"THE BEST FITNESS TRAINING AND SECRETS BOOK FOR ALL AGES WOMEN"



TIPS AND TRICK

I WILL SACRIFICE WHATEVER IS NECESSARY TO BE THE BEST

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"The Best Fitness Training and Secrets

Book for All Ages Women"

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Introduction to Fitness

Present day ladies are progressively partaking in different games and occupied with different types of active work, including wellness. Twenty years prior, most ladies practiced just to work on their figure. Presently they play b-ball, go in for cycling or swimming to accomplish high outcomes and experience a feeling of fulfillment, and, obviously, for their own wellbeing.

Of course, a man, if he is larger, stronger than you, then probably runs faster, sends a projectile further and jumps higher (the manifestation of speed, like power, requires physical strength). However, women are more resilient, have large reserves of energy, in hot and cold weather, the female body is more efficient in thermoregulation.

The quantity of ladies who presently take part in all well known games is ordinarily more prominent than the quantity of men engaged with actual training: 3 out of each 5 sprinters or cyclists are ladies, and 4 out of 5 b-ball players are moreover. Ladies represent 49% of all tennis players, 44% in snow capped skiing, 39% in tourism, etc. In 1980, 135 athletes from 27 countries took part in the first World Judo Championships, held in New York. There are about 150 women's rugby clubs in the United States and more than 300 women's ice hockey teams (not including college national teams). In 1978, a group of American climbers, all made up of women, conquered Annaputra 1, the tenth peak in the world.

If we consider the physique of a woman, it turns out that her shoulders are narrower, her arms are shorter and bones are smaller than that of a man. This means that there is less room for muscles on the female skeleton and shorter levers (the longer the lever, the less effort is expended to lift any object, even body weight). Muscles make up about 30% of a woman's body weight, while in men this figure is 40%. All this is due to the higher percentage of estrogen in the body - the female sex hormone. By the time your period begins, the amount of estrogen rises. Since it affects the growth plates located at the ends of the long bones, women usually stop growing at the age of 14-15, while the growth processes in men continue until almost 20 years. Estrogen also stimulates the deposition of subcutaneous fat as fuel stores, and male sex hormones such as testosterone stimulate muscle growth. Therefore, naturally, women have more subcutaneous fat than men and less muscle tissue. Every woman's body produces a certain amount of testosterone, just like estrogen is present in every man's body. Its amount depends on the genetic components of each, therefore, in some women, the muscular system in its structure may be close to the male. But most women are not able to achieve the same muscle development that men have, no matter how vigorously they train.

Women, by tradition, and also due to the different content of hormones in the body, have less developed muscles of the shoulder girdle. In the past, women practically did not pull up at all, did not do push-ups, did not perform other exercises with the help of which men strengthen the muscles of the arms and shoulder girdle. M.D.D. Wilmorehis research has proven that by regularly exercising with weights, women can strengthen their bodies to the same extent as men. He came to the conclusion that women have the same, and sometimes more, strength of the abdominal muscles, thighs, and lower legs than men of approximately the same physique.

Women have 10-12 percent more adipose tissue, which is mainly located in the breasts, buttocks, inner thighs and pelvis to protect the reproductive organs and protect the embryo during pregnancy. Although this specifically female adipose tissue, as A. Bernke, M.D. calls it, is a burden when it comes to running faster or jumping higher, it also becomes a big advantage when running a marathon or doing any other sport that requires endurance. Moreover, this extra layer of fat protects from the cold, helps to feel more energetic, to have better buoyancy. For this reason, most marathon swimmers (outside the pools) are women, starting with Gertrude Ederle, the first woman to swim across the English Channel (August 1926), and ending with Penny Dean, who still holds the record - she crossed the English Channel in 7 hours 40 minutes. in July 1978.

Women are inferior to men in strength, but by nature they are more flexible than men, which gives them an advantage in ballet and sports such as gymnastics and figure skating.

Trained women are no more prone to injury than trained men. In the past, it was thought that, due to wider hips and movable joints, they were more likely to injure the knee or twist the ankle, which in reality is not the case. "The female body is better suited for direct sports than the male body for two reasons," said D. Harris, director of the Women's Sports Center at Pennsylvania State University. - Firstly, they have a fairly significant protective layer (subcutaneous fat layer), which helps to protect bones from

damage. Secondly, the female genital organs are almost invulnerable to injury. There is no evidence that breast blows, although painful, cause cancer or other illnesses. Breast protection is the first concern of male trainers. But,

Every year, women's athletic performance improves. Who in 1970 assumed that in 10 years a woman would be able to run a marathon in 2 hours 24 minutes. and 41 sec. (Greta Weitz)? In a few years, women may be able to achieve that their shoulder girdle becomes as strong as that of men. Of course, women will catch up with men, and then surpass them in running and swimming at ultra-marathon and long distances.

In the meantime, there is only a myth that women are naturally weaker, especially during menstrual periods, that they need to be subjected to stress tests before starting sports, that they are not able to throw and run as efficiently as men, because their shoulders and their pelvis have different proportions.

So, you can do any kind of sport - from aerobic dancing to football. You will gain mobility, flexibility, strength, a greater supply of vitality. However, it is necessary to train taking into account the characteristics of the female body. It is not at all necessary to acquire masculine strength, but you have higher endurance, more flexible joints, elastic muscles. By reading this book carefully, you will be able to:

- choose an exercise program that suits your age, physical condition, lifestyle;

- improve performance in the sport that you are already doing;

- use various sports for year-round training;

- to balance the development of strength and flexibility of various muscle groups, which will help improve overall physical condition and protect against many injuries;

- to study the basic principles and methods of training used in general physical training or sports, in order to achieve better physical fitness or higher sports results;

- make a diet that suits your individual characteristics;

- control your weight throughout your life, using exercises that will help change metabolism and reduce or, conversely, increase your appetite;

- find answers to all those questions that men do not have to think about (concerning menstruation, menopause, etc.);

- to determine their own injuries, to recover, to protect themselves from them.

Chapter 1 Which Fitness Program to Choose

Your body is designed to move. With a sedentary lifestyle, pressure rises, appetite disappears, bones become fragile, muscles ache, you get tired quickly, your mood deteriorates, and a period of depression often sets in. If you lived many centuries ago, then you would have to move in search of food, when building a dwelling, making clothes, collecting fuel. In addition, you would run a race, dance national dances, participate in throwing competitions, ride down the mountains, play various games that require good physical fitness. Nowadays, it doesn't take much physical effort to clothe and feed yourself, but you still need exercise to feel healthy and energetic.

What is exercise for?

When you exercise actively, oxygen reaches every cell in your body. Exercise helps the skin to become shiny, sometimes acne disappears, because blood circulation is activated, reflexes improve. Exercises tone the muscles, they become more elastic, and you - fit, attractive and graceful, because the joints acquire a greater range of motion. Exercise can help you achieve and maintain your ideal weight, which cannot be achieved with diet alone. At the same time, exercise helps control appetite by increasing the amount of endorphins the brain secretes (these newly discovered substances are often called "brain opium" because they negate the will, and also prevent the body from feeling hungry until it really does not need a "recharge").

Exercise helps. resist chronic fatigue, increasing the reserve of vitality. They provide extra oxygen to the brain and keep you energized throughout the day. This, in turn, aids in deeper and more restful sleep at night, because it promotes the production of endorphins that help release the nervous tension that has accumulated during the day (since you are physically tired and do not feel the exhaustion at the end of the day, which is usually experienced by physically inactive people) ... Exercise helps prevent depression not only by relieving stress, but also by reducing excess adrenaline and stress hormones in the body. Exercise also builds self-confidence: you feel you can improve your well-being and appearance,

Exercise stimulates the metabolism and aids in stomach emptying. It is easier to quit smoking with exercise. It is known that athletes who quit smoking are easier to cope with heavy loads, since they have an additional amount of oxygen in their blood, which, of course, decreases when a person smokes.

Good physical fitness helps the body recover faster after any kind of surgery, since strong muscles have more opportunities to utilize oxygen than flabby ones, and the more oxygen they receive, the faster wounds heal. (Today, in many hospitals, patients undergoing chest or abdominal surgery are forced to do a special exercise program for several weeks before the scheduled surgery begins.)

You may want to exercise to relax or boost your mood. Tests conducted by M. Carmack and R. Martens show that people who run for this very reason receive a much greater emotional charge from the exercise than those who exercise just because someone told how it is useful.

Each must find her own reasons that encourage her to start exercising. One woman practiced weightlifting and karate for a whole year in self-defense. Another decided to relieve her back pain by swimming a mile five times a week and doing specific exercises for her abdominal and back muscles.

Remember that it is not too late to start exercising and even taking part in competitions at any age, regardless of the state of health.

A number of organizations promote the development of physical education for people suffering from chronic diseases, physical disabilities, or people with disabilities.

Exercise and heart

The most important reason to exercise is to strengthen your heart. Like other muscles, the heart can be better trained and able to do more work. When you give yourself a lot of stress, such as carrying a bag, going up stairs, the heart pumps additional oxygen-rich blood to the working parts, as muscles need oxygen in order to contract. Initially, the heart rate increases and the heart pushes blood (and thus more oxygen) faster to the muscles of the arms that carry the bag. However, if you carry weights every day (shopping bags), your heart and muscles will become more exercised. The heart will begin to pump more blood in one contraction, and the muscles will use oxygen more efficiently.

If you are involved in any sport that requires a high level of training, then exercise will increase the size of the heart chambers. Larger chambers are able to expel more Blood with each contraction, and thus the heart contracts more slowly and the pulse becomes less frequent.- both during physical activity and at rest.

It is known that the heart of a well-trained athlete, as a rule, is much larger in size than the heart of a person leading a predominantly sedentary lifestyle. In the beginning, doctors were confused by the increased size and mistook it for heart disease, but today any physician familiar with sports medicine knows that strenuous exercise increases the size of the heart. In weightlifters and representatives of other speed-strength sports, where explosive efforts are required, the muscle walls of the heart become thicker. In long distance runners and other endurance sports, the chambers of the heart stretch to hold more blood. In one form or another, the heart reacts to stress, strengthening itself to be able to withstand any stress.

Strenuous exercise can also help control high blood pressure. Instead of a sharp increase in upper (systolic) and lower (diastolic) pressure, which is observed in untrained individuals, only systolic pressure increases in trained individuals. This is because the aorta and large arteries stretch to absorb more blood; Diastolic blood pressure in well-trained athletes may even drop during exercise to below those at rest. Thus, the blood vessels remain elastic and the heart is not overstrained.

A study from the Faculty of Sports Medicine at Tufts University found that athletes with higher endurance have less dense plasma than those with a predominantly sedentary lifestyle. (Plasma is the liquid component of blood.) This again makes it easier for the heart to pump blood through the small vessels in the muscles and under the skin. Plasma is found to be denser than usual in people with chronic inflammation, rheumatoid arthritis, and tuberculosis.

Exercise also trains regulatory processes, which allows you to send additional portions of blood quickly and efficiently only to those muscle groups that are performing the load, and not immediately to all parts of the body.

Even relatively light exercise, such as walking and climbing stairs, helps dissolve potentially dangerous blood clots. In a study led by R. Sanders Williams, MD, it was found that regular light exercise performed by men and women in a certain way stimulated blood vessels and released more plasminogen activators from them than in those people who were predominantly sedentary. life. (Plasminogen activators stimulate the production of plasminogen, which dissolves fibrin, a fibrous thickening protein in the blood.) Thrombus formation in the largest blood arteries leads to heart attacks. Exercise also lowers the level of "bad" blood cholesterol,

Unexpected death of people - in most cases of men - while jogging or any other strenuous physical exercise is cited as proof that exercise is dangerous for the heart. However, Dr. Jeffrey Coplan emphasized in an article published in the Journal of American Medical Association in 1980: "With millions of people jogging in America today, it is likely that someone else will die while running. - just like some die while eating, reading, sleeping." Women in the pre-menopausal period are less susceptible to coronary diseases. An article published in the Journal of the American Medical Association in 1980 argued that apparently fewer than 3000 heart attacks per year occur in the United States in women younger than 46, while the Royal College of Practitioners in the United Kingdom reported only nine cases. heart attacks in 200,000 women surveyed (seven out of nine took birth control pills). After menopause, the likelihood of heart disease in women increases, but it is never as great as in men.

Exercise slows down the aging process. Research by Dr. D. Hollotzi and coworkers at the University of St. Louis School of Medicine has shown that middle-aged runners have better cardiovascular performance than their predominantly sedentary peers; their cardiovascular fitness levels were only 14 percent lower than those of younger (20-year-olds) runners, a four percent decline in a decade instead of the eight percent decline the researchers had suggested. Dr. R. Puffenbarger, having examined 17,000 students at Stanford University, was convinced that the age advantage is preserved only if you keep yourself in good physical shape. People,

The biochemical parameters of each woman are unique. No one has a similar hormonal picture, the same digestive system, nerves or vascular reactions. Exercise cannot change your genetic makeup from birth. If your parents have lived a long time and you have a chance to live a long time. If your parents have suffered from high blood pressure, atherosclerosis, and other forms of heart disease, you too are likely to get them. However, if you do have a heart attack, being in good physical condition will help you cope more easily and possibly save your life. If you're lucky, exercising may actually protect you from heart disease.

Which sport suits best! It depends on the goals you set for yourself.

Before choosing a new form of physical activity, decide what you want to achieve. Many women want to look their best, they want their muscles to be firmer and to improve their figure. If that's your goal, choose the sports and exercise that predominantly affects the areas of your concern. If you want to lose weight, you should do aerobic exercise, which will make your heart beat faster and your lungs work more vigorously. Only by raising the heart rate will it be possible to increase the rate of metabolic processes necessary to burn additional calories. M. Pollock, MD, director of one of the cardiological rehabilitation centers, determined that in order to lose weight, you need to exercise at least 3 times a week for 30 minutes, with a heart rate of 60-80% of the maximum, and spend about 300 kilocalories (kcal) per session. Strenuous walking, jumping rope, running, cycling, swimming, skiing or rowing are suitable depending on the physical condition.(see Chapter 4 for more information on weight loss issues).

Your maximum heart rate is approximately 220 beats per minute (bpm) minus age in years (220 Is a statistical abstract based mainly on data from young children). No matter how hard you work, your heart is unable to beat at its maximum rate for long periods of time. After a minute or two of maximum stress, you will simply fall, exhausted.

For a very large number of women, exercise is a bitter medicine. These are usually those who quickly stop training. They lack serious motivation. In order to strengthen the heart and improve blood circulation, metabolism and digestion, it is necessary to perform strenuous physical activity. You cannot strengthen the heart without exercising it, but not all exercises can strengthen it. Pollock's formula applies to this position as well. In order to achieve a training effect on the cardiovascular system, you should exercise at least 3 times a week for 30 minutes, each time with a heart rate of 60-80% of the maximum for your age. These regular activities will become habitual over time.

Regardless of the level of fitness and sport you choose, during the first 10 minutes of strenuous activity, you will be breathless. Later, the body will replenish its oxygen debt and begin to work more efficiently. Breathing will become smoother, the heart rate will settle at a certain level, and the so-called phase of pleasure will begin. If you only practice 10-12 minutes a day, you will never achieve this. Exercise will only bring pain and exhaustion, which is enough to discourage anyone.

If you've been exercising for a month or more, your body becomes dependent on the exercise. One morning you wake up and realize that you cannot live without training - it has become an integral part of your life. You may still have to force yourself to hit the track or the pool on a cold morning, but you already know that you will feel better after a workout than if you hadn't. From now on, you will begin to regret every day you missed.

Do several sports at once

Some women engage in lifelong exercise and still consider themselves newbies. A woman may say, "I am unsportsmanlike. I tried to master the game of tennis for a year, but my partner moved and stopped attending classes, so I switched to running. But when winter came, I could not bring myself to go out into the snowy street. Been doing the exercises for a few weeks, but I got bored. Everyone laughs at me because I tried so many sports and now I just quit. I would like to find a type of health-improving exercise, sport that I would like. "

In fact, this woman can be classified as very active. She simply does not understand that it is better to engage in various sports than to concentrate her attention on one particular one, since in the first case, more muscles and joints are involved in the work, which has a beneficial effect on the whole body. You need to quite calmly move from one sport to another at different times of the year and depending on your desire. The most important thing is to know how to prepare your muscles and joints for each specific activity.

In order to avoid injuries and better show your abilities, you need to either perform special training exercises, or engage in some kind of "auxiliary" sport that will allow you to use the same muscle groups in similar physical activity. If your predominantly skiing activity, running in the summer will strengthen your hamstrings, but not your front thighs. In winter, before you go skiing, you need to do special exercises to strengthen the muscles of the front of the thigh, otherwise you will not have enough endurance and skiing on the slopes will not give you pleasure. If, on the other hand, you are cycling in the summer, then this will develop the muscles of the front of the thigh to the extent necessary for skiing.

Even individuals with different sports attachments depending on the season sometimes underestimate the importance of special training for each particular sport. Most of the injuries are "beginners" who have already mastered a sport and are trying to transfer their training skills to another. If you are looking at a new sporting hobby that you want to add to those you already do, it is not enough to determine that in this sport the workload is mainly on the muscles of the arms and, therefore, any sport that uses similar movements will do. You need to know exactly which section of the arm is used for each sport, whether it uses triceps to straighten the elbow joint, or the muscles of the trunk and biceps to bend the arm. Does this sport require powerful muscle contractions for maximum jerk or quick "bursts" of energy and speed? (The way the muscles are used is as specific as the muscle groups themselves that do a particular job.) Does the chosen sport require short periods of intense effort (sprinting, throwing heavy shells, e.g. shot put) or medium effort over a long period of time (swimming, running, cycling)? Sprint uses one type of energy, while distance running uses another. If you do not have special training, it is difficult for the body to work in a given mode.

Five ways to force yourself to keep going

Of course, you will not continue your activities if they are not enjoyable. I myself dwelled on those types of physical activity that I loved in childhood: cycling, dancing, gymnastics, kayaking, jumping rope. Some women told me that now they enjoy doing sports that were forbidden for them when they were children: alpine skiing, weight lifting, football, surfing. I have never heard from women admitting that they are engaged in species that they have ever hated. If you need company or want to be outdoors, then gymnastics and swimming in an indoor pool are not suitable. If you are one of the people who never miss an opportunity to play Saturday outdoors, then the idea of joining a tennis club might be worthwhile for you.

If you want to practice on your own, without the audience judging your every move, then you will not feel very comfortable in competitive sports. Then choose the kind of physical activity that you can do at home. Bad weather, a broken car, a child's illness, even a broken string on a tennis racket can be the reason why you will stay at home on such a day, and possibly for the next several. On the other hand, you can jump rope in any confined space, run around the house until you dare to run and through the streets. Exercising with dumbbells is possible in front of the TV, and gymnastic exercises can be performed almost anywhere.

Set short-term goals for yourself so that you can feel like you are achieving something every day. As your fitness improves, set yourself higher and more challenging goals. In jumping rope, for example, the first goal might be to complete 100 jumps without stopping, which will take you two weeks to a month to reach. Two months after starting classes, you can set yourself a goal to jump for 15 minutes, and after another three months - bring continuous classes to 30 minutes. When this form of training begins to bore you, come up with some novelties that could add variety to the class. If you write down your goals and training loads, then after a few months they can be re-read. You will be surprised how quickly your fitness level improves.

Be creative when choosing the time to study. Use your lunch break for jogging or swimming instead of eating lunch, thus absorbing additional calories. Unite with another mother sitting at home with a child, then you will sometimes look after two children at the same time, but you will also have a weekend. Exercise each day before work and you will feel an extra boost of energy throughout the morning. Or practice as soon as you get home from work, while dinner is in the oven. Team up with friends and practice together. Or do the exercises alone at any time you have. Do not make yourself any indulgences, force yourself not to be lazy. You must believe that you need to practice at least three days a week.

Exercises - tests

Before starting a set of exercises or switching from one sport to another, test your capabilities with the tests below. This will allow you to determine the state of muscles and joints, the cardiovascular system, as well as find out which departments and systems are less developed than others ... After that, you can choose the most suitable sports for the current level of physical fitness and develop a training program for practicing the sport, which is preferred. Many overestimate the level of their own preparedness. Jogging behind the bus every morning and light walks on Saturdays does not help to maintain good physical fitness.

If the requirements of one or several steps are beyond your strength, do not despair and do not quit your studies. Strong muscles are by no means the privilege of men. Within a few weeks, you will notice tangible changes in your physical condition and even know the pleasure and satisfaction of being able to do push-ups with ease. Check your capabilities every few months and record your progress.

Warning: all tests suggested below are only suitable for healthy women. If you feel pain or tightness in the chest area during one of the test exercises, or if you quickly become out of breath, feel unable to control your muscles, if nausea and dizziness develop, stop exercising immediately and see a doctor.

Tests to check the condition of the cardiovascular and respiratory systems

Pulse

To determine your radial artery (or wrist) pulse, press the second and third fingers of your right hand to your left (for left-handed - on the contrary) about 2.5 cm above the wrist on the inner side of the hand above the thumb. Press hard enough to feel the thumping of pulsating blood, but not enough to block blood flow. Watch the clockwise hand as you count the number of beats. For a more accurate calculation, determine the heart rate in 10 seconds, multiply the indicator by 6 and get the number of beats per minute. If you are able to count very accurately, then you can determine the purity of the pulse immediately in a minute.

Some people believe that it is easier to determine the pulse in the carotid artery. Place the second and third fingers of your hand on your neck just under the corners of your mouth. Turn your neck slightly to the side and move your fingers slowly down until you feel a heartbeat underneath. Do not press hard as it is very easy to block the blood flow in this area.

Kersh step test

If your fitness level is not very high and you have never been involved in physical education, then the step test, developed by B, M.D. Karsh, professor of physical activity physiology, will help you easily determine the state of the cardiovascular system. Find a bench or sturdy chair 30 cm high. Step on and off the bench in four counts: for one count, put one foot on the bench, on two for the other, on three, lower one foot to the ground, on four "- another. The pace should be as follows; two full steps up and down in 5 seconds, 24 in a minute. Continue running the test for 3 minutes. After completing the test, immediately sit on the bench and count your heart rate. The heart rate should be counted over a minute to determine not only the heart rate, but also the rate at which the heart is recovering from exercise. Compare the data obtained with the data in Table I, and you will see how well prepared. Write down were indicator in a special table characterizing.

well prepared. Write down your indicator in a special table characterizing the level of preparedness of your body; a sample table is provided at the end of the chapter. (If you are tall, then perhaps this test will be too easy for you and the data obtained will not reflect the true state of affairs. I suggest everyone who is taller than 152 cm to increase the bench height by 5 cm for every 7.5 cm in height;)

One and a half run and walk test

The step test is available to everyone. However, if you are in good physical shape, then it will not give an accurate picture. If you have been doing physical activity for at least three months and you run fairly easily, the 1.5-mile running and walking test, developed by K. Cooper, a famous promoter of aerobics, is quite suitable for you. It will give a more complete picture of the state of the cardiovascular system.

Find a treadmill you know the length of and start running. Continue it until you begin to choke. Then slow down and switch to walking - until you restore your breathing, then run again and again switch to walking, and so on until you overcome a distance of one and a half miles (2413.5 m). Since this test is a test of endurance and the maximum capacity of the body, run as hard as you can, without causing pain or discomfort. By comparing your result with the data in Table II, you can write down the result in a table characterizing the level of preparedness of your body.

Strength fitness tests

Before beginning your strength and flexibility tests, warm up for a few minutes by doing the universal warm-up exercises in Chapter 2.

The exercises below will help you determine the power of different parts of the body. If you are able to do each of them 1 or 2 times, it means that you are in bad shape, three in mediocre, four in good and five in excellent.

1. For the abdominal muscles.

Lying on your back, knees bent, feet completely touching the floor, legs slightly apart. Hands behind the head, clasped in a lock, the chin touches the chest. Starting from the head, try to get up and move



to a sitting position. If necessary (but only extreme), someone can help you by keeping your feet on the floor (Fig. 1).

2. For the muscles of the arms and shoulders.

Lying face down on the floor, hands under the shoulders, elbows bent. Keeping your body still, straighten your arms until your weight is on your extended arms and big toes (push-ups).



3. For biceps.

Grasp the bar with a grip from the bottom. Pull yourself up, bending your arms and trying to raise yourself so that your chin is above the bar, then slowly lower yourself. Lots of women fail pull-ups. And those few who can do this exercise can "cheat" by helping themselves with a swing of their legs or preliminary swinging.



4. For triceps.

The same pull-ups, but with an overhead grip, which are much more difficult to perform.



5. For the back muscles.

Lying on the floor, face down, hands behind the head in the lock. Without taking your legs off the pole, bend at the lower back, raising your head and upper body and lifting them off the floor. If this exercise is difficult to do this way, have someone else hold your legs and buttocks. This test is not recommended for those with lower back or lower back pain. (fig. 2).

6. For the muscles of the legs.

Standing with feet shoulder-width apart, back straight, hands on hips. Bend your knees slowly, trying to spread them as wide as possible. Return to starting position. You should not perform a full flexion of the legs at the knee joints - it is much more difficult and requires the efforts of other muscle groups (Fig. 3).

Record the results of these tests in the table describing the level of



preparedness, and note whether you were able to complete the exercise, and if so, how many times.



Flexibility tests

The following seven exercises will help you determine how well you can bend and stretch the muscles around your joints. Perform each movement only once: you can either do it or you can't.

1. For the muscles of the lower back and Achilles tendons.

Standing feet together, knees connected. Without bending your knees, try to put your palms on the floor. If you succeed, then you are flexible enough (if you have very long legs, you may not be able to put your palms on the floor, even if you are flexible enough).

2. For the muscles of the neck and lower half of the trunk.

Lying on your back with your knees bent. Try to pull one knee towards you so that it touches the nose while bending your head and lifting the upper half of your body towards the knee. (Support the bent leg under the knee so as not to overload the knee joint.) Ditto with the other leg (Fig. 4).

3. For the muscles of the shoulders.

Sitting or standing, one arm over the shoulder, bent at the elbow and thrown behind the back. Try to grab this hand from below and behind with your other hand. Repeat by changing the position of the hands (fig. 5).

4. For the muscles of the anterior surface of the lower leg and calf

Standing on a dais (about 5 cm) on the front of your feet, try to touch the floor with your heels.

5. For the front of the thigh

Standing and leaning with a straightened hand on a wall (or table). Grab the instep of your left leg from behind with your left hand. Bending your hip, pull your heel up, as close to your buttocks as possible. The leg bent at the

knee and the bent torso should, as it were, be straight, so do not bend the torso or turn your knees to the side (stork). Repeat with the other arm and leg (fig. 6).

6. For the lateral muscles of the trunk

Standing feet shoulder width apart. Lean to the left without bending your knees, while sliding your left hand along your leg. Try to reach below the knee with your hand. You can bend your right hand over your head to help yourself. Repeat the tilt to the other side.

7. For abdominal and back muscles

Lying on your stomach. Bend over and grab your feet by the lift (for this you will have to lift your head off the floor). Bend your back so that you can swing back and forth (ring) (fig. 7).

Record the results of these tests by simply checking "yes" or "no" in the appropriate column of the table at the end of the chapter.

Tests for measuring body fat

The tables of the ratio of height and weight, published in various publications, differ significantly from one another and cannot give an exact answer to the question of how much your weight exceeds the norm.

Sports physiologists are now much less interested in weight-to-height ratio than in body fat percentage. 23-24 percent body fat is considered normal for a healthy woman. Although well-trained female athletes can have much lower rates - 10-15 percent. (In men, this indicator is even lower. In a healthy untrained man leading a predominantly sedentary lifestyle, body fat should be 15 to 19 percent of the total weight, and in athletes this figure is often 6-8 percent.)

Weight and body fat percentage are not always linear. Some women, who literally starve themselves and look like "living skeletons", nevertheless sometimes have a fairly high percentage of body fat. Conversely, a fairly plump woman, starting to exercise, will strengthen her muscles, become slimmer, losing up to five percent of her body fat and at the same time very little in weight. This is because she has increased total muscle tissue, and the muscles tend to be smaller, denser, and heavier than fat.

Laboratory tests to determine body fat.

This topic has been debated for over twenty years. While one scientist discovered another "accurate" method for determining the body fat, another immediately discovered the shortcomings of this method. The problem is that you cannot look inside a person and determine exactly where he has an

accumulation of adipose tissue, just as you cannot separately weigh bones, muscles and internal organs. The existing formulas are of a general nature, they are based on the assumption that gender, age and ethnic group determine what muscle mass is in reality.

Some laboratories use the measurement of fat folds, while others use underwater weighing (the patient is placed on a seat tied to a scale and then completely immersed in water for a moment). Since fat is buoyant, the thinner the fat layer, the denser you become underwater. Some laboratories even perform a biopsy by taking fat tissue from the thigh and then counting the number of fat cells. All three methods are quite reliable.

Three simple tests to determine body fat

1. Take off your clothes, stand in front of a mirror with your arms at your sides and your legs slightly apart. Look yourself closely: Raise your arms and see if there are any creases in the upper forearms. Turn around and carefully examine yourself from the back, whether there are any "fat waves" on the back, hips, and other places. If they are, then you are really fat.

2. Stand with your arms loose at your sides. Ask a friend to pinch vertically, grabbing the skin and fat on the back of the forearm midway between the shoulder and elbow, and measure the thickness of the skin fold. (Make sure that she does not "measure" her fingers along with the fold!) Then measure the horizontal pinch of skin on the right or left between the lowest rib and thigh - about 2.5 cm below the waist and parallel to the belly line. Finally, measure the vertical pinch on the front of your upper thigh. If two out of three indicators exceed 2.5 cm, then your body fat is too large.

This test is most commonly used because most of the fat is located directly under the skin. The more fat under the skin, the thicker the folds.

3. Stand up. Ask your friend to accurately and accurately measure in millimeters the "pinches" of the skin in the triceps area (the back of the hand in the middle between the shoulder and elbow, in the area of the lower edge of the shoulder blade) and on the front of the thigh (approximately in the middle between the thigh and knee and slightly inside). All pinches are done vertically. For greater accuracy, you can use a special compass. Write down all the metrics and add up. Then use the data in Table III, which lists the percentage of body fat for a specific age group. Compare your data with the data in the table.

Record your measurements. Write down data on those parts of the body where the fat layer is especially large and flabby. When you look at table IV, which characterizes the level of physical fitness, where the data of all the tests listed above have already been entered, it will immediately become clear what needs to be worked on first of all. But, when starting classes, do not strive to force the load. Do not forget that you are not a high-class athlete, and overloading will be harmful not only for the heart, but also for the bones, muscles, ligaments and joints.

Check your condition regularly and always write down your results. From them one can judge how correctly the work was structured in the past months. Perhaps you are overly carried away by strengthening some muscle groups, forgetting about others. This data will help you subsequently observe how your health condition gradually improved and your fitness level increased.

Medical stress tests

If you are healthy and all of the above exercises and tests performed with a mediocre or better grade, then most likely you can start exercising without additional medical advice or supervision. However, if you have the slightest doubt, be sure to consult your doctor. According to the recommendations of doctors, if you have any of the following symptoms or indications, you should definitely consult with your doctor before starting any exercise:

- chest pain with any movement;

- angina pectoris of moderate severity or serious coronary heart disease;

- congenital heart disease;

- severe anemia;

- high blood pressure not controlled by medication, or 180/110 even with medication;

- serious diseases of the heart valves or large blood vessels;

- blood clots in the veins (according to medical terminology, thrombophlebitis);

- lung diseases;

- kidney disease;

- liver disease;
- diseases of the central nervous system;
- diabetes or other metabolic disorders that are not well controlled;
- obesity (overweight over 17 kg);
- acute or chronic infectious diseases;
- psychosis or severe neurosis;

- serious heartbeat disorders requiring the use of medication or medical supervision;

- increased size of the heart due to high blood pressure or other. progressive heart disease;

- seizures that cannot be completely treated with medication;

- arthritis at a stage that requires almost constant use of pain relievers - medications;

- constant use of any of the following drugs: reserpine, propanol hydrochloride, sulfate drugs, nitroglycerin and the like, procainamic hydrochloride, insulin, psychotropic drugs, digitalis.

Of course, it is advisable that the doctor you turn to is also a good specialist in physiotherapy exercises. And it's really good if he understands exactly the kind of sport that you are doing or are going to do.

Before allowing you to exercise or increase your training load, your doctor may recommend performing a stress test to detect hidden coronary artery disease. However, a study published in an American medical journal in 1979 recommends stress testing only if you have symptoms of heart disease or high blood pressure, or someone in your family has had heart disease, or your medical history. suggests that such a possibility is not excluded. Another study, also published in this journal, emphasized that if people who did not have any of the symptoms listed above were subjected to such stress tests, then false positive or negative results are quite possible. In other words, based on the test, it can be concluded that you have a coronary artery disease, which in fact does not exist, and vice versa. It is very difficult to predict "invisible" heart disease in some patients, even with an intensive examination. Because the incidence of heart attacks in premenopausal women is very low, it is clearly unnecessary to stress test symptom-free women under the age of 45. If you are over 45, seek the advice of a trusted doctor. Because the incidence of heart attacks in premenopausal women is very low, it is clearly unnecessary to stress test symptom-free women under the age of 45. If you are over 45, seek the advice of a trusted doctor. Because the incidence of heart attacks in premenopausal women is very low, it is clearly unnecessary to stress test symptom-free women under the age of 45. If you are over 45, seek the advice of a trusted doctor.

If age or symptoms require you to undergo a stress test, be prepared to spend at least two hours in the doctor's office doing very strenuous physical

activity. You may have a chest x-ray and a variety of other tests. You will be weighed and measured for height, the percentage of body fat will be determined. A resting ECG will be taken, then you will be asked to do some physical activity, such as squats, to determine the strength and level of development of individual parts of the body. After that, you will again take an ECG and measure your blood pressure; in some laboratories, the volume of exhaled oxygen is also measured. As a load, you may be offered to run on a treadmill for 8-10 minutes, or work on a bicycle ergometer, or go up and down a step (step test).

This part of the study is very stressful. If you have not been involved in cycling before, then ask to test you better in running on a treadmill, because on a bicycle ergometer untrained muscles will get tired much earlier than you lose your breath, which will not allow you to accurately measure the indicators of the activity of the respiratory and cardiovascular systems.

A complete stress test, together with medical history and anthropometric data, will provide an excellent picture of the level of fitness: maximum heart rate, heart rate that can be exercised, ideal body weight, aerobic capacity, oxygen utilization efficiency; contraindications for practicing a particular sport. With all this data, you, together with your doctor, will be able to create an exercise program that will not cause harm and will strictly correspond to your individual characteristics.

Chapter 2 Basic Principles of Physical Fitness

Regardless of the profession and the goals that you set for yourself, the ways to achieve physical fitness are the same for a housewife, who has never seriously engaged in physical education, and for the famous American tennis player Chris Evert-Lloyd, who is preparing for the most important competitions. Learn to use them correctly. By adhering to the basic principles of physical fitness, you can not only get the most out of your activities, but also avoid injury.

Develop endurance, strength and flexibility

Endurance will provide a greater supply of vitality, strength will transfer energy to the work being performed, and flexibility will give elasticity to movement. Certain sports help develop all three of the above qualities, while others contribute to the development of one or two. It is necessary to determine what basic physical qualities do not develop enough when practicing the chosen kind of sport, and to perform additional special exercises, striving for all-round harmonious development.

Endurance, also known as cardiovascular and respiratory endurance or aerobic capacity, reflects the body's ability to use oxygen to "burn fuel" for extended periods of strenuous physical activity. Sports requiring endurance are those in which physical activity lasts more than 3 minutes. These are most of the running numbers of the track and field program, field hockey, swimming, skiing, rowing, cycling and others. (Sports that require explosive actions, i.e., predominantly speed and power, and take less than 90 seconds in time, are provided mainly by anaerobic mechanisms of energy production.) Although at first glance it may seem that aerobic capacity does not play a role at all when necessary hitting the ball more efficiently, in fact, much greater success can be achieved in playing tennis if the lungs and heart are well trained and, regardless of the magnitude of the load, are able to provide the working muscles with oxygen. Running 800 meters, individual gymnastic exercises and wrestling bouts, usually lasting from one and a half to three minutes, combine aerobic and anaerobic loads.

Aerobic and anaerobic metabolism

When you burn wood in a stove, heat is generated. When you "burn" fuel in your muscle fibers, you are able to get the job done. Of course, somewhat different processes take place in muscle fibers than in a stove, but they have similarities - in either case, oxygen is needed.

The production of energy in muscles in the presence of oxygen is called aerobic metabolism; it is a very efficient process in which the sugar (glucose) found in the muscles of the liver and fatty acids, also stored in certain "depots" of the human body, are constantly circulated to produce energy and fuel. Almost all the energy of the human body is provided by aerobic processes.

However, the first two minutes of the exercise (or during the finishing spurt in a competition if you have exhausted all the "fuel") the body is not able to provide all muscle fibers with the required amount of oxygen and is forced to use part of muscle glycogen for the production of anaerobic energy. Unfortunately, anaerobic processes produce lactic acid, a decay product. Lactic acid, accumulating in the muscles, weakens them, contributes to the appearance of pain, cramps.

That is why the body is able to work in anaerobic mode only for 1 - 2 minutes. If the body does not adapt to physical activity or you work at full strength (with a heart rate of over 80% of maximum), a large amount of lactic acid will accumulate in the muscles, muscle glycogen reserves will be depleted, which will lead to muscle cramps and loss of coordination of movements.

On the other hand, if you work at an average pace (with a heart rate of 60-80% of maximum), an aerobic energy supply mechanism will come into play, which at first will act simultaneously with anaerobic one, and then the body will completely reorganize itself to aerobic work. During the first few minutes, you will experience a feeling of discomfort, you may lose your breath, since the body has not yet replenished the oxygen debt formed during anaerobic work. At this time, oxygen is needed not only to obtain energy, but also to process excess lactic acid. After about 10 minutes of aerobic exercise, you will feel better and have a second wind.

Power

Strength is determined by the amount of force exerted by a muscle, or by the resistance that it is able to withstand. Velocity is a derivative of force, since it requires the manifestation of power. Strength is necessary in any sport: to perform a jump (for example, in basketball), to support your own weight (in gymnastics), to overcome the force of gravity of your own body (in pole vaulting) or water (in rowing or swimming). Strength can be increased by forcing selected muscle groups to work.

Flexibility

Flexibility in sports refers to the maximum possible range of motion that you can move your arms, torso, and legs around any joint. Flexibility is especially necessary for successful performances in gymnastics, swimming, hurdling. Flexibility is in some way opposed to strength. Strength shortens muscles, while flexibility lengthens them. The long, loose muscles are capable of full amplitude movement without difficulty. Genes largely determine the natural flexibility of muscles, surrounding tissues, the ability to stretch tendons and ligaments, bone joints in joints. However, flexibility can be developed through training. Age is by no means an excuse for losing natural flexibility. "And at sixty you can have the flexibility of a six-yearold child," says V. Kersh, who proposed the step test. By the way, he is sixty-eight years old. (I first started doing bends when I was 39, so an older woman can also try to regain the flexibility of a young girl.) Stretching is necessary for several months to become more flexible, with a gradual increase in tension or load on the muscles. ... These exercises need to be done slowly, without jerking, because jerky, quick movements will contract rather than relax the muscles. Some strenuous sports like weightlifting, jogging, soccer make muscles tighter and less flexible. Stretching exercises can help combat this and prevent injury, but they must be done regularly.) In order to become more flexible, it is necessary to do stretching exercises for several months with a gradual increase in tension or load on the muscles. These exercises need to be done slowly, without jerking, because jerky, quick movements will contract rather than relax the muscles. Some strenuous sports like weightlifting, jogging, soccer make muscles tighter and less flexible. Stretching exercises can help combat this and prevent injury, but they must be done regularly.) In order to become more flexible, it is necessary to do stretching exercises for several months with a gradual increase in tension or load on the muscles. These exercises need to be done slowly, without jerking, because jerky, quick movements will contract rather than relax the muscles. Some strenuous sports like weightlifting, jogging, soccer make muscles tighter and less flexible. Stretching exercises can help combat this and prevent injury, but they must be done regularly. Some strenuous sports like weightlifting, jogging, soccer make muscles tighter and less flexible. Stretching exercises can help combat this and prevent injury, but they must be done regularly. Some strenuous sports like weightlifting, jogging, soccer make muscles tighter and less flexible. Stretching exercises can help combat this and prevent injury, but they must be done regularly.

How to develop endurance!

Regardless of which sport you choose to practice, endurance is necessary not only to increase your vitality, but also to improve your overall physical fitness. Even in sports requiring high technical skill and almost no strength, flexibility, or high aerobic capacity, a more enduring athlete will have certain advantages. But, more importantly, without highly developed cardiovascular and respiratory systems endurance, you will never truly be healthy, no matter how active you lead.

You can improve your aerobic capacity by doing one of the endurance sports (stayer swimming, cycling, long-distance running, jumping rope or walking) at least 3 times a week. If you are under fifty and are doing well, exercise for at least 15 minutes at a heart rate of 80% of your maximum each time. If you are over 50 and your health is not very good, improve the fitness of the cardiovascular and respiratory systems, exercising for at least 30 minutes with a heart rate of 60% of maximum(see chapter 1 - test to determine the level of preparedness)...

Target heart rate

In order: to determine the heart rate that must be maintained during physical activity, first determine the maximum heart rate for yourself (for this, subtract your age in years from 220, then calculate 60 or 80 percent of the maximum, depending on age and level of physical fitness). The maximum heart rate for a 35-year-old woman will be 185 beats per minute (220 - 35 = 185). If she is in bad shape, the heart rate with which she should train will be (185X0.60) 131 bpm. If she is well prepared, then the desired heart rate value will be (185X 0.80) 148 bpm.

In endurance training, muscles use oxygen to burn glycogen. Working at a given heart rate forces the body to use oxygen more efficiently, which is the ultimate goal of endurance training. As you breathe in and out, the lack of oxygen stimulates the bone marrow to produce more red blood cells to carry oxygen to the muscles. At the same time, the body synthesizes more enzymes in order to release oxygen from the blood, which is necessary for the muscles to work. The heart muscles get stronger, and therefore, with

each powerful new contraction, they release more oxygenated blood to the muscles. The arteries expand in order to provide increased blood flow, the network of capillaries, these smallest cardiac vessels, expands, filling all parts of the working muscle with blood. Physiologists call these cumulative changes "maximum oxygen consumption": the largest amount of oxygen that is consumed during strenuous work. For example, the famous marathon runner Greta Weitz consumes 73.5 ml of oxygen per kg of body weight per minute. For comparison, I will say that, on average, a woman weighing 50 kg and doing one of the endurance sports has a VO2 max of 44 ml / kg / min.

Smoking increases heart rate by 5-25 beats per minute, clogs blood vessels, raises blood pressure by 10-20 ml, reduces the amount of oxygen in the blood, since about 10% of it is bound by carbon dioxide exhaled during smoking. Thus, if you smoke, you will tire faster and may not be able to get the most out of your training session. If you quit smoking, your lung function can be restored within eight months, but in the event that there are no serious lung diseases.

When you start exercising, it's a good idea to check your heart rate after a few minutes during the session. For this purpose, a heart rate of 6 or 10 seconds is suitable. Your heart rate can tell you how hard you are exercising and whether such exercises will bring any benefit or, perhaps, overexert yourself. If you experience any discomfort, regardless of what the target heart rate should be, stop immediately. In a few weeks, there will be no need to monitor your heart rate during exercise: you will be able to determine by your well-being that you have reached the set target.

Speaking or singing test

The test by speaking or singing allows you to adhere to a given heart rate without resorting to counting the pulse. If during the exercise you are able to talk with your partner or sing, then obviously the intensity of the load is what it should be. If the intensity of the exercise does not allow talking: muscles are tense, pulse is fast, breathing is rapid- or you yourself feel that you have gone too far, which means that the heart rate is higher than the set one. Slow down your pace. (This test is not suitable for swimmers. They have to rely on heart rate counts.)

As the level of physical fitness increases, the body will recover faster after each session. This means that recovery time can serve as a measure of the level of preparedness. Even a beginner should be able to restore normal breathing 10 minutes after the end of the load (if you feel that at the end of the session it is very difficult for you to restore normal breathing, get on all fours, hang your head between your hands and breathe, sticking out your tongue). The heart rate should reach 120 beats / min (on average) within 5 minutes after stopping the exercise and drop to 100 beats / min and below in the next 5 minutes. However, even if you are in good shape, the recovery time is significantly increased in the event of overexertion. So, a woman who regularly cycled 70 km in a week,

If you talk to other exercisers, you will hear a lot of interesting things about resting heart rate. As the endurance of the cardiovascular and respiratory systems of a person increases, his pulse at rest (ie, when he is relaxed) drops to 40-45 beats / min. For comparison, I will say that in the United States, a resting heart rate of 80-90 beats / min is considered a normal indicator. If your heart rate in the supine position is 40-50 beats / min immediately after waking up, then you are in great shape. However, a high resting heart rate does not necessarily mean that the body is poorly prepared. For example, the famous American middle distance runner, former world record holder in mile running James Ryan, this figure at rest was 72 beats / min.

Find the right time to study

You should wait at least two hours after eating before starting exercise. If you try to exercise immediately after eating, you may feel weak because a certain amount of blood that your muscles need to work is flowing into your digestive tract. On the other hand, drinking water immediately before or during exercise is recommended.

Exercise at a time that you consider appropriate, convenient for yourself. Just like plants and animals, humans are divided into those who are most active in the morning and those who are most active in the afternoon or evening. The human body and all processes occurring in it are subject to a 24-hour cycle, which Franz Halberg called circadian (from the Latin circa dies - during the day). These daily biochemical processes control the activity of the body when you are asleep or awake, when you are hungry or full, when your body temperature rises or falls (it changes by 1.5-2 ° during the day), when your blood pressure and heart rate are high or low, when your memory is most acute and you experience a surge of energy, etc. Those who are most active in the afternoon, or, as they are also called, "owls", lag behind in all life processes from "larks" by an average of two

hours. This difference is especially noticeable in body temperature and the amount of food consumed. The "sluggish" secretion of hormones in "owls" in the morning makes for them strenuous physical work at this time almost impossible. Those who are most active in the morning, or, as they are also called, "larks", usually jump out of bed easily and are ready to immediately start strenuous exercise. But such people should remember that in the morning the body cannot work out quickly, therefore, in order to avoid injury, it is necessary to carry out a longer warm-up. The "sluggish" secretion of hormones in "owls" in the morning makes for them strenuous physical work at this time almost impossible. Those who are most active in the morning, or, as they are also called, "larks", usually jump out of bed easily and are ready to immediately start strenuous exercise. But such people should remember that in the morning the body cannot work out quickly, therefore, in order to avoid injury, it is necessary to carry out a longer warm-up. The "sluggish" secretion of hormones in "owls" in the morning makes for them strenuous physical work at this time almost impossible. Those who are most active in the morning, or, as they are also called, "larks", usually jump out of bed easily and are ready to immediately start strenuous exercise. But such people should remember that in the morning the body cannot work out quickly, therefore, in order to avoid injury, it is necessary to carry out a longer warm-up.

Learn to overload properly

In order to develop endurance, strength, or flexibility, you need to overload certain muscle groups. The point of loading is to force each muscle group to overcome a little more resistance than usual. Depending on the chosen sport, this can be the weight of your own body, overcoming the force of resistance, attraction or a certain distance. Use a weighted core, disk, spear in your studies; While practicing the technique of strikes in tennis, sometimes hold a small dumbbell in your hand - then on the court an ordinary racket will seem surprisingly light.

But remember, the extra stress should be very little. Use weights that make you feel light, and only increase their weight if you feel they are lightweight for you. By dramatically increasing the weight of the weights, muscles can be damaged. If the Muscles begin to tremble during the exercise, it means that they are overworked. Take a short break and rest.

Biorhythms and time zones

When the "internal clock" breaks from the usual rhythm, you may suffer from insomnia, indigestion, fits of anger, become forgetful, overly relaxed, unable to navigate correctly in time, and will be more or less susceptible to drugs than usual.

Many reasons can disrupt a person's circadian cycle, but the most typical are a change in the work shift from day to night and vice versa, the use of sleeping pills (because they act on the cyclical secretion of certain hormones), illness, crossing several time zones within one or two days. ... If you're not used to it, the time difference can be very annoying. In a city three time zones from home, you may have to compete in cycling or play an important tennis match 3 hours earlier or later than your usual time. This means that the body has not yet reached the maximum values of oxygen absorption, heart rate, body temperature or metabolism and other important indicators. The so-called larks are more difficult to adjust to the time difference than the owls. The older we get

If you are facing an important competition with a preliminary move, fly to the competition site a few days before it starts so you have time to adjust. (Calculate the days of stay so that one hour of difference equals one additional hour of stay). You can try to change your daily routine while still at home. Start five years or a week before departure - every day go to bed get up half an hour earlier (if you have to travel to the east) or half an hour later (if to the west). This means that before you leave, you will fall asleep (and not just lie in bed) in accordance with the time of the new time zone. Or try to negate the negative effects of rapidly crossing multiple time zones by exercising and eating at times that are familiar to you. Otherwise, if you go east, then, competing in the morning, you will clearly be in a disadvantageous position, since at this time you usually sleep at home. In the west, performing in the evening will be far from perfect, as your "internal clock" tells you it's time to sleep.

Follow the rule of specificity

The best way to be successful in your sport of choice is to practice it regularly. If you want to do additional exercises to get stronger or faster, choose movements that are repetitive to those you have to do in your chosen sport. It took many years before coaches became convinced that the use of additional weights attached to the ankles while walking did not help the education of jumping ability in basketball players, etc. (Indeed, if you use such weights outside of a special exercise program with gradually increasing weights in strength training you can injure your thighs and knees.) Simply put, the most effective way to get the best performance on long runs is by running for a long time.

There is a psychological explanation for this. Human muscles are composed of light and dark fibers. Light, or high-speed, muscle fibers contract very quickly and with great effort for very short periods of time, but light fibers lack myoglobin, a red muscle pigment substance similar to blood hemoglobin, which carries oxygen. Without myoglobin, these muscles have no oxygen and must "burn" the small amount of sugar in the muscle through anaerobic, non-cyclic chemical reactions. All fuel is consumed within 90 seconds, after which the muscles simply stop working. Slow muscle fibers contract slowly and with less power than fast muscles, but the myoglobin contained in them regularly supplies them with oxygen, which is used as a fuel for the continuous production of aerobic energy. Likewise, in a turkey, the dark, slow muscles of the legs and back are used to maintain a standing position, and the light muscles in the wings and chest are used for short flights. In humans, dark muscle fibers work during long walks, and fast muscle fibers work during heavy lifting or brisk running.

The percentage of dark or light fibers in each muscle is predetermined by genes. (A muscle biopsy can determine which muscle fibers you have more - slow or fast.) However, by following the principles of overload and load specificity, you put enough stress on the body to increase the muscle fibers that you have, and even, it is believed some scientists stimulate the growth of new fibers. In addition, targeted training allows you to change the type of muscle fibers. Of course, they cannot completely change and become the complete opposite of their genotype, because they regain their original appearance as soon as you stop loading them. Despite the natural inclinations, you can increase endurance and strength if you exercise wisely.
Don't forget about the antagonist muscles

Each muscle group performs its intended work. So, if the biceps bend the elbow joint, then they cannot straighten it. This work is done by the triceps. These pairs of muscle groups are called antagonists. It is necessary to train all fibers of any muscle group, as well as their antagonists. Strengthening a specific muscle group will make it thicker, tighter, and shorter. If the antagonist muscle group is not strengthened at the same time, they will remain weaker and longer, which will prevent the joint from coordinating to perform the full amplitude movement. Improper, uncoordinated movement is often the cause of injury in athletes. (There is a second way. Instead of strengthening the antagonist muscle groups, you can stretch agonist muscles, paying particular attention to flexibility exercises. This is a rational and highly effective approach, which means doing stretching exercises in warm up and cool down. Although the ideal is to strengthen all muscle groups, then stretch the different muscle groups equally.)

Follow the order of the exercises

The sequence of exercises depends on the goals that you set for yourself. If you just want to be in good shape, do strength or resistance exercises first, then endurance exercises, and finally flexibility. If your focus is on building strength, then you can also follow a similar exercise pattern. However, if you are a dancer or gymnast and are primarily interested in flexibility, start with flexibility exercises, then do a resistance exercise program and end up with endurance exercises. On days of important play or swimming competition, do only stretching exercises. A full training load will be too exhausting.

Strength is best at the beginning of a workout, until too much lactic acid has been excreted by the aerobic mechanisms. Since stretching does not generate a lot of lactic acid and does not require "clean" muscles, you can do them at the end of the session. Then the warmed up muscles will be able to stretch much more. Vary the order of the exercises if you feel that prolonged strenuous activities do not leave the strength to perform several bends, touching the big toes with your fingers.

Use or lose

According to the data of the doctor of medicine f. Smith, the body loses its fitness within three to four weeks, whether you are a world-class athlete

who has trained for almost a lifetime, or a beginner who has only three months of skiing.

If muscles are not constantly stressed, they quickly lose their ability to efficiently use oxygen. This happens faster with endurance sports than with speed-strength sports. For some time, sprinters can run as fast as before, despite the fact that the body has lost more of its stamina. But one or two more weeks - and speed qualities will be largely lost.

The unmistakable signs of detraining are: you are not able to do what you once were able to do; gasping for breath, performing the movement at a pace that previously seemed easy; muscles ache.

It is much more difficult to regain shape than to maintain it. If you practice 4-5 times a week, you will improve your skill and level of preparedness. If you carry out the same classes, but 3 times a week (preferably every other day), then you can keep in shape, provided that you have already reached a certain, average level of fitness.

Warm up correctly

Before any activity, you need to warm up the muscles with light stretching exercises. Never neglect your warm-up. Exercises that gradually stretch the muscles slightly raise the body temperature, since breathing becomes slightly faster, blood circulation becomes more intense, ligaments lengthen and muscles stretch. It also prepares your joints for work.

Remember that your heart also needs time to warm up. It is a muscle, and the harder it works, the more oxygen it needs, but it takes a few minutes for the arteries to dilate enough to bring oxygen-rich blood from the lungs. Unexpected, strenuous exercise can lead to a lack of oxygen in the heart muscle, which, in turn, causes a sharp rise in blood pressure. This is very dangerous, especially for those who suffer from coronary artery disease (this group includes most middle-aged people, both men and women, and some younger men).

Three or four tennis preliminary serves and ten on-spot bounces will not solve warm-up problems. In order to prepare the heart muscle for work, you need 2-5 minutes of light jogging, performed after stretching exercises, or any. similar load. On very cold days, go for a run before doing stretching exercises. (Unheated muscles will not stretch effectively.) Run slowly in place or do a few bounces before starting the stretching exercise.

Jumping in place

Standing with your feet together, arms at your sides. On the count of "one" jump up and, as soon as you land (feet shoulder-width apart), simultaneously swing your arms up and clap your hands above your head. On the count of two, jump into the starting position. When counting jumps, movements performed in two counts are counted as one jump.

When doing stretching exercises in the warm-up, do not make sudden movements. The so-called ballistic movements, previously popular - in the form of bending to the toes or bending the knees - actually only tense the untrained muscles, rather than relaxing and stretching them. Gently do socalled static stretches like the ballerinas do (they really improve flexibility and help avoid pain, while also being a kind of massage). However, if you participate in sports with direct contact with participants, such as hockey or basketball, after the first warm-up, do a second, in which you include sharper movements to prepare the muscles for unexpected turns and rotations and avoid pain.

Static stretching

In static stretches, you assume a position in which the joints are "locked" while the muscles are stretched to their full length, and hold it for 1 - 3 minutes, allowing gravity to pull or push you. In other words, if you are performing bends with your toes touching your feet, bend as low as possible without bending your knees. Stop when you feel a feeling of tension and some discomfort, rest until the muscles relax and the tension disappears. Then repeat the inclines, this time trying to get a little lower, until you feel unpleasant tension again.

Universal warm-ups

The following versatile warm-ups are suggested by D. Rockwell, a physical therapist. He recommends them to any healthy person, men and women, regardless of age and the chosen sport. They can be used with equal success by girls doing gymnastics, swimming or jogging and 60-80-year-old patients undergoing rehabilitation after myocardial infarction or heart surgery.

Keep in mind the following rules at all times: do not twitch, do the movements slowly; starting exercises with the feet, gradually move up, but first completely complete all the exercises for one section, before moving on to another, and stretch primarily those muscle groups that hurt after previous exercises; stretch until you feel a slight tension, but in no case allow pain to appear, first do each exercise once (if the number of repetitions is not specified), gradually bringing it first to three, and then to five in one classes; hold each position to the count - ten to twenty, depending on the degree of preparedness (if the time is not specifically stipulated); prepare your heart for the work ahead by performing slowly those movements

Remember, if you are not completely healthy, you should consult your doctor before embarking on any wellness program.

Flexion of the toes

This exercise helps stretch the muscles surrounding the ankle. Sitting on the floor (on the ground), legs are slightly apart, socks touch the floor. Flex and extend the ankle. Repeat 20 times for each leg.

Foot rotation

Helps stretch the ankle muscles. Sitting, legs are straight and slightly apart. Raise the foot of one leg slightly and rotate it first clockwise, and then in the opposite direction - 20 rotations in each direction. Repeat with the other leg.

Twisting the foot

Stretches the muscles of the anterior leg. Sitting, place the lower leg of your left leg on the thigh of your right. Grab the left foot with both hands, holding the sole with the left bunch and the outside of the foot with the right. Without moving your leg or knee, and only bending your ankle, try to rotate it so that it faces the sole upward, and feel tension on the outer surface of the ankle. Make an effort, trying to perform the movement as if you were twisting your foot. Repeat with the other leg (fig. 8).

Stretching the calf muscles

Stretches the Achilles tendons, hamstrings, posterior ankle muscles. Standing about half a meter from the wall (facing it), put your hands on the wall, placing your hands about the width and height of your shoulders. Extend one leg back with the knee straight, with the foot completely flat on the ground. Try to maintain such a position so that the forward leg is under you, the knee is slightly bent, and the foot is completely touching the ground. Slowly lean against the wall, while tilting your hips slightly and bending your elbows, as if you are doing push-ups from a wall, until you feel a slight muscle tension on the back surface. Hold this position for 15 slow accounts. Repeat with the other leg.

Stretching the groin muscles

Sitting on the floor or on the ground. Bend your knees and connect your feet with the soles, grab your feet with your hands and hold, trying to touch your socks with your head at the same time. As you become flexible, try to touch your browbrows to the floor in front of your feet, each day bending lower and further and further touching the floor with your forehead (Fig. 9). **Slopes**

Stretches the tendons. Standing in a comfortable position for you, the feet are preferably together, the legs are straightened.



Bending your legs at the hip joints, try to touch your socks or the floor with your palms. Bend over until you feel tension, hold this position and allow gravity to help you bend lower. Hold this position for 15 slow accounts. Don't make any sudden movements. As you straighten up, bend your knees slightly to prevent tension in your lower back.

"Stork"

Stretches the quadriceps femoris and tibialis. Stand up against a wall or table for support. Grab your left leg from the back with your left hand, holding on to the ankle. Bending your leg at the hip joint, try to bring the heel up, as close to the buttocks as possible, and try to fix this position with the left knee directly behind. Don't let your leg bend to the side. Maintain a straight body position, do not arch your back or bend your neck. If you do this exercise correctly, the body should resemble the letter "T". Take the same position by swapping your legs.

Knee touching the nose

Stretches the muscles of the lower back. Lying on your back on the floor or on the ground. Bend your knees. Lean forward and grab one leg just above the knee with both hands (if you hold onto the knee, the tension may be too much). Pull your knee toward your head while bending forward, bending your neck and back, and trying to touch the tip of your nose with your knee (Figure 10).

Raising from a prone position

Strengthens the abdominal muscles. Lying on your back, knees bent and slightly apart, feet completely touching the floor, hands behind the head in the lock. Rest your chin on your chest, bend forward and slowly assume a position in which your body makes an angle of 30-40 ° with the floor. When performing this exercise, it is very important to choose the correct torso angle, otherwise the effect will be minimal. For some, the ideal position is when the shoulders are barely off the floor. For others, when the torso is half bent. And for some, the most effective position is in which the palm of a training partner can fit between the neck and the floor. You have to determine for yourself which is best, and it is not that easy. Indeed, if the abdominal muscles are not too strong, they will begin to tremble even before you finish the exercise. Don't be confused by this. Try to hold this position for 10 slow counts, and then slowly lower yourself to the floor. To avoid injury to the lower back during this exercise, keep your legs bent at the knees. Perform movements smoothly, without jerking. Once is enough to warm up, however, if you want to strengthen your abdominal muscles, you can do several reps until you have enough strength. Studies carried out at one of the American universities have shown that a single performance of such an exercise in terms of its physical effect on the body is equivalent to 20 regular squats. Perform movements smoothly, without jerking. Once is enough to warm up, however, if you want to strengthen your abdominal muscles, you can do several reps until you have enough strength. Studies carried out at one of the American universities have shown that a single performance of such an exercise in terms of its physical effect on the body is equivalent to 20 regular squats. Perform movements smoothly, without jerking. Once is enough to warm up, however, if you want to strengthen your abdominal muscles, you can do several reps until you have enough strength. Studies carried out at one of the American universities have shown that a single performance of such an exercise in terms of its physical effect on the body is equivalent to 20 regular squats.

Regular push-ups

Strengthens the muscles of the chest, shoulder girdle and triceps. Lying on the floor on your stomach, body weight is distributed between the edges of the shoulders, the whole body is tense. Slowly straighten your arms, lifting your torso; then slowly return to the starting position. Straighten your arms for 10 counts and bend them again for 10 counts. When performing pushups, you cannot bend in the lower back, make unnecessary movements with the body, buttocks, and head. Gradually learn to do 20 counts push-ups.

If at first you can't do this exercise, remember that the higher the palms are in relation to the body, the shorter the path they need to travel to lift their own weight. So, if you are not strong enough, start push-ups from the table or from the wall. On the other hand, if you want to get stronger, leave your palms on the floor and rest your feet on a stool or table. Good luck!

Push-ups for the strong (performed instead of those described above) Lying on the floor, as in the exercise above, but with the palms under the ribcage, with the fingers of both hands pointing inward and lightly touching each other. The thumbs are directed towards the feet. Keeping your body tense, slowly push up, doing each movement for 10 slow counts. Gradually learn to do 20 counts push-ups (fig. 11).

"Airplane"

Stretches the muscles of the trunk. Standing, legs are slightly apart, arms to the sides at shoulder level. Slowly turn right and then left, doing each movement for 5 counts. Repeat in each direction 3-5





"Mill"

Stretches the muscles of the trunk. Standing feet shoulder width apart, arms out to the sides. Without bending your legs, slowly bend forward, trying to touch the toes of your left foot with your right hand, while your left hand rises back at the same time. Move slowly. 4 counts tilt, 4 counts straightening. The same with the other hand and foot. Repeat 3-5 times for each hand (fig. 12). "Reach the sky" Stretches the muscles of the shoulder girdle and the whole body. Standing, legs are slightly apart. Raise your arms above your head, with one hand, as if trying to reach the ceiling, rising on tiptoes and stretching your entire body. Repeat with the other hand. Do the exercise slowly 4-5 times. Experts advise to repeat this exercise 4-5 times during the day in order to relieve tension from the mouse shoulder girdle (Fig. 13).

"Chicken flaps its wings"

Stretches the muscles of the arms. Standing, legs slightly apart, arms bent at the elbows. Wave your arms like a chicken wings, and try to hug yourself, putting your arms back as far as possible, but avoiding pain; then again "flap your wings"

Many people use their hands to perform similar movements, doing jogging in the morning or practicing blows with a bag. Since most of us do a lot of things during the day, stretching and bending our arms and grabbing various objects, they do not need to perform specifically the same warm-up



exercises as for other

departments

Always cool down

In order to avoid muscle pain, cool down after the end of the session. It is just as important as a warm-up, because muscles tense up during exercise. Hitching helps the muscles to stretch again, is a kind of massage; during the hitch, excess lactic acid returns to the liver. Ballerinas are well aware of this rule, and usually they stretch for twenty minutes after each class or performance.

The content of the cool-down can be the same as the warm-up, but all exercises should be done very lightly and slowly - this is the main and indispensable condition. You can simply repeat all the warm-up exercises 3 times. However, if during the class you performed a very heavy physical activity - you exercised with weights (which significantly shortens the muscles), then you should perform one repetition at a time.

The heart also needs time to recover. While you exercise, it powerfully pumps extra blood to the muscles in your arms and legs. The muscles, in turn, push the blood back to the heart. If you suddenly stop moving, your heart will continue to pump blood for several minutes at an accelerated rate. It will linger in the muscles of the arms and legs, and an insufficient amount will return to the heart and from there to the brain. As soon as the brain experiences a lack of oxygen, you may faint. It is the body's defensive reaction, suggesting that the brain needs blood. If, however, you do not immediately stop the exercise, after a walk after a run or playing a light volleyball game, the heart will gradually decrease its heart rate. In just a few minutes, the heart rate will decrease (it can exceed the normal one by no more than 20 beats / min),

Alternate between strenuous and light activities

If you load your muscles beyond their usual limits each time, you can get injured. The body needs a day of rest in order to recover. In addition, muscle fuel depletes during strenuous exercise. It will take at least 10 hours to restore it. In addition, if you sweat, your body loses potassium through sweat, which regulates body temperature, the functioning of the muscular system and the transmission of nerve impulses. (The body needs about a day - in rare cases two days - to restore potassium balance.) If you do strenuous activities on the first day of classes and light on the second, the body will have the opportunity to recover, and even a supercompensation phase begins.

On a day of strenuous activities, you can, for example, jump rope for an hour or swim a long distance. An easy day means either a light workout or a day of rest. Usually, the body needs 24 hours to recover, however, if the previous activity was too stressful, you may need another day. You yourself will understand this - in the morning you will feel exhausted and will experience pain. Marathon runners sometimes need up to two weeks to fully recover from a race.

Great if you do weights 3 times a week, spreading them evenly. Strength and muscle mass will increase on rest days. On other days, it might be a good idea to play sports or split weight training or obstacle course in such a way that, for example, load the muscles of the chest and legs on Monday, Wednesday, and Friday, and the arms, shoulder girdle and abdominals on Tuesdays, Thursdays and Saturdays. Such a system will allow for shorter and more intense sessions.

Don't overtrain

Exercise is stressful for the body, so it takes time to recover. If you feel pain while doing the exercise or if you feel unwell after exercise, then you are overwhelmed. Pain is a natural warning to stop exercising. Reduce the time you exercise or reduce the load, be sure to take one or two days off.

Overtraining symptoms:

- early in the morning, the resting heart rate is more than 10 beats / min higher than the usual rate;

- exhaustion and lethargy after exercise after 24 hours, a persistent feeling of fatigue;

- heaviness in the arms and legs, pain and tension during exercise or even a few days after exercise;

lack of appetite, persistent headache, bowel dysfunction, inability to relax;
unsuccessful performance in competitions, even if you train as hard as before, or perform heavy loads;

- insomnia (inability to fall asleep should not be regarded as a sign of restructuring, renewal of the body, which needs less time to sleep; athletes performing strenuous workouts need more sleep);

- frequent colds;

- nausea after exercise;

- loss of interest in classes or a state of depression.

Use safe equipment

At present, more attention is paid to the safety of female athletes and athletes than before. For example, cyclists and water slalom athletes wear safety helmets, yachtsmen use life jackets, gymnasts land on more modern, resilient mats, and stayer swimmers wear special goggles. This is not only a tribute to fashion. This is a tribute to the times.

Listen to your body

Stop exercising immediately and see a doctor if you experience any of the following symptoms:

- pain and tension in the chest area;

- severe lack of air;
- slight dizziness;
- nausea;
- inability to control muscle work;
- acute pain from any injury;

Constant pain in a bone, joint, or muscle following a fall, bump, or sudden awkward movement;

Any bone or joint pain that does not go away within two weeks

- any injury that does not heal within three weeks;

- any damage to the skin that caused damage to small blood vessels, fever, the formation of a purulent wound.

Follow these general rules:

- if any part of the body hurts even at rest, do not resume classes without the additional permission of a doctor;

- If this area does not hurt at rest, try the exercise;
- if during the exercise painful sensations appear again, stop;
- if you have any questions, consult your doctor.

Chapter 3 Rational Nutrition

Vigorous exercise is one of the two main means of achieving health. The other is a rational, balanced diet. Every woman dreams of finding a magical set of products, the consumption of which would allow her to have excellent, smooth skin, have inexhaustible energy and remain forever young.

If you are active, you would like to eat a diet that will allow you to live your lifestyle, run faster, have more endurance, help your muscles work more efficiently, and at the same time help reduce - or, conversely, increase - body fat.

Improper nutrition will affect faster and much more acutely if you lead an active lifestyle, because the demands of the body in such a case increase. But if you deal with nutritional issues seriously, it will become clear that each person needs approximately the same ingredients and basically in the same proportions. While an active woman may consume more calories than a sedentary woman, there is no substitute for a well-balanced diet, which must of course be tailored to individual needs. It should include additional vitamins and minerals, if necessary, in order to help the body maintain high athletic form.

In the 1950s and 1960s, nutritionists argued that a properly balanced daily diet consists of a certain amount of four main food groups: meat, dairy products, fruits, vegetables, and cereals (cereals). However, in 1977, a special commission on good nutrition reported new scientific evidence that a diet high in protein and fat and low in complex carbohydrates had in fact increased the number of cardiovascular diseases, cancers, diabetes and other diseases in the country. Americans, the commission determined, usually eat a diet containing 40 percent protein (sometimes this figure rises to 60 percent), the remaining 40 percent is fat. Using such a diet has two Firstly, Eating consequences. insignificant amounts of complex carbohydrates means that the body is getting very little coarse fiber. (Fiber accelerates the passage of food through the intestines. It also, according to the observations of some American scientists, has the ability to trap cholesterol particles from the meat that is consumed, thus preventing them from settling on the walls of blood vessels.) Second, the additional amount

of protein, which absorbed in excess of the basal metabolism, according to some experts, it is obviously converted into fat and deposited in special stores in the body (along with the absorbed excess fat).

The Commission has defined the concept of a balanced diet taking into account current data in the field of nutrition and biochemistry. She recommends eating food that is 15-20 percent protein, 20-30 percent fat, only one third of which should be solid or animal origin, and the remaining 50-55 percent from complex carbohydrates, that is, fruits. vegetables, grains, nuts, and whole grains. Carbohydrates and fats are used by the body as fuel, and proteins are used to restore and build body tissues, vitamins and minerals contained in food are catalysts, or accelerators, of the power of chemical reactions that take place in every cell of the body.

You, like every person, have special, inherent needs for food products that are unique to you, which are determined by the genetic and emotional structure of the person, the environment, the state of health, the level of physical activity and the drugs that are taken. No scientist can recommend a diet that works equally well for you and your next-door neighbor. The Commission Formula is the main recommendation. In order to take advantage of them, you must first calculate the total number of calories you need each day. (see chapter 4 - "Weight control").... Then calculate the minimum and maximum calories you can afford in protein, fat, and carbohydrates. Let's say you need 1625 kcal daily. Thus, you can afford to consume 15-20% protein (ie, from 1625 kcal this will be 244- 325 kcal per day). Fat consumption - 20-30% of 1625 kcal, will range from 325 to 448 kcal daily. Consumption of carbohydrates — 50-60% of 1625 kcal will be 813-1056 kcal per day.

This is the essence of the main recommendations of the commission. But, unfortunately, this is not something that you can put directly into your mouth. No food is completely made up of just one protein, carbohydrate, or fat. If you use any of the nutritional tables in the nutritional literature, you can see that staple foods - animal and plant protein sources - contain a high percentage of fat, and most carbohydrates contain at least a minimal amount of protein.

If you are on a special low-fat diet because you want to lose weight or lower your cholesterol, or if you feel that the amount of protein you eat is not enough to strengthen and build muscle, you can calculate the protein, fat, and carbohydrate content of each food you use. Nutritional food tables contain essential ingredients in specific amounts by weight in grams. One gram of protein or carbohydrate contains 4 kcal; 1 gram of fat - 9 kcal. Thus, if you multiply the number of grams of protein or carbohydrate by 4 or the number of grams of fat by 9, you get the real number of calories of one or another component of any product. For example, the largest egg contains almost the same amount of protein and fat (7.4 and 7.2 g, respectively). However, it contains 29.6 kcal of protein and 64.8 kcal of fat. You can use these guidelines in different ways. Would you like to oil a potato you just baked? Wonderful. Compensate for this by avoiding butter and vegetable oils for the next few days.

Whatever you eat, never, however, try to compensate for the extra calories by eliminating one of the most important nutrients from your diet. For the normal functioning of the body, they are all necessary.

Fats

Although too much fat makes a woman obese, nevertheless, the daily diet must necessarily contain a certain amount of fat in order to ensure the full functioning of the body. The heart needs them. There are two constituents of fat: poly unsaturated fatty acids and saturated fatty acids. Polyunsaturated fatty acids, especially linoleic, arachidonic and linolenic, the body is not able to produce on its own, and all of them are very important for the body, since they participate in the construction of nerve cells, transport oxygen to the most important organs and tissues of the body and, in combination with protein and cholesterol, form fatty acids. the substance that makes up the cell walls of the human body. (Polyunsaturated fatty acids are liquid at room temperature and are of vegetable origin. These are corn, olive and sunflower oils. Saturated fatty acids are usually solids at room temperature and are derived from animal sources.) The fat also protects the skin from drying out and carries the fat-soluble vitamins A, D, E and K throughout the body. Reducing the amount of fat (less than 20 percent of total calories) in your daily diet can lead to serious health complications and possibly even heart rhythm disturbances. The fat also protects the skin from drying out and carries the fat-soluble vitamins A, D, E and K throughout the body. Reducing the amount of fat (less than 20 percent of total calories) in your daily diet can lead to serious health complications and possibly even heart rhythm disturbances. The fat also protects the skin from drying out and carries the fat-soluble vitamins A, D, E and K throughout the body. Reducing the amount of fat (less than 20 percent of total calories) in your daily diet can lead to serious health complications and possibly even heart rhythm disturbances.

Squirrels

The body needs protein in order to build new muscle cells and replace old ones that are worn out from constant use. Proteins support and, if necessary, repair the cells of your body's muscles, nerves, blood, skin, heart, and brain. They are also found in hormones that control the biochemistry of growth, development and metabolism, enzymes for digestion and other bodily functions, and antibodies that help fight disease. Protein is only used as an energy source if the body is depleted and has no fat or carbohydrates left to consume as fuel. The body is unable to store excess protein. If you absorb more proteins than the body needs to replace blood or other tissues, then they will be excreted from the body along with urine.

The richest in protein are animal products: yayda, meat, fish, milk and dairy products.

Carbohydrates

Complex carbohydrates, found in fruits, vegetables, grains, nuts and all grains, are the body's most important source of energy. They are, in fact, the only fuel on which nerve and brain cells operate.

The body also needs carbohydrates in order to use other sources of energy, such as fats, as well as to create certain amino acids that it is able to produce on its own.

The main carbohydrate in the human body is glucose. Only glucose can be used directly for energy. In order to consume any other carbohydrate as an energy source, it must first be converted into simple sugars using intestinal enzymes, and then the liver will convert these sugars into glucose. With the exception of lactose (milk sugar) and glycogen (deposited glucose molecules combined together), carbohydrates are plant-based and are found in three main forms: sugar, starch, and cellulose (fiber).

There are two types of sugars:simple sugars, or monosaccharides, and "double sugars," or disaccharides. Simple sugars include primarily fructose, glucose and are found in fruits and honey, dissolve very quickly and are a source of instant energy. Double sugars such as cycrose (table sugar), maltose and lactose break down almost as quickly. The starches, or polysaccharides, found in flour and other grain products are chemical chains of simple sugars. (Therefore, it will take longer for the body to process them.) They stay longer in the digestive tract, and satiety is felt for

a longer time. Cellulose (fiber) found in raw fruits and vegetables is also a polysaccharide, but digestive enzymes are unable to break them down. They are insoluble

Some of the carbohydrate glucose that is absorbed goes into the bloodstream where it is immediately converted into energy. A small amount is converted to glycogen and stored in the muscles and liver in order to be used when needed. Any excess carbohydrates are converted to fat and deposited in the form of ugly breeches on the sides and fat folds at the waist.

The committee's recommendations for carbohydrate intake are generally as follows. Eat fewer single and double sugars and more starch in the form of whole grains (raw or lightly cooked), fruits and vegetables because they contain cellulose and many other important food components. It is not recommended to use sugar, white flour, rice and other highly processed foods at the table, because they themselves do not provide the body with any nutrients and even deprive the body of a certain amount of vitamins. The digestive organs need B vitamins in order to break down and use carbohydrates. A number of food products contain vitamin B, but those that are well refined do not have it, and therefore use the vitamin already contained in the body,

After a hard workout, you want to eat both sugar and heavy foods containing starch and B vitamins, because significant reserves of carbohydrates have been used up. Well, please, have some coarse bread, potatoes and fresh fruit. All this will not give an increase in weight, it is only necessary to simultaneously reduce the consumption of proteins and fats in appropriate proportions. Weight gain will not be given by a slice of white bread, but by butter and jam, with which it is spread.

Vitamins and minerals

The outdated system of a balanced diet included the consumption of at least 2 times a day meat or vegetable protein, twice a day - dairy products, four times - fruits and vegetables, of which at least once - dark green or yellow vegetables and 4 times - bread or cereals ...

To get the most out of these foods, they should be either raw or minimally cooked. Long-term cooking destroys the vitamins contained in foods. In this case, all soluble vitamins and many of the minerals are dissolved in water. Therefore, to get the most out of it, you should either eat a soup or drink a decoction in which vegetables and other foods have been cooked. Special cooking also destroys water-soluble vitamins. According to Consamer Report, for example, a glass of frozen orange juice contains only 20 to 40 mg of vitamin C. There is 60 mg of vitamin C in a glass of fresh juice. Canned peas lose up to 94 percent of their vitamin C, frozen and then reheated pears - up to 83 percent.

If you follow an optimal balanced diet, ideally you should not take alcohol at all (it interferes with the absorption of vitamins B1, B and folic acid), smoking (smoking reduces the level of vitamin C in the blood by 30-40 percent), as well as taking birth control pills (they increase the need the body in vitamins B1, B2, B12, C and folic acid, and all these vitamins are necessary for building blood cells and transporting oxygen to working muscles).

Vitamins are necessary for the correct course of many metabolic processes, as well as the regulation of physiological and biochemical reactions. Minerals are important for chemical reactions that help muscles work by transmitting nerve impulses to the brain and back, controlling the heart rate, regulating the amount of water in the body and its location, they are involved in the formation of bones, promote the growth of teeth, hair and nails. Nutritionist M. Colgan, M.D., believes that adding vitamins and minerals to your diet can significantly improve speed, strength, and endurance during exercise.

In a series of double "blind" experiments that aimed to eliminate the scientist's one-sided view of the suggestibility of athletes, M. Colgan gave marathon runners and weightlifters additional vitamins and minerals or placebo (fake pills) for three months. Then he switched groups and continued the experiment for three months, all the while measuring how each athlete improved his performance during a regular, standard training session. Neither he nor the athletes knew what they were getting at the moment. It turned out that during each three-month interval, when experienced athletes received additional vitamins and minerals, they improved their results in a mile from 10 to -20 seconds, ran a marathon an average of 17 minutes 44 seconds faster and lifted weights 30-55 percent more than usual. When they took a placebo, there was either little progress, or, conversely, some subjects lost faith in themselves. In addition, when athletes additionally received vitamins and minerals, blood pressure, blood cholesterol levels and heart rate decreased. All these are signs of increased physical fitness, and they also received fewer injuries.

The amount of vitamins and minerals your body needs on a daily basis depends on height, weight, age and gender, health, smoking, birth control pill use, diet, genetic makeup, and how active you are.

Taking into account all these factors, no one is able to establish the exact required amount of vitamins and minerals for any person for every day. For normal life, you need about 40 different food components daily. Most people don't eat a perfectly balanced diet every day. In cases where the body does not receive all 40 essential components in the correct ratio, it needs additional vitamins.

Since you are a woman with an active lifestyle, you need more vitamins and minerals, as the training process speeds up the metabolic process for energy production and, thus, you quickly deplete the body's reserves. You lose minerals and possibly some vitamins from sweat during heat waves and strenuous exercise. Both a high-carbohydrate diet and the stress of strenuous exercise increase the body's need for B vitamins. Below is a summary of the most important vitamins and minerals.

B complex vitamins

B vitamins regulate the work of the central and peripheral nervous systems and are involved in carbohydrate metabolism. The more energy a muscle cell produces, the faster the B vitamin is consumed. Therefore, the more active you lead and the more carbohydrates and fats you absorb, the more B vitamins you need. In addition, vitamin B12 and folate are essential for the production of new red blood cells and the transport of oxygen to the muscles. Pregnant women and nursing mothers, as well as women using birth control pills, need more vitamins of group B. Natural sources of these vitamins are liver, yeast, peanuts, legumes, sunflower seeds.

Vitamin C

"Vitamin C is absolutely essential for the production of collagen, which is the most important element of the body's connective tissue," says Dr. Williams. (Collagen is the body's cementitious substance, helping to reunite cells and especially to strengthen bones and teeth.) Vitamin C also significantly increases the body's ability to absorb iron, a complex of B vitamins, and vitamins A and E. It can lower cholesterol and other fats in the blood. It stimulates the immune system, and thus, the body develops a higher resistance to infectious and other diseases. Vitamin C takes part in the production of adrenaline and other adrenal hormones, influences the efficiency of hard work and helps to remove lactic acid from muscle cells, and reduces muscle stiffness during physical activity. Thus, vitamin C is indirectly involved in maintaining a certain level of endurance during and after exercise. In addition, it speeds up reaction times and helps build resistance to heat and cold.

The body's need for vitamin C is very individual. Some people only need 250 mg per day to maintain optimal health, while others need 2,000 to 4,000 mg per day. Experiment. If you've taken vitamin C and avoided a cold, Dr. Williams says, you may have used the dose you need. On the other hand, if you develop an upset stomach, then you are taking too much. Although articles appearing in print in some countries on health and nutritional issues argue that the body is not able to use synthetic preparations of vitamin C as fully as its natural sources, Nobel laureate L. Powling believes that any ascorbic acid that is present in sale, is biologically active and its effectiveness is just as high.

Unless you have kidney disease, you won't get kidney stones from high doses of vitamin C, which is a side effect of vitamin C intake. Some people with anemia or a rare hereditary blood disorder should stick to small doses, less than 1000 mg per day. Diabetics should monitor their blood and urine sugar levels so that they know when their vitamin C intake will exceed their allowable norm.

A well-known source of vitamin C is orange juice, but there are also richer foods such as cabbage, lemons and strawberries.

Vitamin E

Many athletes believe that vitamin E binds more oxygen, thus increasing the ability of hemoglobin to carry it. However, there is no reliable evidence that high amounts of vitamin E increase strength or endurance. The body needs this vitamin in very small quantities. A well balanced diet that includes nuts, peanuts, and wheat flour will provide the body with the required amount of this vitamin. Very large doses of this vitamin can cause skin ulcers and reduce the body's intake of calcium and vitamin K.

Vitamin K

Vitamin K aids in the conversion of glucose to glycogen and the formation of prothrombin, a blood thickening chemical. About half the amount of vitamin K the body needs is produced by bacteria in the gastrointestinal tract. The other half can be obtained by consuming dark green vegetables, liver, and egg yolks. Yogurt, kefir, acidophilus supply bacteria for the production of vitamin K inside the intestines. Additional doses of vitamin K do not affect athletic performance.

Iron

The most important mineral for women between the onset of menstruation and menopause is iron. D. Harris has determined that 32 percent of women who are moderately active are anemic, although this does not necessarily show up when counting the number of red blood cells in a blood test. Therefore, it is better to focus on your own feelings of chronic fatigue, unexplained fatigue, pallor, a sharp deterioration in athletic performance, inability to progress, and not only on a blood test.

Since you are an active woman, you need the right amount of iron. Women have an average of 600,000 fewer red blood cells per milliliter of blood than men and store about 250 mg of iron in their bodies, compared to 850 mg for the average adult male. The number of red blood cells in the body is important, since each body contains hemoglobin, which carries oxygen absorbed from the blood, and the more oxygen carriers, the higher the aerobic capacity of the body. (Iron is also important for the formation of myoglobin, the oxygen-carrying pigment in muscle fibers.) Less iron in the body means less hemoglobin, which in turn results in fewer red blood cells that carry oxygen.

Every woman loses about 30 mg of iron during her period. Pregnancy, childbirth, exercise, sweating - all these also lead to a noticeable loss of iron in the body. You get only a small amount of iron from food. Meat, especially liver, and fish are sources of this mineral. Egg yolks and spinach also contain iron, but in a form that cannot be used by the body, just like iron is often found in iron-rich foods. Additionally, taken doses of vitamin C and copper promote the penetration of iron first into the stomach, and then - through the membranes - into the blood. Moreover, as shown by a recent study by one of the American nutrition laboratories, the consumption of large amounts of fresh raw fruits, fructose (fruit sugar) promotes the absorption of iron. Besides,

Regardless of what foods the Diet is built from, the body absorbs only a small amount of iron absorbed each day, usually less than 10 percent.

For this reason, an active woman needs additional iron (in addition to the dietary resources she uses on a daily basis). After the period of menopause has passed, the dose taken should be halved or reduced to 1/4.

Foods containing iron, such as liver and yeast, are too concentrated, so you can gradually increase your intake until you feel energized. Synthetic forms such as gluconate are more potent in the body, so read labels carefully when buying vitamin kits. Pharmacies offer iron in the form of sulfate and other components that the body absorbs too well.

About 1/4 of all people taking moderate to high doses of iron suffer from indigestion, or constipation, or stomach cramps, or occasionally dizziness. If something like this happens to you, try to take iron with food to minimize side effects, or change your iron supplement or reduce your dose.

Taking too much iron will not help the body. On the contrary, it can harm the liver, kidneys and heart. Never take iron without a doctor's recommendation, especially if you have anemia or hemochromatosis.

Calcium

Calcium is one of the most important minerals in the body. 99 percent of the calcium in the body is found in bones and teeth, and only 1 percent in muscles and other soft tissues. But although this amount is small, muscles cannot contract without it. Calcium makes bones stronger, supports cell membranes and helps cement all cells, which is also very important in preventing blood vessel blockages. A calcium deficiency can cause muscle cramps (as can a lack of potassium and magnesium in the body). If soft tissues (including muscles) need calcium, they take it from the bones. Therefore, the calcium content in bones is not constant. Adults lose and replace about 700 mg of calcium each day. Lack of calcium or inability to absorb it leads to thinning, porosity,

Milk intolerance

If during exercise your throat gets caught, irritations appear on the sides of your throat or throat, or you have gas, then you probably cannot stand milk. In many adults, the body does not have the ability to break down the double sugars (lactose) found in milk. Undigested sugar travels to the lower intestines, where bacteria ferment it, resulting in gas and cramping. The solution to this problem in 50-90 percent of milk-free adults (some ethnic groups suffer more from lactose intolerance than others) is completely skipping milk and replacing it with other natural calcium-containing foods, or skipping it for a few hours before and after strenuous exercise.

If you still want to drink milk, use specialty dairy products such as yogurt, acidophilus, cream, in which the sugars are already broken down by enzymes, or eat cheeses that do not contain milk sugars.

The body is not able to use calcium until it has enough vitamin D. Any diet contains a certain amount of vitamin D, the body itself produces it when the head and skin are in the sun (in fact, D is more a hormone than vitamin); among women who spend most of their time outdoors, there is a much lower incidence of osteoporosis. The body absorbs calcium more efficiently in the presence of milk sugar (lactose). This is why dairy products are such a good source of calcium.

On the other hand, it is difficult for the body to assimilate calcium if animal proteins or fats are consumed in large doses (if 100 g of protein is absorbed per day, then the body needs 1000 mg of calcium). In addition, the body feels a calcium deficiency if a disproportionate amount of magnesium, phosphorus or other minerals is taken.

Cod liver oil, milk specially fortified with vitamin D, and fish with dark scales are very good sources of vitamin D. Dairy products, chicken bones (don't you love to nibble on sweet, soft bones, wings or legs?), Soy products, dried beans, greens and soft fish bones, which can be found in canned salmon and sardines, are good sources of calcium.

Magnesium

Magnesium activates enzymes in the digestive tract and converts carbohydrates into liver and muscle glycogen. It also helps release this stored energy during exercise. It promotes protein production, keeps muscle fibers in good working order, and helps control nerve impulses.

Magnesium is essential for regulating body temperature, which is especially important when exercising in hot or cold weather. Magnesium deficiency causes muscle cramps. Because more magnesium is excreted from the body in sweat during exercise, muscle cramps can occur in hot weather due to partial magnesium deficiency. Magnesium must be present in humans in certain proportions so that the body can absorb calcium and also use vitamin C. The best natural sources of magnesium are foods containing large amounts of calcium, vitamin C and B vitamins: Brussels sprouts, yeast, nuts, ground nuts, a vegetable with dark green leaves and beans.

Potassium

Like calcium and magnesium, the body needs potassium in order for the heart and skeletal muscles to function efficiently and rhythmically. It also helps transmit nerve impulses and release energy from carbohydrates and fats. Potassium is one of the constituents of the cells of the soft tissues of the body and, together with salt, controls the amount of water in these tissues. It helps offset the effects of salt in cases of high blood pressure. A significant amount of potassium is lost through sweat and during strenuous exercise, after which you feel weak and extremely tired, but a glass of orange juice or even a cup of coffee will quickly replenish the loss of potassium. Loss of potassium is also seen in indigestion. Since this mineral substance is widespread in plant and animal food, a well-balanced diet contains adequate amounts of potassium, unless you increase your calcium and magnesium intake by taking additional pills. Good natural sources of potassium include bananas, dried fruits (especially upaga), oranges, peanuts, dark green leafy vegetables, potatoes, and liver. If possible, potassium intake should be equal to the amount of salt consumed.

Salt

Table salt controls the amount of water between cells, but American diets typically contain so much salt that it "kills" other minerals, and about 30 percent of the population suffers from high blood pressure. Although a person needs only 1 - 3 g of salt per day, most consume 4 to 5 g (2 - 2.5 teaspoons), and people who are especially fond of salty food sometimes can absorb up to 30 g per day. When the salt level in the body is very high, additional fluid is retained in the heart and in the venous vessels. This increases the volume of blood being pushed through the arteries, which means that the blood pressure also increases, forcing the heart to work harder. Even if you have normal blood pressure rather than high blood pressure, consuming a lot of salt, especially during your period, will lead to In fact, the better you exercise, the more your body is able to retain salt instead of excreting it in sweat.

Mineral and Vitamin Supplements

According to Dr. Williams, everyone has their own unique biochemistry of the body, and it is impossible at the current level of development of nutritional science to prescribe a certain amount of additional vitamins and minerals suitable for everyone.

If you take any additional vitamin or minerals in the form of separate preparations, the following rules must be observed:

- take vitamins that help dissolve fats (A, D, E, K) while eating food that contains fats. Thus, it is easier for the body to absorb them;

- take vitamins that dissolve in water (vitamins B and C) with food, either with food or immediately after a meal. If you take large amounts of vitamin

C and B 12 as separate tablets, then B 12 should be consumed two hours later. Large amounts of vitamin C destroy vitamin B12.

- if during the day you take only one tablet containing a complex of vitamins, then you must use it with food containing the greatest amount of fat;

- if you take vitamins in the form of separate tablets, then you should use those that dissolve in water, in small doses throughout the day. Vitamins help the body absorb food. If a large dose is taken at one time, the body may be unable to absorb this amount entirely and the excess will be excreted in the urine;

- having started taking additional vitamins, inform your doctor about it. Some vitamins and medications are incompatible, and taking some of them changes the results of blood and urine tests, so the doctor should be aware of this;

- even taking additional vitamins and minerals, you need to follow a rational diet. If the diet is changed or if it is known that a large amount of any vitamin in its natural form has been consumed, then it should be excluded and not taken as a pill.

Some fat-dissolving vitamins, such as A, D, and K (but not E), are toxic if taken in large amounts over a long period of time. They are not excreted from the body along with urine, as is the case with vitamins that dissolve in water. Instead, they settle in the liver, and their concentration rises to very high, dangerous levels.

Doses exceeding 25,000-50,000 units per day. Vitamin A taken over several weeks or months can cause nausea, upset stomach, dry skin, hair loss, headaches, thinning bones, enlarged liver, and blurred vision.

Doses exceeding 50,000-100,000 units. Vitamin D taken daily for several weeks or months can cause nausea, indigestion, decreased calcium and phosphorus in bones, and calcification of soft tissues and walls of blood vessels and hepatic vessels (ducts). The body is unable to use vitamin D without sufficient calcium. By increasing the intake of vitamin D, it is necessary to accordingly increase the intake of calcium.

In case of high blood pressure, diabetes or rheumatism of the heart, do not exceed 100 units. vitamin E per day.

Significant doses of synthetic vitamin K taken at one time can cause hot flashes, profuse sweating, and anemia.

Vegetarian diets

Many women who are serious about endurance sports wake up one morning and decide they no longer enjoy the taste of meat the way they did when they were predominantly sedentary.

Indeed, in order to have a sufficiently high level of physical development, good stamina and excellent ability to recover, it is not at all necessary to eat meat. Several studies have shown that a balanced vegetarian diet provides adequate amounts of protein, B vitamins, iron and other nutrients if dairy is included in the diet. ... In a Swedish study, subjects improved their ability to do endurance work by an hour or more when they switched from a meatrich diet to a vegetarian diet.

Those who strictly adhere to a vegetarian diet refuse any animal products and eat only vegetables, fruits, nuts, grains, beans, and those who add eggs and milk to their diet are called Vegetarian Ovolacos; those who eat only fruits, and semi-vegetarians who prefer an ovolak-vegetarian diet, but sometimes allow themselves to eat chicken or fish, all these groups of people claim that they feel more light and have more energy, they have better endurance and a higher competitive spirit. Vegetarian food is quickly and easily absorbed by the body, so vegetarians can afford to eat closer in time to the competition. They try to reduce the amount of animal fats they eat by reducing the amount of cholesterol in the blood and thus reducing the chances of getting atherosclerosis. Weemens Sport reported that a study of runners by the San Francisco Research Institute found that vegetarian runners consistently had lower cholesterol and triglyceride levels, followed by non-running vegetarians, followed by runners who included diet meat, and finally, the highest rates were found in women who include meat in their diet and do not run at all.

Since seeds and nuts are high in protein and fat, vegetarians have no problem getting the essential nutrients the body needs. However, vegetarian proteins may not be fully balanced. Each protein is made up of several amino acids in specific proportions. One type of food, such as corn, may be deficient in an amino acid, while another, such as beans, may be deficient in one nutrient and deficient in another. Combined together, they become a balanced source of protein, just as effective and sometimes richer in protein than animal foods.

A diet high in carbohydrates requires additional amounts of thiamine, niacin, and riboflavin to help break down and use sugars and vitamin B12, which are required for the production of new hemoglobin in the body's

blood cells. Vitamin B12 is found in many vegetarian meals, but is more commonly produced by microorganisms in animal products. That is why if you follow a vegetation diet, you need to eat nuts, whole grains, sunflower seeds, yeast containing almost all B vitamins, milk, eggs or enzyme products such as kefir, in order to get the required dose of vitamin B12. Microorganisms in the intestines are also capable of producing some amount of vitamin B12, but you may need to take this vitamin in addition, in order to increase the content of hemoglobin in the blood and thus increase the ability of blood cells to carry oxygen. In addition, if you eat only small amounts of legumes and cheese, your body may become deficient in zinc. Zinc, found in meat (beef), liver, and some seafood, helps the absorption of vitamins, especially complex B. It is also a constituent of at least 25 metabolic digestive enzymes and plays an extremely important role in the absorption of carbohydrates and the metabolism of phosphorus. Zinc is important for the proper development of the genitals, creates the best conditions for the healing of wounds and burns, actively contributes to the formation and activity of almost every cell in the body. A diet high in protein and B vitamins has adequate amounts of zinc. In other words,

How to eat before a competition

In order to plan your meals in preparation for important competitions, you need to understand how the body stores and burns fuel - both fats, which are in the form of subcutaneous deposits and in the form of fatty acids in the muscles, and carbohydrates, which are stored as glycogen in the muscles and liver.

When the body needs a certain amount of energy, it converts these fuel stores into glucose (also called muscle sugar) and sends it to muscle cells. There oxygen helps to break it down, turning it into adenazine triphosphate. Within just a few seconds, ATP mixes with water, then decomposes again, releasing heat. Some of this heat helps the muscles contract. The rest gives a feeling of warmth.

(This explains the fact that tremors - involuntary muscle contractions - are warming.)

In order to convert fats into glucose for grief, which, the body needs both carbohydrates and oxygen. Thus, the amount of carbohydrates (in the form of glycogen) stored in the liver and muscles determines how long the body can continue to exercise. When the stores of glycogen in the liver are exhausted, this will mean that the body has lost the main fuel necessary for the brain to function - weakness, chills, dizziness will appear, clarity of thought will be lost and may be thrown into cold sweat. You can get out of this state very quickly by eating food rich in carbohydrates. If the supply of muscle glycogen is really depleted, then in order to restore its reserves, it will take at least 10 hours. (According to one controversial theory, Drinking a diluted sugar solution during - but not before a race - can replace the impending loss of muscle glycogen, but there is no hard evidence to support this. It is only known that this process can cause dehydration, which is a real threat in hot weather.) Even during the most effective aerobic stage of work, anaerobic process is still partially carried out, and some amount of lactic acid accumulates in the body. As the muscles continue to contract, they send lactic acid into the bloodstream, being released from it, since they carry the most significant physical activity. As long as the body gets enough oxygen, the liver converts lactate into additional fuel. If physical activity exceeds the capabilities of the body, the liver is unable to fully meet the needs of the body; lactic acid builds up in the muscles and the person is forced to stop because they are unable to continue the exercise.

Meals before the competition

What is eaten 12 hours before a workout or competition determines the amount of glycogen stored in the body for the work ahead. (Any food taken 4 hours before the start of classes can hardly affect the quality of work, since it will not have time to be processed by the body and turn into the required amount of energy.)

Therefore, the upcoming participation in long-distance races, any other competition requires very careful planning. Since many of these start early in the morning, having dinner the day before is usually the last chance for your body to stock up on fuel. Eat plenty of potatoes, whole grain breads, sauces, rice, and other carbohydrates until you gain weight. Eat very few fats (they reduce digestive function) and avoid spices, as this can develop indigestion from foods that can cause bloating and gas, such as legumes, cabbage. within 24 hours before strenuous physical activity may cause stomach upset. This means that you need to give up salads and fresh fruits. (If, however, stomach upset will occur, avoid whole grain breads, milk, or coffee.) Avoid salt and avoid sausages and other salted foods. Salt food normally during cooking, so there is enough of it in the body to prevent heatstroke, and do not consume too much of it. Salt can cause the cells of the body to need extra fluid, which will slow down movement and make

them awkward. Generally, do not eat less than 2 hours before any physical activity. In preparation for a very important competition, the last meal (breakfast or lunch) should take place 4 hours before the start. If you start performing strenuous physical activity before the food is completely digested, you may experience nausea, pain in the side caused by gas accumulation,

Many people get too nervous and do not eat anything at all 5 or 6 hours before the big competition. Experimenting, determine which foods give you strength, and which, on the contrary, only cause you to urinate more often. When you eat before a competition, the food should be light. Simple and refined carbohydrates such as white flour products and fruit juices are digested much faster and contain less fiber than complex carbohydrates such as whole grain cereals. Avoid fats and proteins because they prolong the process of gastric emptying. (Consuming protein also causes extra urine to be excreted.) The purpose of eating during this time is to get food from the stomach into the bloodstream as soon as possible if you want to go out on an empty stomach. Eating before the competition will not give the sprinters any extra energy because their competition will be over by the time the carbs are converted to fuel. Conversely, endurance athletes may use some of the body's newly formed glycogen.

If you want to eat something before a competition, avoid solid foods, try liquid diets specifically designed for this purpose. They provide the required amount of nutrients for the muscles and are cleared from the stomach faster than solid foods, so these liquid formulas and foods can be consumed shortly before the competition. (One study from the University of Southern California recommended eating as a drink just 30 minutes before maximizing exercise without any side effects on the body.) Drinks have particular benefits for speed-strength athletes who often perform on an empty stomach in order to feel as light as possible. Drinks are also useful as a reinforcement during breaks between games in a tournament (for example, at match meetings, at tennis competitions). But you should not use drinks for a long time, because even those that consist of so-called natural ingredients are an artificial combination of nutrients necessary for the body and are completely lacking in fiber. Check the labels on your drinks to determine the approximate combination of carbohydrates, proteins and fats you need, and then test them ahead of time to make sure they are easily absorbed by the body.

The only liquid food that should be avoided is alcoholic beverages. Even a glass of beer lowers your ability to withstand heat, and you will tire faster. And the most moderate doses of alcohol reduce the amount of blood that the heart is able to push through with each beat, while at the same time it increases the amount of oxygen required by the muscles of the heart. The presence of alcohol in the body also prevents the breakdown of fats and their conversion into fuel. As a result, the heart and other muscles receive less oxygen and less fuel.

Regardless of whether you eat before the competition, be sure to drink from one to three cups of aa (more is possible if you are able to withstand the right amount of liquid) both before and after the competition. Athletes performing in endurance sports or participating in long matches are allowed to drink during competition. While this extra water will cause you to increase your urine output, it is the body's main defense against heatstroke. If you're good at adapting to the heat, fruit juice can help replenish some of the potassium, which is excreted in sweat.

If you compete in anaerobic sports, drinking is the only thing you need before you start. However, if you are involved in cycling, marathon running, long-distance swimming, or cross-country skiing, there are three possibilities for your body to be able to use fat earlier for fuel and store glycogen stores while increasing the amount of glycogen that can be retained in the body. muscles; this is the so-called depletion, carbohydrate saturation and simple accumulation.

"Exhaustion"

Release muscle glycogen once a week by exercising until you are completely depleted. Bring yourself to complete exhaustion, that is, you should feel as if you have hit a wall that you are not able to overcome. The muscles will ache and seem very heavy, coordination of movements will be impaired (you may even need the help of an outsider in order to get up, collect and get home). When the muscles recover - it can take anywhere from 12 hours to a week - they will be filled with more glycogen. Constant training of the body and bringing it to "depletion" will force earlier to use fats as fuel.

Carbohydrate saturation

Another way to trick your muscles into replenishing their glycogen stores is to use a controversial and dangerous diet of almost all carbs, which should be followed six days before a competition. Carbohydrate saturation has two phases. In the first phase, you use up the glycogen present in the muscles by exercising exhaustion, as in the previous case. On the sixth, fifth, and fourth days prior to competition, you deplete all muscle glycogen stores by eating a high protein, low carbohydrate diet and exercising to exhaustion. Then, for the third and second and one day before the competition, you consume foods that are mostly carbohydrates and negligible amounts of protein, and you train without straining. When you start feeding your muscle cells with carbohydrates again, they react to it, like any hungry organism, and absorb much more fuel than they can usually hold. Thus, the muscle fibers are filled with glycogen and become very strong. This means that on the day of the competition, your body will be filled with glycogen and will be able to withstand stressful loads for a longer time. Carbohydrate satiation has recently become popular among athletes, but it is very dangerous and in some cases may not provide an additional store of glycogen compared to, say, the so-called accumulation. During the exhaustion phase, you may experience nausea, headaches, weakness, sleep disturbances, and outbursts of rage. The "depletion" phase can also lead to a build-up of ketones in the bloodstream - products of the immediate combustion of fats that can clog the body and damage the kidneys. "Exhaustion" is therefore especially dangerous for diabetics, those suffering from kidney or liver diseases, and simply for people over 40 years of age. The satiety phase can release myoglobin, a muscle pigment that also clogs the kidneys. It can fill every muscle fiber, including the heart muscle fiber.

If you don't use up all the stored glycogen, or if fibers are full, they can rupture. Plus, tight, glycogen-laden muscles will make you feel uncomfortable, and at the start of a long competition, you may be able to slow down significantly at your usual pace. Considering all of the above dangers, even those who believe in carbohydrate satiety only use it once a year.

This whole process can also cause a reverse reaction. Carbohydrate saturation can cause your muscles to get used to working on glycogen instead of breaking down fats. In order to effectively perform long-term physical activity throughout the year

you must also rely on fats as a source of energy. That is why such a "game" with metabolism can unsettle you and disrupt your training regime for several months.

Accumulation

If you want to avoid this danger and at the same time increase the stores of glycogen in the body, eat more carbohydrates, increase the carbohydrate content in your diet four days before the competition. Instead of accumulating about 4 grams of muscle glycogen per 100 grams of body weight; what can be achieved with carbohydrate satiation, you can accumulate up to 3.5 grams per 100 grams of weight, says N. Smith, MD, author of Nutrition in Sports, which is not too much of a difference for most people. Make sure not to put on weight, otherwise it can noticeably affect your speed capabilities and the results of the performance at the most crucial moment. Drinking plenty of water will help to process additional carbohydrates: muscles need extra fluid, which they take from the bloodstream, in order to store excess glycogen.

Meals during the competition

The duration of the competition in speed-strength events is too short for water or food to be converted into substances useful for the body's work. This also applies to athletes competing in relatively short-term sports. However, for endurance athletes, including swimmers, drinking water during competition is very important, many feel energized by drinking half a cup of fruit juice diluted in a cup of water for an hour, and then every hour thereafter while the competition continues.

The previously used practice of drinking a sugar solution or honey diluted in water has now been abandoned before exercise. Sugar does not increase energy stores; instead, it decreases stamina by about 19 percent, significantly increases blood sugar levels, and this leads to the release of the additional amount of insulin needed to digest this sugar. To balance the work, the body needs to get rid of a certain amount of sugar previously present in the blood. Thus, you harm the body and find yourself in a worse condition, less capable of mobilizing fat and using it as fuel.

Sugar taken before or during a competition has its drawbacks: it binds a certain amount of water, which is necessary for the return in the form of sweat and cooling the body during physical activity. Therefore, most people are best off drinking only water and postponing carbohydrate intake until after the competition. However, some are semi. An additional boost of energy is obtained from the dissolved juice consumed during the competition, after the fructose in the liver is converted to glucose. Some people think that tea and honey and soft drinks help them. If the day is cool

or you can handle heat well, give it a try. Otherwise, it is safer to limit yourself to drinking cold water - about one cup every 15 minutes.

Eating as well as drinking is essential for you to have the strength to participate in an ultra-long-distance run or simply to perform long-term physical activities such as cycling or long skiing trips lasting more than 2 or even 3 hours. If you are a high-end athlete and push yourself to the limit, white bread, baked goods, and other digestible carbohydrates are good choices. Obviously, this is all that the body is capable of accepting. On prolonged sub-maximal exertion, eat whatever you like, although you will obviously find that sandwiches, fruits, juices (nuts, raisins, baked goods, and other digestible carbohydrates) will not cause any stomach problems. Save your daily protein intake for dinner when your workout is over. Do not forget about juices, water, or - in cold weather - broth or tea,

Meals after the competition

Perhaps, this section of nutrition is given less importance. Drink as much fluids as you can immediately after you stop doing a lot. Fruit juice is especially good at restoring strength. Losing more than half a kilogram or kilogram of weight per workout indicates that the lack of both water and salt in the body has led to its partial depletion. In such cases, it is better to drink broth or nutritional mixture.

a place of clean water. In all other cases, the usual amount of salt in the food will restore the loss. If you are very anxious, you may not feel like eating right after the competition. Wonderful. Wait an hour or until your appetite returns, but make sure the fuel you use is fully recovered within a few hours. For this purpose, a meal that is mostly carbohydrates and contains at least half the daily value of protein is more suitable.

Ergogens (stimulants)

Athletes are always looking for something new that would help them improve their performance: vitamins, special "secret food" and even use the terrifying practice of introducing additional air into the gastrointestinal tract (during swimming) to acquire additional buoyancy. Anything that gives you an extra boost of energy is called ergogens. Ergogens are often mutated because very few are actually capable of having any positive effect. Nevertheless, the athlete's desire is great to try the very last resort, which is difficult to resist if she believes that it will help to improve the result.

Vitamin B15

It is one of the trendiest stimulant drugs in use today. This drug, according to T. Peiper, M.D., increases the maximum oxygen consumption of highend athletes by more than 25 percent and lengthens the time the body is able to work to exhaustion by more than 20 percent. It is believed that it can be used in all sports - anaerobic, mixed and aerobic, so the desire of the coaches of several national athletics and professional baseball and football teams to try it on their pets is understandable.

Only a few studies related to the effects of this vitamin on the body have been conducted in the United States on men. According to D. Me-Diski, MD, in a small group of volunteer students from the University of Southern California at Los Angeles, the use of one of these drugs lowered the level of lactic acid, and the conversion of chemical products of energy metabolism into new fuel was carried out more efficiently.

Nobody knows what the optimal doses of this drug are. However, it seems that over time, the body needs more and more of a given chemical in order to achieve that effect.

No studies have been conducted in the United States on the safety of this drug, and nothing is known about the effects of the effects for a long time. Therefore, this drug is not sold either as a medicine, or as a vitamin, or as a constituent of any food product.

Negatively charged air ions

Many scientific studies have shown that inhaling negative air ions can improve cardiovascular performance by 8 percent. These small particles are carried by the wind on a clear day, they are also contained in water dust, if you are near a waterfall or take a shower, you can get them with the help of special equipment.

The most famous researcher of the influence of negative ions in the United States, M.D. A. Krueger, has shown by his research that plants placed in an atmosphere filled with negatively charged ions grow faster than those under normal conditions. Similar experiments performed on mice show that they are better at resisting infections. However, he cautioned that these results were not sufficiently revealing, as they have not been confirmed by human studies. Another scientist, professor of anatomy M. Diamond, expressed concern about whether a large number of negatively charged ions would accelerate the aging process. It is possible that running and cycling in the fresh air on a clear fall day will give you extra energy and vitality compared to the same exercises performed in smog conditions.

Highland simulators

If you cannot go to the mountains for training, use the high altitude simulators. This is an expensive piece of equipment that mimics the effects of high altitude training at sea level and is similar to the breathing apparatus used by firefighters, especially when working on burning chemicals: a face mask covering both mouth and nose, connected by hoses to canisters the size of milk bottle attached to the back. The carbon dioxide stored in the canisters reduces the oxygen you breathe from the usual 21 percent to 16 percent. This breathing mixture simulates being at 2300 meters above sea level and is most effective for building endurance. (At sea level, it's best to work on improving strength.)

Although these machines are expensive, they are still cheaper than a four week stay in the mountains. They also allow you to train in both mediumaltitude and normal conditions, so you don't acclimate to altitude or lose your advantage. In addition, the muscles will retain the strength of the athletes who train at sea level. (In normal mid-altitude training, the muscles will not be able to contract as powerfully, and you will slightly degrade your strength characteristics, which will be necessary when you return to sea level.) ...

On the other hand, these devices rob you of the pleasure that each workout brings, because it is difficult to train and breathe while carrying a twokilogram weight behind your back. And from the outside you will make a rather strange impression. Not everyone is willing to withstand exaggerated attention from others.

Doping

You are obviously in a desperate state if you are ready to use doping. Not only do they have very serious side effects - there is clear evidence that they do not increase strength, speed or endurance in the first place. The conducted scientific research is inadequate, and therefore there is no sufficient reason to draw any definite conclusions. However, doping is a favorite topic of discussion among athletes, coaches and journalists. The amphetamines, including ephedrine and pseudoephedrine, which are used to treat colds, do not really add energy to you; they just give you the impression that you have increased energy levels. They contribute to the desire to continue training, making athletes more aggressive. They also slow down your body's reactions and raise your pain threshold, so they are likely to harm you. Their use also increases the heart rate, which is completely unnecessary for an athlete. It doesn't matter what everyone else says about the alleged benefits of doping. A good workout, adequate rest, and self-confidence can help you achieve the same, but without the use of various stimulants, without their dire side effects.

*Anabolic steroid*are male sex hormones that help build tissue, and most research has confirmed that they increase the amount of muscle mass you can build. (Some argue that the use of anabolic steroids makes the athlete more aggressive, which allows you to work harder and thus gain muscle mass.) All scientists, however, agree that using these hormones makes you half-male. Your voice becomes harsh, your beard grows, chest hair grows, and it can cause baldness, menstrual irregularities, impair fertility, cause temporary or permanent liver damage, or even lead to liver cancer.

Who needs all this? It is best to avoid any doping agents. In rare cases, they can improve the speed or strength indicators of athletes, but they will undermine health for life.
Chapter 4 Weight Control

Are you looking for a guaranteed weight loss solution that doesn't require extraordinary willpower or half-starvation and endless calorie counting? Looking for a weight management tool that is fun and builds confidence? There is such a tool, it is called the "Exercise system plus or minus diet." Using it, you can get rid of excess weight, affect the metabolic rate, and reduce your appetite. The system of exercises can be adapted to the characteristics of your body, your personality, your needs.

Why "plus or minus diet"? Because you decide for yourself whether you need a diet or not. Exercise is much more effective at losing weight than diet itself. If physical exercise is performed correctly, i.e. in an aerobic mode, then the weight will gradually decrease (by about 500 g per week). If you are too heavy, you may not have the patience to lose weight at this rate. In this case, it is advisable to combine diet with exercise for faster weight loss.

Perhaps all of the above will seem unconvincing, but this is actually the case M. Pollock, who conducted research at the University of California at Irvine, believes that obesity is more often caused by insufficient physical activity than overeating. In the early 70s, M.D. G. Guinap proved that obese women who, without changing their diet, began to engage in vigorous walking for at least 30 minutes every day, on average lost up to 10 kg in weight per year. (about 250-300 g per week), and those who moved more, lost weight even faster.

During aerobic exercise, at least five important processes occur in the body.

1. Exercise itself promotes calorie expenditure. For an hour of vigorous walking, a woman spends an average of 215 kcal. Even if this is the only physiological effect of exercise (although this is not the case), then within 16 days you can use up 3500 kcal without reducing the amount of food absorbed. 500 g of fat contains about 3500 kcal, so she loses about 500 g of fat every 16 days. Within a year, you can get rid of 10 kg of fat without applying any special diet.

2. Exercise speeds up the metabolic processes in muscle cells, which contributes to the burning of large amounts of fat and calories. Even after

you stop exercising, the intensive metabolic process does not immediately stop. Muscles continue to burn calories at a higher intensity for about 6 hours after exercise. This is why you will burn more calories sitting in front of the TV or typing after exercise than before.

3. During exercise, fat is burned as fuel.For those on a specific Fasting Diet, the body burns muscle tissue instead of fuel, not fat (the body stores fats to feed the heart). When you are on a diet, you continue to lose weight mostly by reducing muscle mass while using only a small amount of fat. Once you stop dieting, your body must make up for the lack of important tissue, and you will inevitably gain 2 to 4.5 kg in the first few weeks. When you exercise (diet or not), the body switches to the fat-burning phase for fuel and takes fat from any depot it can find: horrible folds in the hips, waist, double chin, too large buttocks. The loss of this fat is not subsequently replenished, because the body does not need it. Excess fat will only appear if you stop exercising or overeat.

4. Exercise helps to strengthen the muscles. Muscle uses up calories (fat does not burn calories, it is simply present in the body when it is stationary). Therefore, the more muscle mass, the more calories are burned every day. Thus, you increase your basal metabolic rate, that is, the number of calories that the body needs to function. Higher BMR numbers indicate that you can eat the same amount of food and still lose weight, or eat more and not gain weight.

5. Exercise matches appetite with energy intake. Most people have decreased appetite when they exercise regularly. The few whose appetite remains the same or even increases are hungry because they require more food.

When you are inactive, the appetite regulator, the hypothalamus, located in the brain, does not receive the chemical "cue" it needs; it "gets stuck" in the "on" position and tells the body that it is hungry, although in reality it is not. By starting to lead a more active lifestyle, you restore the normal functioning of this mechanism. You no longer have a strong desire to eat a pie two hours after breakfast.

Exercise also controls appetite by releasing a certain amount of fat into the bloodstream. This fat keeps blood sugar levels at the proper height. As soon as your blood sugar drops, you feel hungry. The new muscle fibers that have developed in the body through exercise help to use more oxygen and thus burn more fat. This process helps maintain high blood sugar levels.

Optimal body fat and ideal weight

V Chapter 1 describes how to determine the percentage of body fat by measuring the thickness of the folds of fat. Now that you know what your body fat percentage is, you can calculate how much bones, muscles and other lean mass weigh and what your total weight should be. Each woman possesses inherent only to her, individual characteristics. The amount of fat that one athlete needs in order to perform with the greatest efficiency may be too much or, conversely, too little for another. V. Katz, Doctor of Medicine, Professor of Physical Education, believes that "the body weight at which a woman feels best is probably optimal for her."

Thick caviar

Some women complain that they cannot button their boots in the evenings. They put in a lot of effort, but neither exercise nor diet can help reduce the size of these muscle groups.

Ankle size is determined by heredity and depends on the number of fast and slow twitch muscle fibers. Fast twitch fibers are thicker than slow twitch fibers and the overall muscle mass is greater. If you have a lot of fast twitch fibers in your calf muscles, your legs will be thicker in these areas. Since the calf muscles work almost all the time and are one of the most developed muscle groups in the body, strong muscles have thick fibers.

The only way to reduce calf size Is to lie in bed all day and allow the muscles to atrophy. Isn't it better to be proud of your well-developed muscles and hope that both fashion and fashion designers will take these features into account?

The amount of fat your body needs depends in part on the sport you choose. If you are a swimmer, you can afford to be a little fatter than other species because the extra fat improves your buoyancy. Those who do downhill skiing (alpine skiing) may also have a slight excess of fat, which will keep the cold out and help create additional inertia. On the other hand, female racers do not need a special pad of fat because they generate heat and can remain as skinny as runners or any other endurance sport.

It is difficult for an adult woman to achieve less than 17 percent body fat. Estrogen and other sex hormones help convert food into fats, which are stored in the pelvic area in order to support and protect the fetus during pregnancy. Fat in the pectoral muscles, buttocks, inner thighs, and the female genital area accounts for 10 to 12 percent of total body fat and is very difficult to get rid of. The remaining 3 percent are located in the brain

and spinal cord. A. Renke, MD, one of the first to tackle this problem, warns that women who reduce body fat below 13 percent can seriously harm their health (on average, a woman has 14 to 19 percent body fat, and in men - athletes - from 6 to 8 percent).

For most women, this figure ranges from 20 to 30 percent. Therefore, you should determine what percentage is optimal for your body, it allows you to look better, get more energy, and helps to achieve better sports results. Remember that some women are naturally overweight.

There is no such thing as losing weight in one particular place. If you want to get rid of flabby and too wide, thighs, fat buttocks or too large a belly, you need to exercise all parts of the body. Selected exercises for specific areas of the body do not selectively burn fat in these areas. When you exercise any part of the body, the body takes fat from the deposits in any hereditary section that has nothing to do with the muscles that do the work.

F. Katz(V. Katz's brother) performed a biopsy of fat cells of the abdomen, buttocks, shoulder and back on 21 subjects (including himself) before and after 27 days, during which squats were performed, and their number was constantly increasing. At the end of the experiment, it was found that everyone had a slight decrease in the number of fat cells in the waist and also in the buttocks and back. In other words, abdominal exercises helped to shrink fat cells throughout the body.

Once you determine your ideal body fat percentage, calculate your ideal weight based not on the static data of the ratio of height to weight, but on the characteristics of your structure. The structure of the musculoskeletal system determines the weight of lean muscle mass. It can be calculated by subtracting your fat weight from your total body weight. Then add the lean muscle mass to your ideal fat weight.

The weight of the body fat is equal to the total body weight multiplied by the percentage of body fat. Lean muscle mass is equal to total body weight minus body fat. The ideal body fat weight can be calculated by multiplying the desired or available percentage of body fat by the weight of available fat.

Ideal weight will be equal to lean muscle mass plus ideal fat weight.

Suppose you weigh 57 kg and your body fat percentage is 27. And you only want it to reach 22 percent. Rounding up, we get: now the fat weights 15.4 kg. The ideal fat weight is 12.5. Your ideal weight is 54.1 kg.

Calculate your ideal weight in order to calculate the required daily expenditure and calorie intake if you are on the plus diet. Weight is easy to find out by standing on the scale. However, it is impossible to determine for sure whether you are losing fat or getting better physically prepared. This requires the measurement of folds of fat. This is the best way to calculate your body fat percentage and monitor your progress. Take measurements every 6 to 8 weeks while you focus on weight loss, and every 6 to 12 months thereafter. Enter the data in the physical fitness table, which is given at the end<u>Chapter 1</u>...

Your exercise program

In order to lose fat, you must do aerobic exercise at a specific, set heart rate at least 3 times a week for at least 30 minutes. During each lesson, it is necessary to use such forms of physical activity that would help burn at least 300 kcal. Table V shows the energy value of various sports and daily activities per hour, calculated for an average woman weighing 68 kg. If you are shorter in height and, accordingly, weigh less, then your calorie consumption will be less than indicated in the table. Reduce the indicated figure at the rate of 13 percent for every 9 kg of weight below 68 kg. If you weigh more, then add 12 percent for every 9 kg over 68 kg.

M. Pollock believes that you can go beyond the specified minimum values, but if you spend less than indicated in the table, then you will not lose fat. If you try to reduce the number of days of exercise by increasing the number of calories burned per session, then you will not lose weight or fat, because the body does not form new capillaries and muscle fibers, which would help burn fat more efficiently. You should train 3, 4, 5 and even 6 times a week to achieve the required intensity of metabolic processes.

Many women immediately lose weight when they start exercising. But some hardly lose weight for several weeks, because they have lost their shape too much to be able to move without stopping at the right pace for 30 minutes (and only in this case, it is possible to use up 300 kcal). Once these women are able to work at their predetermined heart rate for 30 minutes, they will gradually begin to get rid of excess fat.

After about a year, you'll be so effective in your chosen physical activity that you'll burn fewer calories. If you think you have already achieved your goal, you can continue to do the same program to maintain your weight, or increase the intensity, duration, or frequency of exercise and continue to lose fat. It is possible that you have exhausted the possibilities of this sport and should switch to another.

The effectiveness of the load depends on which exercises you choose. If you are in good shape, only very vigorous aerobic exercise will provide you with weight loss: cycling at 20 km / h, jogging at 16 km / h, skiing at 16 km / h, or swimming at 2. 4 km / h. With an average level of fitness, it is advisable to spend 300 kcal in half an hour, doing less intense physical exercises - climbing mountains, swimming at a speed of 0.4 km / h, etc.

If the sport you are doing does not allow you to spend 300 kcal in 30 minutes, then you need to extend the workout. Remember that Table V shows energy consumption for 1 hour, so when calculating, divide these figures by 2. Whatever sport you choose, it should be continuous. For example, playing tennis includes several rest breaks: when you go out of bounds to pick up the ball, stand and wait for the opponent to serve, this time is not taken into account (why not play tennis in addition to aerobic the exercises you are doing?). If you are fond of downhill skiing, then even on the longest track you will never descend continuously for 30 minutes. Three times 10 minutes each, allotted for the downhill, with the deduction of time, spent on lifting up on a lift cannot be compared in its effect with the effect on the body of 30 minutes of continuous aerobic exercise. When playing volleyball or basketball, play constantly, otherwise you will not reach the coach

Overweight people move less than normal weight pi. An analysis of the film, which recorded in 1964 the play of girls and adolescents with optimal and overweight, showed that girls with my own weight somehow remain on the sidelines all the time, and girls of normal weight are more mobile. You don't need to keep checking your energy table to make sure you are actually using 300 calories in every 30 minute session. The pulse will tell you about it(see chapter 2)... If you are exercising at a high heart rate, then obviously you are burning 300 kcal; if not, still do not switch to such an intensity of training, at which the heart rate will exceed 80% of the maximum. Otherwise, the body will already perform anaerobic work and you will not be able to achieve your goal - to burn excess fat for fuel.

Weights and barbells are not listed in the energy table. This type of exercise is anaerobic exercise and does not help you lose weight. However, resistance work strengthens muscle tissue and reduces the amount of fat in the body. This is evidenced by the research of M. Pollock. If you are 10 percent or less overweight, resistance exercise will reduce your body's fat content, while at the same time your figure will become more toned and lean, although the weight will remain unchanged. Exercising with higher weights and "fewer" reps is more effective than exercising with lighter weights, lifted more times. Circuit training will help you shed excess weight and fat if you work with a heart rate that you define for yourself. When the body adapts to the selected load, then you will have to add jumping rope or some other form of aerobic activity to your circuit training. To lose weight and achieve optimal weight, you need to: determine the heart rate limit with which you are going to work; do 3 times a week for at least 30 minutes; spend 330 kcal for each lesson. These indicators can be exceeded, but in no case underestimated.

Your "plus" diet

If you want to lose more than 4 kg and want to get rid of them as soon as possible, add to your regular exercise and these so-called plus diet. While you don't need to count every calorie, you should know your basal metabolic rate, calories consumed and consumed, so that you can coordinate your diet with exercise.

Calculate your daily calorie needs based on your ideal weight, not your current weight. First of all, determine the amount of calories that you need in order for the heart, lungs, brain to work normally, cells to regenerate, to maintain a constant body temperature, even if you lie in bed all day. Only for the work of the brain is spent about 1/5 of the calories of the total basal metabolism. An approximate calculation (a more accurate one cannot be carried out without the help of a doctor) of the basal metabolic rate showed that a person needs an average of 1 kcal per hour for each kilogram of body weight. In other words, the energy consumption of the basic metabolism of any person is equal to the ideal weight multiplied by 1 kcal per hour and 24 hours (day), or: energy consumption of the basic metabolism = ideal weight (in kg) X 1 kcal / hour X 24 hours.

Add your basal metabolic rate to the number of calories you burn (as shown in Table V) to determine the total calories you need to burn each day. Total energy consumption is equal to the sum of the basal metabolism and calories spent on daily activities.

For example, if you work as a typist, energy consumption can be compiled from the following indicators:

(The total number of hours may not be exactly 24, since the count is approximate.)

Thus, if your ideal weight is 52.2 kg, then the total energy consumption will be: 1254 + 950 = 2204 kcal

Now you know the amount of calories your body expends every day at an ideal weight. If you already have it ideal and you consume as many calories as you expend, then you will be able to maintain a constant weight. If you eat more, you will gain weight, and if you eat less, you will lose weight. If your weight is above ideal, and the amount of food consumed corresponds to the total energy expenditure, then you will gradually lose weight.

For the formation of about 0.5 kg of fat, 3500 kcal are needed. If your food intake in terms of calories is 200 kcal higher than your total energy expenditure, then you will add about 500 g of fat every 17.5 days. If you consume an additional 900 kcal per day, you will begin to gain 500 g every 4 days. And vice versa. If you cut 200 calories a day, you can get rid of 500 g of fat in 17.5 days. You can lose weight by burning extra calories. If you practice jumping rope for an additional half hour, you can lose weight by 500 g every 9-10 days.

This is the virtue of the plus or minus diet plan. You can create a calorie deficit by combining diet with vigorous exercise. If you need to create a deficit of 500 kcal per day, then 300 of them should be spent on physical exercise, and 200 - due to restriction in food. Just please do not forget that the exercises should be intense enough to consume at least 300 kcal each time.

I do not advise you to starve: this can lead to weakness, fainting during exercise and even heart attack due to lack of water in the body and exhaustion.

Food consumed daily must contain at least 1000 kcal. Otherwise, the starvation reflex kicks in and the body starts using muscle tissue as fuel instead of wasting excess fat. To nourish the body at the expense of its own muscles is not only extremely dangerous to health, but also useless. By changing your diet and increasing your calorie intake (above the fasting level), you will immediately gain weight as the body replaces the wasted muscle tissue. Some very skinny female athletes struggle to gain weight to no avail. They actually use up muscle protein in every workout and therefore do not gain weight. It doesn't matter what their total energy consumption is. Obviously, carbohydrate intake is not enough to produce

the required amount of glycogen. Increasing the percentage of carbohydrates in the diet compared to fat and protein often promotes weight gain by increasing muscle tissue. It helps athletes to improve strength and endurance.

Moreover, extreme diets disrupt the balance of potassium, salt and other minerals in the body. As a result, the tissues give up interstitial fluid (which is why you often go to Tui, the first few days of such a diet and you lose weight from 2.5 to 4.5 kg). Continuing to exercise while the body's fluid levels are very low can cause a heart attack. Once you start eating a balanced diet again, minerals and water reserves in your body will be restored and you will regain weight.

Special suits for weight reduction

These special water-repellent suits do not help you lose weight; they help you lose water. If you exercise in such a suit, it can lead to serious dehydration of the body and even cause a heart attack, because the body does not have the necessary amount of water for normal thermoregulation. In addition, by drinking water, you will immediately make up for all the weight loss that you have been able to achieve thanks to the use of such a suit.

Do not strive to lose more than 500 g in a week (maximum - 1 kg). With this rhythm, weight loss will only occur by reducing body fat. To lose 500 grams of weight (or spend 3500 kcal per week), you need to create a deficit of only 500 kcal daily, which is quite within the reach of most people. In order to lose 1 kg per week, the daily deficit should be 1000 kcal. If you are short, it will be very difficult, since you will have to consume less than 1000 kcal per day. However, for a tall woman, it is quite possible to lose 1 kg per week and at the same time maintain health.

The following diet is one of the basic diet options (described in Chapter 3 and consisting of 15-20% protein, 20-30% fat, and 50-65% complex carbohydrates). Adhering to the plus or minus diet, you should consume: 20-25% of the total calories in the form of protein, 20% fat, 55-60% carbohydrates.

The protein content is slightly higher here in order to give you absolute values. To silt cells and build tissue, you must absorb) 28 g of protein for every 500 g of body weight. This means that a woman weighing about 50 kg should consume only 29.4 g of proteins, and a woman weighing 58 kg - 35.8 g of proteins used by the body. There are many other elements in

protein foods, but amino acids (the building blocks of protein) are not always in a balanced state. Therefore, you need to absorb much more protein than indicated in order to absorb the required amount mentioned above: about 200 g of meat, or 230 g of fish, or 5 cups of milk, or 6 eggs.

This amount of protein cannot be arbitrarily changed. If you reduce your total daily calorie intake, but keep the same proportions, your protein will still be 15-20 percent, but your total grams will be below normal. (If you consume 2,000 calories a day, 15-20 percent of your protein would be 300-400 calories. If you reduce your total calories to 1,500 calories, 15-20 percent would only be 225-300 calories.) It is advisable to partially consume the protein found in vegetables. This will combine the proteins and carbohydrates in a common food, which will provide the body with enough carbohydrates and energy for exercise).

More than half of the fat required for the body must be of plant origin. You may be tempted to cut your fat intake (below 20 percent) to speed up your weight loss. Do not do this. The body needs fat for metabolic processes. It is also needed in order to assimilate more of the absorbed carbohydrates. Pathologist T. Bassler, MD, believes that an extremely low fat diet can cause the unexpected death that sometimes occurs among some well-trained runners. They did not have any abnormalities or hereditary predisposition in their medical history. nosity to death. Most likely death was caused by metabolic imbalance, which, in turn, disrupted the general circulatory system. 15 percent of fat is enough for the body, but to feel completely safe, consume 20 percent. In addition, fats reduce the level of activity of the digestive system, and you will not feel hungry longer.

Once you start following this special diet, you will have to constantly look at the calorie table for foods. But soon you will learn it well and know how to properly balance your diet. You will have more energy and a better mood than when you were on one of the trendy diets.

Some diet tricks

Naturally, every slim woman who successfully uses such a diet has her own "secrets" that allow her to maintain a low weight. Some may be useful to you too.

Exercise is healthier in cold weather.According to some studies, thin people burn more calories, give off more heat than fat ones. This is due to the genetic characteristics of the human body. However, some physiologists suggest that people with moderate upward deviations in weight, performing

aerobic activity in cold weather or in cold water, burn additional fat and this fat is not restored in the body even when it warms up again.

Drink plenty of water. When you experience a state of dehydration in hot weather after prolonged exercise, the hypothalamus can confuse the sensations of thirst and hunger, and you will feel hungry when you actually suffer from thirst. Drinking water during and immediately after exercise not only prevents heatstroke, but also this false feeling of hunger.

Eat small meals several times a day. You can eat only 2 times a day, but then snack several times using low-calorie foods. All of this will keep your blood sugar high and you won't feel tired or hungry. Or vice versa, eat 6 times a day, but little by little. Regardless of which option you choose, you cannot eat only once a day. If you are hungry all day, your body reacts as if you were really hungry. And when you finally start eating, the body absorbs more calories, and the excess is stored in special fat stores (so spoiling the appearance of any woman) in order to protect the body from hunger in the future. Moreover, when you finally sit down to the table, you will be so hungry that, quite possibly, overeat.

Have dinner early. Do not eat after 7-8 pm. While it is physiologically unimportant whether you go to bed right after a meal or not, as long as you do not exceed your required calories, psychologically, the difference is very large. Eating dinner early in the evening leaves time to exercise and thus consume some of the calories consumed at dinner. It can also help you break the common habit of snacking while watching TV, which is why many people gain imperceptibly, but significantly, in weight.

Avoid overwork. Regardless of its origin - overtraining or strenuous work in a state of extreme fatigue, the appetite is usually increased. This is another reason why you should gradually increase your training load. If you overtrain, you are more likely to overeat.

Allow yourself to break the rules sometimes. If you sometimes feel like eating something sweet, that's okay. But then don't eat dinner. This kind of pleasure is very good "for the soul" - a person cannot constantly control himself.

Do not eat very little, as if you were tasting food. Whenever you eat, whether it's a snack or a full lunch or dinner, get yourself a reasonable, sufficient portion, not small, because all those small portions - samples, additives - are not remembered, but in general add up to a significant number of calories.

Eat foods high in whole fiber. Whole grains, fresh vegetables, fruits, beans, and nuts. They will make you feel full more likely. Only plants provide the body with rough food and fiber. The feeling of fullness in these cases lasts longer because the stomach and intestines take longer to break down and digest fiber. This means you won't feel hungry with fewer calories.

Cut out saturated fat and sugar. Please try to eat bread without butter, as well as baked potatoes, coffee - without sugar, without pies, cakes and other baked goods. (Don't Worry The body will still be getting the natural fats and sugars that come in raw foods.) This may seem extreme at first, but it's not really that much of a sacrifice, assuming you can eat almost everything else. ... However, be prepared for unwanted symptoms, especially if you are very fond of sugar. It will take a week before you stop experiencing an irresistible craving for sweets, and before that, even increased nervousness is quite possible. Strenuous exercise during this period will help avoid unwanted consequences. If you are too fond of chocolate, then during the first week when you give it up, perhaps even the appearance of depression. Chocolate contains a lot of phenylephineamine, a chemical that is chemically similar to amphetamine, which is produced by the brain when, for example, you are in love or are in a wonderful, happy mood. When you suddenly stop loving someone, the level of this substance drops sharply. It also drops sharply during premenstrual stress. Perhaps it will help you to realize that your depression is associated with biochemical processes in the body. At least now there is no need to look for explanations for seemingly inexplicable phenomena. You can take comfort in the fact that after a week of serious exercise, you may be recovering your spirits again. for example, you are in love or you are in a wonderful happy mood. When you suddenly stop loving someone, the level of this substance drops sharply. It also drops sharply during premenstrual stress. Perhaps it will help you to realize that your depression is associated with biochemical processes in the body. At least now there is no need to look for explanations for seemingly inexplicable phenomena. You can take comfort in the fact that after a week of serious exercise, you may be recovering your spirits again. for example, you are in love or you are in a wonderful happy mood. When you suddenly stop loving someone, the level of this substance drops sharply. It also drops sharply during premenstrual stress. Perhaps it will help you to realize that your depression is associated with biochemical processes in the body. At least now there is no need to look for explanations for seemingly inexplicable phenomena. You can take comfort in the fact that after a week of serious exercise, you may be recovering your spirits again. occurring in the body. At least now there is no need to look for explanations for seemingly inexplicable phenomena. You can take comfort in the fact that after a week of serious exercise, you may be recovering your spirits again. occurring in the body. At least now there is no need to look for explanations for seemingly inexplicable phenomena. You can take comfort in the fact that after a week of serious exercise, you may be recovering your spirits again.

Cholesterol

Exercise reduces the amount of "bad" cholesterol in the bloodstream and increases the amount of "good" cholesterol. "Bad" cholesterol is called lowdensity lipoprotein. It is a large group of fatty particles that are deposited on the walls of arteries, causing platelets (thickening cells) to coalesce, obstructing blood flow and stiffening arteries. "Good" cholesterol is called high-density lipoprotein. It is a vengeance that is smaller, heavier and less fatty in composition. (Lipoproteins are made up of blood protein, cholesterol, and fat.) High-density lipoproteins prevent atherosclerosis in two ways: they chemically block the ability of the blood cell to metabolize low-density lipoproteins and, in addition, remove them from the bloodstream.

Cholesterol is not your enemy. Both types are vital for building cell membranes and keeping cell walls strong. You need 100 to 200 mg of cholesterol per 100 cc of blood in order to survive, and 55 percent of your total serum cholesterol must be in the form of high density lipoproteins. In order to provide adequate amounts of cholesterol, the liver produces about 75 percent of the required amount. And only 25 percent comes into the body in the form of meat and dairy products that you eat. This is why lowering the amount of cholesterol in the diet does not always and does not necessarily lower blood cholesterol levels to the level necessary to reduce the risk of heart disease or heart attack. This can only be achieved through exercise. Women generally have higher blood levels of high-density lipoprotein than men, and women (and men) who exercise regularly have higher levels of high-density lipoprotein and lower levels of low-density lipoprotein compared to those leading inactive lifestyle. When you do effective aerobic exercise, you burn fat (doctors call them triglycerides) that might otherwise combine with cholesterol to form low-density lipoprotein. Thus, aerobic exercise of moderate intensity is the best way to reduce the amount of low-density lipoprotein. It is necessary to perform physical exercises with a pulse rate of 60 - 80 percent of the maximum, for at least half an hour (if longer,

Fats and sports

Excess body fat creates additional difficulties for women involved in various sports. In addition to exacerbating rheumatoid arthritis, a tendency to increase blood pressure, you increase your body's insulin resistance (which will lead to diabetes if you are predisposed to it), cause kidney problems, cirrhosis of the liver, and bladder disease. Fat prevents you from using oxygen more efficiently, thusobviously lowering the intensity of metabolic processes and reducing the overall endurance of the body. Fat slows down the pace of work also because you are carrying the so-called "dead weight", that is, it is about the same as if you were exercising, carrying a suitcase weighing 7-14 kg. According to K. Curton, only 5 percent of additional fat slows down activity by 3.9 percent, 10 percent - by 5.8, and 15 percent - by 8.6. The layers of fat between the muscle fibers act as a brake on smooth, smooth muscle movement, thus inhibiting the speed and power of movement. Finally, a thick layer of body fat insulates you. This is fine in cold weather, but in hot weather, when the body is unable to cool itself, you have an increased risk of heatstroke or heart attack.

Chapter 5 Sports and physical activity

Five main types

Walking, swimming, cycling, running and jumping rope. Almost every woman has tried her hand at any of the listed types of physical activity at different periods of her life. They are the most natural forms of exercise. You don't need special training to walk, run or jump rope, and a few basic lessons are enough to master swimming or cycling. In most sports, on the contrary, it will take more than one month to master the simplest skills (for example, tennis, alpine skiing).

The advantages of the five main forms of physical activity lie in the fact that they do not require special equipment or significant financial costs. You can walk in almost any comfortable shoes, run - for a whole year in a pair of comfortable sneakers, jump - using almost any rope, you can borrow a bicycle from your teenage child, and the joy from such trips will be no less than from riding on the road over fashionable car. You can go swimming in the section at your place of work or residence. Each of these forms of physical activity is perfectly acceptable in any season of the year and almost everywhere: in the city, suburb or countryside. (If your area has harsh winters and snow and ice makes cycling difficult, use a bike rack.) Each of the forms of physical activity listed above gives the heart, lungs, and the entire muscular system a hefty load, is a good workout, and makes gradually increasing demands on the body as you switch from one to the other. Walking is the quietest activity. It is especially suitable for the elderly, overweight, with heart disease, who are recovering from surgery. Put a backpack on your shoulders, grab an alpenstock, and you will have the opportunity to truly test yourself. Swimming is also very versatile. It can impose on the body and minor requirements, as when walking slowly, and such as when running a marathon. However, in any case, when swimming, the load on the joints is weakened due to the fact that the water supports the body. Cycling requires more leg muscle than the two types listed above, but here you can also distinguish between light walking and serious aerobic training. Running, which primarily loads the leg muscle groups, is an excellent way to strengthen the cardiovascular and respiratory systems, but

you can start doing it with an average level of fitness. Jumping rope is perhaps the most strenuous form of physical activity, because you cannot start jumping softly, freely, and too slowly - the rope simply will not twist if it is not rotated fast enough. is an excellent means of strengthening the cardiovascular and respiratory systems, but you can start doing it with an average level of preparedness. Jumping rope is perhaps the most strenuous form of physical activity, because you cannot start jumping softly, freely, and too slowly - the rope simply will not twist if it is not rotated fast enough. is an excellent means of strengthening the cardiovascular and respiratory systems, but you can start doing it with an average level of preparedness. Jumping rope is perhaps the most strenuous form of physical activity, because you cannot start jumping softly, freely of preparedness. Jumping rope is perhaps the most strenuous form of physical activity, because you cannot start jumping softly, freely, and too slowly - the rope simply will not twist if it is not rotated fast enough.

Sports Bras

Doing any sport without a bra is harmful. Any sudden movements, jumping stretch the chest, which is supported by the skin and just a few ligaments - not muscles. If you run without a bra, according to K. Heikokk, M.D., the force of impact on the chest is on average 30 kg. If you don't wear a bra all your life, she says, your breasts will eventually become saggy. In addition, doing physical education and sports without a bra is painful for those women who have rather large breasts. But even women with small breasts need to wear a bra during exercise. A bra selected correctly for sports should meet the following requirements:

- he must firmly support his chest so that during movements it does not shake;

- none of the vessels should be squeezed, otherwise painful abrasions may form under the armpits or under the chest;

- the straps should be wide enough and preferably not elastic, firmly held on the shoulders, but not cut into them;

- the fabric of the bra must be at least 55 percent cotton in order to absorb sweat; Synthetic materials can lead to allergies, especially if you sweat a lot;

- any plastic and metal fasteners should be covered with a cloth on top so that they do not cut into the skin and do not scratch it; lace, metal inserts are also unacceptable.

Walking

According to research conducted in the United States in 1978, walking ranks first among Americans in the number of people involved in walking. She is addicted to 22 percent of American adults, that is, 34.1 million people. For endurance development, walking is just as effective as jogging, cycling, swimming, or other endurance sports - provided that you have been walking for a long enough time and at a fairly intense pace. If you doubt that walking is a good physical exercise, come on an excursion to any big city. After two days of introductory walks around the city, you will feel how difficult it is to make such trips - the muscles in your legs will be noticeably aching.

Assessment of walking activities

Walking at an intense pace strengthens the heart, improves oxygen supply to the lungs, and improves respiratory function. At the same time, the movements are soft, devoid of the jolts and jolts characteristic of running. When walking, the likelihood of injury is very small, while runners are often forced to stay at home, healing leg scuffs and irritations. You can walk everywhere: along city streets, parks or in nearby small woods. Like other endurance sports, walking strengthens muscles and helps burn calories, although it takes longer. If a runner or swimmer can expend 300 calories in 30 minutes of vigorous exercise, then a walker will need at least 40 minutes for the same energy expenditure. If you are in good shape, you are able to train the cardiovascular and respiratory systems, walking several kilometers daily without stopping, climbing hills, or climbing stairs, or wandering with a backpack over his shoulder. If you have a heart or lung condition, diabetes or arthritis, or are recovering from major surgery, walking slowly on level ground (with permission from your doctor) can help you regain your shape.

The attachment to walking remains for life, and only severe bad weather can prevent you from going outside. Since walking is an essential part of our daily life, it is much easier to do it every day than to find an hour free to cycle, swim or run. You can walk to work, go shopping, in the park with friends, walk your dog, and finally give up the elevator.

Walking provides ample opportunities unlike any other type of physical exercise: walking in unfamiliar cities will allow you to get to know them better, hiking trips - to get to know your land better. Walking regularly, you will know all the delights of each season, you will feel the aroma of fresh air. Your senses will become sharper and your vision clearer. Walking at a brisk pace will make your body work more efficiently, and at the same time,

you will not get so wet that you need to shower and change clothes before heading to work. For hundreds of years, poets, philosophers, playwrights, scientists have chosen walking as a form of active recreation.

Equipment

Walking is not expensive. If you already have a pair of comfortable, wornout shoes, then you can start classes tomorrow. It's great if you have a pair of good sneakers, preferably with instep supports. These shoes should have a stiff heel but a soft sole. Wear pure wool or cotton socks.

Security questions

If you go out for a countryside walk late at night, always go facing traffic, i.e. towards moving traffic, except when going uphill. It is advisable that you are wearing light-colored clothing and bring a flashlight to illuminate the road and warn of approaching vehicles.

Caveats

While slow walking is not too challenging for your heart, lungs, muscles, and joints, if you are not completely healthy, strenuous walking is not for you.

According to M. Pollock, director of the rehabilitation laboratory at one of the medical centers in the United States, in order to achieve a training effect, it is necessary to walk for at least 40 minutes 4 times a week at a heart rate of 60 percent or more of the maximum indicator. To do this, either measure your heart rate, or use the Talking or Singing Test (described in Chapter 2) by walking at top speed for the maximum time allowed, but you must be able to talk or sing. If you are in good or excellent shape, you can continue walking on rough or rough terrain or with a backpack weighing 3 - 4 kg in order to increase the load on the body.

Workout

First of all, you need to complete the above warm-up exercises. Dr. Pollock emphasizes the importance of stretching the back muscles before and especially after every long walk. In order for the heart to work, the first 5-10 minutes should be done at a slow pace. In conclusion, it is also recommended to take a walk for 5-10 minutes slowly, and then do stretching exercises.

For beginners

Start by walking slowly, Pollock recommends. If you haven't exercised at all for some time, walk very slowly on the first day, even if it seems to you

that this is a very easy activity. Fatigue and stress on the muscles will affect a little later. If the load is too light, the next day, when nothing will hurt, it is worth increasing the pace. Pollock recommends that a healthy 25-yearold woman walk more than three kilometers in 40 minutes. A healthy 40year-old woman can walk 20 minutes a mile (1609 meters) for 40 minutes. For a woman with short legs, such a speed (4.8 km / h) will be average, and 15 minutes of a mile (6.4 km / h) is quite fast, while a tall woman may find the pace of 17 minutes a mile too slow, and speed of about 9 km / h - fast, but quite achievable.

Walk fast. The foot should be placed straight with the heel first touching the support, and the weight should be evenly distributed over the outer arch of the foot as you roll onto your toes. (Watch your shoes; if the heel or inner sole is worn out, you are walking incorrectly.)

The arms work in a natural manner - the left arm is brought forward one step with the right and vice versa, the arms must be slightly bent at the elbows. Relax your hands and fingers. You should not perform any lateral movements with your hands.

As you walk, keep your head straight, held high, but not tense. You should walk in a measured, rhythmic, purposeful, even, but rather relaxed step. When you master this technique, you will feel as if you do not weigh anything, and walking does not require any effort. With the correct body position while walking, the muscles of the abdomen and back are strengthened, sometimes tense these muscle groups when moving to further strengthen them.

Table VI shows the walking program. If it is too strenuous for you, do the activity at a slower pace. If on the contrary, speed up the pace of execution.

* Even if you are in good shape, this pace may be too fast for those with short legs.

For people with an average level of preparedness

This section is intended for those who are in good shape, who are thirty or a little less, and who are able to walk at a speed of 7.2 km / h at least 4 times a week; those who are between thirty and sixty and who are able to walk at a speed of 7 km / h and train at least 4 times a week; those who are over sixty, but who are able to walk at a speed of 5.6 km / h and train at least 4 times a week.

After reaching the above indicators, begin to increase the intensity of the exercise. It is necessary to bring the duration of some walks to 2 hours. Add weights: a 3kg backpack or even heavier. Try to walk up the stairs every time, include walks on rugged terrain. On weekends, spend the whole day hiking.

Go with your backpack as often as possible. Of course, you have this opportunity 4 times a week, so hiking is not a daily form of physical activity. Consider them a reward for being well prepared. Being in poor physical condition, you will hardly get real pleasure from such a trip.

In order to often go hiking with a backpack, it is necessary to especially well prepare the muscles of the front and back of the thigh and the Achilles tendons, jumping and walking up and down stairs with a backpack over your shoulders in climbing boots or with additional weights attached will help you with this. to the ankles.

There are many other exercises you can do to strengthen the muscle groups you want. If the triceps muscles of the thigh are not sufficiently developed, then knee pain may appear during long descents on hikes. To make the backpack feel lighter, you need to strengthen your abdominal and back muscles with the exercises above.

For experienced

Once you've reached a good level of fitness, then it's time to move on to one of the main forms of physical activity.

Trauma

Walking injuries are very rare. If you are concerned about pain on the back of the thigh or lower leg, warm up longer. Watch how you place your foot it should roll from heel to toe. If muscle aches and pains persist and your soles and heels are wearing out unevenly, you may need to see an orthopedic surgeon and use orthopedic pads to help distribute body weight across your foot. If you have sharp pains or cramps in the ankle muscles when you step upward at an angle of more than 20 $^{\circ}$, it means that you are out of shape and excess lactic acid builds up in your body. Gradually add stair climbing to your daily routine to help improve cardiovascular health. You can start with one flight of stairs, which you will overcome at an easy, affordable pace,

Pollock offers some tips for hikers: "In extremely hot or cold weather, start your walk slowly. If it's very hot outside, drink plenty of water and then try your best. Walk forward half a mile (800 meters) and then back out. If you feel okay, you can continue with your usual walk. In cold weather, it is preferable to wear several light clothes rather than one that is heavy and too warm. As you warm up, you can take off one garment after another. It is always colder in windy weather. Therefore, start walking against the wind, so that when you return home tired and sweaty, walk with the wind. "

Swimming

In long-distance swimming, women generally do better than men. A higher percentage of adipose tissue in women allows them to generate more energy, is a good "insulating" layer, and increases the buoyancy of the body. A man spends much more effort just to stay on the water. "Women are able to endure longer and it is easier to endure the state of discomfort, - says Professor P. Hatinger, - although they themselves do not yet know this. As swimming becomes more widespread among women, we may see sensational results shown by women in marathon swimming. "

Learning to swim is easy. In just a few lessons, taught to you by a friend or a qualified instructor, you can master the basics of swimming technique and further improve it and your skills throughout your life. Swimming is a sport that can be practiced almost all life: children from the age of six are able to master the basics of swimming. Adults can continue to practice until a ripe old age.

Swimming earlier than 2 hours after eating is not recommended - you will feel too relaxed or feel a heaviness in the stomach.

You can do synchronized swimming or simply do various exercises in the water that are much more effective than if they were performed on land. (When you perform a movement in water, it provides additional resistance while reducing body weight. This is why it takes more effort to imitate running or dancing in water than when performing the same movement on land.) Water resistance and properties , providing buoyancy, help even

postoperative patients and disabled people confined to wheelchairs to perform restorative and aerobic exercises in the water, of course, under the close supervision of an exercise therapy specialist.

If you want to challenge yourself in a sport that requires serious all-round training, try synchronized swimming. Light, graceful figures, as if flitting in the water among the flowers thrown by admiring spectators, this is only an external impression. Synchronized swimming today places very high demands on the body. For the first time in the history of the Olympics at the 1984 Games, Olympic awards were played in this form. Both the Mandatory and the Free skate require both grace and power to complete. If you don't believe me, try a so-called corkscrew with your head underwater and your feet and thighs slowly screwing into the water. Because synchronized swimming requires power, flexibility and endurance to perform well, girls competing in these sports

If you want to take part in swimming competitions, then there are ample opportunities for you: there is an extensive network of sports sections for different age groups. The competition program, as a rule, includes several distances for each of the four styles (freestyle, backstroke, breaststroke and butterfly), complex and stayer swimming at 1500 m. —49, 50—54, etc. - approx. Trans.)

As one 68-year-old woman said, "I never thought I would look forward to my own 70th birthday, and now I can't wait to see it. Now I am swimming fast enough to outrun any of my peers who compete in the 70-74 age group, and therefore I hope to win a dozen different prizes. "

Swimming Assessment

"When you swim," says RJ, MD. Arthur (author of the competition program for the elderly) that you exercise all the skeletal muscles of your body and by making any effort, you train the cardiovascular system and achieve an overall training effect. Swimming makes you more flexible, especially in the shoulder and ankle joints; overcoming short stretches at a sprint pace develops the power of the arms and shoulders. With the horizontal position of the body, normal in swimming, the heart works more efficiently, there is a greater release of blood from the heart than when jogging or cycling. This is why swimmers are able to do heavier work for longer periods of time in any weather than runners or cyclists. Not surprising, In water, you can achieve a certain efficiency while performing work, even with significant excess weight. Moreover, daily swimming lessons for an hour practically do not threaten any injuries. Legs and feet do not receive additional stress, as when running and jumping rope. Your shoulders won't hurt either, unless you swim for 5-6 hours non-stop. Swimming is especially beneficial for those with back pain, arthritis, or some kind of heart disease. The position in which a person is when swimming on his back protects against a variety of pains in the back, and is also useful for senile kyphosis (curvature of the spine, inherent in the elderly and old people), says P. Hatinger.

Swimming is an excellent exercise for children and adolescents, but it is especially useful between the ages of 9 and 15-16, for those who, due to being overweight or short, cannot practice and participate in competitions in basketball, football and other sports. "In water, body size is not so important," says pediatrician GM Sexton. - Children of small stature in the water seem to equalize with their larger peers and will achieve good results. They can try themselves in diving. "

Equipment

Any swimsuit is suitable for training. The most important thing is that it is not too tight and does not crash into captivity and stings under the armpits and between the legs. It is best to start swimming in an indoor pool rather than an open water body and plan the distance you are going to cover in advance so that you can determine the correct pace. As a rule, competition pools are not shorter than 25 meters (on a shorter course, it will take too much time and energy to make turns and it will be more difficult to achieve the desired training effect).

The ideal water temperature is 23-27 °. In cooler water, you can feel cold, and in warmer water, you can become lethargic and relaxed. It is best to practice in a pool with marked lanes to avoid collisions with other swimmers.

When you reach an average level of fitness and gain experience, you need to use various devices in the classroom in order to strengthen the stroke with your hands or feet, and at the same time to diversify the classes. Swimming boards, paddles for swimming, special swimwear with pockets or another larger swimsuit worn on top will increase resistance in the water and force you to put in more effort. If you are not all right with your eyesight, it is better to use special swimming goggles when swimming.

Cautions (Safety Tips)

Swimming in the pool is much safer, because the pool has bumpers, delimiters of paths, which you can hold on to if necessary. Do not swim in large open bodies of water until you are experienced enough. And in any case, it is better to swim along the coast so that the lifeguards can see you. It is much safer than swimming far from the shore and then returning.

During swimming competitions, do not inhale or exhale too much. When you breathe normally, oxygen is used up by your muscles. Muscles release carbon dioxide, which is a decay product, and it is a certain concentration of carbon dioxide in the blood that tells the lungs when to take the next breath. If you take several quick breaths in a row without completing a full exhalation, the body produces more than usual amount of carbon dioxide and the chemical balance is disturbed, which affects the respiratory stimulus, says D. X. Flipper, MD.

Swimming is a sport available to almost everyone. However, if you have any kind of auricle or ear disease, you should first see your doctor, who, perhaps, will allow you to swim, but at the same time recommends using special earplugs.

Guidelines

In order to achieve a training effect, you should go in for swimming at least 3 times a week, for at least 30 minutes, performing such physical activity that would allow you to achieve heart rate indicators of 70-85% of the maximum. (Swimmers can work harder than other sports because the heart can hold 10 to 20 percent more blood in the horizontal position than in the upright position. In addition, with each contraction, it can push more blood through the vessels. less effort.) Because swimming is less demanding on your body than other sports, it is best to swim 5 times a week and check your heart rate regularly to make sure you are working effectively. Many swimmers prefer to measure their pulse in the carotid artery, but choose for yourself which method suits you best. (Any competition pool has a large stopwatch on the wall to help you calculate your heart rate.)

Workout

In addition to one of the versatile warm-ups described in Chapter 2, do some additional exercises to stretch your shoulders, arms, and chest.

In order to prepare your heart for work, first swim a few sections slowly, gradually increasing speed. At the end of the lesson, be sure to cool down, that is, swim at a slow pace.

For beginners

*D. Krauser*offers a program for beginners with a very gradual increase in workload (see table VII). If you have been swimming in the past, the suggested pace may seem too slow to you. As soon as you feel that you can easily cope with the proposed requirements, then feel free to move on to the next stage.

Swim in a straight line, do not circle the pool. Any style (freestyle, crawl, backstroke, butterfly or breaststroke), used alone or in combination, helps to train muscles and the cardiovascular system with a fairly intense load. Do not use "scissors" leg movements in the crawl and do not swim on your side, this is possible only in a hitch. If more than two people are swimming on your lane at the same time, stick to the right side, trying to swim in your half of the lane all the time. If you are swimming slowly, follow the outer paths; if you want to cross the pool, do this maneuver only in the middle. (In competitive swimming, the middle - fourth - lane always belongs to the swimmer who showed the highest result in the preliminary heats.) In order to diversify your knowledge, do a quarter or a third of the load, working only with hands or only with legs. In the first case, when the legs are holding a circle or a special board, the muscles of the arms and shoulder girdle are strengthened. By working only with your legs, and with your hands holding a board in front of the board, you strengthen the muscles of the thighs and legs. You can also use special paddles for swimming, then it will be more difficult to stroke, therefore, more effort will have to be made.

1. After swimming 25 yards (one length of pool), stop, catch your breath, then swim back, etc.

2. Since 1 yard corresponds to about 91 cm, you can use the table equating a yard to a meter.

When you can swim 800 yards without stopping, increase the distance to 1000 yards and try to cover it in 30 minutes. When this task is up to you, start shortening the swimming time for this segment, instead of increasing the distance.

Useful Tips

As you crawl, exhale to the right and left in turn - this will help maintain the movement in a straight line. Also, breathe out into the water before lifting

your head for a new breath. Most distance swimmers perform one breath per two strokes with their arms (one left, one right).

Try to keep your elbows high when you crawl or butterfly swim. Hand rowing starts from a position in which the elbow is almost straight, but already in the middle of the stroke the elbow should be bent at an angle of slightly more than 90 $^{\circ}$ in order to perform the "push" from the water most powerfully.

Try to lie as flat on the water as possible. Tighten your big toes a little, lower your head slightly, try to keep your feet as high as possible in the water. However, do not bring them to the surface, otherwise you will be kicking through the air.

Try not to swing your shoulders from side to side - this disturbs the straightness of the movement.

If you want your activity to be enjoyable and injury-free, try a training method called long distance at an average steady pace. This means that you are using an average, moderate pace (your desired heart rate is 60 to 80 percent of your maximum heart rate) and you are doing the work for 30 minutes or more. For the first 10 minutes you will obviously experience some discomfort, then you will work in and reach a steady state. Using this method of loading, you will have fun. And this, in turn, will help to achieve the maximum training effect with a minimum likelihood of injury. This method is also used in other sports; for it to be sufficiently effective, it is necessary to perform physical activity staged for at least 30 minutes.

For people with an average level of preparedness

You can be considered to have reached this level if:

- under 35 years of age and able to swim 100 yards in less than 2 minutes and 1000 yards in less than 22 minutes;

You are middle-aged and can swim 100 yards in 25 minutes and 1000 yards in less than 25 minutes.

- you are over 60 years old and can swim 100 yards in 3 minutes and 1000 yards in 27-32 minutes (the result depends on how much you are older than sixty. Every year after sixty about 1 percent of speed is lost).

In order to improve these indicators, train 5 times a week, either swimming for an hour or covering a distance of one mile. Many women like this form of activity - long non-stop swimming. "Sometimes I have music in my head," said one 15-year-old girl who swims for health. "But most of the time I just concentrate on how my arms and body move. One gets the impression that you exist separately from everything around you. Swimming alone, you are as if in an imaginary world. All this creates a bright, calm mood. "

After you have mastered swimming well, the method of calm non-stop swimming described above will no longer affect the increase in heart rate to the desired values, so I advise you to add a little fartlek to your training sessions - 2-3 times in week. Speed up and slow down your swimming pace every few minutes. For example, swim slowly for 5 minutes, then 400 yards at a very fast pace, then change to a moderate pace again, maintain it for another 5 minutes, then again at a high pace for one or two pool lengths, then at a very slow pace, etc. . In one hour. Don't go too fast so you don't have to stop to regain your breathing. If you can easily swim a mile and are going to compete,

Time intervals should be recorded. First, test your capabilities by swimming 100 yards fast enough for your heart rate to reach 80-90% of your maximum heart rate, depending on age and health. Notice the time. Determine exactly how long it will take for your heart rate to drop by 2/3. yards.) Make a program of 100-yard segments so that each segment can swim with the same result as in the test swim, or slightly faster, and the rest pause between segments should be equal to the time you calculated.

Swim, rest, swim, rest, etc. - until you have covered a total of half a mile to a mile. As your training improves, shorten the rest pauses until they are 10-15 seconds. If speed development is your top priority, do low reps but very high speed. Swim one or two lengths of the pool at near maximum speed, then rest (rest a little longer than swim time or until you fully regain your breath) and swim again at high speed. These intervals in interval training can be done in one and different styles, or even using paddles or footboards. Swimming interval training is different from running or cycling. For female athletes training and performing on land, longer rest is necessary to dissipate the heat accumulated during high intensity loads. Swimming allows you to cool your body with the surrounding aquatic environment, so there is no need for such long pauses. Moreover, since the body is much lighter in water, you recover much faster, this also allows you to work harder, since both the runner and the cyclist have longer rest pauses and need to continue to move slowly during this time. You stop moving completely and hold onto the side of the pool or do light stretching exercises.

For experienced

If you are able to swim more than 3 km non-stop, then you can class yourself in this category.

Interval method

It is based on the performance of intense efforts at certain segments of the distance at a given speed and gives the body the opportunity for only partial rest. It is these pauses of incomplete recovery, when the amount of blood pushed by the heart in one contraction reaches its maximum values, is believed to have the greatest effect on the body (and primarily on the cardiovascular system). Many coaches believe that interval training is the most effective of all known methods for a well-trained athlete, since, among other things, this form of training is a very serious burden on the body. Achieved an effect similar to the effect of resistance training; destruction of individual muscle fibers leads to the formation of new muscle fibers- larger and more powerful. As with resistance training, interval training can be used no more than 3 times a week and never two days in a row.On other days, use the method of long, continuous loads performed at a moderate pace.

Once you have reached this level of fitness, you may want to add resistance exercises to your routine. A woman who swims generally needs to strengthen her abdominal muscles, as well as her triceps, latissimus dorsi, and pectoralis. Swimming movements are so specific that conventional resistance-overcoming exercises cannot completely copy them. However, pull-ups will help strengthen the latissimus dorsi and biceps, the reversegrip pull-ups will also strengthen the triceps, push-ups will help strengthen the chest, shoulder, and triceps muscles, and the lifts from the supine position with arms behind the head will strengthen the trunk flexors. Before doing any strength or resistance exercise, As well as after, it is necessary to slowly and consistently stretch the main muscle groups of the body, otherwise such exercises will only shorten the muscles and deprive them of flexibility. In addition, you need to perform basic swimming movements of several styles on land, holding dumbbells in your hands, and when moving your legs, tie weights to the ankles.

If at this stage of preparation you have any questions regarding the technique or method of training, then it is time to seek advice from a specialist trainer.

Trauma

If you swim for an hour a day, 5-6 times a week, the chances of getting injured are practically nil. Highly qualified swimmers sometimes overcome in training from 10 to 20,000 meters per day! If an athlete swims 10,000 meters per day, then in a week her hands perform at least 108,000 movements in the crawl, butterfly style or on her back. Then an injury is possible, known as the "swimmer's shoulder".

Sometimes, after training, the latissimus dorsi muscle may hurt. It is necessary to perform specific stretching exercises before and after each workout.

Cramps in this muscle during or after swimming are similar to cramps in the calf muscles when walking or running for a long time. In such cases, extend a straight arm over your head and then bend it.

Sometimes breaststroke specialists suffer injuries to the knee, ligaments or tendons that support it. It is necessary to perform special exercises to strengthen and stretch the tendons and quadriceps muscle of the thigh. You can slightly modify your swimming technique. Particular attention should be paid to warm-up. Before moving on to basic swimming, it may be worthwhile to stretch your leg muscles a bit by swimming some distance on your back.

Many people get red and sore eyes from bleach; special glasses will help to protect them from this. For those for whom it is an allergen, swimming in open water can be recommended (to avoid itching and redness of the skin).

To prevent various injuries and diseases of the nasal cavity, you can use special devices - "clamps".

If you have a permanent or just dry and brittle hair, before putting on a bathing cap, lightly lubricate it with petroleum jelly. Although water helps cool the body, you still sweat while swimming and may also suffer from dehydration. Therefore, drink as much water as possible before and after each workout if exercising in hot weather.

Colds are common in winter swimmers. Be sure to wear a hat or scarf before going outside after the pool.

Cycling

Women's cycling has finally achieved Olympic recognition, with the first Olympic medals awarded in 1984. This sport is the fourth most popular in the United States, with 20.2 million people, or about 13 percent of the adult population.

Among other things, cycling is one of the most popular forms of physical activity. Fully aerobic exercise, it strengthens the heart, lungs, and leg muscles, although it does not contribute to the development of the muscles of the trunk and shoulder girdle. Cycling is similar to speed skating or downhill skiing (alpine skiing) in that it strengthens the leg muscles to the same extent. Thus, in the summer you can go in for cycling in order to keep in good shape, and in the winter - skiing or speed skating. Runners and tennis players have found that cycling helps them improve overall endurance.

Try to diversify your cycling activities. You can circle around your block until you complete a certain load, or take a half-hour-hour walk through city streets or country roads. Having reached a certain level of preparedness, you can make cycling trips both alone and in a group of organized tourists. Many cycling clubs organize trips to their native land, to nearby places. From time to time, plan more distant trips, preferably during your vacation, when you can travel up to 80 km per day.

There is also cyclocross, for participation in which special bike models are used.

Cycling competition is re-emerging in the United States after nearly 40 years of neglect. (During the period known as the "depression," six-day non-stop bike marathons on the 4,160 km track were as popular as dance marathons.) In many cities, local competitions are held several times a year. Highway and track cycling in most countries of the world takes second place in the number of spectators attending these competitions, following football.

There are several types of cycling competitions. So, outdoor competitions for a while, as a rule, are held on a marked flat track. The so-called criteria consist of several circles overcome by the participants along the route laid along the streets of the city. Distance races (about 96 km) or speed races are also organized over rough terrain, most of which can be mountainous. If all these requirements are combined in one competition, then it is called "jiro". Competitions on the track, open or closed, are held in a circle 336 meters long at various distances.

Cycling Assessment

"Cycling is a great cardiovascular exercise," said AJ Ryen, MD, editor of Physics and Sports Medicine. - The largest hearts were observed in cyclists.

Only skiers and rowers can compete with them. " Top cyclists also have very high oxygen consumption rates and one of the lowest heart rates.

According to physiologist W. Heskell, cycling is very beneficial for weight loss, increasing high density lipoprotein (HDL), and lowering low density lipoprotein (LDL) in the blood. "They improve the biochemical processes in the body, which can help reduce the chances of getting diabetes or developing glucose resistance. They do not prevent the onset of diabetes, but they can minimize its consequences."

Cycling strengthens the muscles in the thighs and, to a lesser extent, the lower legs, but does not affect the development of flexibility. The muscles of the foot, knee and thigh receive much less stress than when running or jumping. This is why cycling is more suitable for women who are significantly overweight or have too large breasts.

Equipment and outfit

Before buying a bike, decide for what purpose you need it. Are you going to drive it through the nearby neighborhoods and a relatively flat paved road or out of town along a country road. Heavy models are difficult to use on uphills and very rough terrain, but they do keep you in good shape when you use them on relatively level surfaces, since a lot of effort is required for each turn.

If you are not going to compete, then it is better to buy a touring model.

There are male and female models. If you are short, overweight, or are going to ride a bike in a skirt, it is better to buy a female model.

When picking up a bike, you need to "saddle" it so that your feet touch the ground completely, the frame is as close to the crotch as possible, but does not touch it. When sitting on the saddle, the knee should be slightly bent while the foot is at its lowest pivot point. If the size of the bike is not chosen correctly and the knee is too bent in the indicated position, then the muscles of the thigh will have a very large load, and if the leg is, on the contrary, fully extended, the ligaments of the knee will strain too much. Sitting on the saddle, you should be able to touch the ground with your thumbs.

All these recommendations apply to women of average height, but what if you are short? You will probably have to lower the seat of even a teenage bike so that, while sitting in the saddle, you can touch the ground. If you have long legs and especially your hips, move the saddle back a little. A lot also depends on how the saddle is positioned. It is usually parallel to the ground, but some people prefer to lift the "nose" of the saddle so that the weight of the body falls mainly on the buttocks.

If you only ride 48 km a day, any hard-soled shoe will do. Shoes with soft soles (such as sneakers) will not work. For longer walks, you need to buy special cycling shoes. People who own a bicycle well and have sufficient experience use special clamps (toe-clips), they help, as it were, to redouble efforts, since they firmly press the foot against the pedal and prevent it from slipping. And this, as you know, is often the cause of traffic accidents.

Security questions

Cycling is the most dangerous form of outdoor activity in the United States, according to one survey. In 1980, 537,100 people, including children between the ages of 5 and 14, were hospitalized as a result of various traffic accidents. The number of road traffic deaths among cyclists has increased by more than 25 percent since 1967. This is primarily due to the fact that cyclists began to ride on the streets, and not on the sidewalks, as before. Collisions between cyclists and cars account for 20 percent of all accidents, and about 90 percent of them end in tragedy.

Most often in such cases, cyclists suffer from the face and head. If you use a dedicated bike helmet, you cut your chances of death in half in the event of a serious collision. By the way, a mirror attached to zero will help reduce the likelihood of a traffic accident.

Cycling late in the evening and at night is especially dangerous, because on a poorly lit street you may not notice an approaching car or the driver will not notice you. In many US states, it is a mandatory requirement for cyclists to use special reflectors in the evening, not only in front of and behind the bike, but also on the sides.

Studies have shown that car drivers do not react to small dots of light until they understand what they mean. Therefore, when using a bike late at night, you need to have a good strong headlight, it is also better to wear a white sweater or T-shirt, visible from afar.

In order for cycling to be safe, you should adhere to the following rules: 1. Strictly follow all road signs in the same way as the driver of the car, that is, drive on one-way streets only in the direction indicated, etc.

2. Try to go with the main traffic flow. On a two-way street, use the right lane, but do not hug the sidewalk or lane of parked cars. There should be a distance of at least a meter between you and one or the other. Never try to

"dive" between cars or between parked cars: a motorist moving behind you may not notice and run over you. Do not drive slightly in front of the right wing of the car - this is usually an area that is invisible to the driver. If you are driving at a lower speed than the main traffic, it is better to drive closer to the sidewalk to allow cars to pass.

3. Use common signals commonly used by motorcyclists to inform drivers when you are about to stop or turn unexpectedly. However, you must also maintain eye contact with each driver while performing the maneuvers you specify to make sure they understand you correctly.

4. Watch carefully for opening doors of cars and for cars pouring into the general stream.

5. If the traffic is very heavy, do not try to make a left turn from the left lane. Better get off your bike and cross the street with pedestrians. Most incidents and collisions between cyclists and cars occur at intersections.

6. While driving, watch not only the car in front, but also the previous one. Maintain your distance so that there is enough time and distance to perform an unexpected maneuver.

7. If possible, use special bike paths, avoid driving on the streets.

8. Do not drive on sidewalks - you are a threat to pedestrians, just as they are to you.

9. Watch the road carefully for hatches, large holes, gravel, rails and other obstructions ahead. Even on a flat street, sand or gravel can change your trajectory when cornering.

10. All parts of the machine must be in good working order, clean and well lubricated, and your bike must be suitable for the height and length of your limbs.

11. Do not carry passengers, especially if they obstruct your view. The presence of a second person on the bike can make it difficult to maintain balance.

12. Do not carry any large items attached to the front of the handlebars if they obstruct your view. Use the trunk for this, after making sure that the load is well tied.

13. Never get caught on cars, trucks, motorcycles or other vehicles.

14. Wear a protective helmet.

15. Do not drive late in the evening or at night unless absolutely necessary. If such a need exists, be sure to use headlights, reflectors and light-colored clothing.

Caveats

Cycling can be easily adapted to individual capabilities and needs, the body can take a light walk on flat terrain or rush at full speed over rugged terrain. Cycling is safe for almost everyone, except for those with serious heart disease.

Guidelines

"When cycling for health, you need to ride at least three times a week, nonstop for at least 30 minutes, with a heart rate of 60 percent of the maximum," says A. Ryen. - Riding at a higher intensity will tire you faster than you can complete the entire planned load. Ride on flat terrain first (if you live in a city it will be difficult to find relatively flat terrain or achieve non-stop driving due to traffic lights).

In order to control the intensity of the exerted effort, first use a talking or singing test or count the pulse in the carotid artery. If you try to measure the heart rate on your wrist, you may lose control of the car.

Workout

First, do one of the versatile warm-up options, focusing on warming up your quadriceps, Achilles tendons, and calf muscles. Exercises for the arms and torso will help avoid cramps in these areas when you have to squeeze the handlebars for 30 minutes. For an effective cardiovascular warm-up, either jog for a few minutes or start cycling very slowly. After a strenuous, vigorous up and down hill bike ride and sprint dash, end the session with the slow ride needed to cool down and cool down for 5 minutes, then repeat the warm up exercises to help relax the muscles after a long but not too tiring 30 minute ride. the hitch is easy enough, driving for 5 minutes.

For beginners

If you are not very good at cycling, you first need to lower the saddle and learn to maintain balance, only then can you return the saddle to its original position. It will take much more time to learn how to cover a certain distance on a bicycle than to master the same distance by running. If you've never ridden a bike before, ride 800 meters on the first day and double the distance by the end of the first week. Then, following the data in Table VIII, alternate the weeks in which you increase the distance with weeks in which you increase the speed of covering the distance. If the proposed program is too intense for you, spend two weeks on each step. If this is too slow for you, exclude weeks in which the speed should be 16 km / h, and do not go slower than 19,

Continue driving 13 km in 30-32 minutes until you feel that it has become too easy for you, then start gradually increasing the length of the distance. Once you are in good shape and learn to ride well, it will take an hour instead of 30 minutes to stay in shape.

Air speed and resistance

When you are in good shape, your travel speed is 16 km / h. At this speed, about a third of the applied energy is spent on "pushing" the air away from itself. If you move at a speed of 24 km / h and even do sprint jerks at a speed of 32 km / h, then at this moment half of the energy is spent on cutting the air, and at a competitive speed of 48 km / h 90 percent of the energy is spent on overcoming air resistance.

For people with an average level of preparedness

If you are able to cycle non-stop for an hour at a speed of 16-24 km / h, then you have reached this level of fitness. In addition, you should be able to drive in a straight line (without swaying, not wobbling), changing gears without lowering your eyes, turning smoothly, being able to make sharp turns and crossing obstacles (for example, a hole with the front wheel on one edge of it, and the rear - another). You should also be able to do basic bike repairs.

If you meet all these requirements, then you can consider yourself ready for long trips and even competitions. Now add fartlek to your training loads (see the Running chapter) to improve your anaerobic capacity. It is necessary on steep climbs or finishing spurts. Drive alternating between light and heavy trails once or twice a week, or drive quickly on a flat trail that occasionally includes low hills. You can sprint for 10 minutes until you are completely exhausted, and then give yourself a short rest, moving by inertia, then sprint again, and so on for an hour. Because fartlek and other forms of interval training put the muscles under stress, just like strength training, do not do it more than 3 times a week, and never on two days in a row.

Once you reach the average level of fitness, any, even imperceptible, changes in technique can seriously affect your performance in competitions. For example, try to pedal with your toes, not with the pads or with your entire foot. The main work should be done by the ankle muscles.

Moving the saddle forward or backward can also increase performance. Some experts believe that the saddle should be positioned behind where the pedals rotate. If the saddle is too far forward, you will not be able to move your ankles freely.

According to a study from California State University at Sacramento, the correct hand position can increase the effectiveness of the effort by 14%. If you place your hands on top of the handlebars, the movement efficiency will be 86% compared to the position of the hands that cyclists practice, i.e. when hands are placed on the lower bend of the handlebars. However, this is inconvenient for long walks. To make a compromise, change the position of the rudder so that its main part is parallel to the ground and the ends are at an angle (like a ram's horns).

Rhythm

The rhythm of pedaling distinguishes a rider who gets tired quickly from a cyclist who can pedal non-stop for several hours without experiencing muscle pain. In order to ride with the greatest efficiency, you need to determine the optimal pace for yourself. You can determine it by traveling along a marked track (1600 m) at a pace that suits you and counting the number of rotations that your right leg will perform per minute. Typically a recreational cyclist or a cyclist will do 60 to 80 rotations per minute. Racerabout 90.

However, experienced cyclists are able to pedal effortlessly and at high frequencies. For them, a pace of about 120 rpm is considered easy. And although they move their legs more often, they do less work. It takes a lot of practice to learn how to pedal effectively. At first, it will seem that at times you are pedaling as if idling (when you will go astray at the selected tempo); but you will get the skill over time.

For experienced

Those who are able to ride non-stop for 2 hours at a speed of 29-30 km / h can consider themselves experienced cyclists. If you just want to cycle occasionally, then there is no need to keep improving your skills. If, however, you are going to compete, then you should improve the anaerobic capacity of the body to increase speed and endurance.

Interval workout simulates the conditions typical of most cycling races - up and down. To increase the power of your movements, perform short bursts at 90 to 95 percent of your maximum speed, then continue coasting until your heart rate reaches 60 to 70 percent of your maximum, then repeat the
dash again. Continue to ride slowly even during breaks, because, as with swimming, the training effect is achieved through incomplete rest. If you train in hilly terrain, where short climbs are interspersed with similar descents, then consider that you are doing an interval load. On level ground, drive at sprint speed for a minute, then by inertia or lightly pedaling for another minute, then sprint again, etc., until then, until the total number of intervals is 10-15 per workout. To complete such a grueling workout, perform two or three jerks for a longer time - 2-3 minutes at full strength, then at a speed of 60-70 percent of the maximum for the same period of time - to recover. Do interval training no more than 3 times a week, and never two days in a row.

To develop speed endurance, you must train at 70 percent of your maximum effort for at least one hour to train your muscles to work at a fast pace for an extended period of time. Drive 16-40 km along the highway once a week at the fastest speed possible. Try to improve your result every time.

To develop or improve endurance, use the method of sustained, moderate exertion, which for a rider means driving a distance of about 100 km for two and a half hours, while doing 80-100 revolutions per minute. This load must be performed at least once a week.

A total of 10 km must be covered per week. However, if you limit your competitive experience to participation in the start at 48-50 km, there is no need to perform such loads. From 72.5 to 145 km per week is enough.

Stationary bicycles

Is it okay to cycle in winter? Or exercise if you've slightly injured your elbow while playing tennis?

Want to exercise but don't feel like leaving the house? Then use a stationary bike (bike rack).

Exercising on it will give the same effect and will have the same effect on the cardiovascular and muscular systems as cycling over the same period of time. Since in this case the muscles work at different angles and with different tension than in other sports, you can often use a bike stand if, for some reason, it is not possible to practice the chosen sport. This will allow you to maintain a high level of fitness and achieve good training efficiency without reaching the pain threshold. You can pedal the bike while watching TV or even reading.

A good bike stand is usually very stable. It has a variable resistance, besides, as a rule, such bicycle stands have special devices that allow you to

register the number of revolutions per minute, speed and distance traveled. The principles of cycling training are the same as for cycling. You need to work for at least 30 minutes (optimal is one hour) with a heart rate of 60% of the maximum, 3 times a week. Indoors there is no wind resistance, so you can work at 48 km / h and still your heart rate will not reach 55% of maximum. Do one of the versatile workouts first, then get your heart ready for work by pedaling with as little resistance as possible. Then increase the resistance until overcoming it makes you breathe heavily. When you feel that you have gained a second wind, again slightly increase the resistance to maintain the heart rate at the set value. Continue pedaling, sweating and panting, until 30 minutes are up.

If you want to better prepare for summer trips by doing fartlek or interval training, the first step is to adapt your bike rack. This means that the saddle, the position of the pedals and the angle of inclination of the saddle and handlebars should be as close as possible to those parameters that correspond to a regular bicycle. Only then can you start training.

Trauma

Cycling is less stressful for the legs, feet, hips than running or jumping disciplines. If your knees hurt while riding, check the size of the bike and the correct saddle position - the bike may be too big for you or the saddle is too low. If the pain starts in the neck or back, you may be rounding your back too much. Try to keep it straight, at a 45 $^{\circ}$ angle to your hips. With increased training, the leg cramps that occur after covering a considerable distance will disappear, although uneven load on the legs may also be the cause, which is usually suffered by many cycling enthusiasts. If your hands become numb during long journeys, wrap tape around the steering wheel and raise the edges so that they are parallel to the ground or at a 15 $^{\circ}$ angle. Heat is always a problem for cyclists. In hot weather, you should drink plenty of water before and during your trip. The water should be in a special bottle attached to the bike. Use generally accepted precautions to avoid heatstroke.

Even if it is quite warm outside, it is possible to freeze up while cycling, as the air being cut creates its own wind and coolness. (Likewise, you are much colder on a windy day than on a calm day at the same temperature.)

For example, if the street is $+7^{\circ}$, you are driving at a speed of 24 km / h, and the wind speed is 16 km / h, then the speed of the "combined" wind for you will be 40 km / h and it will seem to you that the temperature is only -5

 $^{\circ}$... Therefore, at an air temperature of + 7 $^{\circ}$, dressing and preparing for training, you need to equip yourself in such a way as if it were -5 $^{\circ}$ outside. Exposing yourself to rain and moisture while cycling will increase heat dissipation. Cotton clothing wicks sweat, and woolen clothing also retains warmth. Do not forget about the cap - at least 30 percent of the heat that the body emits during strenuous muscular work comes from the head. In case of rain, use a waterproof jacket and trousers made of synthetic material that still "breathes". If you have ever trained in a waterproof, breathable suit,

Run

The role of running is often overestimated. Although he is only the sixth most popular student in the United States (17.1 million adults, or 11 percent), nevertheless, he is most often written about in magazines and newspapers. Most of these articles focus on the metaphysics of running, the emotional uplift that can be achieved with its help - for many serious runners, it is a kind of religion. This is bad, because such conversations discourage many people from jogging, who would like to enjoy the exercise and improve the condition of the cardiovascular and respiratory systems.

Running is one of the best training aids for cardiovascular fitness. It helps you get fit much faster than any other sport (with the exception of rowing and cross-country skiing), and provides a better way to shed excess fat. However, running mostly only strengthens the calf and hamstrings, reducing flexibility.

Jogging is an easy, natural form of exercise. You don't need to take special lessons to get onto the stadium's treadmill or just onto a country road. However, once you get seriously involved in running, you will improve your stride and technique in general for the rest of your life. You can run in any weather, even snow or rain is not a major hindrance, and you may find that cold and not-so-good weather is most conducive to exercising, since all roads are yours and are not in danger of getting heatstroke.

You can run almost everywhere: both where you live and where you came on a business trip, which means you can train almost daily.

Running is a purely individual activity. It is either a long run at a slow pace just for the joy of movement and the desire to inhale the smells of flowers, or soppep. Self-reliance when you cover a distance at a certain speed. (Don't get too carried away with high-speed jogging, though. You can get a lot more aerobic effect by running at a moderate pace for half an hour than by running at close to maximum speed for 15 minutes.) Start your passion for jogging with your personal affection, but later imperceptibly the accents shift. You can't consider yourself a real runner if you don't compete, many over-the-top running aficionados argue. Ignore such statements. If you run every day, several days a week, even for an hour, and then take a month's break, you can still consider yourself a runner. If you don't like to compete, or prefer to save a competitive spirit for a handball or hockey game, use running as a training and relaxation tool, and in such cases you can consider yourself a runner.

However, if you are interested in competitions, then they are planned and held in almost every city. They will provide you with an opportunity to compare your fitness level with others. There are many and varied competitions in running on a treadmill, on country roads, on rough terrain, on a highway, at various distances, up to marathons and super marathons. With a little experimentation, you can determine which distance suits your physique best and compete in it throughout the year. Don't count on quick success. Even athletes of the highest ranks, who compete in the national championships in middle and long distance running, achieve the best results at the age of much over twenty. It takes time to fully realize your competitive capabilities.

Orienteering combines the charm of cross-country running with the beauty of tourism and the intelligence of competition for optimal routes and strategy. Orientation came to the United States from Sweden in 1946. The essence of this competition is reminiscent of a rally. A runner makes his way across rough terrain with a map and compass. Along the way, he should discover several hidden stations or "control marks". At each station the orienteer marks his own card. But while the rally participant tries to arrive at each station to the finish point at a certain time, the orienteer seeks to overcome the route in the shortest possible time. At the same time, running speed is important, but the ability to read a map and to be well orienteer is also necessary. The only equipment which is necessary for orienteering classes, in addition to sneakers, it is a compass, which is sometimes given to participants in competitions. As the routes are very different, depending on the difficulty, it happens that beginners and experienced orienteers compete together in this sport for "thinking" runners.

Jogging Assessment

Recreational jogging is a common aerobic activity. It "works wonders" for the heart, increases lung oxygen consumption and cardiovascular capacity, burns calories faster than most other endurance sports, but does not help develop flexibility. Moreover, if you are not careful enough, it will tighten the muscles in your body. Running predominantly strengthens the hamstrings. If you want to achieve the most effective cardiovascular system and at the same time spend a minimum of time on it, running is for you. To achieve a harmonious development of strength and flexibility, I advise you to combine running training with swimming, rowing or strength exercises designed to develop the muscles of the shoulder girdle, and pay special attention to doing stretching exercises.

Equipment

All you need are running shoes.

The soles of your sneakers must be flexible. To check if your shoes are too worn out, which can put additional stress on the foot and even injuries, place the shoes on a flat surface at eye level. If neither heels, nor soles, nor socks are raised or, conversely, not bent, then everything is in order. Sneakers should be chosen so that they are a little loose, and there is a small gap between the thumb and the end of the shoe. You should be able to wiggle your toes, but the heel should feel firmly supported.

Occasionally, running shoes with spikes or ribbed soles are used for orienteering or cross-country competition to help create extra traction when running on slippery surfaces.

These are the general principles of choosing the right footwear.

Running barefoot

Running barefoot is amazingly enjoyable. Your toes freely grab the grass or sand, it seems to you that you are flying above the ground. The soles of the feet are almost as sensitive as the palms of the hands. Grassy meadows and sandy beaches are softer than silk and velveteen. Unfortunately, there are stones, potholes, hidden twigs and branches.

You can't run barefoot until your feet are used to walking barefoot on cement or in the woods and your ankles are strong enough. If you want to run along the shore of the reservoir, then run along the edge of the surf, where the sand is hard, compressed and at the same time quite soft. The extra work you do by pushing off the sand will give more power to your stride and more strength to your leg muscles. Dry sand is too soft, your heels will sink in, and you may overwork your Achilles tendons or twist your ankle. Before you buy sneakers or other shoes in which you intend to run, try them out by running or jumping in them. Clothing should be appropriate for the weather. If it's hot outside, you can run in shorts and a tank top. Thus, sweat will evaporate more easily from the surface of the body. If it is rather cold outside, it is better to use several layers of clothing so that as the body warms up, you can get rid of excess clothing. In cold weather, remember to wear a hat to keep your body from losing heat.

Caveats

Regardless of how prepared you are and how fast you run, such a load places serious demands on the body. Do not start serious jogging if you have heart disease, high blood pressure, or high cholesterol. In all such cases, you must first seek advice and advice from a doctor. (Since running is used as a means of rehabilitating heart patients, as well as patients who have had heart surgery, it is possible that, to everyone's surprise, you will receive such permission.)

Running causes severe concussions. In each stride there is a flight phase when both legs do not touch the support and the body seems to float in the air. When one leg lands, a load falls on it, 5 times the body weight - over 270 kg is this pressure for a woman weighing 56.7 kg; with each step you "throw" your spine upwards as if you were stretching an accordion, straining the Achilles tendons, ankle muscles, other ligaments and tendons, a huge load falls on the knee joints. If your knees or lower back hurt, running may not be for you. Being overweight and jogging can injure your knee joints. In such cases, I recommend swimming, cycling or walking instead of running.

Guidelines

You can improve your cardiovascular health by exercising for just 15 minutes, 3 times a week at your desired heart rate. But if at the same time you want to lose weight, you must continue to exercise for at least 30 minutes. Distance, not speed, helps burn calories. By running at a high pace, close to sprint, the body will begin to work in part due to anaerobic processes and, in fact, will consume fewer calories than when running at a lower speed.

Once you start running, count your heart rate. Determine it while running and notice your recovery rate as soon as you finish your run. Then, as you master your optimal tempo, use the Talking or Singing Test instead of counting your heart rate.

Workout

"The range of motion when running is even smaller than when walking," says Fred Kersh. - The shoulders and torso remain practically motionless. The longer the run continues, the more the muscles of the lower back, gluteal, gastrocnemius, Achilles and other su, hoes are loaded - all muscles called "posture muscles", that is, those that help maintain the correct body position, until they do not overstrain and do not start to hurt. " Be sure to do stretching exercises for these muscle groups before and after running. In addition, stretch the antagonist muscles, since you cannot run fast if the agonist muscle group is shorter and much more tense than the antagonist muscle group, which will be weaker and longer. For beginners, universal warm-up exercises are fine. When you start running 6.5-8 km a day, exercises should be added to strengthen the quadriceps femoris muscle and the muscles of the anterior leg. Daily runs of 16 kilometers or more can lead to significant tendon contraction and cause unnecessary irritation of the spinal nerves. In such cases, you need to be especially careful when performing special stretching exercises and, if any painful sensations appear, change the exercises, choosing those that do not cause discomfort. For example, the following: standing on a straightened leg, put the other on a table, ironing board or ballet bar. Without bending your back and keeping it straight, begin to slowly bend forward, bending at the hip joints and touching your big toes with your hands. Hold the end position for a few seconds, return to the starting position,

Before starting a serious running load, you need to prepare your heart for the upcoming work by jogging or walking at a fast pace; hinder should be done in the same way.

For beginners

Before you get into serious running, you need to learn how to walk. Therefore, in the beginning, most of the training time should be devoted to walking. As your fitness and endurance improve, increase your running to total load ratio until the entire workout is done as a run. Your goal should be to run continuously for 30 minutes, which is much more important than covering a specific distance or showing a specific result. Even when you can run non-stop for 30 minutes, I do not advise worrying about the length of the covered distance or the sustained speed. As you gain experience, it is only natural that the speed of your runs will increase, and this will allow you to increase the distance covered.

You should not start classes, guided by the data of the table representing the running and walking program, until you can walk a distance of about 5 km in 45 minutes without much stress. If the pace suggested in the chart is too fast for you, spend two weeks per step instead of one. If, on the contrary, it seems slow to you, skip the requirements of one week, as if jumping one step. Until your muscles stop sore, run no more than three days a week and never two days in a row.

After finishing each run, "jog" for 5-10 minutes until your breathing is restored. In no case do not fall immediately to the ground, especially in the heat. After the final jogging, do the stretching exercises again, and only then can you rest.

At the beginning of the session, you will have a short step, which is good. As the muscles in the legs strengthen, it will naturally increase. You should not strive to move by jumping or running by jumping, this is a waste of energy. You need to move forward, not up.

When running, do not look under your feet, because this will disrupt the straightness of the movement and it will be much more difficult to breathe correctly. Breathe deeply through your mouth, trying to fill not only the lungs, but also the peritoneum with air. If you are so out of breath that you are unable to restore it by normal means, get on all fours, hang your head between your shoulders and breathe with your mouth wide open like a dog.

Bend your elbows so that your forearms are more or less parallel to the ground. The fingers are slightly clenched, and the hands themselves move freely in time with the movement of the legs, crosswise - simultaneously with the right leg, the left hand is brought forward and vice versa. The movements of the arms, as it were, balance the movements of the legs and protect the torso from twisting. Vigorous work of the arms helps to move forward, helps to more easily overcome the ups, to set the pace of the running stride Shake your hands from time to time and let them fall relaxed downward, relieving tension from the shoulder girdle.

In an effort to walk in a straight line, place your feet under you. Do not spread your legs to the sides or pinch your knees. Contrary to claims that a wide pelvis does not allow a woman to run properly, this is not the case. It's just that some women have a bad habit of running, spreading their legs to the sides and spreading them wide apart. If you cannot break this habit, then, firstly, your jogging will be extremely ineffective, and secondly, you risk getting a knee injury. In order not to lose interest in running, change routes - around the house, in the park with friends, alone, occasionally you can run along the track of the school stadium. Because running round and round on a track is a rather tedious activity, except when it is new to you. However, if you use a stadium track, the length of which is known, once every few months, then you can use this opportunity and check how much distance you can cover in half an hour. Write the data in a special diary and compare with a similar indicator that you had six months ago.

Regardless of your experience, you shouldn't run more than five to six days a week. You need a day or two of rest to allow your muscles to recover, and this will also keep your body from overtraining.

Once you are able to run non-stop for half an hour and do these exercises 3 times a week, consider that you have a preparedness program that can be used throughout your life. To maintain health, control weight, and psychological relief 30 minutes a day is quite a sufficient load. As your physical condition improves and your muscles get stronger, the distance you can cover in those 30 minutes will increase. There is only one reason for further increasing the time of the classes - your own desire, motivation.

Is a dog a best friend?

On a beautiful sunny day, it is such a pleasure to go cycling or jogging with your dog.

* If this recovery interval is too small for you, walk until you regain your breathing, and continue with the same form of activity until you can calmly, without stress, fulfill the requirements of the program.

You start out together, but after about a mile and a half the dog will start to breathe heavily and lag behind. You whistle and she will catch up with you, trying to stay close. In a little over a minute, she will again lag behind, begin to limp, lower her tail and head down, greedily opening her mouth and gulping air. Whistle again, she will try to catch up with you, but she will no longer be able to; instead, she will hardly rise and die in your arms from heatstroke.

Many runners who don't think too much about the consequences bring their dogs to this state. Dogs are very loyal and instinctively obey the commands of the leader (in this case, the owner), they continue to run when you order them, even if they feel terrible pain. They keep moving because they are afraid to be left alone in an unfamiliar place. Dogs do not have sweat glands. They cool their bodies through breathing, which is not the best or most effective method for lowering body temperatures. Bulldogs, Boxers, and other square-faced dogs are particularly hard to tolerate heat. Just like aging or significantly overweight dogs.

They should be gradually trained to the effects of heat and great distances, just as a person trains himself to this for many weeks and months. If your dog is not in very good fighting shape, leave him at home when you go out for your regular run. Even if your dog is in great shape and you take him with you, make sure he drinks a lot before, during, and after the run. But if during a run you notice that she looks too tired, you should immediately transfer her to the shade, douse her with water and cool her head.

For people with an average level of preparedness

If you are able to run about 5-6 km in 30 minutes 3-4 times a week, then you have reached this level. If you want to lengthen the distance covered, gradually increase the running time, bringing them to an hour. Add another day of exercise initially, but run for your usual 30 minutes. This will mean an additional 4.8 km to the weekly rate. If the body copes with the increased load and you do not lose the desire to exercise, you can gradually increase the length of the distance. In this case, one should be guided by the principle of alternating heavy and light loads. Add 15 minutes to two of your activities, but continue running for 30 minutes on the remaining days. It should take at least four weeks of this activity before you stop feeling very tired after 45 minutes of running. Then each of the four workouts per week can be carried out for 45 minutes. Again, allow the body to get used to the new stimulus and master the higher volume activities for at least four weeks, then again add 15 minutes to two of the four sessions. Now you will end up running, say, Mondays and Wednesdays for an hour and Tuesdays and Thursdays for 45 minutes. Such a load must also be mastered within four weeks. When the next day after a 60-minute run you do not feel particularly tired, you can add 15 minutes to light days. Thus, it turns out that every time you go to workout, you run for an hour. Age, general physical condition, diet, bad habits (smoking, drinking) - all this will have an impact on the fact how quickly the body adapts to the hourly load. In no case should you rush.

When it seems to you that you are at a dead end, although you are able to progress, then, after analyzing the situation, it is quite possible that you will

find that the further growth of achievements is constrained not by fatigue, but by the monotony of classes and mental fatigue. When it seems that the whole body hurts and aches and the pain threshold is lower than usual, change the usual forms of activity and join a club or run with friends so that you can talk while running. If you are not bored with exercising, running too fast may be the cause of stunted growth. Think about the test by talking or singing. Perhaps, while running, you keep your shoulders too tense, which are lifted up. Swinging arms help to move forward, but if they are tense, the whole body rotates with them, and this is a very significant load for the body. Relax your shoulders and arms as you run. If that doesn't work, on jogging days, do two cycles of shoulder strength exercises.

If this does not work, analyze which step you are running. It may be too big. "Women, especially those with short legs, try to increase the distance covered by artificially lengthening their stride," says H. Brown, MD. If you want to move forward more efficiently, remember that the more time you spend in the air, i.e., the longer the flight phase lasts, the less effective the run. "For this purpose," says H. Brown, "it is better to run with steps of medium length, but more often."

Biomechanical analysis of the movements of any runner shows that in each completed cycle there is always a phase of flight. The available scientific evidence suggests that female runners tend to have a longer phase than male runners, according to K. Foreman, M.D.

In order to learn how to push the leg horizontally instead of vertically, and in order to put a lot of explosive force into each take-off, I advise you to perform the following additionally, simple special exercises. Move forward by jumping on soft grass or a soft treadmill at a distance of 30-40 meters, as you once did as a child, then jog until your breathing is restored. This counts as one repetition, and six such repetitions must be completed per workout. Over the next few weeks, you need to learn how to do 4 to 6 repetitions of 400 meters each. When you are comfortable with these exercises, try to do them by running up a hill or climbing the steps of a nearby stadium. Jumping onto and off a box or cube is another exercise that sprinters and jumpers often use in their training. Initially, the height of the object should be about 30 centimeters, later, when you master this exercise, it can be 3 times more. So, at some distance from each other, two cubes of the same height are installed. Jumping off one, you immediately jump on the next, and so on until you completely lose your breath. It is better to do such exercises no more than 3 times a week and never two days in a row. Jumping off one, you immediately jump on the next, and so on until you completely lose your breath. It is better to do such exercises no more than 3 times a week and never two days in a row. Jumping off one, you immediately jump on the next, and so on until you completely lose your breath. It is better to do such exercises no more than 3 times a week and never two days in a row.

For experienced

If you are able to run non-stop for an hour 4-5 times a week, then you can count yourself in this category. This means that you cover at least 40 km in a week of training.

If you want to continue to increase the distance run, then you should not increase it more than 10 percent in a week. I recommend only running these runs once or twice a week, on hard training days. Run your usual distance on light workout days.

If you want to compete, experimentally determine which distance suits you best. To improve speed and endurance, add special running work like fartlek 3 times a week.

Fartlek

Fartlek (a Swedish word for speed play) is one method of interval training in which short sprint sprints are performed, followed by a significant slowdown in pace, allowing you to rest. High-speed jerks train fast-twitch muscle fibers and improve the body's sensitivity to lactic acid, while partial rest periods during which you continue to move are an excellent workout for the heart. Eight to ten times during the lesson, speed up 100- 300 meters to maximum speed, then slow down and continue walking at a slow pace until you can catch your breath. Just like cyclists, runners use trail running during their workouts, which is a form of fartlek. In order to carry out fartlek in the classroom without experiencing pain, you can play football, but you cannot stand still, you need to move slowly all the time, or play grass hockey, or frolic with your own kids.

To intensify your speed workout, replace fartlek with interval work on tough days. Time your result, for example, running 800 meters. Add 5-10 seconds and then in the workout run four segments of 800 meters at this speed, jogging 400 meters between runs. This is an even more serious burden on the body than fartlek. Since any form of interval work damages the muscle fiber structure, at least two days must elapse between the fartlecom and the

interval runs to recover. Neither should ever be done more than 2 to 3 times a week. On other days, use a slow, long run. If your legs hurt, do not do any speed work.

Now is the time to add strength training to your program (three workouts per week). "In running, you move not only due to the efforts of the muscles of the legs, - says X. Brown, who simultaneously trains the women's athletics team at one of the colleges, - the whole body is involved in this process. The shoulders stabilize the position of the chest and become very tired when you breathe frequently and heavily. Strong muscles in the torso and abdominals protect the pelvis from sudden, shaking movements, and also help to avoid pain in the lower back and knees. Strong arm muscles help you work harder while running. "

During exercise, the weight of the weights should be such that you can hardly lift it 10 times. Gradually, as the strength indicators improve, you can increase it. Following the directions given in Chapter 6, start with 10 reps per set and do 3-4 sets (sets) per session, gradually increasing the number of repetitions to 15 and the number of sets to five. Lift weights. with fast movements, because the movement during running is also fast. Do these exercises no more than 3 times a week and never two days in a row. I recommend including in the program most of the exercises designed to strengthen the muscles of the shoulder girdle, abdominal muscles.

Indoor treadmills

Indoor treadmills are of two types: mechanized and non-mechanized (the tape is driven by footwork). The latter are much cheaper, but can damage the foot. In the best models of treadmills, you can change the speed of the belt and the angle of inclination, so you can warm up on it and do work with resistance, imagining that you are climbing a hill. They are quite bulky, but they perfectly meet the requirements of aerobic exercise. While practicing on the treadmill, one should not forget about the heart rate that must be achieved in order to achieve a training effect. It is difficult to compare the distance covered on the treadmill and in the air, because there is resistance in the belt conveyor that you overcome, but at the same time there is no air resistance that occurs in open areas.

If you intend to participate in competitions in running a certain distance, start preparing for them within the last two months. For example, you are going to run 10 km, the competition will take place in two months. By this time, you should painlessly overcome 19-29 km a week. Six weeks before

the competition, one of the sessions should consist of running 2/3-3/4 of the competition distance, ie. 6.5-7.5 km. If you are in good shape, you should feel quite refreshed the next day to complete the load of a slow, long run.

To prepare yourself for a marathon, you need at least two years of serious training and running shorter distances. You should be able to cover a volume of 128 km per week of training without the appearance of pain. As your body's endurance improves, you will also train your body to overheat, a serious problem that occurs in most marathon competitions.

Rest two weeks before a marathon race by exercising only 1/2 of your maximum weekly volume. Don't include speed work in your class. In the week leading up to the marathon race, reduce your running volume again to 1/3 of your maximum. This method is called taping. For the last two days before the competition, run 3.2 - 4.8 km so as not to be idle at all.

On competition day, eat a light breakfast four hours before the start — if your stomach can take any food at all — and drink plenty of water. Warm up more thoroughly than usual. You can use petroleum jelly, lubricating those areas of the body where scuffs are possible, you can pour a little talcum powder into your shoes and socks to save your feet from scuffs. During the competition, carefully go around sprinklers and freshening points, being careful not to get your feet wet. If your shoes get wet, your feet will also become wet, which means that the likelihood of scuffs will increase.

Long-distance running places high demands on the body. Expect everything to be sore after the competition for a few days. If possible, jogging for 30 minutes the day after the competition will help release some of the bondage, but if you are too tired, then this is not necessary. Do not run super long distances for at least the next month. Runners believe that for every 1.5 km of competition distance, one to two days of recovery is required (one day for the top runner, two for most athletes). If you try to compete in one more competition before the body has fully recovered, then the likelihood of injury - a muscle strain - is very high.

Trauma

The number of injuries to the ankle and knee joints increases sharply when runners involved in recreational jogging train more than 3 times a week, M. Pollock said. The muscle building and stretching exercises in this book are very important in preventing injury. Any modification of the workout can cause injury: jogging on the grass, if you used to run on the sidewalk all the time; a new pair of sneakers; Crosscountry running after doing most of the workout on level ground additional high-speed work; additional continuous work, i.e. a significant increase in the distance covered, an increase in its own weight.

If the body reacts sharply to heat and humidity, you should never exercise at temperatures above 23 $^{\circ}$ and humidity above 50 percent. Whether your body is susceptible to heat or not, be sure to drink plenty of water in hot weather to prevent heatstroke. Drink one to three glasses of water 10-15 minutes before you start running, and if you are running a long distance, drink a cup of water every 15 minutes.

Running in winter also has its own challenges. In principle, you can run in any weather, unless, of course, it is too cold or very windy outside. (If you observe the appropriate precautions, you can run beyond the Arctic Circle almost every day.) If there is a strong wind outside, then you should dress based not only on the thermometer readings. In such cases, multilayer clothing is required: on the body - cotton, the next layer - woolen. On especially windy or damp days, it is advisable to wear a suit or jacket made of water-repellent fabric on top. Do not forget a hat that will reliably cover not only your head, but also your ears. If it's so cold outside that it's hard to breathe, wear a scarf around your throat so that you can partially cover your mouth too. For more warmth, run with mittens rather than gloves. Especially important on cold days,

If there is a strong wind outside, at the beginning of the lesson, run against the wind, while you are still wet and full of strength. In the second half of the lesson, when you get tired and wet, it is more convenient to run in the wind - then you will not feel cold.

Jumping rope

Jumping rope, of course, will never become an imperial sport. Nobody, even the biggest lover of this form of physical activity, can call it a sport. And yet it is one of the most effective support exercises. It combines the effectiveness of aerobic long-term continuous running, the athletic power of various jumps and jumping special exercises, the aesthetics of dancing and reminds us of the hobbies of childhood. At the end of the last century in England, boxers used jumping rope to warm up, strengthen the muscles of the legs, improve coordination and mobility of the feet; they helped to develop both aerobic and anaerobic capacity of the body. And today boxers use jumping rope, with the only difference that today the arsenal of movements performed with it has expanded much. This includes jumping with turns, etc. Jumping rope is used in their training by many football players and basketball players, believing that such exercises not only help them learn how to relax, but also give a training effect. As they rotate the rope at a constant speed, and they themselves jump over it with such methodicality and accuracy, like the clock on a wall clock, the rope, spinning, touches the floor all the time in the same place, at the same point, minute for a minute, and so on for an hour without a break.

Jumping rope can be the only form of aerobic exercise, or it can complement and vary others. When it's too damp or cold outside for running or cycling, jump rope indoors. If you are on a business trip and cannot do your usual cycling or find a suitable jogging site or swimming pool, regular training in these sports can replace jumping rope. However, practicing this type of physical activity places quite high demands on the body, so you need to train in jumping at least 2 times a week, otherwise you will not be able to jump for a long enough time to achieve a training effect, and, thus, such exercises will not will help when training in other sports.

Jumping rope assessment

Jumping rope is an excellent way to train the cardiovascular system. If they are aimed at developing general endurance, then the duration of such exercises should be more than 10 minutes, says R. Rioti, a specialist in physiotherapy exercises and sports physiology. Whether this form of load is adequate for running has not yet been fully clarified. Most medical scientists believe that jumping rope is about 90 percent effective for running for a long time, measured in terms of oxygen consumption and calories burned. These exercises provide a permanent training effect, and it can be increased. In all studies, with the exception of the study conducted by Ryoti, the subjects were individuals who either did little to jump or who were sharpened for only 5-6 minutes.

Rioti's research, carried out by him together with A. Paolene and U. Mrak at the University of Philadelphia, for two years, showed that the minimum test period should be 10 minutes, even better - 15. At the beginning, when you are just mastering jumping, then you jump with a frequency of 72 rpm. If you try to turn the rope more slowly, it simply won't be able to reach the vertical. That is why the loads in jumping rope cannot be reduced below a certain level, as in running, when you can start with completely light loads

and pace and, as the body gets used to it, increase them. In jumping rope, the opposite picture is observed - the desired heart rate is achieved almost immediately and during the first three minutes the body works in anaerobic mode. The frequency of contractions also increases due to the work of the hands,

The first three minutes of work are almost full, but an erobic, heavy form of exercise, which is equivalent to running at full speed. And even in the fifth and sixth minutes of exercise, there is still an oxygen debt in the body. Studies have shown that at this time the body has not yet fully entered the aerobic phase of work.

After countless studies done on seasoned runners, scientists are finally studying the physiological effects of prolonged running on the body. Such studies have never been carried out on athletes performing jumping rope at a slow pace for a long time. However, Ryoti's research led him to conclude that "once the body enters the aerobic work phase, it can gain a foothold at a very high heart rate and perform a lot of mechanical work and possibly increase oxygen uptake. In fact, it is possible to increase the capacity for oxygen consumption and the level of fitness of the cardiovascular system much faster if jumping rope is used instead of doing any other form of physical activity.

Learning to jump rope is very easy. Most women, as a rule, can jump - once they learned, this is why when they were children. This form of physical activity is available to everyone, it can be performed both outdoors and indoors and almost everywhere: in the bedroom, at work, in a hotel room, in any weather. If you are shy, you can jump at home, away from prying eyes. If you find it difficult to find a time for class, you can jump rope while watching TV or talking with friends ... I usually combine this activity for half an hour with discussing with the children about their school affairs. Thus, it is possible to kill two birds with one stone - talking with children distracts me from the monotony of the exercise. A few more recommendations: while performing the jumps, listen to fast, quiet music; drink loudly; while jumping, try crossing your arms or doing personal movements suggested by your imagination.

Equipment and outfit

You can jump with almost any rope. But in diameter it should not be thinner than 0.8 or 0.9 cm. If it is thinner, then, due to the fact that it is too light, it will be difficult to twist it; if thicker, on the contrary, it is difficult. It should

be long enough to touch the floor every time the torso is straightened and the arms are at hip level. To determine the correct length of the rope, grasp the ends and step in the middle with your feet. (Add a little to keep the rope free.) I like using a rope that is slightly longer than usual. When you pull it on, the ends should reach your armpits. But when the rope is too long, it becomes more difficult to control the movement. If the rope is too long and you tied knots on it to shorten it, be careful: if you touch the body with such a knot,

You can also use a regular clothesline as a jump rope, at the ends of which tie knots to make it easier to hold on.

What to jump in - it doesn't matter, personally I prefer to jump barefoot, but I always do jumping either on a carpet or on a hardwood floor. If I only jump in socks, I manage to rub my feet. If you use shoes with rubber soles, they can slow down your movements. Usually, at the end of each jump, I sort of plan - it relieves some tension on the muscles of the ankle, lower leg, and Achilles tendons. If you jump in shoes, the lower leg will be tense almost all the time.

On the other hand, sneakers, if you are exercising in them, protect your toes if you jump on too hard surfaces, such as concrete. They also protect the feet from being hit by the rope. (Particularly sick people are hit by the rope on the fingers.)

You don't need any special clothing to practice jumping rope. But it is imperative to wear a bra even for those who have very small breasts and who can do without it in everyday life.

Caveats

Jumping rope is a very strenuous form of physical exercise, especially at the very beginning, since here you cannot start slowly and regulate the pace. The heart rate rises very quickly, it is impossible to engage in this form of physical activity for those who have any kind of heart disease or other ailments in which high pulse rates are unacceptable.

Guidelines

In order to achieve an aerobic training effect, you need to jump for at least 15 minutes per workout, at least 3 times a week. However, if you set yourself the goal of getting rid of excess weight, then you need to jump non-stop for 30 minutes, just like with any other sport.

They say that 10 minutes of jumping rope is equivalent in terms of the amount of load and force of impact on the body to 20 minutes of light

jogging, and therefore, it is enough to jump for just 15 minutes instead of 30 and still get rid of fat deposits on the outer thighs and on waist and achieve an aerobic training effect. No, it's not like that.

The fact that jumping is doing much more mechanical work does not mean that at the same time the body's ability to carry oxygen or burn calories faster than running. It simply means that, among other things, such training also has an anaerobic effect. If you aim to achieve all the positive effects of aerobic work, you first need to cover the oxygen debt, then jump for 15 minutes or 20, thus bringing the time to the "sacred" 30 minutes. And this, you will soon discover, is very, not easy. Use the Talking or Singing Test to get your heart rate to the desired values. If you feel safer when counting your heart rate, stop and count it for 6 seconds, multiply by 10 to get your heart rate per minute. If this move is within the desired range, continue jumping. If it is too high, walk around the rooms for a minute or two.

Workout

According to research by Fred Karsh, hundreds of repetitive jumps shorten the muscles in the lower leg and ankle and place greater demands on them. This also applies to the flexor muscles of the hip and lower leg. To prevent pain and injury, do special exercises with ankle rotation, foot twisting, calf stretches, and exercises for the muscles of the toes and stretching the Achilles tendons.

If you are in bad shape, R. Rioti recommends, prepare the body for the load by first performing a light jogging in place or a light jogging. This will allow you to gradually increase your heart rate and bring it to values twice as high as at rest, and prepare the body for unexpected effects and effects of jumping. It will also allow the body to more easily enter the aerobic work phase.

For beginners

If you've never jumped rope before, you may feel awkward at first. B. Hinds, who is a great specialist in this field, and also actively promotes this form of physical activity, advises first to learn how to jump in place, then correctly, evenly twist the rope and only after that combine all the movements into a single whole. For starters, Hinds advises, jump in place without a rope. Make sure that your arms, slightly bent at the elbows, are at your sides. Take one step, then a slight jump on the left foot, a step, another jump, but this time on the right. Step - jump, step - jump at a rate of about

75-80 double movements per minute. Land softly on your toes and try to push off with your big toes.

Never land on your full foot. Land with your knees slightly bent and never leave the floor high, just jump 30 cm off the floor.

Jump in place, without moving forward or backward, complement such movements until you yourself feel, they become soft and relaxed. If you are not in shape and such jumps will be exhausting for you, jump until you suffocate (or until an hour or two of your heart rate reaches the desired values, or is close to them), then walk for a minute or two until your heart rate drops. almost to normal values, then start jumping again. (Hinds recommends bipedal jumps or jogging steps — no bounces, but bipedal jumps are very difficult for beginners.)

As soon as you master the jumping technique, you can start jumping with the rope itself, but not over it yet. Hold both ends of the rope in one hand and rotate it to the side of you at the same pace as you jump. Perform 15 to 80 rotations per minute. The elbows should be either pressed to the body, or be in close proximity to it; in order to perform rotations, use only the movements of the hands, not the whole arm.

When these movements are mastered by you, you can consider that you are ready to jump rope. Holding it in your hands, rotate it at the same speed. You need to rotate the rope only with brushes, and while jumping, keep on your toes - you don't need to perform unnecessary and energetic movements. Each foot must land in the same place all the time. Jump off the ground not too high, just enough for the rope to pass under you. If it is difficult to perform jumps on both legs at once, jump alternately on each leg as if you were jogging in place.

Duration (min.)

* And so on, striving to be able to jump non-stop for 15 minutes at least 3 times a week.

For people with an average level of preparedness

If you are able to jump rope non-stop for 15 minutes, then you have reached this level of fitness. In order to continue to progress, there are several possibilities. You can perform more complex movements while jumping either part of the time, or all the time. For example, raise your knees higher to increase the intensity of the effort and strengthen your abdominal muscles. Tap with your toes or the heel of your currently free foot to help stretch the calf muscles and make each jump more powerful. Cross your legs while jumping to improve flexibility and coordination. Cross the rope in front of you for one rotation and spread for the second.

You can also lengthen your jumping time each day, bringing each workout to an hour at the end of the year. Although various steps and speed loads (when you reach a high level of readiness) diversify too monotonous activities that last about an hour, if you want to achieve an effect similar to the effect of a slow continuous 7 and the main form of the lesson should be light jumps on two legs, performed at an even pace ... You need to work with a heart rate of 60% of the maximum for an hour, and if you use a different form of movement and a "ragged" pace, then such a task will be overwhelming. Jumping at a steady pace for an hour is fun. In 10 minutes after the start, you will find a second wind and everything that is rumpy will look to you in a rainbow color. The foliage of the trees through the glass of the window will appear greener than usual,

For experienced

If you are able to jump for an hour non-stop and do this kind of load 3 times a week, then you have reached this level of fitness. It will take at least a year of training to achieve this. If you try to rush things, it will only lead to injury or frustration. There is no need to jump for more than an hour in one session; maybe only occasionally, to make sure you are capable of it.

Intensify your activities. Perform a kind of fartlek with a rope. Jump on two legs without a small jump between bounces or jump rope as if you were jogging - this will make you do 120 rotations of the rope per minute. Perform bipedal jumps for as long as you have enough strength, and then switch back to lighter jumping jumps in order to recover, then increase the load again. As your fitness improves, you will be able to jump on two legs for longer and longer periods, and finally, you will be able to spend an entire hour of training, rotating the rope at a speed of 120 revolutions per minute. When performing high-speed work with a rope, add double and triple jumps to it (this means that you need to have time to move the rope twice or three times, before your feet touch the floor) or sometimes jump as fast as possible. This is very difficult to accomplish, and besides, this form of exercise places increased demands on the body. Therefore, you should not perform all of the above maneuvers until you reach the highest athletic form.

Trauma

When practicing jumping rope, it is unlikely that you will get injured, it is possible only if you suffer from heart disease. Some doctors speculate that jumping rope can damage the metatarsal bones, but none of the athletic doctors I have spoken to has ever experienced such injuries. "And still, if you want to protect yourself from injury," Ryoti advises, "when jumping, wear canvas shoes and jump on a soft, slightly bouncy surface."

Ankle pain can occur from jumping on a soft carpet or from wearing rubber-soled shoes. Small wounds on the pads of the toes can be caused by exercising on too hard surfaces. Scuffs can appear when exercising on hard surfaces or when your toes are too tight in your socks or shoes.

Of course, sprains of muscles or ligaments are possible here, but the risk of injury when jumping rope is lower than when doing any other sport.

Chapter 6 Home Circuit Training Program

You, of course, need an exercise program with which you could strengthen every muscle in the body, tighten the abdomen, thin the waist, strengthen the muscles of the arms, legs, buttocks, become slimmer and slimmer, in order to achieve the effect of aerobic training at the same time. Then try circuit training.

What is Circuit Training?

The circuit training system was developed at the University of Leeds in the north of England after the Second World War. It was intended to prepare high school students, college students and even high-class athletes. The athletes, one by one, did a certain number of exercises at each station (the place where a certain exercise was performed), while the partner watched the actions, helped to prepare the equipment. The stations included: rope climbing, bench jumping, tilt squats, etc.

Circuit training is a popular method of general fitness these days, especially among children and adults in England and the Scandinavian countries. Several times a week, when the weather does not allow for outdoor activities (except for skiing), whole families come to the large gyms to do exercises according to this system. In Sweden, in particular, the system of physical training for various groups of the population is well organized. Perhaps, largely due to this fact, the duration of the design in Sweden is on average four years longer than in the United States.

The circuit training program described in this chapter is designed for home use and is the most advanced science-based exercise system. It combines effective gymnastic exercises with resistance training, resistance training and flexibility exercises using the principles of overload, repetition and specificity. All this helps to improve the condition of the cardiovascular system. Resistance and aerobic exercise help to "burn" fat, which is being replaced by denser, stronger and heavier muscle tissue. You become thinner, but physically stronger, as you develop in your body; new muscle fibers. (Contrary to the claims of many popularizers of flexibility programs, such exercises do not at all help you get thinner or stronger. they only help you gain flexibility.) The benefit of this workout is that you develop your own program and only do the exercises that you need. And your circuit training is unlike anyone else, just like your body is different from any other.

But don't expect miracles - you won't achieve anything in five minutes. The home circuit training system is hard work. If you like exercise (and most women, according to F. Kersch, love a variety of exercises - he himself taught women for 30 years) and you are serious about your own health, then circular training is for you.

The training program begins with a warm-up, followed by a series of exercises (or circle) of 12 strength movements, which should be performed in the order described. You go through this circle 3 times, each time maintaining a certain speed, doing each exercise as fast as possible. The pace of movement execution, load and shortening rest pauses between series or different stations contribute to an increase in heart rate, an increase in oxygen absorption and give an effect equivalent to that achieved with aerobic training. After completing the strength training program for the third time, you knead down, completing with a circle of stretching exercises.

Each strength exercise, or stretching, or station is aimed at training the muscles and ligaments of a certain part of the body and are given in order of increasing difficulty, depending on the degree of preparedness. You perform each circle exercise depending on your physical capabilities at the moment, gradually improving. For example, you may have fairly strong thigh muscles, and from the very first day you will be able to do an exercise for this muscle group, designed for the third level of preparedness, and at the same time, you will not be able to perform ten pull-ups during the first two months, which corresponds to the first level of preparedness.

When planning a workout for yourself, you should first of all pay attention to those exercises that strengthen the weakest areas or parts of your body. So, if, according to the profile of physical fitness described in <u>Chapter 1</u>, you will make sure that you have well developed calf muscles and quadriceps muscles of the thigh and relatively weak - triceps and muscles of the lower half of the trunk, add one or two exercises to your training program aimed at strengthening the muscles of the back and one or two, strengthening the triceps, - there is no need to waste time and give additional stress to well-developed calf muscles. Or, suppose you want to work out a specific element required for a particular sport, such as the knee flexors, which are mainly responsible for movement in the crawl, or the jumping ability required in grass hockey and fencing. Circuit training performed at home can be used as the only form of exercise, or as a preparation for a particular sport, or as a substitute, If you are seriously into any outdoor sport, but the weather does not allow outdoor training at the moment. (When you reach a sufficiently high level of preparedness, it is necessary to combine circuit training with some other type of aerobic activity, since the heart will become so strong that when performing circuit exercises, the heart rate will not rise to the values necessary for obtaining a further training effect. by that time, you will be so carried away by this form of training that you will not be able to refuse it and will combine them with training in a different form.)

Health trails

In the 1960s, a Swiss insurance company designed, designed and built open-air health trails throughout Switzerland. They became extremely popular in Europe, and then this hobby came to the United States.

Health trails are arranged in parks, fitness centers, schoolyards. You walk, "coward" or quickly run from station to station in a specific order, following the signs or colorful posters posted at each station showing how to perform a particular exercise, and repeat it depending on your level of preparedness. 18 stations (minimum- 9) provide an opportunity to develop both strength and flexibility, but, as a rule, such exercises are intended for people who either do not engage in any physical activity at all, or are limited to health jogging. They are not suitable for those who are seriously engaged in physical education and strengthening of all muscle groups, as well as for those who are already involved in any sport other than running and need additional exercise. The aerobic effect of such exercises is achieved not by performing the exercises themselves at the stations, but by running intervals between them. (If you are sorry to give up your usual jogging, then exercise on the "health paths" on other days, or try to find other forms of strengthening and stretching your muscles.)

Evaluation of circuit training sessions

Circuit training performed at home is an excellent form of exercise. It strengthens every fiber, ligament, muscle of the body, improves flexibility and develops the anaerobic capacity of the body. In other words, it affects almost every part of the body, being a specific, balanced load. If you strengthen one muscle group, then you strengthen the antagonist muscle groups as well. If you stretch specific muscles in your body, you also stretch and lengthen the antagonist muscle groups. Since no part of the body is unduly stressed or ignored when engaging in circuit training, using this form of exercise should not be injured. What's more, exercising regularly will help you avoid injury when training in other sports.

The aerobic training effect of a circuit workout done at home depends on what shape you are in. If you are just starting to exercise, then your heart rate will reach the desired values and will remain at this level for 20-30 minutes, which will increase the maximum oxygen consumption by as much as 11 percent (when jogging, this figure is 15-25 percent). If you are already involved in endurance sports, then, obviously, you will not be able to raise your heart rate to the desired values with any of the circuit training exercises. (Vigorous arm movements are more conducive to an increase in heart rate than the same vigorous movements performed by the legs.) In this case, if you only engage in circular training, you can achieve an increase in VO2 max (5 percent), but it does not matter, because cardiovascular and respiratory fitness can be improved through your endurance sport of choice, and strength and flexibility can be improved through home circuit training. (If for some reason you are forced to replace your endurance sport with circuit training, add another lap and exercise at each station as hard as possible to ensure the aerobic training effect.)

Circuit training is so easy to adapt to your capabilities that it can be practiced even as you recover from a sports injury.One study showed that an injured athlete increased leg muscle strength in a cast while only exercising a healthy leg. Since circular training solves many different problems at once, it gives constant satisfaction - you gradually move from one level of preparedness to the next and increase the intensity of training at one station or another.

Equipment

Mat, mattress.It is needed in order to protect the spine from injury when performing certain exercises. Circuit training exercises can also be performed on a carpet.

Crossbar.It will be needed not only in order to perform pull-ups on it. The crossbar must be reinforced very firmly; if it is wooden, it should be well polished.

Dumbbells. Dumbbells are required for about half of the exercises at various stations. At first, you will need three sets - each weighing 2.5, 4 and 5 kg. In no case should you use canned food in metal cans or self-made

sandbags instead of dumbbells: the cans are difficult to grab, the sandbags will not allow you to properly distribute the weight. Take yourself and your activities seriously and use the proper equipment.

Weights.Some exercises require weights that are attached to the foot or ankle. If you have a pair of heavy ski or mountaineering boots, they can be used for this purpose, but only if they can be quickly put on and off. If you don't have them, fill plastic bags with sand (1 to 1.5 kg each). Think about how you will attach them to your legs (an elastic bandage is quite suitable for this).

Warning

If, before starting classes, you complete all the proposed tests and begin to do exercises that correspond to your level of preparedness (that is, the intensity of their implementation will correspond to this), then you can use circuit training regardless of what physical condition you are in. Some exercises are contraindicated for injuries and diseases of the knees and back. Read carefully the restrictions that accompany each such exercise.

Guidelines

Usually a lesson lasts about 45 minutes, of which an example, but within 20 minutes your heart rate should reach the planned values. If you are not working vigorously enough, increase the load (for example, move to the next level of fitness for this exercise, or add additional weights, increase speed and shorten the rest intervals) or add an extra circle. If your cardiovascular and respiratory fitness levels are so high that you are still not reaching your desired heart rate, add a "step test," done as an exercise, or any other indoor or outdoor endurance exercise that should be done. between exercises to develop strength and improve flexibility.

Circuit training performed at home is a form of weight training. With it, disturbances in the structure of muscle fibers are possible, therefore, at least one day of rest between workouts is necessary for these muscle fibers to recover, become stronger and increase in size. Do your circuit workout three times a week, never two days in a row. Certain stretching exercises can be done every day, and other sports can be practiced on the rest of the week, free from circuit training.

In order to create a certain, good cardiovascular tone and strengthen each muscle fiber, you should perform movements with resistance, which can be a burden or your own body weight (in full amplitude from the most bent position to the most stretched position). If, at the same time, the weight of the weights remains unchanged throughout the entire execution of the movement, such an exercise is called isotonic.

Although the weight of the load or the amount of resistance remains constant throughout the isotonic movement, the feeling of resistance (how hard you work) changes depending on the position in which the arm or leg is. As you move your arm or leg, it will go stronger at one angle (for example, at a 90 ° angle) and weaker at another (for example, in an almost straightened state), the mouth is why the exercise seems most difficult at the very beginning and at the very end ... If you do not control the tension and speed of execution even in one exercise, it can happen that you will strengthen the muscle mostly at the point at which it is weakest, and get the least effect at the point of the strongest. This can only be avoided if if you perform the exercise very slowly and deliberately during the full lifting of this weight. Do not start the movement abruptly and do not end it abruptly either. Maintain an even pace and intensity. Also, resist weight or gravity as you return to the starting position. Lowering, for example, an arm with a weight is called the negative phase of the movement, which has the same training effect as the positive phase. Some barbell trainers even recommend lowering the weights more slowly than raising them in order to fully exploit the effect of the negative phase of the movement. for example, weighted arms are called the negative phase of the movement, which has the same training effect as the positive phase. Some barbell trainers even recommend lowering the weights more slowly than raising them in order to fully exploit the effect of the negative phase of the movement. for example, weighted arms are called the negative phase of the movement, which has the same training effect as the positive phase. Some barbell trainers even recommend lowering the weights more slowly than raising them in order to fully exploit the effect of the negative phase of the movement.

Isometric movements are exercises in which there are no visible movements, that is, the muscle, straining, does not change its length. Isometric exercises are not used in circuit training. They force muscles and ligaments to contract, but then do not stretch them, help to increase muscle mass, but do not increase the body's ability to move weight in space, and strength is needed for this. These exercises cause the heart to beat faster to resist the strain, but the static, immobile muscles prevent additional blood flow from returning to the heart. In addition, tense muscles constrict blood vessels, which means that less blood passes through them - blood pressure rises sharply. The heart works harder against the increased resistance of the constricted blood vessels, but not getting the extra oxygen needed to do the job. As a result, people with high blood pressure or coronary artery disease may experience arrhythmias or a temporary deterioration in the heart's ability to contract and pump blood when doing isometric exercises.

At most home circuit training stations, the maximum number of repetitions of strength exercises (for individuals of any fitness level) is 15. Very few, as indicated in the instructions, require more repetitions. Once you are able to do 15 reps, move on to higher-level exercises instead of increasing the number of reps. This means that you have developed a certain level of aerobic endurance of this or that muscle group and it is no longer possible to develop and strengthen them with the available means.

Do only 15 reps at a time. As you move from station to station, you end up doing each exercise 45 times, but the muscles have the opportunity to recover. If you immediately complete all 30 or 45 repetitions at a certain station, a large supply of lactic acid is formed in the muscles, and a feeling of severe muscle fatigue arises, and the exercises themselves will no longer be so effective.

Workout

Classes begin with one of the modified versions of the universal warm-up. There is no need to perform any additional warm-up. Stretching exercises are also a great cool-down.

Trauma

The program is designed in such a way that when practicing circuit training at home, the possibility of injury is almost excluded. However, exercising in hot weather can just as well get heatstroke as if you were running down the street on a hot day. Therefore, in such cases, it is necessary to drink a significant amount of water before training, and the same should be done after the last strength and stretching exercises.

Attention!

Remove rings and bracelets as you exercise. If the ring is caught by a stationary object while you push it, it can break a finger, cut a blood vessel, or even rip off a finger. And the most experienced surgeon will not be able to help you and re-sew your finger, because the blunt ring will tear not only the skin, but also nerves, blood vessels, tendons and break bones.

Circuit training with weights

As soon as the system of circuit training was mastered everywhere, the system of circuit training with weights was developed. In this case, the stations are various exercises from the arsenal of weightlifting training, performed with dumbbells, weights, or, the last option, on specially designed complex simulators for the development of strength.

Traditional strength training is guided by the following principle: you lift the heaviest weight with which you can perform 12 repetitions (you will simply not be able to more). The muscles are then allowed to rest for 2-5 minutes before starting a new series of repetitions. In circular strength training, you use a weight that you can lift 15 times in 20-30 seconds, and then, without rest, immediately move to the next station with lifting weights, but using a different muscle group. Exercises on the first station should not exhaust you so much that you do not have enough strength to perform repetitions on the second, and then on the third, etc. A full circle of strength training consists of 10-12 stations.

This form of exercise, which uses maximum effort and minimal rest pauses, provides a training aerobic effect, and also helps to strengthen the muscles. When done correctly, circular strength training supports, and possibly improves, flexibility. (Conventional weightlifting exercises shorten the muscles and make them less pliable.) True circuit strength training, however, should be done in a dedicated gym. At home, it will take too long to prepare the site and equipment for each station, so there will be too long pauses when moving from station to station. Circuit strength training at home does not provide an opportunity to systematically and consistently work to improve flexibility.

"The increase in oxygen and power absorption rates, - says M. Pollock, - depends on the amount of work performed, and not on the equipment that is used". In other words, it is possible to develop strength to the same extent, using both simulators specially adapted for this and simple weights, if

Individual program

Circuit training for skeletal muscle development includes many of the exercises listed below. They should be performed in every lesson as they are aimed at the development of each individual muscle group or section. To resize skeletal muscle, add 5 exercises (7 if you have time) to your strength circuit workout and 3 or more to your stretching workout. Select exercises from special tables XI and XII (depending on which parts of the body you would like to develop, strengthen).

After checking your physical fitness, you will identify weak points, the mirror will tell you where our muscles are most flabby.

When choosing exercises for strength training, pay attention to the order of their arrangement in table XI. First, you need to work on strengthening the muscles of the legs, starting with exercises designed for the larger muscle groups, moving on to smaller ones. This is followed by exercises designed for the muscles of the trunk, shoulder girdle, arms and, finally, the forearms. Do arm exercises after leg exercises because some leg exercises use your arms as well, and if you exert enough force on your arm muscles before doing this, you may not be able to do leg exercises effectively ...

Several exercises are not included in circuit strength training, although they are intended to strengthen the back muscles because they are neither active nor aerobic.

If you want to add any aerobic strength exercise that involves little movement, include it in your circular stretch.

Circular stretching helps to gradually prepare your muscles for the increasing demands that follow. In order not to jump up, and then again not sit on the floor, first do all the exercises on the floor, then from the starting position on your knees or with support on your knees and hands, before moving on to performing the exercises from the starting position standing. With these guidelines in mind, you can choose any stretching exercise described in this book (or any static strength exercise).

Warm up

Each session begins with a modified universal warm-up. Do it in your usual manner, relaxing and stretching your muscles. However, instead of doing one trunk lift from a prone position with your arms behind your head, gradually bring the number of reps to 20. These exercises will strengthen your trunk muscles. When you have successfully completed this first stage of readiness (and this will take time), proceed with the exercise corresponding to the second level of readiness, etc. For example, at this stage, while performing the exercise, do not hold your hands behind your head, but cross them. in front of you on your chest. The third level is the same exercise, but slightly bent legs are in the air, as if laid on an imaginary stool or low chair.

The fourth level is the same exercise, but hold a 1 kg weight behind your head. If you can do this too, increase the weight of the weights by 0.5 kg.

(These guidelines are only for those who take circuit training very seriously.)

It is very difficult, if not excruciatingly difficult, to lift 20 times from a supine position, even with: hands behind the head, but try to achieve this.

Typically, the abdominal muscles are among the weakest muscles in the body. However, their function in the body is very important as they help support the lower back and maintain correct spine and body position. The more you sit at your desk, the more stooped you become.

Raising the torso from a prone position strengthens the abdominal muscles with almost no involvement of the hip flexor muscles. Thus, it is possible to balance the development of various muscle groups, strengthen the position of the spinal column and maintain its correct curves. In addition, strongly developed abdominal muscles affect intra-abdominal pressure (which is a kind of support for the spine), relieving some of the load from the back muscles.

In the warm-up, also bring the number of push-ups to 20. The first level of readiness: hands on the table, feet on the floor. The second level of preparedness: hands and feet on the floor. The third level of readiness: hands and feet on the floor, but hands shoulder-width apart, fingers away from you. Fourth level: the same, but hands on the floor and feet on a stool. Level 5: Same, but hands on the floor, feet on the edge of a sturdy coffee or coffee table.

Circuit training to develop strength

After warming up 3 times, do all of the strength training exercises quickly. First lap at half strength, jogging slowly between stations; the second circle is 2/3 of the strength, the third is at the maximum possible speed.

Speed is determined not only by how fast you do a particular exercise, but also how much rest between stations. These factors are purely individual, you need to gradually increase the intensity in order to achieve everything that you are capable of, but without overstraining. Initially, allow yourself a 20 second rest pause after every 10 seconds of exercise on the third circle, which should be done at full strength. This means that, for example, you do 10 repetitions of one exercise (one exercise per second), then rest for 20 seconds. (You can spend some of those 20 seconds getting ready for the next station by walking or jogging, say, to the bar.) When you get to the point where 10 reps in 10 seconds doesn't force you to go all the way, add 5 more reps (one per second) and shorten the rest pause to .15 seconds. When this will be quite a feasible task, maintain the same number of repetitions and the pace of execution, but reduce the rest pause to 10 seconds (or less) if you do not need to prepare the next station for the next exercise. The speed of execution of each individual movement, as well as the absence of rest pauses, have a training effect on the heart. When 15 reps and a 10second rest (or less) seem feasible, you need to increase resistance by changing the exercise and doing a variation designed for a higher level of fitness, or by adding weights. Each time you increase resistance, you should start again with 10 seconds of exercise and a 20-second rest pause. (This pace is approximate. You may find that some movements cannot be completed in a second. As long as you work at the highest possible speed and your heart rate reaches the desired values, you are all in order.)

While increasing the pace, make changes only on the last lap. If you increase the number of repetitions and shorten the rest pauses on the first and second circles, then you can feel so tired that you will not have enough strength to complete the third circle of exercises, doing it correctly; movement and maintaining a given pace.

In the beginning, you will need to time your reps to learn how to maintain the correct pace. However, having mastered it, you no longer have to look at your watch every minute. No matter how fast you do an exercise, you should never neglect doing it correctly for the sake of speed. Make sure that the loads on the muscles during the movement are correctly distributed. Do not bend or bend when doing strength exercises in order to make it easier for yourself. Make sure that each movement is made in full amplitude, both back and forth.

When you are intermediate or advanced, you can add a fourth circle of strength training. First, do the movements on the last, fourth, 3/4 strength circle. In other words, you will have one half-force circle, two 3/4 circles, and one full-force circle. When you start to easily handle it, distribute the load as follows: one circle at half strength, one at 3/4 and two at full force. When this load is not enough to raise the heart rate to the required values, you should not add another circle. Better to introduce 15-30 minutes of any aerobic exercise (for example, jumping rope, riding a bike trainer). This extra load should be done after the last round of strength training because you want to maximize your strength gains.

Flexibility training

After the last round of strength training (or additional aerobic exercise), begin stretching. If you have lost your mind, walk for a minute or two to restore it. Then slowly and carefully begin to stretch all the muscles in the body that were just tense and shortened. After each workout, you should become stronger and more relaxed in movements, and not vice versa.

Combined program

So, summing up, I note that the training should consist of:

1. Warm-ups.

2. Circle of strength training, performed half-strength. This means that each movement takes twice as long and the rest pauses are twice as long. For example, each of 10 repetitions takes 2 seconds, that is, only 20 seconds, and the rest between stations is 40 seconds. If you have moved to the next level of preparedness, then you spend 30 seconds on exercise and 30 seconds on rest. And, finally, having reached a high level of preparedness and practicing according to the program designed for the third level, you spend 30 seconds on rest.

3. A circle of strength training, performed in 3/4 of the effort, that is, each movement is performed one and a half times slower than at maximum speed. For a beginner, this means 1.5 seconds for each repetition - only 15 seconds for exercise and 30 for rest; at the next level of fitness, approximately 21 seconds are spent for 15 repetitions and 21 seconds for rest; for the third level of readiness - 21 seconds for 15 repetitions and 15 seconds for rest.

4. Laps of strength training performed at the highest possible speed. For beginners - 10 seconds to exercise and 20 seconds to rest; for an average level of preparedness - 15 seconds for exercises and 15 seconds for rest; for experienced ones, 15 seconds for 15 reps and 10 seconds or less for rest.

5. Circles for stretching and cooling down exercises. (This includes several strength exercises that will slow down the processes in the body.

Circuit Training Exercises

Strength stations

1. The first level of preparedness. While standing, grab a table or the back of a chair. Keeping your back and head straight, bend your knees at approximately 90 °, then straighten up on your toes - one rep. Perhaps, at the beginning and during the half-squat, you will be kept on your toes, but it is more comfortable and correct to stand on your entire foot, without bending your torso forward.

Second level. Perform a half-squat, keeping your hands on your belt.

Third level. Perform a half-squat with your hands on your hips; straightening, jump up.

Fourth level. The emphasis is sitting on the bench. While standing, "straddle" the bench, the height of which should be sufficient to be able to assume a semi-squat position. In each hand, hold 1/10 of your body weight dumbbells. Squat until the glutes touch the bench and then straighten. At the lowest point, the heels should be lifted off the floor. Do not "sit on the bench completely and do not relax. Maintain an erect torso position, do not bend your back or protrude your stomach, do not lower your head (Fig. 15). This exercise strengthens the quadriceps and Achilles tendons, the ligaments of the anterior and posterior thighs, and the gluteus muscles, as well as the calf muscles. However, if your knees hurt, this exercise is not recommended and should be replaced with exercise # 2.

2. Sitting on the edge of a high bench or table so that your legs dangle freely without touching the floor. Hang a weight (a dumbbell with a loop or a bag of stones) on a bent foot; in no case should weights be attached to the ankle (ankle). Straighten your knee, then bend it again - one rep. This exercise helps to strengthen the quadriceps femoris and knee ligaments (Figure 16).

3. The first level of preparedness. Lying face down on the floor, head on one side, arms bent on the floor in front of the head, legs extended. Tighten your toes, leg muscles, and bend your knees until your toes point towards the ceiling, then return to and. p. - one repetition. Strengthens the tendons. If this exercise is too easy for you, go straight to the next level exercise.

Second level. The same, but attach 1-1.5 kg dumbbells to each ankle.

Third level. Reclining on the floor, leaning on your hands and knees. Transfer your weight to your hands and right knee, straighten your left leg back and pay particular attention to the pulled toe. Do not arch your back, shoulders down, head up. Focus your attention on something nearby so that the head is in the correct position. Then bend your left leg so that you can press it against your chest while bending your shoulders and lowering your head and looking at the knee of your left leg - one rep. (The toe of the leg performing the movement should be pulled back all the time to maintain constant tension in the leg muscles.) After performing this exercise several times with the left leg, repeat the same with the right (fig. 17).



Fourth level. Strengthen 1 to 1.5 kg dumbbells at your ankles. Exercises for the last two levels of fitness strengthen the Achilles tendons and quadriceps muscles of the thigh.

Fifth level. Standing, a dumbbell on a belt hangs freely from the left ankle, its weight is 1/10 of the body weight. Bend the left knee until the leg from ankle to knee is parallel to the floor and forms an I angle of 90 ° with the hip. Lower your leg back to the floor - one rep. You may need to hold onto a chair to maintain or maintain balance. After completing a certain number of repetitions with the left leg, do the same with the right. This exercise is effective for strengthening the tendons, and in particular the Achilles tendon (Fig. 18).


4. Half-sitting on the floor, leaning with straight arms on the floor in front of you, the right leg, bent at the knee, is located as close to the chest as possible, the left leg is at the back, straightened.

The body weight should be evenly distributed between the hands and feet. Transfer your weight to your arms, jump high enough to be able to change the position of your legs, that is, so that now the right is behind the straightened, and the left is bent - one repetition. This exercise strengthens the gluteus, quadriceps, tendons, and hip flexors.

5. Sitting on the floor, knees apart and bent, elbows touching inner thighs, just above the knees. Put your palms together and try to bring your hips together, all the while resisting with your hands. Then push your legs with your elbows and resist this movement with your hips, return to and. p. - one repetition. This exercise strengthens the muscles of the outer and inner thighs. When it becomes too easy for you, move on to the next (fig, 19).

6. Sitting in a squat with your hands on the floor in front of you, providing good, firm support. Spread your legs to the sides as wide as possible (without causing pain). Bend your arms slightly, bend your right leg and completely transfer your body weight to your right leg, and take your left, straightened, to the side. Now transfer your weight to the left, while simultaneously bending it and straightening the right and taking it to the side. During the entire exercise, the heels of both feet must touch the floor. If you are unable to maintain balance, place a chair in front of you and hold on to it, but do not bend over to it. This exercise strengthens the muscles in the perineum, thighs, and to some extent the buttocks. If you have sore knees, replace this exercise with the following.

7. First level. Tie a weights of 1-1.5 kg each to each ankle. Lying on your right side with your right leg slightly bent to provide a stable

position, right hand behind the head, supporting it. Keeping your left leg straight and toe extended, lift it up as high as possible without pain, then lower it to a position where both legs are almost touching each other - one rep. Make sure not to rest your left foot on your right foot between reps. During all repetitions, you must remain on your side, without changing the position of the body, without turning forward or backward, and without moving the body. Then do the same for the right leg. This exercise strengthens and tone the muscles of the inner and outer thighs, but is not as effective for strengthening the gluteus muscles as the previous one.

Second level. Add extra weights for the lift (fig. 20).



8. First level. Attach a 1-1.5 kg weight to each ankle. Lying on the right side, the right leg is slightly bent, the right arm is under the head, supporting it. Keeping your left leg straight and toes pulled, lift it up as high as possible, then lower it down so that it forms a 90 ° angle with your right hip, with your toes straight and pulled. Without bending your legs and toes, lift your leg to an upright position - one rep. After completing a certain number of reps lying on your right side, turn onto your left side and repeat the same with the other leg. This exercise strengthens the gluteal muscles, the muscles of the inner and outer thighs and, to a lesser extent, the front of the thigh (Fig. 21).

Second level. Add weights to the leg lift. 9. First level. Lying with your head on one side, your arms straight and under your pelvic bones to cushion and relieve muscle tension in your lower back. Lift both legs off the floor and lift them up as high as possible in a crawl up and down motion — one rep. During the exercise, the legs should not be bent, and the socks should be pulled all the time. The feet should not touch the floor until the entire series has been completed. This exercise strengthens the gluteus and lower back muscles. It can be dangerous for those with spinal or back problems (fig. 22). Second level. Also. Keeping your legs straight and your socks pulled out, lift both legs off the floor, raise as high as possible, then spread to the sides as wide as possible and connect - one repetition. Do not lower your feet to the floor until you have completed all the reps. This exercise strengthens the gluteus and lower back muscles. It is dangerous for those with spinal or back pain.

10. Standing, feet shoulder-width apart, left foot with toes forward, right - toes to the side. Raise your left hand and bend it slightly, extend your right

to the side over your right leg, as if holding a sword in your hand. (Imagine yourself in the role of d'Artagnan.) Turn your torso and head, point your right hand down. Body weight should be distributed evenly across both feet. Jump sharply and powerfully, extending your right hand forward as if you are going to pierce an invisible opponent with a sword. At the same time, the left leg and arm remain freely bent. Return to starting position - one rep. After completing a certain number of repetitions with the right leg, change the position of the arms and legs. The same with the other hand and foot. This exercise strengthens the muscles of the inner and outer thighs and glutes. When it becomes easy for you, move on to the next one (fig. 23). 11. Standing, legs slightly apart, holding dumbbells (each is about 1/8 of the body weight). Extend your right leg forward as far as possible. Now bend your knees, lowering your hips until your left knee is barely touching the floor, then straighten - one rep. The feet of both feet should be facing

forward. Don't lean forward. Keep your neck and back straight, looking forward in front of you. After completing a certain number of repetitions with one leg, change the position of the legs and do the same exercise for the other leg. This exercise strengthens the gluteal muscles, perineum, outer



thigh, quadriceps, and tendons (Figure 24).

12. First level. Lay a piece of wood 2.5-5 cm thick on the floor.

I increase foam. Stand with your fingertips

[were placed on a block, and the heels were hanging down. Rise on your toes and then lower yourself so your heels touch the floor - one rep. Keep your knees tense at all times. This exercise strengthens the calf muscles.

Second level. Do the same exercise with 1 kg weights in each hand. Gradually increase the weight of the weights, bringing it to at least 1/5 of

your body weight.

13. Sitting on the floor "in Japanese" - on the heels, legs are bent at the knees under him. Hands above the head in a lock, palms facing up. Stretch up, starting with the palms of your hands, lift yourself up so that you are in a kneeling position, then transfer your weight to the outside of your right thigh and leg, bending in the same direction, one repetition. This movement must be carried out without stopping. During execution, stretch your palms up as if you want them to touch the shotwalker. The abdomen is pulled in, the muscles of the buttocks are tense, the body is stretched up. This exercise strengthens the lateral muscles of the outer thighs, glutes and quadriceps. As soon as this exercise gets too easy for you, move on to the next (Fig. 25).

14. Lying on your back on a bed or on a long table. The head may hang down (try whichever is more comfortable for you, but in any case, it should be closer to the edge, so that your hands fall over the edge of the bed when you wind them behind your head).

Bend your knees or lower them to the floor, but make sure they are bent again so as not to injure your back. While holding a 1.5 kg dumbbell with both hands, straighten your arms over your head until they are almost fully extended. Hold them in this position, and then again return them to the position above the head and again behind the head, down towards the floor. At the very end of the movement, you can bend them slightly to lower them closer to the floor - this makes the triceps work harder. Return to i.p. first with bent arms, and then with almost straightened arms - one repetition. Gradually increase the weight of the dumbbell to 2.5, 4.5, or even 7.5 kg. This exercise stretches and strengthens the diaphragm, pectoral muscles, and muscles in the back and triceps (Fig. 26).



15. First level. Lying on your back, knees bent, feet completely on the floor, hands behind the head in the lock. Rest your chin on your chest, bend and slowly rise up, twisting so that the right elbow touches the left knee or, if you have good flexibility, the floor behind the left thigh. Return to and. p. - one repetition. During the next repetition, perform the movement in the opposite direction, alternating each time (fig. 27).

Second level. Lying on your back, your legs are bent at the knees and raised above the floor as if they were lying on an imaginary bench. Perform the same lifts with twisting in different directions. These exercises strengthen the lateral torso muscles, the abdominal muscles.

16. First level. Sitting on the floor with arms underneath. The back is straight, the legs are bent in front of you. Without moving any other part of your body, shrug your shoulders so that they touch your ears, then return to and. p. - one repetition. This exercise strengthens the trapezius muscles.

Second level. Standing, the body is straightened, the legs are slightly apart to the sides. Each hand has a dumbbell weighing 2.5 kg each. Shrug your shoulders up to your ears and lowering them down - one rep. This exercise strengthens the trapezius muscles.

Grip strength exercises

Pull-ups of any kind are difficult for women to do, and very few have the strength to stay on the bar long enough. Many of the exercises in this book will help you strengthen your forearm muscles, but very few will help you strengthen your grip. You can use rotations with your hands for this purpose, but in order to develop a truly strong grip, it is necessary to perform exercises of a strength nature associated with the grip itself.

For this purpose, a hard tennis ball or a child's or special power meter is suitable. Try to squeeze them for 3 seconds, then relax the muscles for the same period of time. Do the repetitions, alternating tension and relaxation until you feel like you can't do any more. Do this exercise several times a day while talking on the phone, watching TV, or even walking to the bus stop.

17. Pull-ups. The first level (the so-called negative pull-ups). Standing on a chair or stool in front of the bar at chin level, place your hands on it shoulder-width apart with a grip on top, chin slightly above the bar. Holding onto the bar, go down from the bench and lower your body so that it sags. Nevertheless, you should control the position of the body at this moment, do not fall like a stone downward. Climb onto the stool again and do another repetition. This exercise is useful for two reasons. First, it, like positive pull-ups, strengthens muscles. Secondly, you can lower more weight than you can lift. Thus, you will painlessly strengthen your own muscles.

Level two (regular pull-ups). Standing under the bar, hands on it shoulderwidth apart with a grip on top. The bar should be positioned high enough so that when holding on to it with your hands and standing on the floor, your arms are almost fully extended. Pull up until your chin is above the bar, then lower yourself to the floor - one rep. Control the position of your body, do not fall with a bag on the floor. It will take a long time to learn how to do this exercise correctly, but don't be discouraged if it doesn't work out right away. You are able to master it.

18. The same, but with a bottom grip.

First level (negative pull-ups). Perform negative pull-ups, but with a bottom grip. This is easier to do because the biceps involved in this exercise are generally better developed than the triceps.

Level two (regular pull-ups). Perform a regular pull-up, but with a bottom grip.

19. First level. Hanging on the bar, holding on to it with a grip from below, chin over it. Bring your knees to your chest, then lower them - one rep (you can use the overhand grip if you want, but this is more difficult). When this exercise becomes easy for you, try raising your straightened legs to an angle position. But this can only be done if you have strong back muscles.

The second level (raising straight legs to an angle position). Legs are straightened, toes are pulled, bend your legs at the hip joints and raise the straightened legs in front of you until they form a right angle with the body. Bring your legs down, but don't throw them - one rep. This exercise strengthens your abdominal muscles and hip flexors.

20. Assume a push-up starting position, but place both palms on a rung or low bench. Keep your arms, torso and legs straight. Put your right hand on the floor, and then your left palm, again lift your right palm onto the bench, and behind it your left one - one repetition. Try to constantly increase the speed of the movements. This exercise strengthens the deltoid muscles, triceps (fig. 28).



chair.

Stretch your torso and legs in front of you. Keeping your torso straight, lower your elbows to 90 $^{\circ}$ or more, straighten up - one rep. Do not bend your hips or knees to make this exercise easier. If it is too hard at first, start by leaning against the edge of the table. The higher the initial position of the body, the less load falls on the muscles. On the other hand, if you want some serious physical activity, try leaning against a step or even the floor. This exercise strengthens the triceps and deltoids (fig. 29).

Second level. Just like the previous one, but, returning to the starting position, lift a straightened and tense body, as if you are performing a kind of push-up - one repetition.

Third level. While standing, grasp a sturdy chair with your hands. As you straighten your arms to support your weight, try to lift your feet off the floor and bend your knees until you are in a seated position in the air. Bend your elbows and lower yourself towards the seat without touching it. Raise your body by straightening your arms - one rep. The feet should not touch the

floor during the entire movement. This exercise strengthens the deltoids, abdominals, and triceps (as long as you maintain a straight body position). Fourth level (normal lowering). Standing between two stable chairs, backs inward at shoulder-width apart. Place your hands on the backs of chairs (they replace parallel bars for you) and straighten your arms, lifting your body and lifting it off the ground until they fully support your weight. Now bend your elbows and slowly lower your body down, controlling it and bringing your legs back as far as possible. Return to hanging position on extended arms - one rep. When bending your arms, you will have to bend your legs so that they do not touch the floor. Your goal is to get so low that your shoulders touch your palms - this is very difficult. If the transition from the third stage to the fourth is very difficult for you, then return to the third level exercises. Going down, use only the strength of your hands, and when returning to and. P. help yourself with leg movements. This exercise strengthens -: triceps, deltoid muscles (Fig. 30).

22. First level. Sitting on the floor in any comfortable position. Place your elbows on your hips and the palm of your right hand on top of your left palm; they are free, parallel to the ground. Maintaining the accepted position of the hands, press with the palm of your right hand and at the same time resist with your left. Make sure that your right palm is stronger in



this "fight", but don't let the victory be too easy. Change the position of your hands. When performing this exercise, you cannot move your forearms (Fig. 31).Second level. Sitting on the floor with your legs crossed in a comfortable position for you. Holding in each hand dumbbells weighing about 1 kg from the bottom, forearms - on the hips. The forearms should be in full contact with the thighs, but the hands and palms should hang freely. Clench your hands into fists, bending towards you and working as close as possible, and then down to the limit - one rep. In this case, no part of the arm should move above the hand. After completing a certain number of repetitions, change the grip, that is, take the dumbbells with a grip on top and perform the same movements. Likewise, no part of the forearm, with the exception of the hands and arms, should move, and the elbows should not slip off the hips. Gradually

increase the weight of the weights, bringing it to 1/10 of the body weight - each dumbbell. This exercise strengthens the flexors of the forearm (fig. 32).

Exercises with a partner

If you have a partner with whom you work out, then he or she can be used to perform various resistance exercises. Ask him (her) to apply force in the opposite direction to the direction in which you are performing the movement. Your partner will only pull or push with enough force to force you to work at full strength, adjusting his efforts to yours so that each particular exercise is not too hard or overly light. Don't let her put too much resistance on you, so that you can't budge at all and thus the exercise has gone from isotonic to isometric. Two people can successfully perform almost any exercise presented here. For example, your partner might support you lightly as you pull up and down. It is much more effective to perform with a partner than with weights, exercises associated with raising the leg to the side, forward, in front of you and geepx. This exercise can be very useful: you lie on the floor, face down, your partner, kneeling, puts one hand on the ankle, and the other on the thigh just above the knee. You try to bend and lift your knee up at that. while your partner resists you, etc.

Flexibility stations

Follow the principle of progressive static stretching. Stretch slowly until you feel a slight pain from the tension, then hold this position for 10-20 seconds. Do not make sudden jerks. When the tension in the working muscle subsides, try to achieve a little more, until you feel mild pain again, then again try to hold this position without jerking for another 20-60 seconds. If achieving good flexibility is extremely important to you, repeat the movement for the third time and hold each extreme position for as long as possible. You will soon find that some areas of the body are more flexible than others, and that on some days you are more flexible than others. It should be so. Note that the locust exercise (8) -placed in this section, promotes the development of strength.

1. Lying on your back, perform circles with your foot in the same way as in the universal warm-up. Stretch and flex each foot slowly, gradually, with the greatest possible amplitude. Stretch your ankle and calf muscles in parallel.

2. Lying on your back, bend your left knee and place your left foot on the floor to avoid groin pain. Raise the bent right knee, pulling it towards your

chest and strongly bend your right leg while pulling back the toe. Smoothly straighten your leg, lowering it down, - one rep. Do 20 slow reps and then change legs. This exercise stretches the ankle, calf and foot muscles (fig. 33).3. First level. Lying on your back, lift so that only a small part of your back is pressed to the floor. Bend your left leg to release tension from your back muscles. Lift your right knee up towards your chest. Take the ends of the towel with both hands and place them on the ball of your toe. Holding the foot of your right foot by the towel, bend it while straightening your entire leg as much as possible, trying to achieve a position so that the heel is facing the ceiling. Hold this position for a moment, then take a narrower towel in order to raise the leg higher and bring it closer to the face. 'During the entire exercise, the shoulders must not be torn off the floor. Again hold the end position for some time. Then repeat the exercise with the other leg (fig.34).

Second level. Lying on your back, legs bent at the knees, feet on the floor. Press your lower back to the floor. Bend your right knee, pulling it towards your chest and supporting it in this position with both hands on the back of the thigh, just below the knee. Then, without moving your knee, slowly unbend it. Apparently, it will not fully unbend. Make sure that your knee does not fall sideways. Change your leg.

These exercises stretch the ligaments and the Achilles tendons.

4. Lying on your back, arms down at your sides. Slowly and purposefully move your straight legs behind your head, bending them at the hip joints and rolling onto your back. Try to touch the floor behind your head with your thumbs. If this is difficult for you, support your lower back and buttocks with your hands and try to have at least one leg touching the floor behind your head. If you are flexible enough, keep your legs and back straight during this exercise. Monitor your entire body at all times. If you do this exercise too harshly or lose control of your actions for a moment, you can stretch the muscles in your back or neck.

Maintain the position of extreme tension for some time, then, swinging, try to stretch even further, until you feel more tension in the muscles of the lower half of the back and tendons. This exercise helps to stretch the muscles of the lower back and tendons of the legs (fig. 35).

5. Lying on your back with the left knee bent and at right angles to the body. With your right hand, grab under your knee and pull it towards you until it touches the floor on your right. The left arm, like the head, is pulled

to the side. This helps to achieve more torso twisting. During the entire exercise, the shoulders touch the floor. After holding this attachment for a long enough time, bend your legs. It stretches the muscles around the waist,



lower back, and outer thighs

(Figure 36).

6. Lying on your back, legs straightened and tilted slightly forward, in front of the wall. The lower body should be entered at a distance of 7-10 cm from the wall. Press your lower back to the floor. Bend your feet so that your thumbs are facingtowards the head, then spread your legs to the sides, moving your heels along the wall, until a sensation of tension appears. You can increase muscle tension by helping yourself with your hands. Hold this extreme position for some time, then try to increase muscle tension, spreading your legs even wider, again hold this position for some time. If you feel trembling in your legs, roll onto your back and shake your legs, and now try again. Get up slowly to avoid dizziness. This exercise helps to stretch the muscles of the inner thigh, groin (Fig. 37).

7. Sitting and resting on your knees and hands, lower your buttocks so that they touch your heels and your ribcage - your knees, until the body is in the position of the embryo.

Try to bend and round your back. Tilt your chin and try to keep the top of your head from touching the floor. At this time, the hands lie along the body, palms up, the fingers almost touch the toes. This movement is associated with passive stretching. Try to hold the extreme position for a minute, keeping all the muscles in the body relaxed, and then slowly rise (Fig. 38). After a few weeks of exercising, you will be flexible enough to be able to stretch your arms forward in front of you. This exercise stretches and lengthens all the muscles in the back.

8. Exercise from the previous strength cycle. Lying face down, legs straightened and joined together, arms in front of you,



the close to body, almost touching the ears. As you contract your abdominals and glutes, slowly lift your head, arms, chest, and legs off the floor. Look forward in front of you, slightly spreading your arms to the sides. The body weight should be completely transferred to the ilium and pelvis. Lifting yourself too high will make it difficult to breathe. First, hold this position for 10 seconds, exercising and gradually bringing yourself up to be able to hold the reduced position for 20-60 seconds. Then slowly, in control of your movements and without relaxing the muscles of the body, lower yourself to the floor - one repetition. Aim to be able to do up to 10 reps. This challenging exercise helps to strengthen the muscles in your lower back, glutes, lower back, and even your abdominals. If you suffer from arthritis, you have pain in the back or in the neck, you should not do this exercise, you should immediately go to exercise 10 of the first complex (Fig. 39).

9. This movement is also designed to stretch the back muscles that you just shortened with the contraction exercise (see exercise 7).

10. Standing on the floor, leaning on your hands and knees. Extend your arms outward and towards your back so that your fingers are pointing towards your knees. Initially, the arms can be held at a distance from the torso, but as you become more flexible, shorten the distance between the arms and the torso so that eventually the hands touch the knees. Bend back so that the hips move towards the feet until you feel tension (stretching) in the forearms and hands. The bases of the palms should touch the floor at all times during the exercise. This exercise stretches the muscles and ligaments of the hands, forearms, and wrist joints (Figure 40).

11. Sitting on your knees "in Japanese", buttocks on the ankles, feet rest your toes on the floor. If you don't feel any tension on the front of your foot and ankle, lean back against your elbows and forearms. To increase the stretch, lift one knee off the floor so that its weight is transferred to your torso or foot. Hold the position of the extreme stretch for some time, lower the knee to the floor, tear off the other. When performing this exercise, the knees should not be parted, and the feet should not "leave" from under the buttocks.

After holding the position of the extreme stretch, rise up and bend your feet under you so that your big toes are again supporting most of your body weight. Sit on your heels and lean back until you feel a stretch. Hold the extreme stretch position for some time. Return to and. n. for the final stretch. This exercise stretches your quadriceps and other muscles in your thigh, ankles, and big toes. If your knees hurt, you may want to skip this exercise, but at the same time shifting your weight to your knees when they are fully bent can help stretch the knee ligaments and thus improve the condition of the knees (Figure 41).

12. Sit down with your right leg bent at the knee under you and the left, straightened, behind. Place your weight on your right foot and toes of your left foot and, if necessary, on your left knee. Throughout the exercise, the foot of the right leg touches the floor. Hands - on the floor at the sides for support. Now slowly lower your hips down towards the floor, keeping both feet in place, but bending your left knee until you feel a stretch on the front of the thigh just where the thigh attaches to the torso. Maintain the state of maximum stretch for some time. Try to stretch even more, again hold this position for some time. Then change legs. Do not lower your lower torso, otherwise, the leg will be bent in front of the foot and the knee may be injured. This exercise stretches the flexor muscles of the hip, groin, and even tendons (Fig. 42).

13. First level. Holding on to a table leg or arm of a chair, sit down so that your feet are in a comfortable position for you, completely on the floor and your toes are slightly apart. Hands in front of you on the inside of the thighs, shoulders tilted forward, back rounded to maintain balance. Try to position yourself so that your buttocks touch the floor. If the first few times you are unable to maintain your balance, try squatting and doing this movement while in the bath. Hot water will make joints more pliable, muscles more flexible and lighten body weight a little. If this exercise



causes knee pain, do (fig. 43).

Second level. When you have mastered the previous position well, squat without support with your hands. Let them hang freely between your legs, this will allow you to take a position where the knees are spread wider than the shoulders. The exercise stretches the muscles in your back, groin, knees, ankles, and Achilles tendons.

14. First level. Sitting legs cross. With the towel in your right hand, slide it over your right shoulder and back. Bring your left hand back at waist level with the palm outward and grab the towel with it as high as possible. Head straight, back straight, drag the towel with your right hand so that the left arm rises higher and is pulled further behind the back, hold the extreme stretch position, then drag the towel down with your left hand, hold the extreme stretch position. Change the position of your hands and repeat the exercise. Gradually shorten the distance between your hands until you need a towel.

Second level. Sitting legs cross. Place your right hand up and back behind your right shoulder, palm down, and your left hand behind your back, palm up. Interlace the fingers of both hands and pull the hands with the right hand upward for 20 counts. (You won't actually be able to change the position of your left hand much, but you will feel a strong stretch.) Now pull down with your left hand for 20 counts. The head is raised, the back is straight. Change the position of the hands so that the left hand is on top, and repeat the exercise. This exercise helps stretch the muscles and ligaments of the shoulders, triceps, and pecs.

15. Sitting legs cross, hands behind the head, just above the neck. With their help, tilt your head down until it touches the collarbone with the chin. Hold this position for 10-20 seconds, or as long as you like. (If you are tense, it will be very difficult.) Now lift your head and rest your chin on the palm of your right hand, fingers pointing towards your ear. Place your left hand on

your head, just below the back of the head and slightly to the right of the center. Tilt your head to the right, pushing your chin up with your right hand and pulling your head down with your left. See if you can touch your left ear to your left shoulder without lifting your shoulder. (For most, this is an overwhelming task.) Maintain an extreme stretch position for a while, then change the position of your arms and tilt your head to the left. Hold the extreme stretch position for some time. This exercise stretches the muscles of the back of the head and neck (Fig. 44).

16. Standing feet shoulder width apart. Hands behind, joined in a lock. Then, bending at the hip joints, bend forward as low as possible, raising your arms above your head towards the floor. In order for this to succeed, you will have to strongly twist your arms at the shoulder and elbow joints. When performing this exercise, the legs should be straightened, the position of the knees should be fixed. It stretches the biceps, triceps, shoulder muscles, waist and back (Fig. 45).



Pac 44 Pac 45 Pac 46 17. The exercise repeats the movement of the universal warm-up. Standing, the feet are barely spread apart. Bending your legs at the hip joints, bend over, trying to touch your big toes with your hands. Lower yourself down until you feel a stretching state, then hang in that position, letting the body's gravity help you bend even lower, then stretch even more and hold the extreme position for some time. Don't make any sudden movements. When you begin to straighten up, bend your knees slightly to avoid stretching your lower back muscles. This exercise helps to stretch the tendons of the legs (Fig. 46).

18. Standing with straight legs shoulder-width apart. Raise your arms straight above your head, and interlace your fingers, palms up. Elbows are tense. Starting with the left palm, bend to the left, bending at the waist. Hold this position for some time. During this exercise, the head is kept straight, the gaze is turned forward. Do not turn to the side, do not make any unnecessary movements with your stomach or buttocks, and do not bend your knees. Hold the extreme position for some time, then straighten and bend to the other side, starting with the movement of the right hand. Hold the end position again. If you do this exercise correctly, you should feel a stretch on your sides, no matter which side you lean in. It stretches the lateral muscles of the trunk (Fig. 47).

19. The exercise repeats the movement of the universal warm-up.

Standing about 0.5 m from the wall, facing it. Place both hands on the wall, about shoulder height and width. Extend one leg back so that its knee is straight and the heel is pressed firmly against the floor. Place your weight over your front leg, bending your knee slightly and placing your heel firmly on the floor. Slowly lean against the wall, pushing your hips forward and bending your arms until you feel the sensation of being strongly stretched. Hold this position for some time. Repeat with the other leg. This exercise stretches the muscles of the lower leg, the tendons of the legs (Fig.



20. As in the previous exercise, but slightly bend the leg behind. Both feet should touch the floor with their feet. This exercise stretches the calf muscles and the Achilles tendons.

Overstretching

If you want great flexibility and have been doing static stretching exercises for several months, gradually increasing their difficulty, pro-prioceptive neuromuscular relief can help you achieve maximum stretch with the least pain. Although this condition was first described by M. Knott in 1956, it was forgotten for more than 20 years until athletes realized that superflexibility improves competitive readiness. Now more and more gymnasts, figure skaters, ballerinas and swimmers use pair exercises based on this principle to achieve the highest degree of joint mobility, which is most important for the chosen sport.

The simplest form of using this principle in exercise is to take the position of the greatest possible stretch, hold it for a while, and relax. Then do an isometric exercise to strengthen or contract the same muscle groups that were just trying to lengthen and stretch again to hold the position of extreme tension, and then do the stretching exercise again. In order to correctly select a stretch that should correspond to a certain isometric tension, select such isometric exercises that force muscle groups to work in the opposite direction of stretching. For example, to stretch the tendons, first do the bends, trying to touch your toes for 20 counts and holding the extreme stretch position. Straighten up slowly and then immediately do an isometric tendon-strengthening exercise. Hold isometric tension for 10-20 bills, then slowly return to ip. and do another similar stretch exercise. During this repetition of the stretching exercise, it will be more effective and you will be able to bend lower. This exercise lengthens the tendons by straightening them, and the isometric exercise shortens them by bending the joint with which they move, overcoming resistance. If you have time, you can do this alternation of stretching and isometric exercises 2-3 times.

If you are simply trying to stretch a muscle that is more normal for it, it tenses, hurts, and in fact becomes shorter than it was before the exercise. This principle can only be used by those who have been doing stretching exercises for a certain time and have some experience in this. You should carefully listen to your own body and stop exercising at the slightest appearance of unusual or unpleasant sensations.

Chapter 7 Sports

In this chapter, you will discover some of the most popular sports that can help you improve your health and fitness.

Each species has its own specific requirements for the body. The fact that you run many kilometers per week does not mean at all that, having got on a bicycle, you can easily cover a distance of at least 15-20 km. This is due to the fact that during jogging, mainly the muscles of the back of the thigh and lower leg are strengthened, while the muscles of the front surface are practically not loaded, and therefore they turn out to be much weaker. When doing cycling, as well as skiing, the main load falls on the quadriceps muscles of the thigh, located on the front surface.

Since there is a rule of specificity of the loads, as well as their gradual increase, in order to achieve success in the chosen sport, it is necessary to pay main attention to it. At the same time, some other sports can be used as auxiliary ones. The more types are used, the more versatile physical fitness and less chance of injury.

Badminton

Badminton classes contribute to the development of the anaerobic capabilities of the body, strengthen the muscles of the back, deltoid, quadriceps, triceps.

There are two types of badminton: the so-called beach version, when the players lazily throw the shuttlecock on the beach or in the forest glade, sometimes even over the volleyball net, while sipping refreshments; and a sports game when the competition is held indoors to avoid exposure to wind. Those who are seriously involved in badminton must have good coordination, be able to quickly navigate, do powerful work.

When badminton is played by the masters, the shuttlecock is in flight for 0.95 seconds between blows. For comparison, I will say that the same indicator in tennis is 1.5 seconds. When executing a blow, the shuttle is often given tremendous speed. It is not surprising that sometimes it takes only about 20 seconds to play a point, which consists of exchanges of 25-30 blows. When playing badminton, it is especially important to have a good reaction, since it is not allowed to hit the shuttle that bounced off the cover.

Workout. Those who choose this sport should combine it with engaging in some kind of aerobic exercise. Usually, top-class players in training use running, jumping rope, perform interval loads or separate elements of circuit training. Exercises for the development of large muscle groups of the legs, trunk and arms should be included in the exercises. To strengthen the hands and at the same time work out the power of the blow, it is recommended to perform fast rotations with the hands with light weights. Do not forget about the development of flexibility of the back, hand holding the racket, shoulder, hand (see special exercises).

Injuries. Very rare. Sometimes players develop bursitis of the shoulder of the striking arm. Sprains of the trapezius and deltoid abdominal muscles, flexor muscles of the arm, ligaments and tendons of the knee are also possible.

Basketball

Basketball contributes to the development of both aerobic and anaerobic capabilities of the body, strengthens the muscles of the ankle, quadriceps, calf muscles, thigh muscles, gluteal muscles and others, with the exception of the abdominal muscles, back and arms. However, playing basketball is not very conducive to improving endurance.

Workout. Each lesson must include 2.5-3 km of slow continuous running, says M. Kennedy, a basketball coach at one of the universities, to improve overall physical condition. But at the same time, three times a week it is necessary to run sprint segments or use various forms of interval loading. Running only slowly and continuously will have a negative impact on game performance, because basketball is essentially short, sprint runs. Jumping rope and running up the rungs of the stairs will help improve your jumping ability while also helping to increase your aerobic and anaerobic capacity.

To strengthen the quadriceps and calf muscles, ankles, knees, do squats followed by bouncing, exercises for the feet, as well as the above muscle groups and sections. To avoid groin strains, strengthen the adductor and abductor muscles. For those with a long torso and legs and possibly weak back and abdominal muscles (which affects both the quality of the throw and the ability to maintain a stable body position), exercises that strengthen these muscle groups are useful. To develop the muscles of the arms and and shoulder (this will allow you to perform effective throws on the basket from long distances), perform push-ups, pull-ups. Exercise your finger muscles separately. and hand, which also contributes to the effectiveness of the throw.

In addition, it is necessary to use special jumping exercises for volleyball players and various jumping options. Jumping out of a light half-squat is most effective. At the same time, try to reach out with your right hand, as if you are trying to reach the ball. Then the same, but with the left hand. In one series, it is necessary to perform 10, 20 or even 30 such jumps.

To better strengthen the muscles of the shoulder and arm, perform various movements in the shoulder and elbow joints at full amplitude, holding small weights in your hands (dumbbells, 0.5-1.5 kg). It is advisable for a basketball player to use light weights and a large number of repetitions - 20 or more in exercises with weights. This will help develop muscle endurance, which is necessary for successful practice of this sport. In the warm-up, pay special attention to flexibility exercises, since when playing basketball, physical activity falls on almost all parts of the body. You should especially pay attention to strengthening the muscles of the legs, arms, hands, fingers.

Injuries. In basketball, serious injury is possible because it is a contact sport. Most often these are knee and ankle injuries. If you do not perform a full warm-up, stretches in the groin and others are possible.

Skis

Skiing contributes to the development of aerobic capacity of the body, strengthens the muscles of the legs and buttocks, muscles of the trunk, shoulder and forearm.

It is also one of the most affordable forms of health-promoting physical activity. Skiing is very effective for those who want to lose weight. Even if you are just skiing, the calorie consumption is very high.

Workout. The movements performed by the arms and legs when walking and cross-country skiing are very specific. Of course, women with more shoulder muscle strength will benefit from skiing. To prepare yourself for skiing, you should do push-ups and pull-ups (note that active arm work causes a greater heart rate increase than leg work). In summer, you can simulate skiing on rugged terrain. Experienced skiers use roller skis in their training in the summer.

Since skiing does little to develop flexibility, pay special attention to exercises that develop it.

Although running involves other muscle groups, many skiers do crosscountry runs in the summer and even include running in their training sessions during the competition season. While swimming and rowing can help strengthen the muscles in your arms, other muscle groups work when you practice these sports. Therefore, it makes no sense for skiers to use them in their training.

Injuries. They are not typical for skiing. To avoid stretching the muscles in the legs and groin, you should pay attention to strengthening these muscles. Push-ups and pull-ups will help to avoid injury to the muscles of the shoulder, which contribute to the development of the corresponding muscle groups.

Beware of hypothermia. When practicing skiing, it is advisable to use multilayer clothing, that is, rather lightweight, but worn one on top of the other. As the body warms up, they can be removed one by one, which will also help to minimize sweating. If you sweat a lot (wearing too warm clothes), the sweat can freeze and this in turn can lead to frostbite or hypothermia. The loss of fluid in the body must be replenished by drinking various drinks and juices during long ski trips. If you have any disturbances in the activity of the cardiovascular system, then before starting to ski, consult a doctor, since cold, active work of the legs and arms, and movement on rugged terrain increase the load on the heart.

Field hockey

Field hockey exercises contribute to the development of both aerobic and anaerobic capabilities of the body, strengthen the quadriceps, calf, gluteal, latissimus dorsi, as well as deltoid and shoulder muscles. Because the hockey sticks are short in grass hockey, players have to run and hit in a bent position, which helps to strengthen the back muscles.

Workout. Although practicing grass hockey is both aerobic and anaerobic, you rarely play more than three times a week. In order to be strong enough to play the entire game, you need to have good overall stamina. That is why slow, continuous running should be used in training. But do not forget about sprint accelerations, as they will come in handy in the game. Fartlek is an excellent training tool. An even greater effect can be achieved if you perform it with a club in your hands. To work out the force of the blow, you should additionally perform fast rotations with brushes with weights. It is necessary to specially develop muscular endurance of the trunk and arms,

strengthen the muscles and ligaments of the knee, which will help to avoid injuries. Since grass hockey does not promote flexibility,

Injuries. Most of the injuries in field hockey are caused by collisions with an opponent, as well as the consequences of hitting with a stick. Knee injuries are quite common, since abrupt stops, jerks, turns - all these types of movements place increased demands on the joints. Do not forget about this and try to strengthen them with special exercises.

Rowing

Rowing contributes to the development of aerobic and anaerobic capabilities of the body, strengthens the muscles of the ankle, quadriceps, abdominals, shoulder, biceps.

In addition to various types of sports rowing (academic, kayaking), there is also rowing rowing. But even doing it quite intensively, you can achieve a good training effect on the body. Since rowing movements are natural, starting with a kilometer walk along the lake, bay or downstream of the river, you can quickly increase the distance covered to 8-16 km.

Since the back muscles do not have too much load during rowing, it can also be done by persons suffering from lower back pain.

During rowing, the shoulder girdle works predominantly, so the heart rate rises noticeably faster than when doing sports, where the main load falls on the leg muscles. Your goal is to reach a heart rate of 60 - 80% of maximum. Make sure that the work of the arms and legs is coordinated (the legs should be extended when the hands are at the highest point of the trajectory of movement closest to the chest; the legs should be as bent as possible when the arms are extended and the oars are at their lowest point), thus, both the muscles of the legs and arms will be equally involved in the work. Be sure to wear socks and shoes when using the rowing machine to avoid rubbing your feet. It is quite possible that oars scuff the palms. Rowing does not develop flexibility, but you need to have good joint mobility,

Workout. Rowers are encouraged to include running to develop endurance, short sprints to improve anaerobic capacity, and stair climbing to strengthen leg muscles. If for some reason you are unable to run, endurance should be increased through cycling. To develop muscle strength, be sure to include a variety of push-ups, pull-ups, squats, and squats with jumps in your workouts. Don't forget about exercises to increase mobility in those joints that work in rowing.

Swimming can be used as a training tool, since it helps the development of the muscles of the shoulder girdle and their mobility, cross-country skiing, since this type makes even higher demands on the body than running, and makes both the muscles of the legs and arms work equally.

Injuries.Most injuries happen while exercising on land. The percentage of damage received during the rowing itself is very small.

Tennis

Recently, tennis has gained immense popularity and the number of people involved in it is growing.

If the rally during the game lasts a long time, and the blows are strong enough, then tennis can be considered as a good means of improving the aerobic capacity of the body; if the level of your skill is not high, then the training effect from such exercises is practically zero. The information in this section is designed for female tennis players who are able to withstand a non-stop match.

Regular workouts and tennis matches strengthen the muscles of the legs, biceps, triceps, and the muscles of the shoulder girdle. Tennis also helps to improve the flexibility of the shoulder girdle, knee and hip joints, and in some cases, the muscles of the back of the thigh.

Workout. Jumping rope is recommended to improve coordination, strengthen leg muscles and endurance of the cardiovascular system. In addition, training with a partner is very useful. If there is no partner, you will have to deal with one. Learn to run first forward to the net, then backward from it, then step sideways from the center of the site. Gradually increase the total running time of these runs or increase their speed, this will contribute to the development of endurance. If you have a partner (partner) for training, | then he can send the ball to different corners of the court, which will have the same effect as when running. In addition, when practicing with a partner, you improve your ability to hit the ball. If you want to achieve serious success. It is necessary to include in the exercises and slow continuous running (about 5 km in one lesson) and interval segments. Running slowly and continuously will help develop overall endurance, while interval stretches will help you catch the ball more effectively during the game. Since tennis mainly consists of short runs of receiving and passing the ball, doing interval sprints will be more beneficial than slow, continuous running.

Particular attention should be paid to exercises that strengthen the strength of the grip, muscles of the hand, shoulder. To be a good tennis player, you also need to have strong abdominal muscles. Therefore, it is necessary to include exercises for these muscle groups in the preparation. To develop the strength needed for playing tennis, while playing against the wall, you can leave the case on the racket or clip a small (0.5 kg) weight on the head of an old racket and simulate hitting the ball.

Tennis players also need flexibility, especially in the shoulder girdle. Do the appropriate exercises for this. When performing low kicks, flexibility of the legs in the knee and hip joints is important. Attention should also be paid to stretching the muscles of the legs with the help of special exercises.

Cycling can be used to strengthen the leg muscles.

Injuries. The most famous is the so-called "tennis elbow", as well as damage to the shoulder joint. Heatstroke is possible in warm or hot weather.

Chapter 8 Menstruation and Menopause

The relationship between menstruation and athletic performance is complex and highly individual. Some women in the premenstrual period are especially irritable, whiny, excitable, while others hardly notice that this period has come again. Some athletes feel uncomfortable and cannot perform well, while others perform very successfully during menstruation or a few days before it, winning gold and silver Olympic medals in athletics, swimming, basketball, skiing and speed skating, and gymnastics.

How menstruation affects exercise

Over the years, there have been many myths that menstruation supposedly affects the deterioration of athletic performance, and therefore even women who easily endure such periods were worried that they would not be able to perform and fully train for several days, and if they tried to do it, they will hurt themselves. However, recent scientific studies show that menstruation does not affect athletic performance. Coordination of movements really deteriorates to some extent a few days before menstruation and the first two days of the period, but the performance itself, strength, performance, aerobic and anaerobic capabilities of the body remain constant throughout the cycle. And, contrary to popular belief, women do not have a predisposition to heatstroke during such periods.

However, there are notable differences between the physiological capabilities of the body and how you actually feel. Surveys conducted among female athletes have shown that it is more difficult for many to perform a certain load before the onset of menstruation than in the middle of the cycle. In addition, more than a quarter of female athletes believe that their athletic performance decreases about a week before the start of the period. To a greater extent, this is observed in long-distance runners, dancers, rowers, representatives of other endurance sports and tennis players, to a lesser extent - among representatives of speed-strength sports: sprinters, gymnasts and representatives of some game sports.

Survey results indicate that menstruation affects their performance. Some of them do not experience the mental stress or cramps in the lower abdomen typical for the premenstrual period - this applies to about half of the surveyed women under the age of 35. (The younger and thinner you are, the less likely your period and your athletic performance will be adversely affected.) However, the other half of women under 35 and most women over 35 reported one or more symptoms: weight gain, depression, tension, agitation, lethargy, irritability, drowsiness, dull heaviness and pain in the abdomen, nausea, constipation, pain in the lower back and head, chest, cramps or chills. And yet, many of these women show good athletic performance. They tolerate pain more easily than women who lead a predominantly sedentary lifestyle; they have sufficient self-discipline and motivation to continue exercising no matter what; they may even be able to get distracted from everything during exercise, or they just don't have a lot of symptoms.

In each case, the reasons for a different physical condition are individual. But it is obvious that the tension inherent in the premenstrual period, as well as the so-called menstrual cramps, have a real physiological basis. For millennia, it was believed that complaints during the menstrual period were psychological in nature and were not taken into account. Research over the past few years has shown the opposite: what happens to you during your menstrual cycle is the result of biochemical changes in your body, and not a manifestation of female hysteria.

Whatever the cause of the unpleasant symptoms, it is clear that exercising will make your period easier. Active women are significantly less likely to experience premenstrual and menstrual symptoms than women who lead a predominantly sedentary lifestyle, and exercise even more smoothes the manifestation of these symptoms.

Swimming myths

Some of the most common myths about women in sports involve swimming. Do you think swimming is one of the causes of cramps during your period? This may be partly true, but only if you are swimming in cold water. If you swim in warm water or in a pool with heated water, then swimming may not cause cramps.

Are you worried about your menstrual flow contaminating your pool? Forget about it. This- an old tale. Water cannot circulate freely into the uterine cavity. Studies that measured the bacteria count in pool water after women had exercised during their period and before exercise found that bacteria count depends on the amount of bacteria on the exerciser's skin, rather than whether or not they are menstruating. Even when women were swimming during menstruation without taking special precautions, the bacteria in the water did not increase.

Artificial cycle displacement

Women who are very anxious about competing in a responsible race at the "wrong time" of the month often take various measures to postpone this period, either through the use of birth control pills or other hormonal drugs. All of these medications have side effects, and the potential dangers of using contraception are also known. At best, all of these drugs can lead to puffiness and nausea. According to Dr. F. Smith, "maybe it is worth moving cramps during menstruation instead of taking birth control pills for a month, which will give side effects?"

Discomfort during menstruation (dysmenorrhea)

The excess fluid in the body causes many problems. When water is trapped in and between cells (interstitial fluid), it makes you feel tight and heavy, which is the reason for the weight gain you experience during your period. Excess fluid also presses more forcefully on the nerve centers of the brain, spinal cord, which causes headaches, mood changes and pain in the lumbar region. From it the legs swell and the chest swells, painful sensations, nausea, constipation or, conversely, diarrhea appear. No one can say with certainty what causes fluid retention in the body. Estrogen, the content of which reaches its maximum values just before the onset of menstruation, leads to the fact that the body retains salt, and therefore water, but progesterone, the content of which reaches its maximum values also immediately before menstruation, has the opposite effect on the body. One might assume that the effects of progesterone counterbalance the effects of estrogen, but this does not happen, and during menstruation, the body retains an additional amount of fluid.

Exercise can help reduce excess fluid in the body, since most of it is excreted in sweat. It also reduces the body's salt content. Getting rid of excess salt in the body leads to a sharp reduction in the amount of fluid around the brain, muscles, and digestive organs, and you are less susceptible to depression, less anxiety, less nausea and less headache.

Exercise has other effects on the body as well. Strong, mobile abdominal muscles are less prone to spasms when they are stretched by an enlarged uterus in the premenstrual period; muscles weakened by lack of exercise or poor posture are much more prone to spasms. Exercise can heal cramps by warming up and stretching the abdominal muscles in the same way it

stretches the "hard shoulder" or calf muscles. H. Brown, MD, says exercise can interfere with uterine prostaglandins, powerful chemicals that stimulate uterine contractions during childbirth or menstruation. "It is also possible," says M. Shengold, MD, a gynecologist, "that endorphins (pain relievers, which the brain produces for itself) are released during strenuous training and somehow mask the pain. " Both of these theories explain why cramps are sometimes relieved with very hard training and can reappear as soon as the woman returns to the previous, more relaxed regime.

Exercises to relieve tension and spasms

Many doctors advise those with premenstrual tension or menstrual cramps to do circuit exercises (8 of the stretching cycle and 15 of the strength cycle) daily in order to strengthen the abdominal and back muscles and prevent cramps. when the uterus is distended. If, despite taking precautions, you still have cramps, do one cycle of stretching for warm-up and stretching exercises for your torso and hips. Stretching exercises 6, 7, 9 of the stretching cycle may also be helpful. Or do some long-term endurance work of at least 30 minutes to flush excess salt out of your body.

E. Handel, MD, believes that a combination of aerobic exercise and stretching is likely to help most women. "Do stretching exercises and various flexion-extension and aerobic work," she says. - It is necessary to bring the heart rate and respiratory rate to the required values and maintain it at this level for at least half an hour. But at the same time, you should train both muscle strength and flexibility. Whatever you do, you have to work hard and try to create "muscle tone".

Other ways to solve this problem

Unfortunately, exercise doesn't work for everyone. If menstruation pain still bothers you, which affects your athletic performance, you should try and find some other treatment.

Reduce your salt intake. Eat less salt the week before your period starts. Salt encourages cells to retain water, and this extra fluid can cause swelling and high blood pressure. Sugar and other carbohydrates also retain water in the cells. However, any fruit or vegetable that contains a high percentage of vitamin C, such as watercress, cranberries, or oranges, or contains naturally occurring diuretic substances such as squash, will help remove excess fluid from the body. The same effect is given by the use of vitamin C tablets. Vitamin C, either naturally or in pill form, also prevents bruising during menstruation, which usually occurs as estrogen levels drop and capillaries, the thinnest of blood vessels, become very fragile.

Improve digestion and stomach function. Eat plenty of fresh or dried fruit if you suffer from constipation, which increases cramping, or back pain.

Take extra calcium. Even a slight calcium deficiency in the body can lead to cramps and irritability during menstruation. Usually 10 days before the onset of menstruation, the level of calcium in the body drops, but this can be avoided by drinking one to two glasses of milk a day or by taking calcium tablets by mouth. If you start taking additional calcium tablets, you need to add magnesium as well. To make sure the body is absorbing the added calcium, you need to take 400 units of vitamin D daily.

Take extra iron. Weakness that occurs in the premenstrual and menstrual period can be caused by a slight undetectable anemia, anemia. Women generally have a greater need for iron than men. And women who are menstruating profusely, or women who use an intrauterine device such as a coil, need even more iron. If you start taking iron about a week before your period starts, it will give you an additional 5 to 10 percent hemoglobin, which in turn will have a positive effect on your athletic performance.

Apply acupressure. Acupressure completely relieves menstrual cramps in most women. The pressure points are similar to the "triangle" points and are located along the back between the waist and the beginning of the buttocks. Since these points are located down the back, you will not be able to do acupressure on your own. This requires the help of a friend with strong fingers.

Try to use warmth. Using a heating pad, drinking hot tea or soup, or taking a hot bath can relieve the uncomfortable and painful feeling of heaviness in the lower abdomen. Some or all of the remedies taken together help individual women, while others find that the extra warmth, on the other hand, increases the cramping.

Acupressure to relieve spasms

Initial position - lying on a hard surface. A friend should press with her fingers on the depressions on either side of the spine. Some fingers hit directly into the depressions, while others press on the nearby areas on either side of the spine, about 2.5 cm away. You should start pressing on the points at the waist level and massage them firmly for 30 seconds, then move 1 cm lower pressing each point for 30 seconds until you reach the sacrum, the flat spot that is the end of the spine. It is necessary to massage

this entire area for 30 seconds - / minute, and then press and massage the point in the hollow between the buttocks for another 30 seconds. The pressure should be hard enough - equivalent to 5 kg or more, but not strong enough to injure the spine.

Take a tincture of ginseng. B. Simen, in his book Women and the Sex Hormone Crisis, writes that ginseng has been used for thousands of years in China to relieve cramps and pain during menstruation. It should be emphasized that ginseng is a powerful stimulant and causes nervousness, insomnia and, in some people, a weakening of the stomach.

Talk to your doctor about medication. If the pain is severe during this period and does not go away, see your doctor. Your doctor may prescribe certain medications if you are not seriously ill. They stop the prostaglandins from stimulating painful contractions of the uterus. "People think that menstrual cramps are caused by excess prostaglandin," says M. Shengold, "but this is not the case. Cramping is a normal response of the body to a normal amount of prostaglandin in the body. Menstrual cramps are painful when the contractions of the uterus exceed the pain barrier, but they are completely natural.

The medicines commonly used to treat arthritis are the safest of all medicines used to relieve cramps during menstruation, because they are taken only if cramping is expected or already felt. As for other medications, they must be taken for a whole month to prevent the occurrence of cramps. Most of them, such as natural progesterone or other hormones, have side effects that can negatively affect the results of athletic performance.

In addition, these drugs, which slow down the functions of the sex glands, are not completely harmless. Their influence on sports performance is not yet fully understood. Some researchers have noted that they can complicate the condition of asthmatics and also cause nausea or gas, which will be as constraining as the spasms themselves. They can also cause or worsen ulcers if taken on an empty stomach. Their function in the body is not fully understood.

Irregular menstruation (oligomenorrhea or amenorrhea)

Obviously, the most common effect of vigorous exercise on menstruation is that they become irregular. Many popular magazines and newspapers warn that if you run too long distances or do too much, for example, rowing, your periods will be irregular and you will generally lose the ability to bear children, become like a man.

Secondary amenorrhea

Secondary amenorrhea, i.e. the cessation of menstruation after no abnormalities have been observed on this side for several years is a common phenomenon. But it doesn't deserve the attention it gets. "Most of the distance runners I know do not have this disease," says F. Smith, "and I know a lot of people because I work as a gynecologist." M. Shengold looks at this problem differently. "I surveyed female athletes," she says, "preparing for the 1979 New York Marathon, and found that the percentage of women who had irregular menstruation in the past but are now doing well is significantly higher than the percentage of women who suffer from irregularity. menstruation after they have started to seriously engage in long-distance running. Most athletes who had regular periods before jogging do not experience any irregularities; for those who have suffered from irregular periods, deviations are observed even after the start of serious training. "

Almost every woman during her life has periods when several times her period does not come at the right time. This may be due to a job change, loss or, conversely, gaining a lot of weight, graduating from school, or flying long distances. This is a common, harmless body reaction to changes in normal functions. Moreover, some women are likely to have two to six menses per year quite naturally, and according to one study, about 70 percent of all women, at least in part, have menstrual irregularities during the year; Thus, the medical definitions of amenorrhea (absence of menstruation) and oligo-menorrhea (scanty periods) - four to eight per year - are very abstract concepts and do not apply to most women.

However, it is clear that strenuous training in endurance sports or physical activity can lead to irregular periods in some women. Typically, women who do not have menstruation run more than 50 km per week, weigh less than 52 kg or have lost more than 10 kg since the start of classes, they are under 25 years old and have never given birth. Why exactly these factors affect the regularity of menstruation has not yet been clarified.

Scientists have found that about 1/4 of all female athletes who have a body fat percentage of less than 17 percent either have irregular periods, or reduce them to a minimum number within a year, or they disappear altogether, sometimes even for a whole year. Initially, it was believed that the loss of fat by the body causes changes in metabolism and hormonal metabolism, which, in turn, leads to the termination of the body's ability to bear children. Thus, when there is not enough fat in the body to produce estrogen and maintain a healthy pregnancy, nature itself stops this cycle.

It is now clear that the explanation of this phenomenon is actually much more complicated. When female rank and file at West Point (US military academy) did the same rigorous physical training as men, 75 percent had no menstruation at all for two months. Three months later, although training did not stop, only 45 percent had amenorrhea. By the end of the first year, 8 percent had amenorrhea and 23 percent had irregular periods, although exercise and body fat percentage (about 19) remained the same throughout this time. In another study, M. Warren, M.D., an endocrinologist, observed that ballerinas often have their periods again when they are on vacation, although they do not gain weight or increase their body fat during this time. "Now it's obvious," says physiologist B. Drinkwater says that body fat is just one factor leading to amenorrhea. " The second theory is that the critical factor is not body fat percentage, but the body's ability to keep warm in cold weather. Since fat envelops tissues and helps the body retain heat, it is directly involved in this process. If the amount of fat in the body is not enough, the adherents of this theory believe, the function of the hypothalamus is disrupted - the ability for normal heat regulation is lost, which, in turn, affects the frequency of menstruation. Since fat envelops tissues and helps the body retain heat, it is directly involved in this process. If the amount of fat in the body is not enough, the adherents of this theory believe, the function of the hypothalamus is disrupted - the ability for normal heat regulation is lost, which, in turn, affects the frequency of menstruation. Since fat envelops tissues and helps the body retain heat, it is directly involved in this process. If the amount of fat in the body is not enough, the adherents of this theory believe, the function of the hypothalamus is disrupted - the ability for normal heat regulation is lost, which, in turn, affects the frequency of menstruation.

If your periods disappear after intense exercise or emotional stress, don't be concerned about that. These effects are only temporary, and once you stop exercising intensely, your periods will be regular again, and your chances of having a normal baby are the same as they were before you started serious training. In other words, serious exercise can only temporarily disrupt the menstrual cycle, but it will not cause permanent or serious hormonal imbalance. They will not make you masculine, your body hair will not grow, other secondary sexual characteristics will not disappear, as well as the function of procreation will not be lost.

Some sports doctors believe that secondary amenorrhea is quite normal for the body. One of them even put forward a hypothesis that this is precisely the true female model, because in most periods of human history, women led an active lifestyle, often starved and, naturally, were very thin. Therefore, do not pay attention to amenorrhea, everything will work out by itself, doctors say, unless you have one of the following warning signs: bleeding between periods, unexpectedly heavy bleeding during menstruation, milk flow from the nipples of the breast, or the appearance of large blood clots during menstruation.

Shengold disagrees with this point of view. "Every woman who used to have normal menstruation, and now the intervals between them are more than 60 days, should definitely consult a gynecologist, preferably a doctor who specializes in endocrinology. No disturbance in the activity of the body should be considered in isolation or lightly. The same serious problems faced by women outside of sports apply to female athletes. Tumors of the mucous membrane, premature menopause, pregnancy - all this can be detected in time only if you constantly monitor your health. Some experts believe that if a woman is not menstruating, then her body does not produce enough estrogen, as a result of which she is too thin. "

Many doctors believe that if during a medical examination in the body there are no organic changes that can be the cause of irregular menstruation, then you can train with the same loads. (Your doctor may recommend contraception or other hormonal drugs to help you get regular periods. Only take these if you have no other choice, as many often treat the symptoms of amenorrhea instead of the cause, resulting in emotional and physical side effects. which are harmful to your health and can also lead to water retention and weight gain.) When you want to get pregnant, reduce your physical activity, and you will most likely have regular periods again. If this does not happen, consult [your doctor. Do not consider irregular periods as a means of preventing pregnancy. It is not known when the function of childbearing will be revived in the body.

Primary amenorrhea

during which they continue to grow and remain thin before estrogen closes the growth plates and the body begins to store fat. Delayed onset of menstruation does not affect fertility in girls. Before menstruation begins, the girl develops secondary sexual characteristics: her breasts grow, pubic hair and armpit hair grow, usually these changes occur in that order. This entire process is controlled by the hypothalamus located at the base of the brain. The hypothalamus also controls body temperature, appetite, mood, thirst, emotions, increased blood flow through muscles during exercise, heart function, abdominal organs, glands and kidneys, and releases a brain hormone that stimulates ovarian activity. The ovaries then secrete estrogen, which causes the breasts to grow and reproduce, and lays the foundation for the fat layer. At the same time, testosterone is also produced in the body of a teenage girl - the male sex hormone, which is available in small quantities in all women.

"A mother does not need to worry and immediately take her daughter to a gynecologist if she has no menstruation even at the age of 14," says M. Warren, "especially if her daughter is involved in a sport that requires little body weight. If a girl does not have any sexual development by the age of 15 - her breasts do not grow, pubic hair does not appear - this is already a cause for concern. But if she looks normal and does not play sports, you should not be nervous until the age of 16, and if she is a dancer (or a gymnast or a skater), I suppose there is no cause for concern, perhaps until the age of seventeen or even eighteen. When she starts menstruating, she will quickly catch up with her peers in her sexual development. There is evidence that in girls with a body structure most suitable for dancing and ballet, menstruation usually begins later. "

How does menopause affect the exercise program?

Climax- this is the time when egg maturation and menstruation stop, and the ovaries stop producing estrogen. This life cycle usually occurs between the ages of 46 and 52. Menses become irregular, there are large intervals between them, and the bleeding itself becomes more scanty. You may experience all of the usual premenstrual symptoms, with the exception of cramps in the lower abdomen, at the time you should be menstruating — these are classic menopause symptoms. Clinically, this is determined by the absence of menstruation for a whole year.

Sports performances and climax

The physiological processes of menopause do not have any effect on athletic performance. With increasing age, reaction time and strength indicators gradually decrease slightly, but you can successfully practice your chosen sport and achieve success, continuing to realize the capabilities of the body throughout most of your life. "This is especially true for ballerinas, swimmers and climbers," says E. Handel, "who have stepped over menopause long ago and nevertheless demonstrate endurance and a level of achievement equal to those of much younger women who have not yet reached the age of menopause".

Menopause symptoms

Some doctors have determined that about 15 percent of all women who go through menopause have one or more of the following symptoms: hot flashes, chills, cold sweats, nightmares, insomnia, fatigue, nervous tension, depression, the urge to cry, sometimes dizziness, headaches pains, swelling of the chest, pain in the legs, weight gain, irritation of the cervical region, etc. E. Handel believes that in reality these figures are lower. "Doctors just don't see women who are not suffering from anything," she says. - We often first create some ideas for ourselves, and then act in accordance with them. If a woman believes that she will not be able to be active after menopause, then this is exactly what will happen in reality. Women who are in good physical shape, who lead an active lifestyle, endure menopause more easily. In England, she continues, you can see women in their fifties, sixties and even seventy years old riding their bicycles at a good pace, because they are not used to riding otherwise. You will hardly hear English women discussing the problems of menopause. In our country, menstruation and menopause are considered a disease. But every woman in the world someday starts menstruating, and then they stop. "

Exercise and diet during menopause

Strenuous endurance exercise is your most valuable ally during menopause. Exercising at a target heart rate for at least 30 minutes a day almost daily can minimize or even eliminate hot flashes, it can also promote deeper sleep at night, help you relax, make you less anxious and tense, prevent weight gain, and improve overall well-being.

Tides

Hot flashes are the most common side effects of menopause and are visible to others and are therefore particularly annoying. People around you see and understand that you are getting old. For some women, hot flashes are triggered by emotions, such as an unexpected outburst of anger. If this applies to you, exercise, change your diet - do whatever you can to avoid the causes that trigger your tantrums. (One woman reported that she was able to relieve hot flashes when she first learned to tolerate them in public without being embarrassed. Perhaps when she learned not to notice them, she began to relax and they disappeared.)

Exercise can help reduce hot flashes and other side effects of menopause because both exercise and hot flashes are controlled by the hypothalamus.

During a hot flush, the temperature of the skin rises by several degrees, the blood vessels in the skin open wide to release heat and sweat, just like in the heat. In other words, during menopause, the hypothalamus does not always respond appropriately to signals from the outside world, sometimes its response to any stimulus is unpredictable. You may sweat and feel warm in cold climates, or you may have chills in heat. (Because the hypothalamus also controls emotions, you may become irritable, agitated, and sleep poorly.) Exercise normalizes hypothalamic function. During this period, you should avoid the use of caffeine, nicotine and other stimulants. Reduce the amount of sugar and alcohol consumed, or completely eliminate them, as both disrupt the regulatory mechanisms of the hypothalamus. Eating these foods can make you even more irritable as it triggers a response similar to your body's response to low blood sugar. Breathe deeply and focus on relaxing with each flush - after all, it only lasts a few minutes - or chill your cheeks with cold water or ice. You feel hot flashes when you blush. That is why if you try to cool the bridge of your nose, it will not help, when you blush. That is why if you try to cool the bridge of your nose, it will not help, when you blush. That is why if you try to cool the bridge of your nose, it will not help,

During menopause, the body's need for B vitamins and vitamin E increases. Foods that contain large amounts of raw fruits and vegetables, whole grain breads and cereals will satisfy these increased needs and help relieve hot flashes. A daily supplement of 400 units of vitamin E along with vitamin C may also contribute to this. B. Simen believes that tincture of ginseng can also help relieve hot flashes. However, do not take the drugs listed above if you are allergic or suffer from diabetes, high blood pressure, or rheumatism of the heart.

Osteoporosis

Osteoporosis, or softening of the bones, is a serious problem during and after menopause because lower estrogen levels prevent the body from absorbing calcium from the food we eat as efficiently. And since the body is deficient in calcium, it replenishes it by taking it from the bones to
strengthen nerve and muscle cells. If these losses are not replenished, then bones lose 1 to 3 percent of their mass annually. If you have a sufficiently strong thinning of the bones, you may develop pain in the lumbar region, stooped shoulders and there is a danger of a fracture of the wrist, hip or even spine from an unexpected blow or fall. In order to get sick with osteoporosis, it is not at all necessary to reach menopause. This disease affects alcoholics as well as aging men. Inactivity at any age leads to thinning of the bones, because bones are stimulated to absorb calcium and other minerals only if the muscles around them are working. This is why it is possible to develop osteoporosis by wearing a cast or being in bed for a long time.

Until recently, it was believed that osteoporosis is an inevitable attribute of old age, but now it is clear that exercise to overcome gravity, as well as a special diet, can prevent this disease. Physically active women or women in heavy physical labor are much less likely to suffer from hip fractures and other fractures than women with a predominantly sedentary lifestyle. In a study conducted at a medical center in Nassau, women who went through menopause and engaged in physical exercise for an hour 3 times a week, not only did not decrease the calcium content in their bones, but, on the contrary, increased. Since very few studies have been conducted on women of climacteric age, no one knows for sure what the percentage of active women is. who have exercised for many years nevertheless suffers from osteoporosis. But it is clear that any woman who leads an active lifestyle has stronger and heavier bones than her inactive peers.

In other words, if you are active, then continue to be active. "It is necessary to load the bones every day, forcing them to move at the full amplitude of the joint in a variety of directions," says S. Greenwood, MD. "Walk or jog to strengthen the bones of the lower extremities and heart, and to load the shoulder girdle, do push-ups, exercising with weights." If you have not previously led an active lifestyle, but decided to do physical education, start slowly and carefully. If you already have osteoporosis, start with even more caution with isometric exercises and only move to isotonic when you feel that your muscles and bones are sufficiently strong.

Plan your exercise program so that you do at least some of it outdoors every day. A review in Cambridge, UK, observed that individuals who were bound to be presented to regular bright beams (the sun) had a higher level of nutrient D in their blood. The more nutrient D in the body, the more proficiently it assimilates calcium from food and the heavier the bones become. On the off chance that the body needs more nutrient D, drink an extra one to two glasses of milk a day, and furthermore take extra calciumcontaining arrangements (from 1 to 1.5 g each day) or eat sardines, cheddar, vegetables with dim green greens and others. calcium-rich food varieties this will dial back the deficiency of calcium in the body.

High protein diets can likewise add to bone loss of calcium. In 1974, X. Lynxwiller announced that individuals who ate moderate measures of protein and calcium held typical extents of calcium in their bones. At the point when similar individuals ate 3 fold the amount of protein, the calcium content during the bones diminished, regardless of the way that the ingestion of this mineral expanded appropriately multiple times. Evidently, the body utilizes enormous measures of calcium to kill the acridity of protein breakdown items.

Depression

Just 7% of all ladies are discouraged during menopause. This rate is just marginally higher than a comparative marker among ladies who have not yet arrived at menopause. The downturn brought about by menopause doesn't has anything to do with the movement of the nerve center or chemicals. As per a few examinations, discouragement is like the despondency experienced by men of a comparative age. Regularly it is brought about by a dread of progress. Ladies who construct their lives around their own kids or have a conviction that all is good founded on their womanliness can lose their feeling of their own value. Exercise will likewise help here, as it will give you trust in your capacities, will assist you with becoming appealing and sound once more. They will likewise assist you with unwinding and you can release pressure when stressed or furious, which is just a result of a condition of melancholy. As one of the precepts says, "wretchedness is outrage." You are furious with somebody, however you can't communicate this and thusly move these encounters to yourself. "THE BEST FITNESS TRAINING AND SECRETS BOOK FOR ALL AGES WOMEN"



TIPS AND TRICK

I WILL SACRIFICE WHATEVER IS NECESSARY TO BE THE BEST

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