functional status of the myocardium. Systematically low UUT may be associated with high levels of physical inactivity.

Systematic control: It is important to regularly check the heart functions in military personnel, to monitor the heart condition with modern monitoring methods.

4. Prevention and treatment

Physical activity: Regular exercise is important for improving heart health and increasing CVD. Individualized fitness programs should be offered for your child.

A healthy diet: A healthy diet is therefore important for reducing obesity and improving heart health.

Medical control: Regular medical examinations and monitoring of cardiac functions are essential for successful prevention.

Summary

Studying the relationship between heart rate variability and myocardial status in obese military personnel is important to improve their health and prevent heart disease. Further study and research on the subject is necessary to develop effective treatments. Myocardial condition may worsen in most cases in military personnel who are obese. This condition can be effectively prevented and treated through physical activity and a healthy diet. In addition, medical supervision and the development of individual treatment methods are important for successful prevention.

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