

MINISTRY OF HEALTH PROTECTION OF UKRAINE
ZAPOROZHYE STATEMEDICAL UNIVERSITY



Sazanova I.O., Doroshenko E.Y., Hurieieva A.M.

**FITBALL –WAY FOR IMPROVEMENT OF PHYSICAL
QUALITIES OF STUDENTS OF MEDICAL UNIVERSITIES**



METHODOLOGICAL TEACHING AIDS

**Zaporizhzhia
2018**

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Department of physical rehabilitation, sports medicine, physical training and health

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In a grant recommendations for practical and independent training with fitballs are stated, to medical control, general exercises and approximate complexes. For students of higher educational institutions III-IV of levels of accreditation.

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INTRODUCTION

Modern student's youth is put in rather severe condition. Requirements of the training program have increased, living conditions, life, activity changed. One of the biggest problem of high school is decrease of level of students' health which are obviously lag behind international standards and getting worse from the first course to a final year. The reasons of increasing of morbidity among young people can be explained as increasing of deficit of moving activity during entire studying period that has negative effect on physical development, functional readiness and health.

In recent years was especially noticed the interest to different types of sport and physical activity for rest and restoring of forces. Among that improving trainings aerobics found a special place. Systematic occupations aerobics allow not only to increase the level of muscular fitness, but also to improve a condition of cardiovascular and respiratory systems and enjoy the training.

For students of Zaporozhe state medical university occupations from fitness-aerobics is a nice emotional spirit which is made by rhythmical music, program which exercises which develop physical qualities, breathing exercises, choreography elements etc.

Occupation with fit ball aerobics becoming more popular from year to year. This occupations have improving direction, develop endurance, coordination of movements, feeling of rhythm, allows to correct a bearing and make a figure more graceful and elegant. With help of fitballaerobics it's possible to increase the physical activity and improve the state of health.

The purpose of fitball aerobics is to improve health condition, to increase the functionality and also an assistance to correct formation and all-round development of student's organism.

For achievement of student's aim the complex solution of following tasks is supposed.

1. GENERAL INFORMATION

1.1 What is it «aerobics» and the essence of occupations



Aerobics– it's long exercises of average intensity at which the organism sufficiently consumes oxygen. First of all, aerobics provide the fast rate of movements which are set by musical rhythm; secondly, big amplitude of movements of hands, legs

and trunk with work of many muscular groups.

The fascinating musical rhythm, ease of movements and ample opportunities of improvisation depending on individual tendencies and choreographic experience turns the aerobics' occupations into emotional and creative work. During rather long time such atmosphere helps to maintain considerable physical activity.

Nowadays a lot of students don't move much. They walk by foot from parking or bus-stop to the place of studying, from desktop to buffet or cafeteria. The youth not indulges itself physical activities. The lack of movement affects badly on health condition and opportunities of the person in all spheres of life.

Aerobics is a nice way of fighting against «muscular hunger» and prevention of the related diseases – obesity, early atherosclerosis, ischemia, etc. The main thing – gradually to increase the speed and duration of occupations.

Systematical occupations of aerobics not only allow to increase the level of muscular fitness and make better the condition of cardiovascular system, but also they bring a lot of joy to a person, who is making it.

The term «aerobic» is borrowed from physiology where it is used when determining the chemical and power processes ensuring muscle work. It is known that at excitement of a muscle during physical activity the metabolism, occurs in him, represents the difficult system of chemical reactions. Processes of splitting of difficult molecules on simpler are combined with processes of synthesis (restoration) of the rich energy of substances. One of these processes can go only in the presence of oxygen, that is in aerobic conditions. At aerobic processes it is developed the bigger

amount of energy is considerable, than at anaerobic reactions. Carbon dioxide and water are the main products of disintegration at an aerobic way of development of energy and easily are removed from an organism by means of breath and sweat. Therefore types of physical activity, the exercises stimulating increase in consumption of oxygen during performance, are widely used for improving occupations.

This occupation doesn't demand great efforts of will. Great importance have : the rules of creation of occupation, medical control and self-checking in the course of occupation, distributions of loading .It isn't necessary to have a big loadings and solve all objectives at once.

The term «aerobic» means «the oxygen living in air» or«using». Aerobic exercises belong to such types of physical activity when oxygen availability is necessary for a long time. They impose on an organism requirements forcing him to increase oxygen consumption. Favorable changes in lungs, heart and vascular system result. It is possible to tell that regular trainings by aerobics increase ability of an organism to pass air through lungs, increase the general blood-groove, and blood carries out one of the main functions more effectively - oxygen transport.

1.2 Why is it necessary to be engaged in aerobics?

The efficiency of aerobics is conventional now. The aerobics is a set of exercises on endurance which proceed rather long and connected with achievement for balance between the needs of organism for oxygen and its delivery. The answer of an organism to the increased need of oxygen is called training effect or physical shifts. There are some shifts:

- the total amount of blood increase so the possibility of transport of oxygen getting better that's why person show a big endurance at intense physical activities. The volume of lungs increases and some researches connect the increase of volume of lungs with higher life expectancy;
- the cardiac muscle becomes stronger and provided with the blood better;

- the maintenance of lipoprotein of high density increases, the relation of total cholesterol of LDL decrease that reduce the risk of development of atherosclerosis;
- bone system becomes stronger;
- aerobics help to cope with physical and emotional stress;
- the working capacity increase;
- systematic aerobics occupations is the real way to lose the weight or to keep fit. This aspect attract young girls. We should notice that not only physical activity helps to lose weight, but the main factor is balanced diet;
- coordination is getting better also. Coordination is coherence of activity of different organs and body systems cause by a combination of processes of excitement and braking in the central nervous system. For example, when bending an extremity excitement of the nervous system sending impulses to flexor muscles causes at the same time braking of the system connected with extensor muscles there is at the same time a relaxation of flexors facilitates bending of an extremity. An important role in development of coordination is played by a cerebellum and a vestibular mechanism. The cerebellum, the department of a brain of the person participating in coordination of movements and preservation of a pose of a tone and balance of a body is functionally tied also with regulation of vegetative, touch, adaptation and trophic and conditionally reflex activity of an organism. The vestibular mechanism (Latin of Vestibulum - the ear), body, accepts changes of position of the head and a body in space and the direction of the movement of a body in and the person; part of an inner ear. A vestibular mechanism - a difficult receptor vestibular analyzer.

1.3 The main types of aerobics

Every year the popularity of aerobics only increase, new types of this kind of sport appear and there is more people who wants to become healthier and correct

shape of body. In a combination with a healthy food and a positive psychosocial spirit this sport can make real miracles.

Basic or classic aerobics allows to make muscles stronger and also improve bearing. Classic aerobics is a cyclic physical exercises in which 2/3 of muscles are involved. For achievement of positive results aerobics exercises should take no less then 20-30 minutes. This cyclic exercises aimed on the development of general endurance and characterized by important changes of blood circulatory system and respiratory system. All movements are making on rhythmical music which stimulates work of respiratory system. The classical type helps a lot to fight against excess weight. Also dancing directions can be there too.



Step aerobics appeared in late 90's and found fans very fast. The feature of this type that special platform for movements is used. With it help it's possible to carry out jumping's up and steps to the sound of music and to carry out other exercises. The platform can be used also for stomach exercises, a back and hands. A step aerobics an excellent method for prevention of arthritis and osteoporosis. Very effectively strengthens buttocks, hips.

Slide aerobics. An interesting word in the world of aerobics. All exercises more athletic also differ from other types of this sport. The trainer is claimed that the slide aerobics will help to lose excess weight and to provide an excellent training for all groups of muscles. All exercises are directed to endurance, coordination and strength of mind.





The dancing aerobics can include several different types. All types of dancing aerobics based on use of various dancing movements under rhythmical music. To dancing aerobics belly dance, city jam, a tango aerobics, a Latina, funk aerobics and hip-hop belongs and also other types.

Sports aerobics. For those who love a variety. It is mix of acrobatics, gymnastics and dances. Such exercises will keep yours in a form.



The water aerobics usually passes in the pool. Will help to restore health and to lose weight. Water creates



favorable conditions for sports activities. Big loadings are absent and therefore it is much easier to carry out exercises. Such trainings are useful for pregnant, elderly people and those who have problems with joints and a backbone. Occupations in water will help to

relax. During the trainings there is a skin massage, doesn't allow to collect to lactic acid. Experts claim that trainings in water - one of the most effective for weight loss.

Power aerobics. This type has still subspecies: bodi-styling, bodi-shaping, pamp-aerobics, etc. All types directed to use during the trainings of encumbrances and the power equipment.



Fitball aerobics– all exercises are made with the help of an inflatable big ball. It is possible to do many various exercises on it. They help to correct a figure, to improve flexibility, to correct bearing shortcomings. Such type of trainings will be good for pregnant women.

*Mix aerobics.*All types of aerobics are mixed. All exercises have merged together. It is interesting and effective.

Flecks-aerobics aimed at the development of flexibility of all body. All occupations take place usually in a relax music with the muffled light. Such situation weakens and establishes on the necessary harmony. Very often during the occupations use candles or lamps with essential oils. Such occupations will help to strengthen and stretch muscles.



The cycle aerobics is special exercises which are carried out on exercise bikes or the facilitated bicycles which are intended for the enclosed space.

The aerobics brings not only benefit, but also a lot of pleasure. Each subspecies of aerobics effective also have a lot of advantages.

2. FITBALL AEROBICS

2.1. What is it fitball aerobics?

Fitball (fitball, «fit» – improvement, «ball» – a ball) – the Swiss gymnastic wonderful ball, the simple and effective exercise machine which perfectly solves improving problems for all family.



Occupations a fitball aerobics - one of the trend directions of improving aerobics in the course of which the elastic ball with a diameter from 45 cm to 95 cm which are suitable to maintain weight to 300 kg is used. The size of a ball reaches according to growth.

This type of improving aerobics has appeared in the late fifties years of the XX century the Swiss physiotherapist Susan Klyaynfoegelbakh who has undertaken to apply an elastic ball to rehabilitation of patients.

Now a fitball aerobics is the popular direction in fitness, purposeful on: development of physical qualities and musical and rhythmic and creative abilities; correction of diseases of the musculoskeletal device and joints is developed by coordination abilities.

The ball for occupations about a fitball aerobics - multipurpose, can be used in sets of exercises as a subject, a support or a shell.

Sets of exercises a fitball aerobics depending on the planned tasks have various focus: for strengthening of muscles of hands and a humeral belt; for strengthening of muscles of an abdominal tension; for strengthening of muscles of a back and a basin; for strengthening of muscles of legs; for increase in flexibility and elasticity of joints and blood circulation of all bodies; for development of function of balance and a vestibular mechanism; strengthening of a backbone and formation of a correct posture; strengthening of cardiovascular and respiratory system; stress and bad mood is reduced; is excellent prevention of such diseases as a varicosity, osteochondrosis, arthritis corrects figure disadvantages; for relaxation and a relaxation.

Today every fitness club have fit ball occupations on it timetable.

2.2 Advantage of occupations fitball aerobics

As they say all ingenious is simple. Can be therefore the invention of a fitball is compared to the invention of a simple wheel.

Fit ball occupations give an unique opportunity to influence muscles of back and a backbone.

The fitness haven't known such exercises which at the same time can rise a tone of muscles, improved their mutual coordination, develop balance improving work of vestibular mechanism and in addition worked for relief of all body at all body at once.

The movement is a life. This «funny» colorful the inflatable machine will help to return the lost mobility, which we all had in the childhood, will recover your muscles and will present them full-fledged life.



Occupations with fit ball train the vestibular system, develop coordination, remove additional load of a backbone. This factors helps people with an excess weigh to make exercises with fit ball. The ball perfectly «unload» joints, gymnastics is useful at a varicosity, osteochondritis and arthritis.

Fitball aerobics occupations are sparing, but very effective way to shape up. It's a unique, because practically there is no shock load of the lower extremities. That's why even elderly people, people with varicosity, with knee and talocrural joints damages and big weight excess can going to fit ball aerobics.

Even in big gyms ball is using as service equipment.

Fitballgymnastics, as fitball aerobics has magnificent effect on all organism. Power and semi-dynamic exercises, stretching, exercises on balance with a ball will bring a variety on fitness occupations. The simplicity of occupations with the ball helps to master a fit ball aerobics and gymnastics in house conditions with video trainer.

2.3. A fitball – a complex of effective exercises for a slim figure

If you decided to train with a fitball and also bought it, before you will start exercises, at first, we advise you to master the ball directly. It's necessary if you are new in the world of fitness and if you don't have any coordination skills. First, you should learn how to sit and how to keep a balance on the ball. Then you should start studying the starting positions of sitting and lying on the ball. Devote to it several days, and when you will get that it's enough and ball don't slip from your body, you can start to performance the exercises.

2.3.1. Warm- up

Three options of warm –up can be used .

First option: muscles should be warmed up very good, carry out running on the spot, jumps on the place, swinging and circular motions by hands, inclinations, squats; at the end of warm-up execute jumps on the jump rope at the moderate rate from 1 to 3 minutes. Warm up shouldn't be less then 5 minutes- until you won't feel that you are well warmed.

Second option: for warm up you should sit on fit ball and jump on it 2-3 minutes, don't forget to keep you back straight. Then, moving your return round its pivot-center at first clockwise, then - counterclockwise. Begin with several turns gradually leading up their quantity to 8-10 times. Then make 10 rockings back and forth, putting into operation generally buttocks and hips. Finish warm-up by slow rockings of hips (too 10 times) on the one hand aside as though you carry out «belly dance» on a fitball.

Third option: this option can be used not only as warm-up, but also as cardiotrening (with only that difference that this cardiotrening is carried out, sitting on a fit ball).

Exercise 1

Starting position: sit down on the edge of fit ball, put your legs on the wide of your shoulders, knees precisely over feet. The back should be straight, the chin is raised, shoulders are lower, shovels are cramped together. Stomach should be pulled in, thorax should be straighten. At the initial stage hands should hold the ball, then hands can be put on the knees. From a starting position start jump up on the ball, highly rising the knees, like your are running on the spot or march. It's possible to lift hands. To increase load of legs, carry out run without jumpings,



at the same time you hold hands along a body. Carry out exercise within 1 minute.

Exercise 2

From a starting position jump up on the place a little and fall by widely placed legs. At the same time raise hands up, having slightly parted them in the parties. Make this exercise about ten times.

Exercise 3

From a starting position jump up and develop a trunk to the right at an angle 45°. At the same time raise legs and cramp them together, then lower and take away to the left. Transfer hands to the right down. Again jump up and develop a trunk in other party. Continue to alternate turns. To complicate exercise, add rocking on a ball on the one hand aside. Execute exercise about 10 times (on 5 times in each side).

Exercise 4

From a starting position put legs slightly more widely than shoulders, and support by hands a ball. Jump up and transfer body weight to the right leg, having bent a knee so that it was directly over an anklebone. Left straighten and take aside. At you the attack has to turn out to the right. The right hand lean on a ball, left extend up. Repeat from other leg, having returned back to a starting position. Execute exercise about 10 times (on 5 times in each side).

Exercise 5

From a starting position bend hands and raise elbows to shoulder height, forearms are developed vertically up, brushes are compressed in fists. Jump up and take a left step, having at the same time tightened the right knee to a breast and having touched him by the left elbow. Again jump up and lower a knee, having quickly taken a right step and having touched by the left knee of the right elbow. Execute exercise about 10 times (on 5 times in each side).

2.3.2 Exercises for breast muscles

These effective exercises won't allow your breast to get out of a tone and a shape. And to undertake exercises never late. In the world of fitness there are two types of effective exercises on breast muscles: cultivation of hands with dumbbells

and a press of dumbbells or a bar (in house conditions it is possible to use bodi-bar instead of a bar). Are included in the section of presses also an extraction.

Changing a tilt angle you will be able to direct load of certain sites of a pectoral muscle. If to carry out exercises in situation when the head is above a trunk, the top part of muscles (under a clavicle) if to carry out in horizontal position will work, the central part of a pectoral muscle will become stronger; if to work in an inclination when the head below, then under loading appears a bottom of pectoral muscles.

Exercise 6. Bending extension of hands.

Starting position: adopt the provision of an emphasis on straight arms, a fit all under shins. The back makes one straight line with legs. Deliver to a palm slightly more widely than shoulders. From a starting position, bending elbows, slowly fall below. Then return to a starting position. If you are beginner, and it is difficult for you to keep balance on a ball, rely on him not shins, but hips. Over time move a ball closer to anklebones.



Attention: cave in in a waist by no means; if there was pain in bones, place fingers wider, or be wrung out on stones of strong clenched fists.

Exercise 7. Cultivation of hands in an inclination.

Starting position: settle on a fitball at an angle in 45° to a floor. Knees are bent, feet are widely placed, the basin has to be below a knee. Take dumbbells palms to each other - the neutral successful fellow. From a starting position raise hands up directly over shoulders. Slightly bend elbows. Slowly you part dumbbells in the

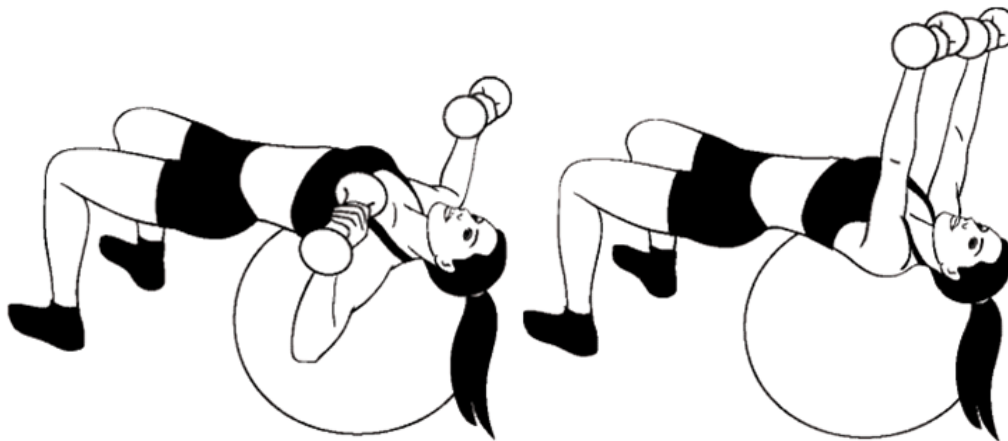


parties to a parallel with a floor. Return to a starting position.

Attention: don't incline a trunk more than on 45° , differently to work not muscles.

Attention: cave in in a waist by no means; if there was pain in brushes, place fingers wider, or be wrung out on stones of strong clenched fists.

Exercise 8. Press of dumbbells.



Starting position: adopt the provision of an emphasis on a fitball a back. To keep balance, put feet slightly more widely than shoulders. Muscles of a trunk are strained, the back and hips are strictly parallel to a floor. Hold dumbbells on outstretched arms directly over shoulders.

From a starting position inhale and slowly bend elbows, lowering dumbbells to shoulders. Exhaling, lift dumbbells up. Try not to reduce dumbbells and not to knock them.

Execution options.

1. Execute a press, having disposed the case at an angle 45° to a floor. Position of a body has to be similar to situation when performing cultivation of hands. At the same time knees have to be bent, feet are strong pressed to a floor, the basin is located below a knee. In opposite the equipment of a press is similar.

2. Instead of dumbbells it is possible to use a bar or bodi-bar. Accept horizontal position a back on a ball, take a bar (bodi-bar) on outstretched arms directly over shoulders. Inhale, hold the breath and lower a signature stamp to a breast. Without pause squeeze out a bar on straight arms. Exhale. Besides without pause slowly straighten hands. Repeat exercise. Here it is very important to provide the rhythmical

movement up-down, without unnecessary pauses in the top and lower point of amplitude. But also it is impossible to accelerate: he has to be moderate and quiet.

Weight and number of repeats depends on level of your level of physical training. If you are beginner your pectoral muscles will be used to loading only within 1,5-3 months. Therefore, it is necessary to begin with 1-2 approaches till 10-12 of repetitions in everyone. It concerns all exercises on pectoral muscles. Approximately in one or one and a half months finish the number of approaches to 3. And in several weeks increase the number of repetitions to 15. Have a rest between approaches for 1 or 2 minutes. When you feel that exercises come easily, increase loading (i.e. the weight of a bar or a dumbbell) by 10%.

As for loading weight, at the initial stage begin with 2-3 kilograms. Start a press of a bar (bodi-bar) only when you well master exercises with dumbbells.

If you have some experience working with weight, then select such number of kilograms that you could carry out 3-4 approaches on 15 repetitions, and, the last repetitions have to be given you with some effort.

2.3.3 Exercises for legs and buttocks

Which of women doesn't dream about harmonious legs? And if your forms are far from an ideal, then it is yet not an occasion to hide them under free trousers or a long skirt. In fitness everything is possible especially as muscles of legs are considered as the most pliable. Actually everything is very simple: carry out exercises, look after legs and the 100 percent result is guaranteed to you.

And what if legs short and not «grow from ears» if knees not of an ideal form? It is all the same necessary to train. Of course, the fitness can't make your legs several centimeters longer, but beauty is a balance of proportions. And believe, no matter what length f your legs are if they have sport form: strong calves, have no excess fat and folds. Such legs can't be unattractive. Usually women are dissatisfied with a type of the legs for two reasons: they either very thick or very thin.

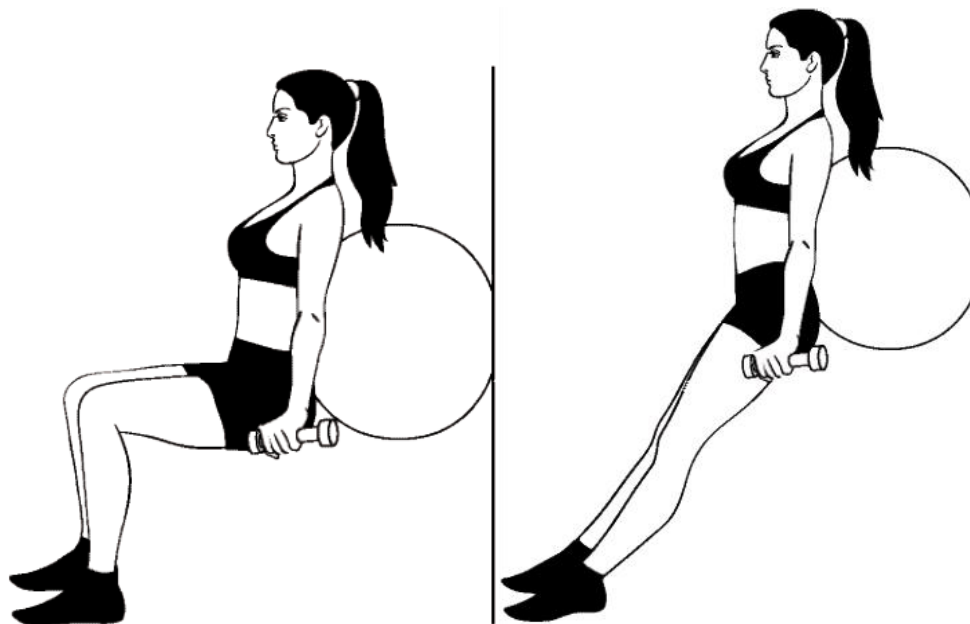
In both cases fitness can help to make your legs and buttock to a perfect form. If it seems to you that your legs are too fat, so for all proposed exercises you need to

add a lot of aerobics – four times a week. Also you need to pay attention on rope jumping, which will help you not to only burn your fat but also your legs will have an ideal form. Programme of cardio trainings you will find in a gym. If your legs are thin you need to have not much aerobics practice-1-2 a week.

You shouldn't believe in myth that after such trainings your legs become to muscular. Vice versa, you will raise muscular tone you will get rid of cellulitis and you will begin to look even better.

Exercise 9.

Exercise strengthens quadriceps, muscles of buttocks, calves and the back surface of hips.



Starting position: take dumbbells (weight from 2 to 5 kilograms, depending on your level of training), get up directly, legs at shoulder length. Drive a fitball a back into the corner and take several steps forward.

Execute squats from this situation until hips don't become parallel to a floor. To efforts of buttocks return to a starting position.

Attention: densely drive a ball a back into the corner, then you will have no feeling that you can fall back.

At the initial stage begin with the 12th approaches 12 repetitions in everyone. In process of development of muscular force add 3 approaches and increase the number

of repetitions to 15. Then increase the weight of dumbbells to 7 kilograms. Have surely a rest between approaches of 30 seconds - 1 minute.

Attention: densely drive a ball a back into the corner, then you will have no feeling that you can fall back.

At the initial stage begin with the 1-2th approaches 12 repetitions in everyone. In process of development of muscular force add 3 approaches and increase the number of repetitions to 15. Then increase the weight of dumbbells to 7 kilograms. Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 10

Exercise effectively influences muscles of legs and buttocks.

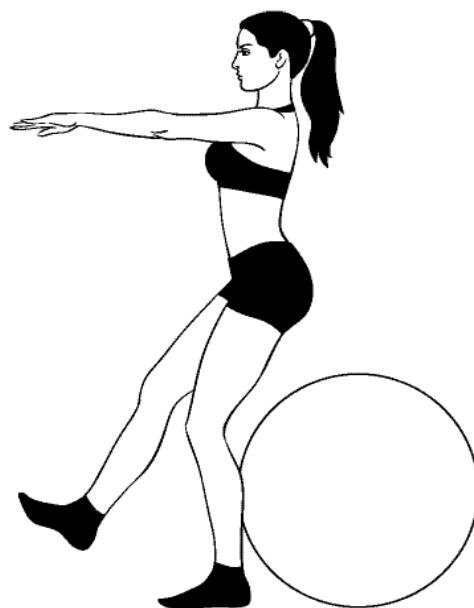
Starting position: get up a back to a fitball, extend hands before yourself, raise foot of the right leg and you hold over a floor at the height of 20-30 cm, not above, otherwise it will be difficult for you to keep balance.

From a starting position, slowly bending a knee of the left leg, execute squats before easy contact with fitball surface buttocks. That the ball didn't slip out from under your body, press him to a support or stand in the room corner.

Attention: the head needs to be held expressly exactly, for this purpose arrange at the level of eyes some bright subject and continuously you look at it.

At the initial stage begin with 1-2 approaches till 10-15 of repetitions. And, carry out squats at first on one leg, then - on another. It will also be considered as one approach. In process of development of muscular force change a big ball for a ball of the smaller size and increase the number of approaches to 3-4, and the number of repetitions - to 15. Then it is possible to begin to use dumbbells, beginning from 2 kg and gradually increasing up to 7 kg your ultimate goal - to carry out deep squats on one leg without fitball and any support.

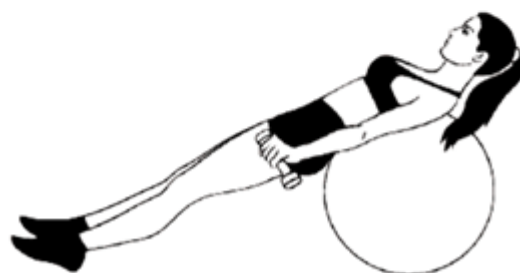
Have surely a rest between approaches of 30 seconds - 1 minute.



Exercise 11

Exercise involves muscles of buttocks, the internal and external surface of hips and also strengthens muscles of a press and the lower and average departments of a back.

Starting position: put a fitball closely to a wall, sit down on it and, crossing, fall down that direct legs leaned on heels, and a back and buttocks on a ball. From this situation raise hips that the body has formed a straight line from shoulders to toe, and strain a press. Reduce and lower shovels. Be late into 3 accounts and slowly return to a starting position. Again be late into 3 accounts, then repeat exercise.



Attention: buttocks have to be compressed, muscles of a press are strained, the thorax is straightened, and legs direct; the body has to be bent only in coxofemoral joints. At the initial stage begin with 1-2 approaches on 12 repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions - to 15. Then it is possible to begin to use dumbbells weighing from 2 kg, gradually increasing up to 5 kg have Surely a rest between approaches of 30 seconds - 1 minute.

Exercise 12

Exercise effectively influences muscles of buttocks and also press muscles.

Starting position: lay down on a floor, straighten legs and put calves on a fitball, strain a press and raise buttocks up so that the body from heels to shovels made one straight line.



From this situation slowly raise the right leg up, then lower. Do the same the left leg - it is and there will be one repetition. Then lower buttocks on a floor and execute exercise the set number of times.

At the initial stage begin with 1-2 approaches till 8-10 of repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions - till 12-15.

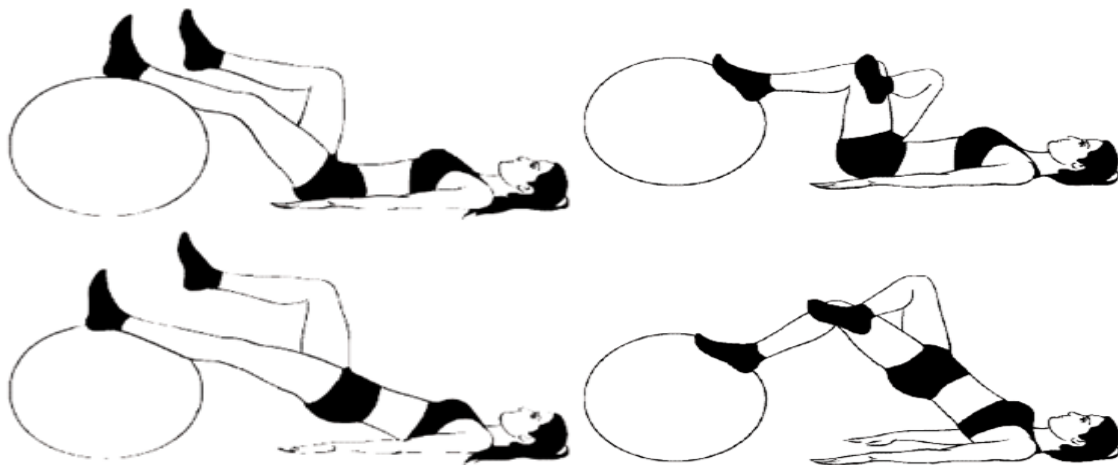
Have surely a rest between approaches of 30 seconds - 1 minute.

Execution option.

Starting position: the leg is bent in a knee at an angle 90° , the shin is parallel to a floor, the knee which is slightly tightened to a breast. Execute raising of buttocks up at first with the bent right leg, the left straight line. Then, having changed position of legs, again execute exercise. You can vary exercise and option of her execution at various trainings or to carry out this or that exercise on one occupation.

Exercise 13

Exercise effectively strengthens muscles of buttocks and popliteal sinews.



Starting position: lay down on a floor, straight arms are extended along a trunk. Bend the left leg at right angle and deliver to stop on a fitball so that the shin was parallel to a floor. Bend the right leg, having taken away a knee to the right, put an anklebone on the left hip, the right shin has to be parallel to a floor. Now your right leg is before left.

From this situation strain a press, but relax a back and shoulders. Planting the feet against a fitball and keeping balance hands, execute raising of a basin and a

middle part of a back on 45° from a floor up, shovels have to be pressed to a surface. Try not to cave in in a waist, and to store a trunk in the most direct situation. Be late in the top point for 1-2 seconds, then slowly fall to a starting position.

Execute the set number of repetitions, then change legs and repeat exercise.

At the initial stage begin with 1-2 approaches till 10-12 of repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions - till 15-20. Then it will be possible to use loads of a leg.

Have surely a rest between approaches of 30 seconds - 1 minute.

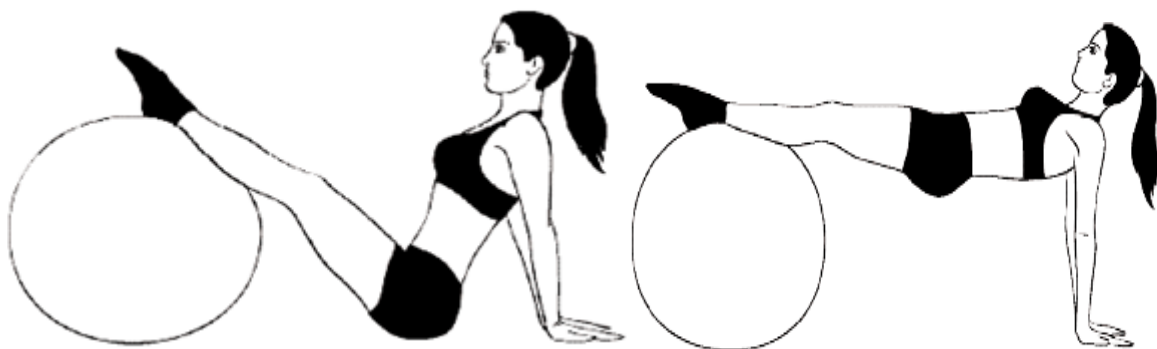
Attention: doesn't throw back the head; you don't seek to raise buttocks as it is possible above up - your body has to make one straight line from shoulders to fingertips.

At the initial stage begin with 2 approaches till 8-10 of repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions - till 12-15.

Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 14

Exercise effectively strengthens muscles of buttocks.



Starting position: sit down on a floor, an emphasis hands behind, the lath are straight and located on a fitball. From this position with effort of muscles of a buttock bring a basin, make your trunk straight. It is detained for several seconds and return to a starting position.

Attention: doesn't throw back the head back; Don't try to raise buttocks very high - your body has to make one straight line from shoulders to a finger-tip.

On initial a stage begin with 2 approaches till 8-10 of repetitions in everyone. In process of development of muscular force increase the Number of approaches to 3, and the Number of repetitions - till 12-15.

Have surely a rest between approaches of 30 seconds - 1 minute.

2.3.4 Exercises for arm's muscles

Exercise 15

Exercise is effectively strengthened by biceps of hands (the work of humeral and two-headed muscles).



Starting position:take a dumbbell in the right hand the lower successful fellow, get up knees on a floor with a fitball, having nestled on him hips and a stomach, shoulders are relaxed, not to hang the head. A back part of forearms and elbows conveniently arrange on the opposite side of a fitball, a hand almost direct. To facilitate raising of a dumbbell, clasp with the left hand the right wrist.

From this position strain a press and, bending the right hand in an elbow, lift a dumbbell to a shoulder. Slowly straighten a hand and lower a dumbbell down. Having executed set the number of repetitions, change hands.

Attention:during the exercise your fitball shouldn't shak, densely press to him upper thighs and a trunk; and you watch that the neck wasn't extended forward.

At the initial stage begin with 2 approaches on 12 repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions - to 15.

Dumbbell weight at the initial stage - 2-4 kg, on more advanced - 5-6 kg. To increase loading, carry out slow extension of a hand with a big weight of 8-10 seconds.

Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 16

Exercise strengthens biceps and muscles of a lobby and a middle part of shoulders and also involves top and average departments of a back.

Starting position: take dumbbells in hand and lay down a stomach on a fitball, having straightened legs and resting toes against a floor, feet - is a little wider than shoulders.



From this position strain a press and tighten a tailbone forward, thus you will achieve neutral position of a backbone. Bend hands, press elbows to a trunk, palms are directed inside.



Cramp shovels and straighten hands up and in the parties at the level of ears; your body has to be similar to a letter «Y». Return to a starting position. Execute 1 approach from 12 repetitions. Then from the same starting position part hands in the parties at the level of shoulders: your body has to be similar to a letter «T». At the same time up to the end not to straighten elbows. Return to a starting position and repeat 12 times.

In process of development of muscular force increase the number of approaches to 15. Then gradually add even on one approach on each movement. Has to make the weight of dumbbells: at the initial level of 1-2 kilograms, on more advanced - 3-5 kilograms with gradual increase up to 6-8 kg. Have surely a rest between approaches of 30 seconds - 1 minute.

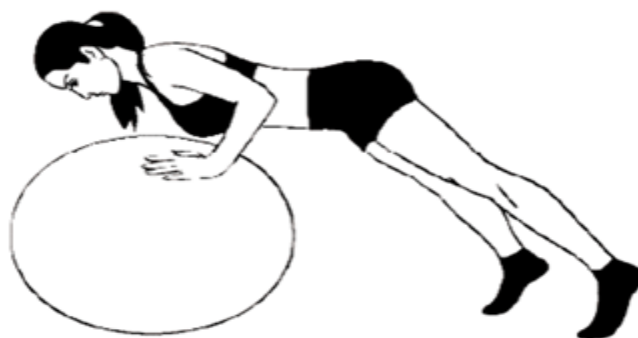
Exercise 17

Exercise effectively strengthens triceps, involves muscles of the top department of a back, a forward part of shoulders and a stomach.

Starting position: lean straight arms on a fitball, hands at shoulder length. Then depart a little back, having widely placed legs.

From this position strain a press and, bending hands, fall down. At the same time try to hold elbows as it is possible closer to a trunk. Return to a starting position.

At the initial stage begin with 1-2 approaches on 10 repetitions. In process of development of muscle bulk increase the number of approaches to 3-4, and the number of approaches till 12-15, then to 20. Have surely a rest between approaches of 30 seconds - 1 minute.



Attention: keep your back straight: for increase the loading it is possible to be wrung out, leaning on finger-tips of legs; not to part elbows in the parties.

Exercise 18

Exercise effectively influences back muscles, triceps and deltoid muscles of hands.

Starting position: sit down on a fitball and take a medical ball (instead of a ball it is possible to use dumbbells) in hand. Cross legs forward until on a fitball there are no head, a neck and an upper back. At the same time knees have to be bent and be precisely under anklebones.

From this position strain a press, so it will be easily to keep balance. Then take away a ball for the head, holding it on one line with a trunk, up to the end not to straighten elbows. Lowering shovels, slowly lift a ball over a breast. Repeat the movement.

At the initial stage begin with 1-2 approaches till 10-15 of repetitions in everyone. In process of development of muscular force increase the number of approaches to 3, and the number of repetitions till 12-15. The weight of a ball or a dumbbell has to make 2-4 kilograms. Have surely a rest between approaches of 30 seconds - 1 minute.



Attention: if it is difficult for you to keep balance, for bigger stability lean legs in a floor plinth.



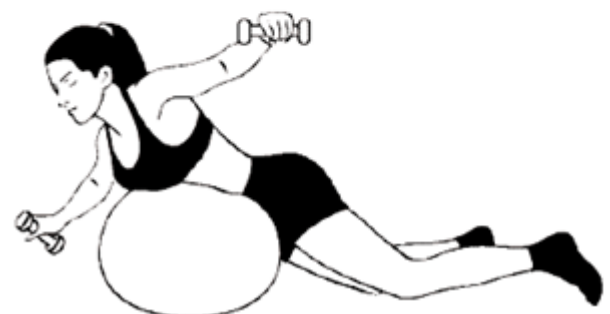
2.3.5 Exercises for back muscles

Probably, many of you had noticed that exercises on absolutely different groups of muscles have multipurpose action. For example, studying hands, you with success will pump up back muscles. Therefore in this section there are a little exercises on this fine part of our body. But those exercises which are included into this section will help you to strengthen a backbone, a waist, to have strong muscles of a back and to forget about pain in these parts of a body which especially are tired at inactive, a sedentary life.

Exercise 19

Exercise effectively strengthens backbone muscles-flexors thanks to what the risk of traumatizing a back at inclinations or turns of a trunk will decrease.

Starting position: take dumbbells and lay down a stomach on a fitball, leaning on the bent knees. Hands are freely lowered down, elbows are half bended, palms are directed inside. Twist a tailbone forward that



the bottom of a stomach has been pressed to a fitball. Don't hang the head, you look at a floor.

From this position raise the head and shoulders. Slowly part hands in the parties on the level of shoulders. At the same time don't allow a deflection in a waist.

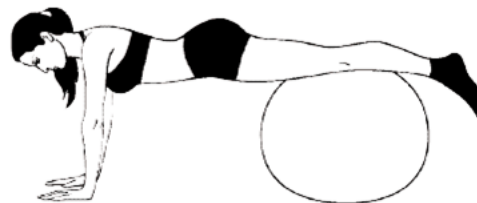
Then raise the left hand and the left shoulder even above, having twisted a backbone to the right. The right hand isn't mobile.

Stay in this position for five counts and come back to the starting position .Make four repeats to the one side. Then have a rest for one minute. Make this exercise again, but to the other side. Little by little increase the number of turns to 8-10. In process of development of muscular force increase take the heavier dumbbells, but the number of turs shouldn't be more then four.At the beginning the weight of dumbbells should be 1.5-2 kg.

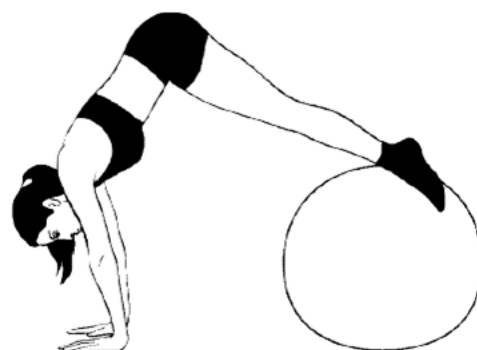
Exercise 20

The exercise effectively strength extensions of the spine and muscle of the press.

Starting position:Lay down on ball a stomach on a fitball, having delivered to a palm on a floor at shoulder length. Crossing hands, transfer the case a little forward so that the fitball has appeared under knees, and the body has formed a straight line. Legs straight lines, feet together, brushes precisely under shoulder joints. To keep balance, strain trunk muscles, but the head and a neck have to be relaxed.



From this situation strain a press and, without bending legs, bring hips up so that they have rested raising of feet against a fitball. Slowly return to a starting position.



At the initial stage begin with 1-2 approaches till 8-10 of repetitions in everyone. Then if desired it will be possible to increase the number of repetitions to 12 times, and the number of approaches - to the 3rd.

Attention: rolling a ball legs, tighten legs closer to a breast and you don't transfer weight to hands.

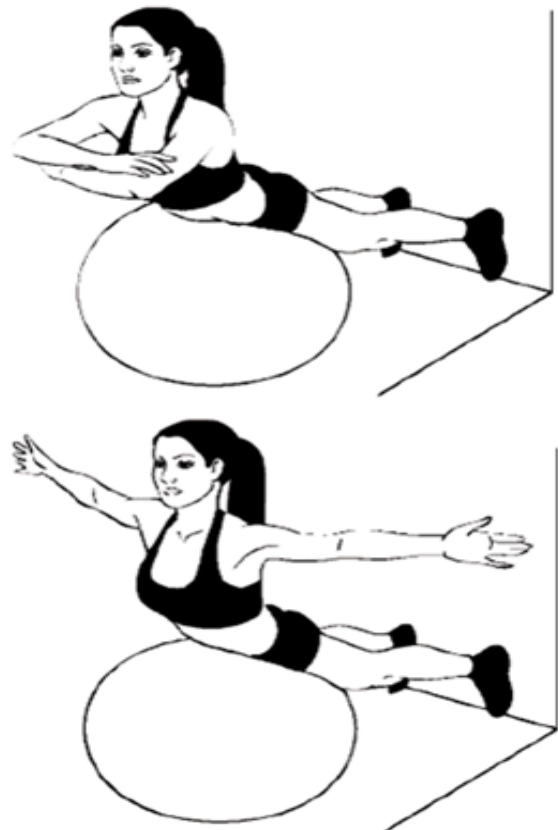
Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 21

Exercise effectively strengthens extensors of a backbone, muscle of the top department of a back, back bunches of deltoid muscles and also muscles of a press and buttocks.

Starting position: lay down on a fitball a breast, a stomach and hips, plant the feet against a wall. Put hands before a breast, having freely lowered elbows.

From this position strain a press and tighten a tailbone forward to record position of a trunk. Then straighten a back and legs, having torn off from a fitball of a hand and a breast. Part hands in the parties and lower shovels. Develop palms forward, thumbs of hands are directed up. The slow movement develop brushes thumbs down, lower a trunk on a fitball and put hands before a breast, don't bend a leg. At the initial stage begin with 1 approach in 10 repetitions. In process of



development of muscular force increase the number of approaches to the 2-3rd, and the number of repetitions - till 12-15.

Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 22

Exercise effectively strengthens lumbar department of a backbone.

Starting position: lay down on a fitball a stomach, legs are straightened, an emphasis are crossed by toes in a floor, hands on a nape, the case is lowered down. From this situation slowly raise a trunk to one line with direct legs. Then also slowly return to a starting position.

If you the beginner, limit amplitude of the movement to one line with legs. Then it will be possible to raise a trunk with a full amplitude, but not higher than the line of legs. When you feel that exercise comes very easily, take additional loading in hand.



At the initial stage begin with 2 approaches on 8 repetitions in everyone. In process of strengthening of a waist bring number of approaches to the 3rd, and the number of repetitions - to 12. Then increase number of repetitions to 15, to 20.



Have surely a rest between approaches of 30 seconds - 1 minute.

Exercise 23

Exercise effectively strengthens the broadest muscles of a back and involves muscles of a back part of shoulders.

Starting position: take dumbbells in hand, become behind a fitball and lean on it the second hand.

At the same time one leg has to be ahead, the second slightly behind.

From this situation incline a trunk forward, a back equal. The hand with loading is straightened down.



Strain a press and slowly, bending an elbow, tighten dumbbells up. During performance try that the hand has been pressed to a trunk. Return to a starting position. Execute the set number of repetitions and change position of hands.

At the initial stage begin with 2 approaches till 8-10 of repetitions in everyone. In process of development of muscular force increase the number of approaches to the 3rd, and the number of repetitions till 12-15. Has to make the weight of

dumbbells: at the initial level of 2-4 kilograms, at more advanced level - 4-6 kilograms. Have surely a rest between approaches of 30 seconds - 1 minute.

2.3.6 Exercises for an abdominal press

Why all professionals of fitness unanimously urge us to carry out stomach exercises on a fitball? Because the last researches have proved that the movements with a ball much more productively than habitual exercises. First, the fitball doesn't give the chance to distract, otherwise it is possible to lose balance and to fall to a floor. Secondly, the instability of a ball includes in work tens of additional muscles stabilizers which when performing twisting on a floor don't get into gear. Besides twisting on a fitball is less traumatic for a waist and a backbone. Generally, it is plus much and if there is desire to have a slender waist and a flat stomach, we advise to refuse outdated techniques and to pass to very productive performance of exercises on this wonderful exercise machine.

Exercise 24

Exercise effectively processes all muscles of an abdominal press.

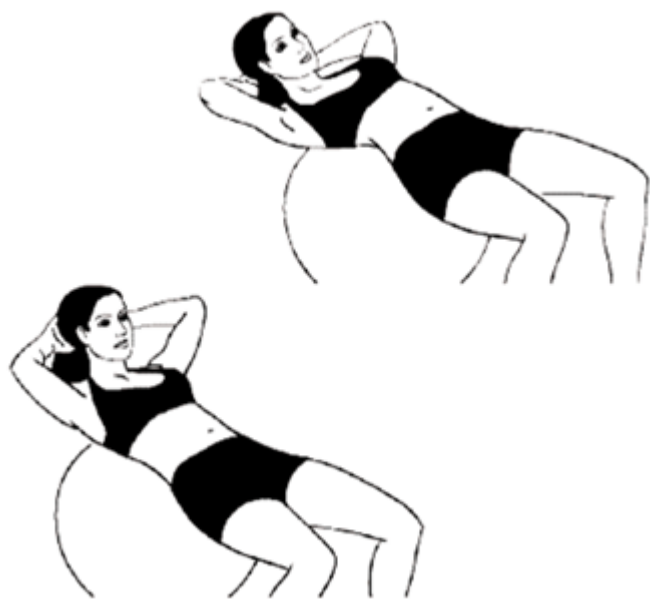
Starting position: sit down on a fitball, feet exactly stand on a floor, cross hands on a breast. Crossing legs, carefully fall forward so that the back lay on a ball, and knees were under bones, hold the head straight, without rejecting back. From this position begin with the isolated effort of muscles of a press slow twisting: at first head, then shoulders, then middle of a back. To feeling of full reduction of belly muscles. Expressly slowly return to a starting position.



At the initial stage begin with 1-2 approaches till 8-10 of repetitions in everyone. Rest between approaches of 45 seconds.

When this exercise become very easy for you, you pass to more complicated option.

The same starting position, with only one exception - hands are bent in elbows and located on a nape, not to cross fingers. Exercise performance to similarly above

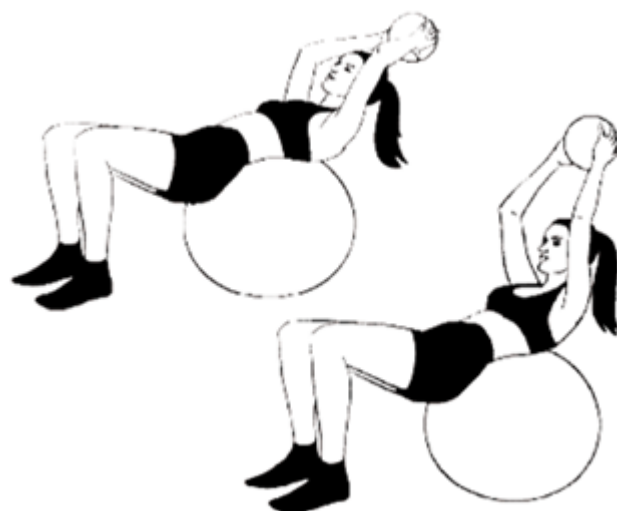


described option. At this stage carry out exercise in 3 approaches on 12 repeats in everyone. Reduce rest between approaches to 30 seconds.

The third option is even more difficult, you pass to it only when with ease to carry out the second option of exercise.

The same starting position, with only one exception - hands are straightened behind the head so that they settled down

close to ears, in hands a medical ball (it is possible to replace dumbbells weighing 1-3 kilograms or to use additional loading). At this stage carry out exercise in 2-3 approaches till 12-15 of repetitions in everyone. If you don't want to use additional loading, carry out exercise just with the hands extended behind the head: 4 approaches at first on 15, then on 20 repetitions. During exercise don't bend the hands.



Exercise 25

Exercise effectively works direct and oblique muscles of a stomach.

Starting position: sit down on a fitball, feet exactly stand on a floor, knees are bent. Crossing legs forward, lay down a back on a ball, put the right hand on a nape.

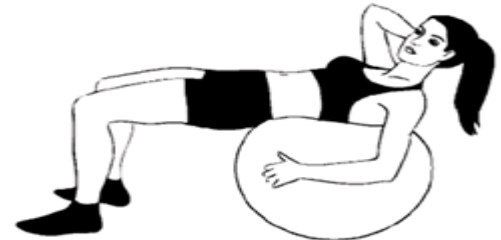
From this situation, straining muscles of buttocks, push out a basin up. Pull in in yourself a stomach and lift the top part of a trunk. Then turn the right shoulder to the left. Execute all repetitions at first from the right hand, then from left.

At the initial stage begin with 1-2 approaches till 8-10 of repetitions in everyone.

In process of development of muscular force increase the number of approaches at first in the 3rd, then in the 4th, and the number of repetitions at first to 15, then to 20.



Have surely a rest between approaches: at the initial stage of 30 seconds - 1 minute, on more complicated - reduce rest time to a minimum.



Exercise 26

Exercise effectively studies all muscles of a press and also involves muscles, bend legs.

Starting position: lay down on a back and clamp a fitball between anklebones,



legs direct. Throw hands for the head and grasp any support.

From this situation, straining muscles of a press and strong holding a ball legs, tighten knees to a breast. Then tear off buttocks from a floor. Be late in this situation for 1-2 seconds then slowly return to a starting position.



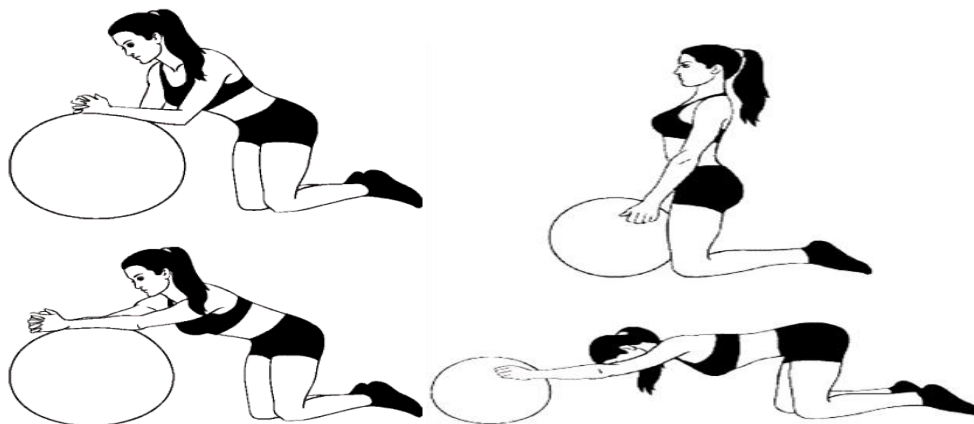
At the initial stage begin with 1-2 approaches till 12-15 of repetitions in everyone. In process of development of

muscular force increase the number of approaches to the 3-4th, and the number of repetitions to 20. Have surely a rest between approaches: at the initial stage of 30 seconds - 1 minute, on more complicated reduce rest time to a minimum.

Attention: raise legs only by effort of muscles of a press; when performing try not to allow a deflection in a waist; to increase loading, use weighting compounds on anklebones, but reduce the number of repetitions to 12 times.

Exercise 27

Exercise effectively processes all muscles of a press, involves muscles of buttocks, a middle part of a back and also a muscle, bend hips and popliteal sinews.



Starting position: kneel, the trunk and hips are perpendicular to a floor, brushes are put in the lock. Without changing position of hips, lean both hands on a fitball. From this situation begin to roll away a ball forward. When the tilt angle of a trunk comes nearer to 45 degrees, stop, make a deep breath, pull in a stomach and, keeping a natural bend of a backbone, continue to roll away a ball from yourself until you feel tension of muscles of a stomach. Then return to a starting position.

Attention: not to lose balance and not to fall a stomach on a floor, speed of making exercise on a fitball has to be minimum.

At the initial stage begin with 2 approaches on 12 repetitions in everyone. In process of development of muscular force increase the number of approaches to the 3rd, and the number of repetitions to 15. Have surely a rest between approaches of 30 seconds - 1 minute.

This option of execution differs only in a starting position of hands: you lean on a fitball the hands compressed in a fist.

At a training it is possible to carry out any of two options or to carry out both that and another.

Exercise 28

Exercise effectively for press muscles.

Starting position: lay down on a back having extended legs. Straight arms lift a fitball over the head.

From this situation strain a press and tear off the head, a neck and shovels from a floor, at the same time moving a ball to legs.

Turn off a trunk even more forward and clamp a ball legs. Lowering the top part of a trunk on a floor, at the same time raise legs with the clamped ball above over yourself. Then intercept a ball hands and again lift it over the head, and lower legs in a starting position.

At the initial stage begin with 1-2 approaches till 12-15 of repetitions in everyone. In process of development of muscular force increase the number of approaches to the 3rd.

Further the fitball can be replaced with a medical ball that allows to increase loading weight at first 1-2.

3 INDEPENDENT OCCUPATIONS OF PHYSICAL EXERCISES IN STUDENT'S DAILY REGIME

Involvement of student's youth to occupations physical culture - an important contribution in formation of a healthy lifestyle. Together with broad development and further improvement of organized forms of work by physical culture, independent occupations physical exercises are crucial. Modern difficult living conditions are dictated by high requirements to biological and social opportunities of the person.

All-round development of physical abilities of people by means of organized physical activity (a physical training) helps to concentrate all internal resources of an organism on achievement of a goal, increases working capacity, strengthens health.

Muscles make 40-45% of body weight of the adult playing sports. During evolutionary development function of the muscular movement has subordinated to itself a structure, functions and all activity of other bodies, the systems of an organism therefore it very sensitively reacts both to decrease in physical activity, and to heavy, excessive physical activities.

Systematic, corresponding a sex, age and the state of health, use of physical activities - one of obligatory factors of the healthy mode of life. Physical activities are represented by a combination of the various physical actions performed in everyday life and also the organized or independent occupations physical culture and sport united by the term «physical activity». At a large number of the people who are engaged in cerebation restriction of physical activity is observed.

Numerous these sciences and practitioners demonstrate that real introduction among students of independent occupations physical exercises insufficiently. There are objective and subjective factors defining requirements, interests and motives of inclusion of students in vigorous sports activity. Treat objective factors: a condition of material sports resources, orientation of educational process on physical training and the content of occupations, level of requirements of the training program, the identity of the teacher, the state of health of students, training frequency, their duration and emotional coloring.

If motives, inducing to independent occupations, were created, then the purpose of occupations is defined, can be it: active recreation, strengthening of health, increase in level of physical development and physical fitness, implementation of various tests, achievement of sports results.

3.1 Forms and content of independent occupations

After definition of the purpose the direction of use of means of physical culture and also a form of independent occupations physical exercises are selected.

The concrete directions and organizational forms of use of independent occupations depend on a sex, age, the state of health, the level of physical and sports fitness of students. It is possible to allocate hygienic, improving and recreational, All-preparatory, sports, professional and applied and medical the directions. Forms of independent occupations physical exercises and sport are defined by their purposes and tasks. There are three forms of independent occupations: morning hygienic exercises, exercises during the day, independent training occupations.

The morning hygienic exercises join in a daily routine after awakening from a dream in the morning.

It is necessary to include exercises for all groups of muscles in complexes of morning hygienic exercises, exercise on flexibility and breathing exercises. It isn't recommended to carry out exercises of static character, with excessive load of endurance (for example, long run to exhaustion). It is possible to include exercises with a jump rope, an expander and a rubber plait, with a ball (game elements in volleyball, basketball, soccer with small loading).

By drawing up complexes in their execution physical activity on an organism gradually, with a maximum in the middle and in the second half of a complex is recommended to raise. Loading decreases to the end of performance of a set of exercises and the organism is brought to rather quiet state.

Increase and reduction of loading has to be wavy. Each exercise should be begun at slow speed, with a small amplitude of movements and gradually to increase it up to the average sizes.

Between series relaxation or slow run exercise is carried out from 2-h-3-h exercises (and at power - after everyone) (20-30 c).

The dosage of physical exercises, that is increase or reduction of their intensity and volume, is provided:

- change of starting positions;
- change of amplitude of movements;
- acceleration or delay of speed;
- increase or reduction of number of repetitions of exercises; inclusion in work of bigger or smaller number of muscular groups;
- increase or reduction of pauses for rest.

The morning hygienic exercises have to be combined with self-massage and hardening of an organism. At once after performance of a complex of morning exercises it is recommended to make self-massage of the main muscular groups of legs, a trunk and hands (5-7 min.) and to perform water procedures taking into account rules and the principles of hardening.

Exercises during the day carried out in breaks between educational or independent occupations. Such exercises warn the coming exhaustion, promote maintenance of high performance without overstrain for a long time. Performance of physical exercises within 10-15 min., in each 1-1,5 hour of work, renders twice the bigger stimulating effect on increase in working capacity, than passive rest twice to bigger duration.

Physical exercises need to be carried out in well aired room. It is very useful to carry out exercises in the open air.

It is possible to give independent training classes individually or in group of 3-5 people and more. Group training more effectively, than individual. 2-7 times a week 1-1,5 hours are recommended to be engaged. Less than 2 times a week as it doesn't promote increase in level of fitness of an organism are inexpedient to be engaged. The best time for trainings - the second half of day, in 2-3 hours after a lunch. It is possible to train also in other time, but not earlier than through 2:00 after a meal and not later than an hour to food or before withdrawal for sleeping. It isn't recommended to train in the morning right after a dream on an empty stomach (at this time it is necessary to carry out hygienic gymnastics). Training occupations have to have complex character, that is contribute to the development of all set of physical qualities and also strengthen health and increase the general operability of an organism. The specialized character of occupations, that is occupations the chosen sport, is allowed only for the qualified athletes.

Walking and running. The most available and useful means of a physical training are walking and run in the conditions of a forest park in the open air.

Walking - a natural type of movements in which the majority of muscles, sheaves, joints participates. Walking improves a metabolism in an organism and stirs up activity cardiovascular, respiratory and other systems of an organism. The intensity of physical activity when walking is easily regulated according to the state of health, physical fitness and fitness of an organism. The efficiency of action of walking on a human body depends on length of a step, speed of walking and its duration. Before a training it is necessary to make short warm-up. When determining

physical activity it is necessary to consider heart rate (pulse). Pulse is counted in the course of short-term stops during walking and right after the end of a training.

Finishing training walking, it is necessary to reduce gradually the speed that in the last 5-10 min. walking of heart rate. I was on 10-15 beats/min. it is less specified in the table. In 8-10 min. after the end of a training (after rest) the pulse rate has to return to the initial level which was prior to a training. Increase in a distance and speed of walking has to accrue gradually. At good health and free performance of training loads it is possible to pass to alternation of run with walking that provides gradual increase of loading and gives the chance to control him in dependence with the individual opportunities.

Run - the most effective remedy of strengthening of health and increase in level of physical fitness and also strengthening of cardiovascular system.

It is possible to recommend the following modes of intensity at run on health and heart rate. The choice of duration of run depends on readiness of students.

Mode I. Comfort zone. It is used as the main mode for runners of beginners, with an experience up to one year. The runner the feeling of pleasant heat accompanies, legs work easily and freely, breath is carried out through a nose, the runner without effort supports the chosen speed, nothing disturbs him, there is desire to run quicker. Athletes use this mode to be restored after the intense trainings. Heart rate right after run 20-22, in 1 min. 13-15 blows for 10 sec.

Mode II. Zone of comfort and small efforts. For runners with an experience 2 years. The runner feels pleasant heat, legs continue to work easily and freely, breath deep mixed through a nose and a mouth, slight fatigue disturbs, the speed of run remains with small effort. Heart rate right after run 24-26, in 1 min. 18-20 blows for 10 sec.

Mode III. Zone of an intense training. For runners with an experience 3 years, for athletes are as the training mode. To the runner hot, legs, especially hips grow heavy a little, at breath doesn't gasp on a breath, ease has disappeared, it is difficult to keep speed, speed remains will tension. Heart rate right after run 27-29, in 1 min. 23-26 blows for 10 sec.

Mode IV. Competition zone. For the runners participating in run competitions. To the runner very hot, legs heavy also «stick», the breath strained with a big frequency, stirs the excessive tension of muscles of a neck, hands, legs, run is carried out hardly, despite efforts, run speed on the finish falls. Heart rate right after run 30-35, in 1 min. 27-29 blows for 10 sec.

From all this rich arsenal of training funds of runners for average and long distances only three are suitable for fans of jogging:

1. Easy uniform jogging from 20 to 30 min. at pulse of 120-130 blows in 1 min. For runners of beginners it is the main and only means of a training. The trained runners use him in fasting days as facilitated trainings, promoting restoration.

2. Long uniform run on rather flat route from 60 to 120 min. at pulse of 132-144 beats/min. once a week. It is applied to development and maintenance of the general endurance.

3. Cross run from 30 to 90 minutes at pulse of 144-156 beats/min. 1-2 times a week. It is applied to development of endurance by only well trained runners.

Occupation begins with warm-up lasting 10-15 min. She is necessary «to warm» muscles, to prepare an organism for the forthcoming loading, to prevent injuries.

Beginning run, it is important to meet main conditions - the rate of run has to be low and uniform. Run has to be easy, free, rhythmical, natural, without tension. It automatically limits the speed of run and does it safe. It is necessary to choose for itself the optimum speed, the speed. This especially individual concept - the speed which suits only you and nobody any more. The speed is usually made within two-three months of occupations and then the long time remains.

«To run – one» - the most important principle of a training, especially at the beginning. Otherwise it is impossible to determine the optimum speed of run. «Only cheerfulness!» - this principle means what loading, especially at the beginning of the occupations, shouldn't cause the expressed exhaustion and decrease in working capacity. Feeling of fatigue, drowsiness in the afternoon – a sure sign of the fact that loading needs to be reduced.

It is possible to regulate intensity of physical activity on heart rate. An important indicator of fitness of an organism to running loadings is the speed of restoration of heart rate right after the end of run. For this purpose the pulse rate in the first 10 sec. after the end of run is defined, it is recalculated for 1 min. and is accepted to 100%. Good reaction of restoration decrease in heart rate in 1 min. for 20%, in 3 min. - for 30%, in 5 min. - for 50%, in 10 min. - for 70-75% is considered.

The cross-country is a run under natural conditions on the cross-country terrain with overcoming rises, descents, ditches and other obstacles. It cultivates ability to be guided and to move quickly on long distances on the unfamiliar area, to overcome natural obstacles, the ability is correct to estimate and distribute the forces.

Swimming. Do swimming in the summer in open reservoirs, and in the rest of the time - in the closed or outdoor pools with water heating.

During an initial stage of occupations it is necessary to increase gradually time of stay in water from 10-15 to 30-45 min. and to try to obtain to overcome during this time without stops in the first five days 600-700 m, in others - 700-800, and then 1000-1200 m. For those who swim badly, at first it is necessary to float a distance 25, 50 or 100 m but to repeat it 8-10 times. In process of mastering technology of swimming and education of endurance to pass to overcoming the specified distances. Improving swimming is carried out evenly with moderate intensity. Heart rate right after swim distances for age of 17-30 years has to be within 120-150 beats/min.

Distance, m	Time (mins, seconds.)	The number of occupations in a week
550	10.00-15.00	6
725	13.20-20.00	4
825	15.00-22.30	4
900	16.40-25.00	3

The rhythmic gymnastics is complexes of the simple all-developing exercises which are carried out, as a rule, without pauses for rest, at fast speed, accompanied by modern music. Complexes join exercises for all main groups of muscles and for all parts of a body: swing and circular motions by hands, legs inclinations and turns of a

trunk and head; squats and attacks; simple combinations of these movements and also exercises in an emphasis, a squat, in a prone position. All these exercises are combined with jumps on two and on one leg, with running on the spot and small advance in all directions, dancing elements.

Thanks to the fast rate and duration of occupations from 10-15 to 45-60 min. the rhythmic gymnastics, except impact on the musculoskeletal device, exerts a great influence on cardiovascular and respiratory systems. Depending on solvable tasks complexes of rhythmic gymnastics of different orientation which can be carried out in the form of morning exercises, a sports pause during studies, sports warm-up or special occupations consist. Having a set of habitual gymnastic exercises at the order, everyone can independently make to itself complex.

Daily occupations various forms of rhythmic gymnastics give the greatest effect. Occupations are more rare than 2-3 times a week are inefficient.

The athletic gymnastics is the system of the physical exercises developing force in combination with versatile physical training. Occupations athletic gymnastics contribute to the development of force, endurance, dexterity, form a harmonious figure.

Development of force is provided with performance of the following special power exercises:

- exercises with dumbbells (mass of 5-12 kg): inclinations, turns, circular motions by a trunk, press, squats, etc.;
- exercises with weights (16, 24, 32 kg): a raising to a shoulder, on a breast, one and two hands, a push and a press of one and two weights, breakthrough, throwing of the weight on the range, juggling by the weight;
- exercises with an expander: straightening of hands in the parties, bending and extension of hands in elbow joints from a standing position on the expander handle, extraction of an expander to the level of shoulders;
- exercises with a metal stick (5-12 kg): costing breakthrough by various successful fellow, a press, sitting, from a breast, because of the head, bending and straightening of hands in elbow joints;

- exercises with a bar (the weight is selected individually): raising of a bar to a breast, on a breast, with sit-ups and without squats, etc.;
- various exercises on exercise machines and block devices, including exercises in the isometric and conceding operating modes of muscles.

Each occupation should be begun with walking and slow run, then to pass to the gymnastic all-developing exercises for all groups of muscles (warm-up). After warm-up the complex of athletic gymnastics, including exercises for a humeral belt and hands, for a trunk and a neck, for muscles of legs and exercise for formation of a correct posture is carried out. In a final part slow run, walking, relaxation exercises with deep breath are carried out.

Occupations on exercise machines. Exercise machines are used as addition to traditional occupations with physical exercises and sport, do them more emotional and various. They are used as prophylactic of a hypokinezya and hypodynamia, selectively influence various parts of a body, muscular groups, respiratory and cardiovascular systems, strengthen and contribute to their development, is good means of restoration after exhaustion.

3.2 Features of independent occupations for women

The organism of the woman has anatomo-physiological features which need to be considered when holding independent occupations physical exercises or a sports training. Unlike men's in a female body less strong a structure of bones, less general development of muscles of a body, wider pelvic belt. Development of muscles of an abdominal tension, a back and a pelvic bottom is of great importance for health of the woman. A number of features, characteristic of an organism of the woman, are also in activity cardiovascular, respiratory, nervous and other systems. All this is expressed by the long period of restoration of an organism after physical activity and also quicker loss of a condition of fitness at the termination of trainings.

Features of a female body have to be considered strictly in the organization, contents, a technique of holding independent occupations. It is recommended to avoid sharp concussions, instant tension and effort, for example, at occupations jumps and

in exercises with burdening. Useful exercises in a sitting position, and lying on a back with a raising, branch, reduction and circular motions of legs, with a raising of legs and a basin to the provision «birch», any squat.

When performing exercises it is necessary to increase by force and speed of movements more gradually a training load, to smoothly bring it to optimum limits, than at occupations of men. Functionality of the device of blood circulation and breath at girls and women is much lower, than at men and men therefore load of endurance for girls and women there has to be less on volume and raise on longer interval of time.

Women at occupations physical exercises and sport should carry out self-checking especially attentively.

3.3 Interrelation between intensity of occupations and heart rate

Dispensing of physical activity, its intensity on occupations physical exercises belongs to management of process of independent occupations.

Physical exercises won't bring desirable effect if physical activity isn't enough. Excessive on intensity loading can cause in an overstrain phenomenon organism. At a dosage of physical activity, regulation of intensity of his impact on an organism, it is necessary to consider the following factors:

- ◆ **number of repetitions of exercise.** The bigger number of times repeats exercise, the more loading and vice versa;
- ◆ **amplitude of movements.** With increase in amplitude of load of an organism increases;
- ◆ **the starting position** from which exercise is carried out significantly influences extent of physical activity. Treat him: change of a form and size of a basic surface when performing exercises (standing, sitting, lying), application of the starting positions isolating work of auxiliary groups of muscles (by means of gymnastic apparatus and objects), strengthen load of the main muscular group and of all organism, change of a center of gravity position of a body in relation to a support;

- ◆ **the size and the number** of the muscular groups participating in exercise. The more muscles participate in exercise performance, the they are larger on weight, the physical activity is more considerable;
- ◆ **rate of performance of exercises** can be slow, average, fast. In cyclic exercises, for example, fast speed, in power - slow speed gives big loading;
- ◆ **degree of complexity** of exercise depends on the number of the muscular groups participating in exercise and on coordination of their activity. Difficult exercises require the enhanced attention that creates considerable emotional loading and leads to faster exhaustion;
- ◆ **degree and character** of muscular tension. At the maximum tension of a muscle are insufficiently supplied with oxygen and nutrients, the exhaustion quickly increases.
- ◆ **power of muscular work** (the number of work in unit of time) depends on time of her performance, the speed developing and force at the movement. The more power, the is higher physical activity;
- ◆ **duration and character of pauses** of rest between exercises. Long rest promotes more complete recovery of an organism. On character of a pause of rest can be passive or active.

Training loads are characterized by a number of physical and physiological indicators. Quantitative signs of the performed work (intensity and volume, speed and rate of movements, effort size, duration, number of repetitions) belong to physical indicators of loading. Physiological parameters characterize the level of mobilization of functional reserves of an organism (increase in heart rate, shock and minute volume of blood).

The training loads which are carried out at heart rate of 131-150 beats/min carry to a «aerobic» zone when energy is developed in an organism at sufficient inflow of oxygen by means of oxidizing reactions.

The second zone – «mixed» heart rate of 151-180 beats/min. In this zone are connected to mechanisms of aerobic power supply anaerobic when energy is formed at disintegration of power substances in the conditions of a lack of oxygen.

3.4 Hygiene of independent occupations

Food is under construction taking into account specifics of a type of physical exercises and specific features of the student.

Food has to contain necessary amount of the main substances in the balanced look according to the recommended norms. The diet has to be the most various and include the most biologically valuable products of an animal and a phytogenesis, excellent good comprehensibility, high quality and harmlessness. In the daily mode it is necessary to establish and to strictly adhere to certain time for food that promotes its best digestion and assimilation. It is necessary to eat food for 2-2,5 h prior to a training and in 30-40 min. after his termination. It is necessary to have supper not later than 2:00 to a dream. The plentiful dinner or a dinner just before a dream leads to decrease in comprehensibility of food, involves a bad dream and decrease in intellectual or physical working capacity next day.

Drinking mode. In cases even of partial impoverishment of an organism heavy frustration in his activity can arise water. However water overconsumption also harms an organism.

Daily need of the person for water - 2,5 l, at workers of physical work and at athletes she increases to 3 l and more. In hot season and also in time and after classes physical exercises when sweating amplifies, the need of an organism for water increases a little, thirst sometimes appears. In this case it is necessary to abstain from frequent and plentiful drink, then the feeling of thirst will appear less often, however at the same time it is necessary to make up for loss of water completely. It is necessary to consider that the water drunk at once doesn't reduce thirst as her absorptions and receipts in blood and body tissues occurs within 10-15 min. Therefore, having satisfied thirst, it is recommended to rinse at first an oral cavity and a throat, and then to drink on several drinks of water in 15-20 min.

The best drink, satisfies thirst, tea, especially green which can be drunk moderately hot or in the cooled look is. Well also grain kvass, the aerated and mineral water, tomato juice, dogrose infusion, fruit and vegetable broths satisfy thirst. High properties to satisfy thirst have milk and lactic products (kefir, curdled milk), they contain a lot of necessary for the person of mineral salts and vitamins.

The hygiene of a body promotes normal activity of an organism, improvement of a metabolism, blood circulation, digestion, breath, development of physical and mental capacities of the person. Health of the person, his working capacity, resilience to various diseases depends on a condition of an integument.

Skin is a difficult and important member of the body, executing many functions: she protects the internal environment of an organism, allocates metabolism products from an organism, carries out thermoregulation. In skin there is a large number of the nervous terminations and therefore it provides constant information of an organism on all acting on a body irritants. The impurity of skin, skin diseases weaken her activity that has an adverse effect on the state of health of the person.

Basis of care of skin - regular washing of a body hot water with soap and a bast. At systematic occupations it has to be carried out by physical exercises at least once in 4-5 days and also after everyone an intensive physical training, under a shower, in a bathtub or a bath. It is obligatory to change underwear after that.

Hardening - the system of the actions directed to increase in resistance of an organism to various influences of the environment: cold, heat, solar radiation, fluctuations of size of atmospheric pressure and others.

The basic hygienic principles of hardening are: systematicity, gradualness, accounting of specific features, a variety of the means, a combination of the general (influencing all organism) and local procedures, self-checking. It belongs also to hardening by air, the sun and water.

Clothes. At occupations in summertime the clothes consist of an undershirt and pants, in cool weather the cotton or woolen knitted sports suit is used. During the occupations sportswear with high heat-shielding and wind-shelter properties is used in the winter. At occupations with physical exercises it is necessary for ensuring

hygiene of a body that sportswear has been made of fabrics which have the following properties: hygroscopicity, ventiliruyemost, wind-resistance, warm-resistant, etc. Footwear has to be easy, elastic and well ventilated. It has to be convenient, strong and it is good to protect foot from damages. It is important that sports shoes and socks were clean and dry to avoid scrapes, and at low air temperature - frostbites. In winter season the waterproof footwear having high heat-shielding properties is recommended.

So, human life depends on the state of health of an organism and scales of use of his psychophysiological potential. All parties of human life in the wide range of social life - production and labor, social and economic, political, family and household, spiritual, improving, educational - eventually are defined by health level.

All-round development of physical abilities of people by means of organized physical activity (a physical training) helps to concentrate all internal resources of an organism on achievement of a goal, increases working capacity, strengthens health.

4. Bases of creation of an improving training

4.1 Basic principles of an improving training

Big intellectual and static loadings during the occupations in a higher educational institution, lack of additional physical activity, an inactive way of life, irrational food, lead to the fact that at most of students the sight, activity of cardiovascular and respiratory system worsens, the metabolism is broken, organism resilience to various diseases decreases that leads to deterioration in a condition of their health.

In modern conditions an important task in work on strengthening of health of students, is education at them of interest in occupations physical exercises at the university and at home. In this regard it is necessary to use all forms of physical training at the university and also independent occupations physical exercises in the

hostel or at home for the purpose of increase in physical activity, strengthening of health, improvement of their physical fitness.

Improving training it is based on a number of the specific principles. The most important of them:

1. **The principle of systematicity** assumes the continuity of process of occupations, rational alternation of loadings and rest.

2. **The principle of gradual strengthening physical activities** is based that in the course of the occupations after certain time the human body adapts to loading. Considerable functional reorganizations can achieve in case loading gradually to increase, and, without overloading an organism, and on the contrary, giving it the chance to adapt, cope with longer and difficult tasks. At the same time, in process of achievement standard (or wished) standards of physical fitness stabilization of loading or his temporary decrease is possible.

3. **The principle of availability and individualization** consists in accurate compliance of physical activity to functionality of an organism. Age, sex and level of physical fitness are considered

Loadings shouldn't exceed the level of functionality of an organism, but have to be sufficient to cause improving effect. The improving effect is possible only on condition of achievement of the minimum threshold of frequency, duration and intensity of loading. The size of the minimum threshold very individual that assumes individual approach to the choice of physical activities.

In an improving training distinguish the following main components of loading defining its efficiency:

- 1) character of the used means (a type of physical activity);
- 2) frequency of occupations;
- 3) duration of occupations;
- 4) intensity of the used exercises.

At the choice of a certain type of physical activity it is necessary to know that the training effect depends on degree of loading of systems, that is on intensity, duration and the frequency of training occupations.

The choice of optimum size of a training load and also duration, intensity and frequency of occupations is defined by the level of a physical condition (physical health) of the person. Individualization of training loads in improving physical culture is the most important condition of their efficiency, otherwise the training can do harm.

The main aim of an improving training - increase in cardiorespiratory readiness of the people who aren't playing sports. The cardiorespiratory readiness is also called cardiovascular or aerobic readiness, emphasizing with it that it is about exact accounting of ability of heart to pump over the oxygenated blood to muscles.

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also called cardiovascular or aerobic readiness, emphasizing with it that it is about exact accounting of ability of heart to pump over the oxygenated blood to muscles.

4.2 Types of physical activity

The nature of impact of a physical training on an organism depends first of all on a type of exercises, structure of the motive act.

The most widespread types of physical activity are a walking, run, a cross-country, swimming, walking and ski race, bicycle walks, rhythmic gymnastics, sports and outdoor games, backpackings, athletic gymnastics, shaping, water gymnastics (hydro-aerobics), stretching, a kallanetika, occupations on exercise machines, fitness, oriental martial arts, yoga, morning hygienic exercises, a day sports pause.

The training effect is specific to the carried-out exercises and involved in muscle work. For example, if the person is engaged in run, then these occupations "don't lead to essential increase in force" muscles of the top extremities. In order that it was possible to reach a certain intensity of loading it is necessary to begin occupations with such types of physical activity as walking, driving the bicycle. After achievement of the minimum level of readiness it is possible to include different types of physical activity in the program of occupations.

In improving occupations 3 versions of training programs are used.

In the first option primary use of exercises of cyclic nature of aerobic orientation (walking, run, swimming, driving the bicycle) which are carried out by a continuous method a current of 10-30 and more minutes is supposed.

Application of exercises of high-speed and power character (a cycle training, run at fast speed, sports, gymnastic exercises with burdenings, support on exercise machines) which are carried out in the interval mode is provided in the II option.

In the III option the integrated approach providing application of various joint exercises - races, walking, swimming, gymnastic exercises, games, etc. which stimulate both aerobic, and anaerobic productivity is used.

Experts consider it expedient to use in occupations of improving orientation 3 groups of exercises: on endurance, force and flexibility and to give preference in

power exercises to those which contribute to the development of force of the largest muscles of a body: extensors of a spine column, flexors of legs, extensors of hands, big chest muscle. A necessary condition of development of these groups of muscles - previously to strengthen development of muscles of an abdominal tension and lumbar area.

At young age it is necessary to give preference in an improving training to exercises which improve different types of endurance (the general, high-speed, power). On average and advanced age stimulation of all motive qualities against the background of restriction of high-speed exercises is important.

Correctly balanced improving program including About types of exercises will provide success of occupations and fine health.

Effect of motive exercises on endurance (aerobic loading):

- ◆ help to get rid of the excess weight as in time quicklytrainings the organism intensively produces special substances whichactively participate in splitting of fats;
- ◆ nullify risk of development of a stroke and myocardial infarction, strengthening heart, vessels, respiratory system;
- ◆ promote decrease in level of cholesterol in blood and arterial blood pressure, normalizing blood circulation
- ◆ facilitate stressful states;
- ◆ increase working capacity.

Types of motive exercises: walking, run, swimming, driving the bicycle, all types of aerobics, dances. Effect of power exercises:

- ◆ allow to control weight;
- ◆ contribute to the harmonious development of a body;
- ◆ create a beautiful relief of muscles;
- ◆ reduce risk of development of osteochondrosis, strengthening bone system.

Types of motive exercises: exercises with dumbbells, push-ups, squats, pullings up, occupations on exercise machines which develop force, static exercises.

Effect of exercises on flexibility:

- ◆ protect from a headache, chronic pain in the areabacks and necks which is caused retension by muscles;
- ◆ help to get rid of a stress;
- ◆ reduce risk of injuries extensions, dislocations.

Types of motive exercises: yoga, dances, stretching, kallanetika, various extensions, bendings and inclinations diversely.

5. TECHNIQUES OF ASSESSMENT OF A CONDITION OF PHYSICAL HEALTH AND CONTROL AND SELFCONTROL OF STUDENTS

For assessment of physical health according to the existing representations the following criteria are used:

- ◆ level of physical development, degree of his harmony;
- ◆ level of functioning of the main systems of an organism;
- ◆ level of physical fitness;
- ◆ organism resilience degree to adverse effects (quantity and duration of the postponed sharp diseases);
- ◆ existence or absence of chronic diseases.

Medical control is necessary for observation of the state of health and assessment of influence of systematic occupations physical exercises.

Basic purpose of medical examination (medical control) in defining the state of health of students and to distribute them on medical groups: the main, preparatory, special.

Main group: Persons who have no deviations in the state of health and physical development and also persons with insignificant deviations in the state of health, but with good physical fitness (almost healthy) enter her. They are allowed to

be engaged in physical exercises and sport in full, without restrictions and also to participate in competitions.

To preparatory group include the persons having insignificant deviations in the state of health and physical development (without essential functional changes) and don't possess sufficient degree of physical fitness. The faces carried to group are usually not allowed to competitions, but they can be engaged in physical exercises of improving orientation.

The third group - **special**. She combines the persons having considerable deviations in the state of health and to which only the medical physical culture (MPC) is shown. On the basis of the conclusion of the doctor, in case of lack of contraindications, the admission to occupations is made out by physical exercises.

Self-checking is regular independent observations of a condition of the health, physical development, physical fitness and their changes under the influence of occupations physical exercises and sport. Self-checking can't replace medical control, and he helps to add significantly the data received during medical examination. He has not only educational value, but also accustoms to be mindful more of occupations, rules of personal hygiene, a reasonable daily routine, mode of study, work, life and rest. Self-checking allows to reveal in due time an adverse effect of excessive physical activities on an organism.

In the course of the occupations physical exercises and sport recommend to control periodically such subjective indicators as the health, a dream, appetite, painful feelings and objective indicators characterizing the level of physical development, a functional state and physical fitness.

The health after classes physical exercises has to be vigorous, mood good, there shouldn't be a headache, feeling of weakness and fatigue. In case of lack of a condition of comfort (slackness, drowsiness, irritability, severe muscular pains, lack of desire to train) of occupation it is necessary to stop.

Dream after physical exercisesis usually good, with a vigorous state after him. If it is after classes difficult to fall asleep and the dream uneasy (and it repeats after

each occupation), is the sign of the fact that the applied loadings don't correspond physical fitness and age.

The appetite after moderate physical activities has to be also good. Various deviations in the state of health first of all affect appetite therefore his deterioration, as a rule, is result of overfatigue or an indisposition.

Painis fixed in the place of their localization, character (sharp, stupid, cutting, etc.). And manifestation force.

The most available objective indicators of physical development is growth, a thorax circle, body weight. For today a large number of schemes, scales, types, classifications, estimated indexes is developed for definition and the characteristic of the general sizes, proportions, the constitution and other features of a body of the person.

Information on a functional condition of a human body is necessary for assessment of the **state of health**, identification of features of activity of an organism and for diagnostics of level of fitness.

One of the most important indicators of health vital indicator. It is established direct dependence between the **vital capacity of lungs (VCL** - the volume of the exhaled air) and resistance to diseases. His size measured in liters depends on a sex, age, the size of a body and physical fitness. At men it averages 3,5-5 l, women have 2,5-4 l.

It is possible to define VCLindependently, by a portable lung-tester. And then, it is necessary to divide an indicator of VCL(ml) into body weight (M, kg). The received result is also the **vital indicator (VI)**:

$$VI = VCL / M$$

VCL- the vital capacity of lungs, ml;

M - the body weight, kg.

For women he has to make not less than 45 ml/kg. If the vital indicator is lower, the risk of diseases sharply increases.

Normal amounts of the **arterial pressure (AP)** for women are determined by the following formulas:

$$AP_{sist.} = 102 + 0,7 \times age + 0,15 \times body\ weight$$

$$AP_{diast.} = 78 + 0,17 \times age + 0,1 \times body\ weight$$

For definition of «pulse corridor» (PC), that is individually for you suitable loadings during the occupations physical exercises, use a formula:

$$The\ personal\ computer = (220 - age) \times 0,65 \times 0,8$$

The received figures after the first and second work - optimum indicators of heart rate at which there is an active splitting of fat, but aren't overstrained cardiovascular system.

For example, you are 20 years old.

1) $220 - 20 = 200$

2) $200 \times 0,65 = 130$

3) $200 \times 0,8 = 160$

In this case for the best result heart rate during the occupations can fluctuate between 130 and 160 beats per minute.

It is possible to estimate a condition of cardiovascular system by means of **Martine's test**.

Technique:

1) the pulse rate at rest in 15 seconds is counted and increase on 4,

2) with items - legs at shoulder length, hands forward within 30 seconds are carried out 20 squats;

3) right after the end of squats heart rate in 15 seconds is measured and increase on 4,

4) is defined as far as pulse after loading in comparison with initial has become frequent (as a percentage).

Assessment scale:

- increase in an indicator of heart rate no more than for 25% - good shape of cardiovascular system;
- increase in an indicator of heart rate by 26 - 75%: - satisfactory condition of cardiovascular system;
- increase in an indicator of heart rate more than for 75% - an unsatisfactory condition of cardiovascular system;

Normal restoration of heart rate lasts from 1 to 3 minutes.

The purpose of **orthostatic test**– to determine the level of physical fitness of the person.

Technique:

- 1) to have a rest in a prone position of 5 minutes
- 2) to measure heart rate in 15 seconds and increase on 4,
- 3) to rise and at once to measure heart rate in 15 seconds and increase on 4,
- 4) to compare both indicators.

Assessment scale:

- 0-12 units - the good level of physical fitness;
- 13-18 units - the satisfactory level of physical fitness;
- 19-25 units - lack of physical fitness;
- up to 25 units - overfatigue or diseases.

Some scientists consider the most informative indicator of weight of the person - a fatness indicator, it is calculated on a formula:

$$\text{Fatness indicator} = \text{body M} / \text{Growth of dm}$$

The size 5.5 and more - demonstrates to obesity;

5.4 - 4.6 - about excess weight;

4.5 - 3.6 - norm;

3.6 - 3.2 - weak fatness;

3.2 - 2.9 - exhaustion to see a doctor.

There is also an **index of body weight** which can be calculated by a formula:

$$\text{Index of body weight} = \text{weight} / (\text{growth} \times \text{growth})$$

(The example, the weight of 69 kg, growth 1,58m, therefore, will make your BMI:

$$69: (1,58 \times 1,58) = 27.6)$$

Indicators:

- 19 - 23 - testify about ideal weight;
- 24 - 30 - surplus of weight;
- 30 and more - obesity;
- 19 and below - a lack of weight with threat for health.

Still there is also such formula **of optimum weight** (Brock's formula)

$$\text{Optimum weight} = \text{growth} - 100 + 5$$

And body weight can be calculated on such formula:

$$50 + \frac{(\text{growth} - 150) \times 0,32 + \text{age} - 21}{5}$$

Level of development of motive qualities: speed, dexterity, flexibility, force, endurance, high-speed and power qualities, it is possible to determine by carrying out tests of the training program by physical training and «State tests».

5.1 Rules of holding independent occupations physical exercises

Before beginning independent occupations with physical exercises, find out a condition of the health, physical development and determine the level of physical fitness.

Training surely begin with warm-up, and after the termination, use recovery procedures (massage, a warm shower, a bathtub, a sauna).

Remember that the efficiency of a training will be high if you use physical exercises together hardening with a procedures, you will meet hygienic conditions, the mode for healthy nutrition.

Try to observe the physiological principles of a training: gradual increase in difficulty of exercises, volume and intensity of physical activities, the correct alternation of loadings and rest between exercises taking into account your fitness and shipping of loading.

Remember that results of trainings depend on their regularity as big breaks (4-5 days and more) between occupations reduce effect of the previous occupations. You don't seek for achievement of good results in the shortest possible time. Haste can lead to an overload of an organism and overfatigue. Physical activities have to correspond to your opportunities therefore increase their complexity gradually, controlling reaction of an organism.

Making the plan of a training, include exercises for development of all motive qualities (speed, force, flexibility, endurance, high-speed and power and coordination qualities). It allows to achieve success in the chosen sport.

If you have felt fatigue, then at the next trainings loading should be lowered.

If you have felt unwell or any deviations in the state of health, overfatigue, stop trainings, consult to the teacher of physical training or the doctor.

Try to hold trainings in the fresh air, involve in trainings of the companions, family members, relatives, brothers and sisters.

5.2 How to construct training occupations

Training occupation consists of three parts: preparatory, the main and final. The main part of a training makes 70-80% of all time of occupation. Other 20-30% of activity share between warm-up and a final part during which the intensity of performance of physical exercises consistently decreases.

Each occupation has to begin with warm-up and preparation of an organism for the forthcoming work. It is necessary to increase loading gradually, exercises have to influence the main groups of muscles of hands, legs, trunks. Begin occupations with

exercises which demand the accuracy of movements, the increased speed, dexterity and only then start exercises which demand the maximum force and endurance.

At the end of occupations gradual transition to rather quiet condition of an organism is necessary. Physical exercises shouldn't cause considerable exhaustion.

It is necessary to include in independent occupations: the all-developing exercises with objects (a jump rope, a hoop, weights, dumbbells, a rubber expander) various visa and an emphasis, acrobatic exercises, run, jumps, throwing of a ball, various motive and sports; exercises on various exercise machines, driving by bicycle, etc.

For the correct dosage of physical activity at the beginning of the occupations it is necessary to execute this or that exercise with intensity of a competition to define the maximum result (MR). Then, proceeding from the maximum test (MT) as a percentage determine the size of a training load. These modes are calculated percentage of the maximum result: moderated - 30%; average - 50%; big - 70%; high - 90%. After several weeks of training work the maximum test and if it yields result above former, then calculations of a training load are made repeatedly is again carried out.

For education of own power abilities exercises with use of mass of own body (bending extension of hands, squats, pullings up) exercises with external to loadings (weights, dumbbells, rubber shock-absorbers, exercises on exercise machines), etc. are used.

The first 2-3 months work is carried out with loading of 30-40% of the maximum test. It allows to strengthen the musculocopular device.

In the next 2-3 months it is possible to get to work on loading of 50-60% from maximum and only after that in 5-6 months of occupations pass 75-80% of maximum to work with loading. It within 8-12 repetitions for one approach or a series.

Questions for self-checking

1. What means the term «aerobics»?
2. What positive physical shifts happen in a human body, is regularly engaged in aerobics?
3. What types of aerobics do you know and in what their differences?
4. What is a fitball aerobics?
5. What features of occupations fitball aerobics?
6. What advantage of regular trainings fitball aerobics?
7. Call exercises with a fitball for development and improvement of muscles of a back?
8. Call exercises with a fitball for development and improvement of muscles of hands?
9. Call exercises with a fitball for development and improvement of muscles of legs?
10. Call exercises with a fitball for development and improvement of muscles of an abdominal tension?
11. What forms of independent occupations do you know?
12. Whether there are features at occupations physical exercises for women?
13. What factors need to be considered at a dosage of physical activities?
14. What drinking mode does the person who is engaged in physical exercises have to have?
15. What basic principles of an improving training?
16. What techniques of assessment of a condition of physical health do you know?
17. List control tests on physical training of the student?
18. What means «self-checking at occupations physical exercises or sport»?
19. List subjective indicators of self-checking.
20. Whether it is necessary at regular physical exercises or sport to keep the diary?
If yes, that what information needs to be fixed?
21. What rules of holding independent occupations physical exercises do you know?

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Основний:

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APPLICATION 1

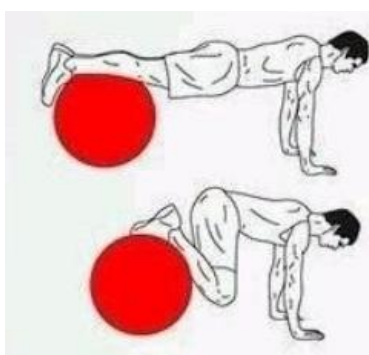
Set of exercises about a fitball to carry out:

- **Level 1** (initial) of physical training - to execute **3 circles** of exercises.
- **Level 2** (average) of physical training - to execute **5 circles** of exercises.
- **Level 3** (high) of physical training - to execute **7 circles** of exercises.

Rest between circles 2 minutes!

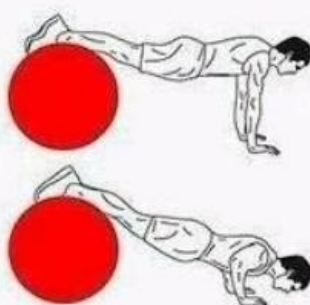
Complex1

Exercise 1



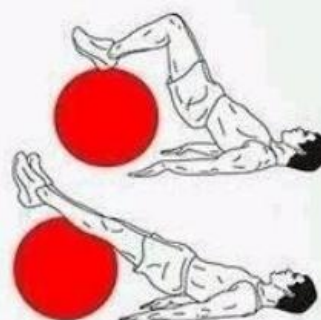
10 times

Exercise 2



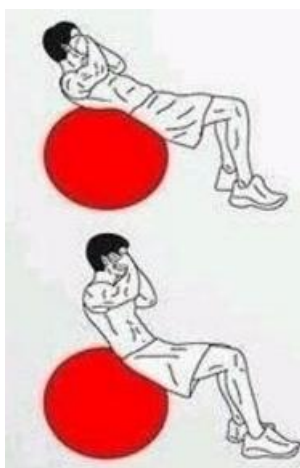
10 times

Exercise 3



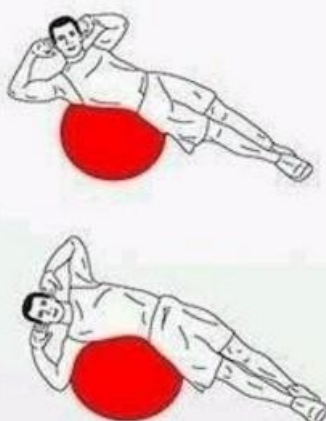
10 times

Exercise 4



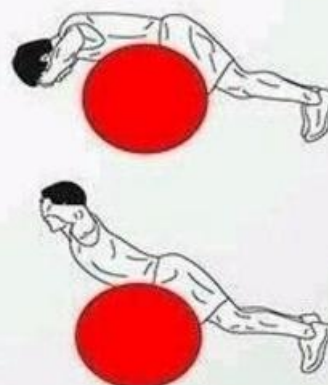
20 times

Exercise 5



20 times

Exercise 6



20 times

COMPLEX 2

Exercise 1



10 times

Exercise 2



10 times

Exercise 3



20 times

Exercise 4



20 times

Exercise 5



15-20 times

Exercise 6



15-20 times

Exercise 7



12-16 times

Exercise 8



12-16 times

Exercise 9



20 times

Exercise 10



20 times

Exercise 11



20 times

Exercise 12



20 times

Exercise 13



10 times

Exercise 14



20 times

Exercise 15



16 times

Exercise 16



10 times

Exercise 17



10 times

Exercise 18



20 times

Exercise 19



16-20 times

Exercise 20



20 times

Exercise 21



20 times

Complex 3

Exercise 1



20 times

Exercise 2



20 times

Exercise 3



20 times

Exercise 4



20 times

Exercise 5



16-20 times

Exercise 6



10 counts 6 times

Exercise 7



10 times for each
leg

Exercise 8



12-16 times

Exercise 9



20 times

Exercise 10



20 times for each leg

Complex 4

Exercise 1



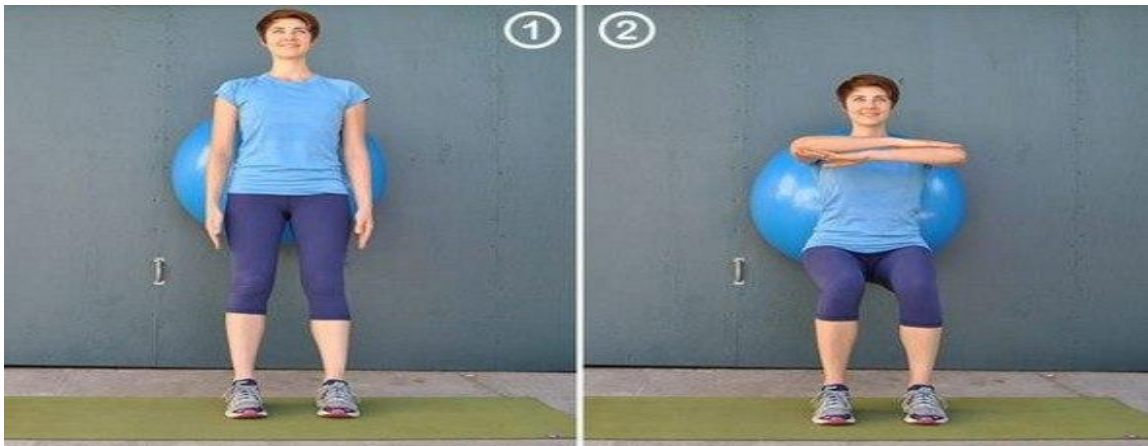
12-16 times for each leg

Exercise 2



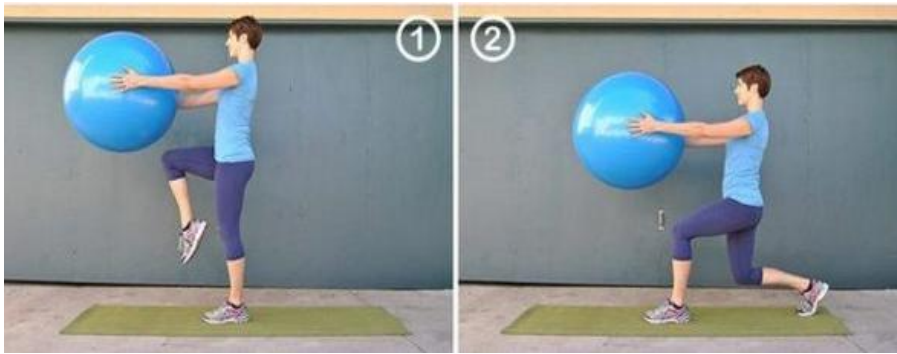
12-16 times

Exercise 3



12 counts 6 times

Exercise 4



16 times for each leg

Exercise 5



10 times for each leg

Exercise 6



16 times for each leg

Exercise 7



12 times

APPLICATION 2

«Parterre» gymnastics as one of forms after-hour physical occupations for students

The term «parterre gymnastics» has appeared not so long ago. Its emergence is connected with development of nonconventional types of gymnastics. The word orchestra seats has come from the French parterre (on the ground): the word par - on, and the word terre - the earth.

Understand different performance of exercises in sitting position as «parterre» gymnastics, lying, on one side, from different emphasis. Generally exercises in orchestra seats are performed with the big range of movements, however for increase in intensity of their action it is possible to use exercises of small range. Exercises can be both active, and passive, static and dynamic, combined, etc. Complexes of "parterre" gymnastics can be quite recommended for application in educational process on physical training for students. Sports occupations for students after hours promote positive changes in physical development (reduction of weight and fatty component), state cardiovascular (decrease HELL and ChSS at rest) and respiratory (increase in ZhEL) systems, aerobic performance of organism (gain MOSCOW TIME), to increase in physical fitness, psychological stability, improvement of figure, gait and bearing, fatigue removal, etc. For girls extent of development of muscles of prelumabdominale which carry out role of elastic belt is of particular importance, fixes position of internals, and bear big loading during pregnancy and childbirth. Systematic performance of specially picked up exercises from different starting positions (sitting, lying, on a lap) promotes strengthening of muscles of stomach and elimination of the undesirable phenomena (stagnation of blood in the lower extremities and abdominal cavity).

The structure of sports occupations with use of «parterre» gymnastics is under construction on the basis of combination to other means of rhythmic gymnastics. For example, the complex of «parterre» gymnastics on muscles of prelumabdominale which is carried out within 20 minutes in the main part of occupation can be

combined with dancing and choreographic warm-up of 5-7 minutes in preparatory part of occupation, or 20-minute complex of «parterre» gymnastics on flexibility and mobility of joints in the main part of occupation, the set of exercises on bearing with gymnastic stick (5-7 minutes) in preparatory part of occupation can precede.

Designing exercises, making complexes for occupations, it is necessary to consider readiness of students, their motor and coordination abilities. Exercises have to be available to them, feasible. Unsuccessful performance of very heavy exercises and fear further to show the inability, inconvenience, especially in the conditions of group occupations, can «beat off» desire to continue to be engaged. To the contrary, the correct and beautiful execution gives pleasure, induces to further occupations, instills self-confidence.

For exercises in orchestra seats starting positions especially carefully are selected. Much attention needs to be paid to statement and the directions of the movement of these or those parts of body.

At the beginning of complex of exercise have local character, providing the training action on small groups of muscles. At the end of parterre series it is necessary to connect the bigger number of muscular groups. At the same time the principles expressing specific regularities of creation of physical training have to be observed, for example, developing the principle of gradual building - the training actions and also the principle of adaptive balancing of dynamics of loadings (the loading consisting during series of occupations it is necessary to regulate concerning dynamics of fitness of students taking into account concrete indicators of adaptation to this loading). The intensity in series depends on the speed of performance, the number of exercises, pauses and rest (passive or active), on what has filled pause (relaxation, suggestion), from duration of series, music, coordination complexity of exercises.

For example, the complex of «parterre» gymnastics aimed at the development of muscular strength of stomach and waist can be constructed as follows:

The I exercise the starting position (**S.P**)- lying on back, having bent legs, hands for the head.

1 - bringing shoulders on 30°, hands forward - to the right (to stretch).

2 - S.P.

3 - 4 - the same to the left,

5 - 8 - to repeat the score 1 - 4,

1 - 8 - pressing palms nape, spring head movements forward.

The II exercise of S.P - lying on back, hands up.

1 - to sit down, having bent the right leg with delight,

2 - without releasing capture, to lay down,

3 - 7 - to repeat the score 1 - 2.

8 - S.P.

1 - 8 - the same other leg.

The III exercise the Same two legs in group.

The IV exercise of S.P - emphasis sitting, having bent legs.

1 - falling by forearm, to straighten legs forward-up,

2 - being unbent, to lay down on right side,

3 - to adopt the provision account 1.

4 - S.P.

5 - 8 - the same in other party,

S.P. - the same,

1 - 8 - serial knee stretching forward-up into each account.

The V exercise of S.P - emphasis sitting on forearms, having bent legs

1 - lowering legs to the right to touch by the left knee of floor (hands we try not to tear off),

2 - S.P.

3 - 4 - the same to the left,

5 - 8 - to repeat the score 1 - 4.

S.P. - the same,

1 - straightening legs and slightly raising them, turn on the right hip.

2 - S.P.

3 - the same in other party.

4 - S.P.

5 - 8 - to repeat the score 1 - 4.

The VI exercise S.P- lying support behind on the bent legs,

1 - 4 - 4 steps hands and legs forward,

5 - 8 - 4 steps hands and legs back.

S.P. - the same,

1 - 8 - jumps on the place, making a start only legs,

S.P. - the same,

1 - 8 - lowering and raising of basin.

S.P. - the same,

1 - 4 - turn on 360 ° through lying support in Accusative to the right,

5 - 8 - the same in other party.

The VII exercise of S.P - to sit, having bent legs, hands are below slightly bent,

1 - swing of the right leg and hand to lay down on back forward.

2 - S.P.

3 - 4 - the same, but swing left leg,

5 - 8 - to repeat the score 1 - 4.

S.P. - the same,

1 - 4 - 4th «steps» forward on buttocks,

5 - 8 - the same back.

The VIII exercise of S.P - lying on back, the right leg forward (vertically),
hands for the head.

1 - 8 - raising and lowering of the top part of trunk - 30°,

1 - 8 - the same, but with the movement of hands forward,

1 - 8 - the same with serial contact with hands of fingers of the right leg,

1 - 8 - the same with contact with the knee head.

S.P. - lying on back, the right leg with capture of knee forward,

1 - raising trunk, swing left forward,

2 - lowering leg, to lay down on back,

3 - 8 - to repeat the score 1 - 2.

S.P. - the same,

1 - having accepted sitting position, to bend right it is cross, concerning socks of legs of floor at the left.

2 - S.P.

3 - 8 - to repeat the score 1 - 2.

Then to repeat the same, but other leg.

The IX exercise of S.P - emphasis sitting on forearms, the right leg forward,

1 - to lower leg to the left (without breaking the plane),

2 - to bend to the right leg, touching by the right hand of the right foot,

3 - to softly return hand to S.P.

4 - to return leg to S.P. (Without breaking the plane),

5 - 8 - to repeat the score 1 - 4,

1 - 8 - the same, but from other leg.

Exercises can be performed on rigid mats or on rugs. The complex is calculated on 15-20 minutes under rhythmical, dance music on average and fast speed for well prepared students.

Each exercise is performed 4-5 times, except exercise of VIII as it is carried out on two times by the right and left leg, and the third time the same exercises are performed by the right and left leg in static position (action is fixed main motive).

That gymnastic exercises have had necessary effect on organism of students, the teacher should try to obtain their exact performance, full range of movements, sufficient muscle tension, the correct breath, ability to fix the corresponding arm positions, legs, trunk, the head. Negligent, inexact performance of exercises, except small exercise stress on organism, does not allow to solve important educational, improving and educational problems.

Occupations «parterre» gymnastics in the mode of independent work for students is effective remedy of physical training as rather fully provides compensation of deficiency of physical activity of girls, besides, the motive of

formation of beautiful figure plays important role in activization of physical activity and stimulates their interest in performance of such exercises. Natural loads of muscles when performing the exercises of «parterre» gymnastics (not mechanical impact on muscle fibers, as at occupations on exercise machines) which are carried out in attractive dancing and imitating manner promotes psychological discharge, removal of emotional pressure.