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Federal state budgetary educational institution of higher education
"North Ossetian State Medical Academy"
Ministry of Health of the Russian Federation

DEPARTMENT OF GENERAL HYGIENE
AND PHYSICAL CULTURE

STRETCHING FOR BEGINNERS. THE METHOD OF RECOVERY FROM PHYSICAL ACTIVITY

Methodological manual
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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Methodological manual "Stretching for beginners. The method of recovery from physical activity "was prepared in the discipline" Physical education "in accordance with the Federal State Educational Standard of Higher Education for students studying at universities.

This methodological manual details the types of stretching, meaning, outlines the basic principles of its effectiveness, contributing to reducing the risk of injury, as well as achieving and maintaining the proper level of physical condition. The work gives a set of stretching exercises for beginners, which is aimed not only at improving the physical qualities of a person, but also occupies an important place in the prevention of recovery from physical activity.

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Introduction

The health problem of participants in the educational process is one of the priorities. This is due to one side, a sharp increase in information and emotional loads, which lead to a significant deterioration in mental well-being against the background of adaptation to new living and learning conditions, on the other hand, a low level of psychophysical readiness and technical equipment of students to overcome stressful situations.

One of the variable forms and methods of physical development is stretching (stretching), which helps to prevent injuries and allows the practitioner to find excellent physical shape.

Stretching represents a completely new approach, a new way to solve problems of physical education, opens up new opportunities when working with students.

After intense physical activity, tenderness and tension are felt in the muscles, mobility in the joints is limited. Using stretching, these consequences can be reduced. In addition, stretching exercises are available to various age groups and are aimed not only at improving a person's physical qualities, but also occupy an important place in the prevention of recovery from physical activity. The stated method of using these exercises allows them to be used in independent practice both for improving physical qualities and for wellness purposes.

Thanks to the availability of exercises, it is possible and necessary to stretch independently before or after any motor load.

1. Stretching, its views and meaning

Stretching is called "the application of force to muscle-tendon structures in order to change their length, usually to increase the amplitude of movement in the joints (ASD), reduce stiffness or soreness, or in preparation for physical activity."

Stretching (stretching, stretching, elongation, stretching; voltage; elasticity, stretch) is very useful for the harmonious development of the body, it should not be neglected in training, and at home. Stretching helps to get rid of stiffness, woodiness of muscles and expand its so-called "functional range of movement." Stretching makes the joints more mobile, and the whole body becomes more flexible and mobile.

Types of stretching (stretching):

1. Static stretching.

Static stretching is the most common and recommended. Take the position and hold it for 30 to 60 seconds. Frozen in the posture, you should focus all attention on the sensations in the muscles. You should feel a feeling of gentle stretching, but not pain. The main load is directed at the muscles. Mild effects on tendons and joints. Stretch with your weight, tilts forward. The fold is upright, where the most important thing is to relax and "hang" with the full weight of your top. Twine, if you don't sit in it yet, also involves relaxation, but only in the groin, and not in the knees.

2. Passive stretching.

Passive stretching is similar to static stretching. The only difference is that when you stretch passively, you do not use your own effort, instead the partner helps you.

3. Dynamic stretching.

Dynamic stretching consists of controlled movements of the legs and arms that gently spring you within the range of capabilities of your muscles. It can be either slow (accented movement) or fast movement. It can be all kinds of swings, twine-to-twine rolls. An example of dynamic movement: put your palm as a target

and make a mach in your palm, thus not going into ballistic movement. Or make a free mah, but do not throw, but lead a leg. But this, of course, is more difficult than the palm option.

4. Ballistic stretching.

This is uncontrolled movement as opposed to dynamic stretching. An example of ballistic stretching is springy movements with a good amplitude down several times to touch the toes in the fold. It is necessary to carefully use this type of stretching at the initial stage. It is useful for experienced athletes and dancers.

5. Active isolated stretching.

This is a stretching technique in which each individual muscle is localized, isolated and stretched. This stretching technique can be used for good muscle warming both before and after training. It allows you to reduce the load on the joints, increase the range of mobility, stretch muscles and get rid of "stiffness," which limits the range of movement of joints and muscles. Effectively use a clothesline, belt, rope rope rope, long belt or elastic bandage for this purpose. With this rope, you can pull the part of the body that you stretch with your own efforts. Active stretching - when you take up position and then hold a pose unaided, solely at the expense of the strength of your muscles. For example, raise your leg high and then hold it in that position. The strength of one muscle during active stretching helps to relax the stretched muscles by mutual balancing. Active stretching increases active flexibility and enhances muscle strength.

6. Isometric stretching.

This is an alternation of tension with relaxation. Consider the example of twine. Sit in the right position on the splits, then descend to a slight pain and strain the muscles of the legs as if you want to rise up with the force of only the legs (maximum tension), hold for 20 seconds, then relax the muscles and sit lower. And so several times.

7. Proprioceptive neuromuscular stretching.

Implies maximizing muscle contraction and then immediately performing static muscle stretching. This technique is best used in tandem with an assistant. It

is important to remember that the stretchable muscle needs to relax and rest for at least 20 seconds before performing the next exercise. There are two types of stretching proprioceptive muscle relief:

1. "contractions - relaxations" (isometric muscle contraction followed by relaxation and then stretching to the point of maximum);
2. "contractions - relaxations - contractions of the agonist" (isometric contraction of the muscle, followed by relaxation, stretching to the maximum point and contraction of the agonist muscle, accompanied by stretching to the maximum). It is necessary to stand in a static stretched position, then shorten the muscle isometrically (that is, without movement), then perform the next stretching, already of a larger amplitude, thanks to the previous isometric muscle contraction and subsequent relaxation. Subsequent stretches occur due to the fact that isometric contraction activates the Golgi apparatus, the muscle relaxes and gains the ability to stretch again.

For example, first you stretch the sock and thereby strain the calf muscle, then hold such a position for at least 4-10 seconds, exhausting the calf due to static tension. And only then you pull your sock to yourself and stretch your calf. The fact is that usually muscles resist stretching: you try to stretch them, and they strive to return to their "shortened" state. But if the muscle is previously tired by contraction, it will no longer be able to counteract you.

Or, if you plan to stretch the biceps of your hips, then you must first carefully stretch this group of muscles, then shorten it, overcoming resistance. Further, it is necessary to reduce the opposing muscle group (in this case, quadriceps). According to the physiological law you already know, this will lead to relaxation of the biceps of the hips, which means that in the next "circle" you will be able to achieve more stretching of these muscles. Then the cycle is repeated again. Experts do not advise using this technique for those who have or have heart disease or hypertension.

In general, the advantages of stretching include:

- reduction of muscle tension;
- expansion of mobility range in joints;
- reducing the risk of injury;
- increased muscle strength;
- improved coordination of movements;
- acceleration of blood circulation in different parts of the body;
- improvement of the processes of energy generation by the organism;
- increased threshold of muscle fatigue and increased endurance;
- increasing efficiency in daily activities, as well as in sports and other types of physical activity;
- posture correction;
- mental relaxation;
- pleasure, a feeling of lightness throughout the body.

2. Effective Stretching Philosophy

When starting stretching, remember the following:

1. Always warm up before stretching. Do not stretch cold muscles. Stretching without preheating increases the risk of injury. The best time to stretch is after a warm-up or at the end of a workout. Do not block your joints in the extreme position, when stretching, keep your legs slightly bent in your knees, your hands in your elbows, this will avoid unnecessary tension in them.

2. During exercise, never hold your breath. Try to breathe as usual, through your mouth or nose, as it will be more convenient. This will help make the stretching process relaxing.

3. Take your time. Prolonged, shallow stretching reduces unwanted stiffness and muscle strength.

4. Don't compare yourself to others. Each person has their own degree of flexibility. Requiring yourself to stretch like a gymnast, you risk overexposure and injury.

5. Watch for intensity, exercise, avoid strong and sharp movements. Strong influences prevent muscles from relaxing and adapting to a new position. On the contrary, the muscles begin to contract, and the painful sensations are repeatedly intensified. Do not stretch to the feeling of pain. If you feel pain, you need to stop right away.

Stretching must be done both before and after training, but the principles of performing exercises will be completely different. Before classes, it is important to stretch and warm the muscles, ensure their mobility, increase elasticity, perform the prevention of sprains and other injuries. To do this, the so-called dynamic stretching should be included in the warm-up. When performing exercises, follow the rules:

- do each movement for 4-6 seconds;
- increase the amplitude gradually;
- you should feel pleasant warmth, not pain;
- include movements in the complex that simulate the upcoming training.

In no case should exercises from static stretching be performed before training: they are intended to be performed only after classes, when the hands, legs and the whole body are well warmed. If you make them without warming up, there is a great risk of injury. In addition, this type of stretching implies relaxation, so the effectiveness of subsequent exercises with stretched muscles will decrease by 15-20%.

Frequency of stretching exercises:

- for actively engaged: 1 times a week for 30 minutes (in addition to regular short stretching after training);
- for people leading a sedentary lifestyle: 2 times a week for 30 minutes;
- for people who want to improve their stretch and flexibility, as well as get rid of back pain or improve posture: 3-4 times a week for 30 minutes;
- for people doing yoga on a regular basis, for example, additional stretching workouts may not be performed.

3. Beginner Stretch Exercise Set

There are different stretching exercises for beginners. Figures 1-12 show the simplest but most effective static stretching exercises. By doing these exercises, you will be able to relax all the main muscle groups. Full stretching can take a long time, so you can only stretch the muscles that were involved in training.

Figure 1 - Calf stretching

Lunge with one leg and bend it in the knee so that the muscles on the other leg stretch as much as possible. Make sure that the feet do not come off the floor during stretching.

Figure 2 - Stretching of the biceps thigh, gluteal muscles

Sit slightly on one leg, while pulling the second forward, the sock looks up. Ideally, this exercise is done sitting - you put one bent leg under the buttocks, straighten the second as much as possible and stretch towards it.

Figure 3 - Quadriceps stretching

Standing on one leg, grasp the second foot behind and gently pull it up to the buttocks.

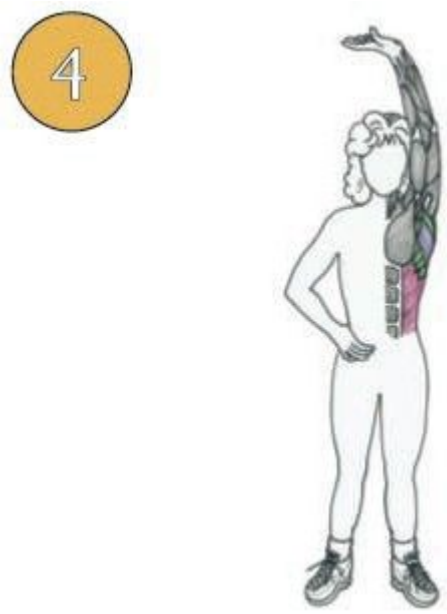

Figure 4 - Stretching of the lateral muscles of the press, part of the muscles of the hands

Extend your arm above your head, and then in a slow wave lower it without bending.

Figure 5 - Stretching of deltas, biceps, pectoral muscles

Lock your hands behind your back and slowly lift your hands up, stretching them.

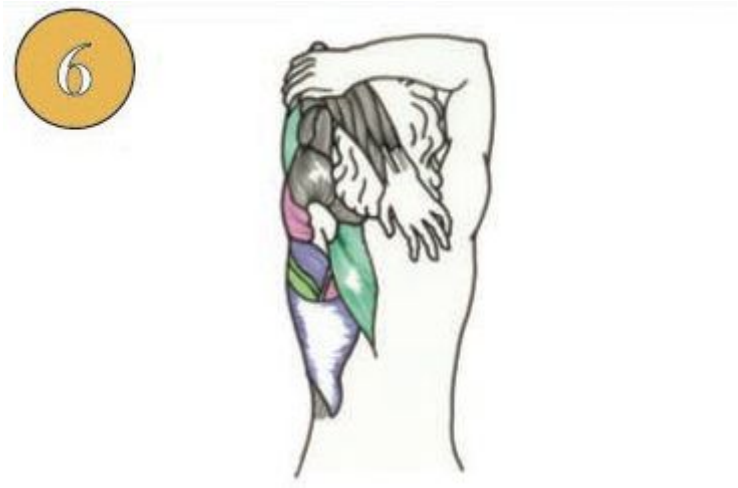

Figure 6 - Stretching of rhomboid and broadest muscles in the back, arms

Raise your hand up, bend it in your elbow so that the hand lies on the opposite shoulder or shoulder blade, and pull it with your second hand to your head.

Figure 7 - Stretching of thoracic muscles, hand muscles

Hold your hands up, lock your hands and reach.

Figure 8 - Stretching of thoracic muscles, deltas, hand muscles

Spread your hands to the sides, your palms look forward. Slowly pull your hands back, stretching your muscles. It is convenient to do this exercise by "sagging" in the doorway.

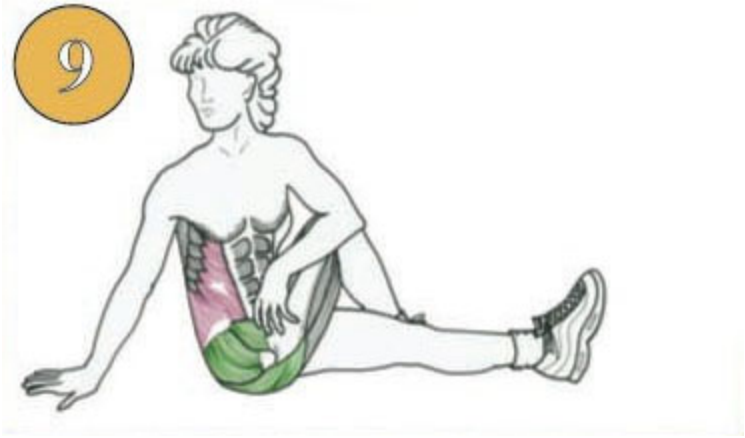

Figure 9 - Stretching of the oblique muscles of the abdomen, gluteal muscles

Sit on the floor, stretching forward one leg, and throw the second over it and bend in the knee. Gently pull the bent leg towards your chest.

Figure 10 - Stretching of gluteal and calf muscles, muscles of posterior thigh surface, lower back

Sit on the floor, bend one leg in the knee, and straighten the second. Now try to reach the outstretched leg with your fingertips.

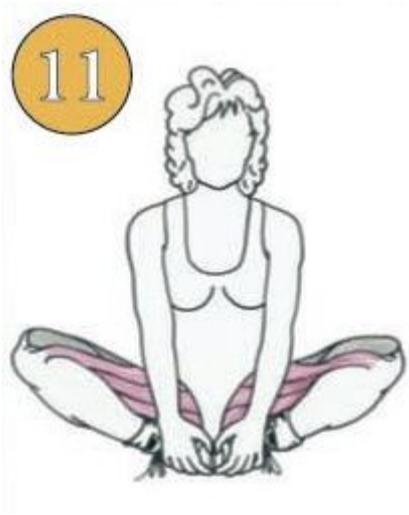

Figure 11 - Thigh Muscle Stretching

Sit on the floor, bend your legs in your knees so that your feet touch each other. Relax your legs and you'll feel your leg muscles stretch. To improve stretching, you can gently press on your knees or push the case forward a little.

Figure 12 - Stretching of the lower back, gluteal muscles

Lie on your back, bend your legs and wrap your hands around your knees, then pull towards you.

4. Stretching as a method of recovery from physical activity

Recovery is traditionally understood as a single-stage model - when something lost returns or something returns to its original state. Nevertheless, in sports, recovery from physical activity is a two-stage model - when the lost is restored (for example, fatigue decreases) and adaptation (supercompensation) to increased requirements. Taking this into account, the recovery is not complete until the person has reached a level of training that exceeds the initial values (supercompensation principle).

The practice of stretching after exercise is very widespread and has accompanied us for many decades. Assumptions that stretching after exercise reduces muscle soreness, returns the "lost" or pre-training amplitude of movement, and thus contributes to recovery have become popular, in particular, after analytical publications in the early 1960s. Since then, assumptions about the usefulness of stretching after exercise have been refuted, but a similar recovery method is still practiced.

There are two main goals of stretching after exercise:

1. Reduce muscle tenderness with delayed manifestation (hereinafter referred to as muscle tenderness).

2. Reduce stiffness (increase or restore the original amplitude of motion).

Before discussing the possibility of improving recovery from stretching, it should be noted that other post-training methods: heat, cold, vibration, massage, hydrotherapy, painkillers and foam roller massage - reduce muscle soreness and increase ASD; thus, recovery is improved.

Reducing muscle soreness after training is a great goal to improve recovery. Despite many independent studies conducted to clarify the effect of stretching on muscle tenderness, the quality of almost all experiments is assessed as low-medium. According to a meta-analysis on this topic, which included more than 2,500 subjects, stretching to recover from training reduces the manifestation of muscle tenderness by 1-4 points on a 100-point scale. Although the indicator is statistically significant, the effect is very small and almost invisible. Unfortunately, despite the long history and frequent inclusion of this recovery strategy in many training programs, static stretching after training has little or no effect on muscle soreness.

Usually mobility is called the amplitude of movement in the joint (ASD) or joint system (for example, in the spine). Static stretching and with pre-muscle contraction is probably most commonly used to develop or increase ASD - particularly after exercise.

It should be known that formally there is a difference between "stretching," which is usually used to increase ASD and "ASD exercises," which may be called "mobility exercises."

The goals of stretching after training: restore the "normal" or original ASD or increase the ASD? If the first (restore ASD), then it is recommended to use dynamic painless movements. If the second (increase SDA), then it may be better to select static stretches.

Тем не менее, метод статического растягивания обычно требует от человека терпеть «небольшой» дискомфорт, который вызывает в мышцах и сухожилиях растягивающее напряжение.

However, the static stretching method usually requires a person to endure "little" discomfort, which causes tensile stress in the muscles and tendons.

Before starting stretching:

1. Wait for breathing and HR to recover.

2. Take a sip of water.

3. Equip yourself with a place: bed a gymnastics mat, find a support (for example, a Swedish wall), try to find an area where you will see yourself in the mirror.

4. Prepare an elastic band - it will help perform grips in those poses in which you have mobility problems.

5. Warm up: throw on a tracksuit if before that you were engaged in shorts and a top, put on leggings, and if you were engaged in the fresh air, go to a warm room.

During stretching:

- work with those muscle groups that were actively involved in the training;

- make all movements smoothly and gradually - do not spring or work with jerks;

- relax the muscle before stretching it;

- monitor the sensations - the feeling of tension and pleasant pain are permissible, sharp pain and burning are unacceptable;

- don't do the exercises as a couple - the other person doesn't feel how you feel, so can push or pull harder than you need to;

- breathe normally, do not hold your breath;

- stay in each position for up to 30 seconds.

After stretching:

First of all, it is worth remembering that before intensive stretching you conducted a training session, which means that you need a standard set of recovery procedures:

1. Restore the water-salt balance with additional fluid.

2. Close the protein window. Protein, isolate or cleaved amino acids are perfect for this.

3. Close the carbohydrate window. If the closing time of the protein window coincides with carbohydrate, it is recommended to take a portion of gainer on milk. Otherwise, you can get by with fast carbohydrates, for example, bananas.

4. Conduct an emotional discharge.

And most importantly: after stretching, it is extremely not recommended to go out into the cold. Muscle groups warmed up by training, pre-stretched during the stretching procedure, are extremely susceptible to the narrowing effect of cold. As a result, you can easily get pinched.

Control and training test

1. Stretching is an exercise:

a) aimed at the development and improvement of dexterity;
b) aimed at improving flexibility and developing mobility in the joints;
c) aimed at the development and improvement of strength qualities;
d) aimed at improving vestibular functions.

2. Types of stretching exercises (specify 2 correct answers):

a) dynamic;
b) statistical;
c) ballistic;
d) isometric;
e) static.

3. Which component is not part of the exercise control structure of the stretching complex?

a) duration of exercises;
b) intensity of exercises;
c) duration of rest intervals;
d) nature of mental stress;
e) nature of rest;
f) the number of repetitions of the exercise.

4. What system of the human body is not affected by stretching?

a) cardiovascular;
b) nervous;
c) bone;
d) excretory;
e) neuromuscular.

5. The main meaning of stretching:

a) speed up the performance of physical exercises;
b) increase the physiological cross-section of the muscles;
c) elongate muscle fibers by stretching;
d) increase the amount of red muscle fibers.

6. What exercise relates to stretching?

a) a stand on the head, on the shoulder blades, on the hands, forward and backward flips on the elbows, forward and backward flips, wheel, rondat;
b) "birch," "plough," "basket," bridge, elbow bridge, "butterfly," "corner," "turtle," "twisting," "boat," fold;
c) basic steps and jumps, supports and pyramids.

7. Stretching...

a) helps to increase strength results;
b) contributes to the early recovery of muscles after load;
c) both options are correct.

8. When is it better to do stretching?

a) before training;
b) after training;
c) both options are correct.

9. What first of all needs to be done before the start of stretching?

a) insulate;
b) wait for breathing and heart rate to recover;
c) drink water;
d) prepare an elastic band.

10. What is not recommended to be done after stretching?

a) go out into the cold;
b) restore the water-salt balance with the help of additional liquid;
c) close the protein window;
d) close the carbohydrate window;
e) carry out emotional discharge.

List of recommended references

1. Baranova S. Magic health complexes for harmony, flexibility, cheerfulness/S. Baranova. - M.: Phoenix, 2018. - 676 p.
2. Biryukov A.A. Means of restoring the athlete's performance/A.A. Biryukov, K.A. Kafarov. - M.: Physical education and sports, 2019. - 152 p.
3. Vilensky M.Ya. Student's physical culture: textbook/M.Ya. Vilensky, A.I. Zaitsev, V.I. Ilyinich and others; ed. V.I. Ilyinich. -M.: Gardariki, 2016. - 385 p.
4. Gotovtsev P.I. Athletes on restoration/P.I. Gotovtsev, B.I. Dubrovsky. - M.: Physical education and sports, 2016. - 144 p.
5. Miller EB, Blackman K.. Stretching exercises. Translated from English by E. Bogdanova. - M.: FAIR - PRESS, 2016 - 240 p.: il.
6. Nelson A. Anatomy of stretching exercises. Illustrated Guide to Developing Flexibility and Muscle Strength/A. Nelson. - M.: Popurri, 2016. - 63 p.
7. Talaga E. Encyclopedia of Physical Exercise/Translated from Polish by E. Talaga - M.: Physical education and sports, 2018 - 412 p.