- hormones. One of these hormones is growth hormone (GH). GH and insulin are directly related and act as antagonists. A high level of GH (fat burning occurs) corresponds to a low level of insulin, and vice versa.
- 6) Don't forget about hydration. However, it's also not advisable to drink excessively because excessive drinking can wash out many micronutrients, including sodium. When there is a sodium deficiency, a condition called hyponatremia (brain edema) can occur. The most reliable indicator is thirst.

By incorporating these rules into my lifestyle, I avoid any problems with obesity. I also understand and recommend to you to include exercise as a mandatory program in your life! There is a concept called myogenesis. Scientists have discovered that during physical exertion, muscles can produce up to 150 hormone-like substances! Physical activity also stimulates the release of fat-burning hormones. Without physical exercise, the body ceases to function as an organism. Vital processes enter a "Sleep mode." No movement means no life!

I sincerely wish that you understand the simplicity of this approach! Don't complicate your life with laziness. Don't let yourself be deceived by your own.

## UDC 616.747-001-085.82

## PHYSICAL EXERCISES TAILORED TO DIFFERENT TYPES OF OBESITY

 I. A. Eltsov, Director of the Rehabilitation Department at the fitness club "Sibearian Fit"

In this article, I want to talk about the right approach to physical exercise. Why does the fitness industry concern me so much? I am an advocate of a holistic approach. When it comes to a Healthy Lifestyle (HL), all mechanisms should be involved: nutrition, sleep, physical activity. A person in this case should not only "go to the gym" but also be healthy in the literal sense of the word! Leading a HL goes beyond the confines of the training hall!

Since the fitness industry is considered a very trendy direction in recent years, people are not willing to change their lifestyles. They only prioritize fitness workouts, neglecting other aspects. Due to lack of knowledge about the training process, they undermine their health, which might not have been at a high level to begin with. Consequently, the desire to be a healthy individual quickly fades away.

Now, I want to talk about types of obesity. At first glance, it may seem that if there is excess body fat, one should simply engage in physical exercise and adjust their diet. But it's not that simple.

I want to draw your attention to the types of obesity, why they occur, and what kind of physical activity they should adhere to:

1) Hepatic obesity. The liver is a filter that processes various toxins, drugs, medications, dead cells, and microorganisms. It is also part of the digestive system, breaking down fats and carbohydrates and even converting protein into sugar. Due to liver damage, the abdomen becomes significantly distended, like a ball. Take note of how many people have this condition. Fluid often accumulates in the abdominal cavity, known as ascites.

Individuals with a hepatic body type should engage in high-intensity anaerobic exercises with long breaks between sets. This stimulates the production of fatburning hormones. The effect of such workouts is delayed, and fat burning occurs 18-48 hours after the training session. However, this is under the condition that proper nutrition rules are followed, and glucose intake is limited; otherwise, the weight loss efforts will be nullified.

2) Adrenal obesity. The adrenal glands are paired organs whose main function is to counteract stress. They respond to stress, whether mental or physical, by releasing specific hormones. Divorce, trauma, excessive physical exertion, the death of a loved one, unhealthy eating habits, prolonged sitting at a computer, and more. The adrenal glands also perform other functions, such as pain and edema reduction, regulation of mineral balance (maintaining the water-salt balance), sleep-wake cycles, and maintaining heart rate frequency.

Adrenal obesity is caused by an excess of hormones produced by the adrenal glands. It is worth noting that the body always strives to maintain homeostasis, and hormonal imbalances may not be evident in standard tests. Fat accumulation in this type occurs in the lower part of the neck and upper back. It is often referred to as a "buffalo hump." Sagging and loose abdomen in the waist area, along with thin limbs, are also common. Interestingly, cortisol (which one would think is a fat-burning hormone) breaks down muscle protein and converts it into sugar for survival. Cortisol has a detrimental effect on proteins and bone tissue, which can lead to osteoporosis. Therefore, individuals with this body type cannot lose weight effectively on a high-protein diet. They should engage in low-intensity aerobic exercises with a low heart rate, keeping it below 130 beats per minute. High-intensity workouts, in this case, would only add to the stress and worsen the situation.

Excess hormone production leads to adrenal obesity. It's important to remember that the body always strives to maintain homeostasis, and hormonal imbalances may not be evident in standard tests. Fat accumulation in this type occurs in the lower part of the neck and upper back, often referred to as a "buffalo hump." Sagging and loose abdomen in the waist area, along with thin limbs, are also common. Interestingly, cortisol (which one would think is a fat-burning hormone) breaks down muscle protein and converts it into sugar for survival. Cortisol has a detrimental effect on proteins and bone tissue, which can lead to osteoporosis. Therefore, individuals with this body type cannot effectively lose weight on a high-protein diet. They should engage in low-intensity aerobic exercises with a low heart rate, keeping it below 130 beats per minute. High-intensity workouts, in this case, would only add to the stress and worsen the situation.

- 3) Thyroid obesity. The thyroid gland produces several hormones (T3, T4, TSH), which are responsible for regulating metabolism. When metabolism slows down, there is a craving for fast carbohydrates. Fat deposits due to a sluggish thyroid gland are distributed throughout the body. A few important points:
- If a person has a truly sluggish thyroid gland, their body may have not only fat deposits but also a lot of fluid in the form of mucus.
- Many people think they have attention deficit syndrome, but it's actually a sluggish thyroid gland.
- 4) Ovarian obesity. The ovaries produce three hormones responsible for controlling the menstrual cycle. One of these hormones is estrogen, which creates fat around the ovaries, lower abdomen, buttocks, and upper thighs. When there is an excess of estrogen due to ovarian dysfunction, fat accumulation occurs. Women with ovarian issues often complain of painful menstruation, lower back pain, and sometimes pain radiating to the knee joint. High estrogen production leads to obesity. Insufficient production stimulates the brain, which in turn sends signals to the ovaries to produce more estrogen. In this situation, cysts may develop in the ovaries.

In conjunction with the ovaries, the thyroid gland works (the thyroid gland also depends on the liver's condition, and often thyroid problems are secondary). Another important point is that during menopause, the ovaries stop producing hormones, and their function is taken over by the adrenal glands. They produce hormones similar to those produced by the ovaries but not in the same quantities. If the adrenal glands are sluggish and unable to cope with the load, women may experience problems such as weight gain, sweating, hot flashes, and vaginal dryness.

Training for this type should include both aerobic and anaerobic exercises. For example, high-intensity strength training for about 30 minutes every day, on average, and adding low-intensity aerobic exercises every day or every other day. This combination will yield good results in weight loss.

By paying attention to these types, you can intelligently design your workout program. It's important to closely monitor the processes in your body and find an individual approach for yourself. All of this requires patience. If you don't identify the type of obesity or which gland may be functioning incorrectly, you may struggle without making progress. It's also important to learn the proper technique in exercises. Determination and patience will help. Wishing everyone good health!

## **References:**

- "Healthy Keto" by Dr. Eric Berg
- "Muscles: Anatomy, Movements, Testing" by K.-P. Valerius A. Frank
- B.K. Konster, K. Hamilton, E.A. Lafont, R. Kroitser
- "Anatomy with the Basics of Sports Morphology" (Educational manual) by P