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"North Ossetian State Medical Academy"
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**DEPARTMENT OF GENERAL HYGIENE
AND PHYSICAL CULTURE**

The wellness motor system of N.M. Amosov

Methodological recommendations
on the organization of independent work and study of the
disciplines "Physical culture and sports" and "Elective course in
physical culture and sports" of the main professional educational
program of higher education – specialty program in the specialty
31.05.03 Dentistry (partially implemented in English)

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Health is the most valuable human resource, which should not only be protected, but also tried to strengthen, maintaining optimal performance of the cardiovascular and other body systems. For this purpose, Amosovs gymnastics, developed at one time by the legendary surgeon from Ukraine, is ideal. "1000 movements" – this is the name given to this unique set of exercises, very simple in their own structure, which are considered in the guidelines.

Methodical recommendations are intended for conducting methodological lessons in physical culture with students of a special medical group studying in the specialty "General Medicine", "Dentistry", "Pediatrics", "Medical and Preventive Business", "Pharmacy". Compiled in accordance with the curriculum. The materials presented in the recommendations meet the requirements of the educational standard for medical students.

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PURPOSE OF THE LESSON: master the theoretical foundations of wellness the motor system of N.M. Amosov and learn how to perform the main complex of joint gymnastics.

A STUDENT SHOULD KNOW:

- a short biography of N.M. Amosov and his theory of interaction physical exercise on the human body;
- the system "1000 movements" N.M. Amosov;
- three states of joints according to Amosovs theory.

A STUDENT SHOULD BE ABLE TO:

- apply introductory gymnastics exercises in practice;
- Papply a set of physical culture pause exercises in practice;
- apply a set of physical exercises in practice.

QUESTIONS TO BE SURRENDED:

- short biography of N.M. Amosov and his theory of the effects of physical exercise on the human body;
- system "1000 movements" N.M. Amosova;
- three states of joints according to the theory of N.M. Amosova;
- joint gymnastics, rules of conduct and implementation;
- determining the intensity of exercise for the joints;
- the main complex of joint gymnastics.

RECOMMENDED LITERATURE

1. Amosov N.M. Encyclopedia for overcoming old age. – M.: AST, 2008.
2. Amosov N.M. Encyclopedia of Amosov. Thinking about health. – M.: AST, 2005.
3. Amosov N.M. Encyclopedia of Amosov. Thinking about health. – M.: AST, 2004.
4. Amosov N.M. Encyclopedia of Amosov. Health algorithm. Human and society. – M.: AST, 2003.

1. Brief biography of N.M. Amosova and his theory of the effects of physical exercise on the human body

Nikolay Mikhailovich Amosov – Academician of the Academy of Sciences of the Ukrainian SSR, Corresponding Member of the USSR Academy of Medical Sciences, Lenin Prize Laureate, Hero of Socialist Labor N.M. Amosov is known as a brilliant surgeon, a broad– minded physician.

Even in the pre– war years, almost simultaneously, N.M. Amosov graduated from the medical and polytechnic institutes, he thinks like an encyclopedic scientist, striving to put medicine on a par with the exact sciences and health programs. Evidence of an outstanding literary talent is the story of N. M. Amosov "Thoughts and Heart", the fantastic novel "Notes from the Future" and, finally, the publicistic book "Thoughts on Health". All his life N.M. Amosov relied on his own experience, as a true scientist, questioned any statement. Only after checking this or that situation experimentally, often on his own organism, Nikolai Mikhailovich could say with confidence: "Yes, that is so." "My health system" is a generalization of my thoughts, doubts, disappointments and beliefs and a story about how how to stay healthy in our difficult times. "If there is no strength of character, there is nothing," said Nikolai Amosov and proved this postulate for 87 years. He joked that he excelled in the field of health specialist even more than in surgery.

The whole Soviet Union had heard about Amosov's physical education, but in his younger years Nikolai Mikhailovich did not specifically do exercises. His set of exercises appeared for a very prosaic reason: in 1952 the surgeon "grabbed" the spine so that he could not operate ... Over time, the famous doctor came up with his own experiment to overcome old age: he decided that you can fight with age by a strong increase in loads ... Nikolai Mikhailovich developed gymnastics: 10 exercises, each with 100 movements. When a dog appeared in the house, morning jogging was added to gymnastics. He supplemented the system of movements with restrictions on food: he kept a weight of 54 kg. This was the "mode of constraints and loads" that became widely known. The success was obvious, but over time, the state of health somewhat shaken Amosov's plans. As he says: "I ran away from a heart attack, but I did not run away from numerous heart diseases".

In 1986, Nikolai Mikhailovich received a stimulator, and in 1998, an artificial valve, and two shunts were placed. Amosov endured the operations well and ... started doing gymnastics again. Within three months, he gradually tripled the load. Its charge is 2500– 3000 movements, half of which are with 5 kg weights. Amosov studied several times a day. The famous surgeon ran, of course, not 5 km, as at the beginning of the experiment, but about a kilometer and a half. "I run, but aging, unfortunately, cannot be stopped. As one of the greats said:" Aging is bad, but this is the only way to live longer, "says Nikolai Amosov, whose optimism you

involuntarily envy ... Nikolai Mikhailovich died December 12, 2002 at the age of 89.

Until the end of his life, Academician Amosov followed a daily routine that would have strained a 25– year– old guy, not to mention a horse. At seventy– and– a– half, he did two open– heart surgeries a day, working an average of 11 hours a day. At the same time, two operating teams were replaced, the members of which were from a quarter to half the age of Nikolai Mikhailovich. In his spare time, Amosov headed the Kiev Institute of Cardiovascular Surgery of the Ukrainian Academy of Medical Sciences and the famous Department of Biocybernetics of the Institute of Cybernetics of the Ukrainian Academy of Sciences, and strictly followed his mode of life.

Academician Amosov was not always a human machine. He began to develop his system as a retired colonel of the medical service, having retired in the late 50s and having a war behind him. Ahead loomed a tummy and a full set of diseases. The turning point was the day when Amosov formulated and began to put into practice his now widely known theory of ultimate loads. One of the cornerstones of his theory is the belief that the human body has a great capacity for self– healing. The key is utilization (heavy use) of the organism.

2. Wellness system "Thousand Movements" N.M. Amosova

N.M. Amosov believes that sufficient physical activity is necessary for health. The training effect of any exercise, of any function is directly proportional to the duration and severity of the exercise, i.e. physical activity should be significant. Health cannot be acquired by doing just 10 to 15 physical exercises. Therefore, they were offered a health system called "Thousand movements". The program consists of 10– 15 simple exercises that are performed 80– 100 times. At the same time, physical exercises should be varied, and are aimed primarily at the development of the cardiovascular system and the development of muscles and joints. The greatest preference for N.M. Amosov devotes to such home exercises as gymnastics, walking and running on the spot. The training effect of walking and running is determined by an increase in heart rate. N.M. Amosov recommends that the pulse rate while walking should increase at least up to 100 beats per minute, and preferably up to 120– 130 beats per minute. Running is the king of training. When running, the pulse should increase to values of 120– 150 beats / min. Active people N.M. Amosov advises to gradually increase physical activity. For example, perform at least 1500 movements, and it is desirable to perform 500 of them with dumbbells, as well as an hour of brisk walking.

3. Three states of joints according to the theory of N.M. Amosova

There are three states of the joints. The first is when he is in perfect order and gymnastics is needed for pure prevention. This is usually the case with young people. Joint movements are complete. For example, a person can pull his knees to his stomach, press his heels to his buttocks, bend his back so that his head is between the knees, make a full circle with his hands. Young joints can easily be given this flexibility. This is one of the tasks of school physical education, here, under the guidance of a teacher, you can perform any complexes. In this state, it is enough to do 20 movements in each exercise.

The second state occurs by the age of forty, a little earlier or a little later. There are already deposits in the joints, and they make themselves felt: periodically pain appears, the range of motion is limited. After a while, with or without treatment, the pain goes away and the person can forget about joint even for several years. This is especially true of the spine: the so-called radiculitis, discosis, sciatica and many other names. It's not about the names: the back hurts, it interferes with bending, turning – to varying degrees, up to complete immobility. Sometimes there is pain in the neck, sometimes it hurts to breathe.

The third state is absolutely bad. When the joint hurts often, almost constantly and definitely interferes with living and even working. On x-ray examination, changes are found in it. Doctors talk about arthritis, arthrosis, or make some other diagnosis. In particular, on the spine, this is expressed by the beginning fusion of the vertebrae, between them bony "whiskers" appear. In this case, the maximum load on those joints that hurt is required – 200–300 movements, and 100 movements for non-disturbing joints. The intensity of the exercise for the joints should be determined by their condition.

4. Joint gymnastics, rules of conduct and performance

“The gymnastics that I do if I do it daily at a high pace gives about 30 points in 25 minutes. The calculation of the points is made by comparing the heart rate with standard loads. Not everyone needs so many movements, but its useless to do less than 20 – there will be no effect. Cutting gymnastics in half, add running in place for 10 minutes, but even at a full rate of 1000 movements – it is advisable to add at least 5 minutes of running in place at a maximum pace to ensure that the training effect is sufficient.

You need to be drawn into gymnastics as gradually as in any other types of loads. Start with 10 movements and then add 10 every week. You can set another order: first, add 5 movements per week, and from the 4th – 10, until you reach the

desired number that you outlined for yourself when setting a goal. If running on the spot is considered an additional load, then you need to start at 1 minute and add one minute a week – up to 5 or 10 minutes, as you decide.

In general, this concern for minutes and distances in meters seems overly meticulous. I think that practically no one will strictly adhere to the figures given, but they are needed for orientation, in order to emphasize the gradualness and outline the line of the necessary load.

For older people who are not very strong on their feet, I recommend exercising, gaining the full amount of points, and additionally walking at the speed that they are capable of. For ions, you need to open a window or a window or even practice on the balcony ”– N.M. Amosov.

5. Determination of exercise intensity for joints

You must be able to check your initial fitness. It is determined by the level of performance of the cardiovascular and respiratory systems. The roughest preliminary estimate is dyspnea when climbing stairs. If you are spoiled for elevators, still go up to the 4th to 5th floor at a normal pace, without stopping at the sites and observe yourself: how are you breathing, is it hard? If it is quite easy and you feel that there is a reserve, well, you can investigate further. If you suffocate, then repeat this test in a few hours, but be sure to count the pulse. In general, this procedure – counting your own heart rate – must be mastered.

Any workout without it is unsafe. At first, it is better to count for half a minute, then, when you get the hang of it, you can get your bearings in 10 seconds. Shorter intervals are more beneficial when counting immediately after exercise. With good training, the heartbeat passes quickly, in much less than a minute ... But to good – oh, how far!

First of all, you need to know your heart rate at rest: in the morning, lying in bed, you will get the lowest numbers. Sitting – more, standing – even more. By the pulse in a sitting position, you can already approximately estimate the heart. If a man has less than 50 – excellent, 50– 65 – good, 65– 75 – mediocre, above 75 – bad. In women and boys about 5 strokes more often.

So, we went up to the fourth floor slowly and counted the pulse. If it is below 100 – excellent, below 120 – good, below 140 – mediocre, above 140 – bad. If it is bad, then no further tests can be carried out and you need to start training practically from scratch.

The next step in testing oneself is climbing to the 6th floor, but already in time. At first in 2 minutes – this is just a normal step. And again – the pulse count.

Those above 140 cannot try more: you need to train. For others, you need to count the pulse again after two minutes. He should approximately return to a state of rest. The intensity of the exercise for the joints should be determined by their condition. For pure prevention of future lesions, that is, while the joints are "out of suspicion" and the age is up to 30 years, it is enough to do 20 movements in each exercise. In the second condition, when pain already appears, as well as at the age of 40, much more movements are needed – it seems to me from 50 to 100. Finally, with obvious lesions of the joints (and if one hurts, then you can wait for others), you need a lot of movements: 200 –300 for the joint that already hurts, and 100 for those that are waiting for their turn.

Muscle development requires not only movement, but also strength. From fast movements with a small load, muscles are trained for endurance, but their volume increases slightly. There is no need to invent complex exercises and change them often. To simplify matters, it is important that they are remembered to the point of automaticity, in order to do it quickly and not think. Amosov formed his complex 35 years ago and has changed little.

6. The main complex of joint gymnastics



1. Standing, bend forward to touch the floor with your fingers, and if possible, with your whole palm. The head tilts back and forth in time with the tilt of the body. Stand up straight, then bend over and try to touch the floor with your fingers or even your palms. When you bend over, your chin drops, and when you rise, your head tilts back. Warning. Exhale passively on the downward movement and inhale through the belly on the upward movement. It is necessary, as it were, to push the hips with the stomach. If you do this movement correctly, intra– abdominal pressure while lifting the trunk while inhaling straightens the spine like a hydraulic jack – with minimal back strain. If you are unsure of how to “use” your diaphragm, or your health condition does not allow you to reach your toes, do the exercise while sitting on the floor with your legs extended in front of you.



2. Side bends. The palms slide over the body and legs. When one palm reaches the knee or falls below, the other rises to the armpit. In sync with the movements, tilt your head to one side, then to the other side. Do not twist the body, move only in one plane.



3. Raising the hands with the throwing of the palms behind the back to touch the opposite shoulder blade. Head nods back and forth. Raise your elbow and pull the shoulder with your hand, trying to touch the opposite shoulder blade. Lower your chin at the same time.



4. Rotate your torso clockwise and counterclockwise with maximum amplitude. Keep your arms straight in front of you, palms facing forward, fingers closed. The arms move in sync with the torso and enhance its movement. The head also rotates in sync with the body. Make sure that there is no jerk at the end of the turn, otherwise the spine will suffer.



5. Alternate maximum pull– up of the legs, bent at the knee, to the stomach in a standing position. Stand up straight. Alternately lift your knees to your stomach. Raise them as high as you can. To make this exercise more difficult, hold a towel in front of your hips and lift it up with your knee without bending over. Pull the towel tighter as you progress. Then start increasing the width of the tight towel to raise the knee ever higher, making the workout even more challenging.



6. "Roman deflection". Sit on a sturdy stool, hook your feet on the bottom of the couch and lower yourself back. Get as low as your physical fitness allows. Get up and bend down to your feet as much as possible. Increase the incline depth very gradually, it takes weeks of hard work. start lifting from the lowest point, lowering your chin. It is necessary, rather, to curl up, rather than sit down.



7. Squats, hold hands with the back of the chair.



8. Push– ups from the sofa.

Do push– ups from the floor, or rest your hands on some piece of furniture. Your body weight should be on the base of your palms, not your fingers. If the traditional push– up technique hurts your wrists, there are several options available. Business option: push– up handles or a pair of hex dumbbells. An option for the steep is to do push– ups, as is customary in karate, on the knuckles of the first two fingers. Correct martial arts knuckle push– ups involve transferring body weight to only two joints of each fist – the index and middle fingers. You will find that this technique will soon strengthen your wrists. The width of the arms apart is of your choice. Tighten your buttocks; this makes the exercise harder and protects your back from sagging and injury. Synchronize your breathing with movement.



9. Jumps on one leg.

Each exercise is done at the fastest pace and a hundred times.

The whole complex takes 25 minutes. You need to "get involved" in gymnastics as gradually as in any other types of loads. You need to start with 10 movements and then add 10 every week. If running on the spot is considered an additional load, then you need to start with 1 minute and add one minute a week – up to 5 or 10 minutes, as you decide.

As already mentioned, with any chronic disease, except for heart disease, you can engage in physical education, only you need to be careful and gradual. For most patients with cardiac pathology, physical education is also absolutely necessary, but a doctors permission is needed. The safest thing for them is walking.

CONTROL AND TRAINING TESTS

1. **In what year did a set of exercises developed N.M. Amosov:**
 - a) 1951;
 - b) 1952;
 - c) 1955
2. **Indicate the correct name of the NM system N.M. Amosov:**
 - a) "100 jumps";
 - b) "1000 movements";
 - c) "1000 squats";
3. **Wellness system of N.M. Amosova is based on:**
 - a) strength training exercises;
 - b) vibro– gymnastics;
 - c) joint gymnastics
4. **The training effect of walking and running is determined by:**
 - a) a decrease in heart rate;
 - b) increased heart rate;
 - c) decrease in blood pressure
5. **How much the heart rate increases when running:**
 - a) 100– 120 beats / min .;
 - b) 120– 150 beats / min .;
 - c) 150– 170 beats / min.
6. **How much the pulse quickens when walking:**
 - a) 100– 110 beats / min .;
 - b) 110– 120 beats / min .;
 - c) 120– 130 beats / min.
7. **The intensity of exercise for the joints is determined by their state, please provide the correct answer:**
 - a) joints beyond suspicion – it is enough to perform 200– 300 movements, with the first pains – 50– 100 movements, with obvious joint lesions – 20 movements;
 - b) joints without suspicion – it is enough to perform 100 movements, with the first pains – 200– 300 movements, with obvious lesions of the joints – 1000 movements;
 - c) joints without suspicion – it is enough to perform 20 movements, with the first pain – 50– 100 movements, with obvious lesions of the joints – 200– 300 movements
8. **For what diseases articular gymnastics should not be used N.M. Amosov:**
 - a) organs of vision;
 - b) the musculoskeletal system;
 - c) the cardiovascular system

9. What characterizes the first state of the joints according to Amosovs theory:

- a) movements in the joints are free and full;
- b) pain periodically appears in the joints, movements are limited;
- c) the joint hurts often, arthritis and arthrosis may appear

10. Physical exercises that make up the health system N.M. Amosov:

- a) strength exercises, running, stretching exercises;
- b) gymnastics, running and walking;
- c) walking, stretching exercises, strength exercises.