

# Graciya is beauty afoot

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A beautiful body was always considered an aesthetic value. In Ancient Greece about a beautiful man talked not less than, than about famous warrior or about a statesman. "Health - blessing higher for people, second - to be beautiful addition", sung in one ancient greek hymn. Philosophers and doctors of deep antiquity considered that without gymnastic employments healthy and beautiful being is impossible. An ancient greek philosopher Plato named motion "curative part of medicine", and drevnerimskiy writer and historian Plutarkh - to "Pantry of life". Until now we are delighted by works of ancient sculptors - Apollo Bel'vederskiy, Venus Miloskaya, Gerakl, discus Thrower. From Old times artists of embody (incarnate; personify) in a marble and on a canvas the ideal pictures of wonderful, harmoniously developed human tel. Determining the concept of beauty of human body, scientist of M.F. Ivanickiy along with a slenderness and irreproachability of lines marks and such important qualities as lightness and coordination of motions, myotonus, harmonic development. He considered that it is talent the family, with the rudiments of which a man gives birth and which, as every talent, for ripening and complete bloom needs development and perfection. All of these qualities, even if not complimented with them nature "in the prepared kind", it is possible to produce by the specialized exercises. They are like the chisel of sculptor, "polish" a figure, perfect the gracefulness of motions.

Gotkhol'd Efraim Lessing (1729-81), the German dramatist, theorist of art and literary critic, wrote, that "grace was beauty afoot". Is Graciyu understood as the special property of motion of man is lightness, grace, adroitness, plasticity, and by the basic mean of its education - engaged in the specialized physical drills. Here exercises, directed in the basis on an aesthetic effect, are foremost needed is a gymnastics and choreography, they are based on the mined-out ages system of education of beautiful lines. One of basic directions of these systems is development of flexibility of body.

## Flexibility as physical quality

Flexibility is one of five basic physical qualities of man. It is characterized the degree of mobility of links of locomotorium and ability to execute motions with large amplitude. Success of development of this physical quality contingently: beginning of employments from the earliest childhood and their permanent systematization. The external display of flexibility reflects internal changes in muscles, joints, cardiovascular system, insufficient

flexibility results in violations in a carriage, to the origin of osteochondrosis, deposit of salts, changes in gait. The insufficient analysis of flexibility for professional dancers results in injuring, and also to the imperfect technique. For a successful orientation in a question about development of flexibility, foremost, theoretical validity, related to the different areas of knowledges, is needed: to the theory and method of physical education, anatomy, biomechanics, physiology. For finding of effective facilities of development of flexibility complex approach, uniting the different areas of cognition, is needed, that will help to expose cause-and-effect relationship (genetic relation) connection of all of sides of the studied quality, having the specific.

### Flexibility and factors, influencing on its development

In professional preparation of dancer, flexibility is needed for implementation of motions with large and maximum amplitude. Insufficient mobility in joints can limit the display of plasticity, quickness of muscular (muscle) co-ordination, qualities of force and speed of motions, endurance, increasing expenditure of energy and reducing the economy of work here, that frequently results in the serious traumas of muscles and copulas. Term “flexibility” is utilized for the integral estimation of mobility of links of body, at the evaluation of amplitude of motions in separate joints, it is accepted to talk “mobility”. Scientifically-methodical discipline is “Theory and method of physical culture”, examines flexibility, as multifunction property of locomotorium of man, determining the limits of mobility of links of body.

Factors are condition (stipulate, make conditional) flexibility:

1. Structures of joints
2. To elasticity of muscles, copulas, arthral bags
3. Degrees of activity of protractile muscles
4. Mental condition
5. Half, age
6. Day's periodicals
7. Temperatures of environment and body. Massage.
8. Level of power preparedness
9. Initial position of body and his parts
10. Rhythm of motion.
11. Preliminary tension of muscles
12. Training day.

Main factor, condition (stipulate, make conditional) mobility of joints - anatomic. The terminators of motions are bones. The form of bones in a great deal determines direction and scope of bone in a joint (bending, unbending, taking, adduction, supination and rotation). Flexibility is conditioned the centrally-nervous adjusting of tone of muscles, and also tension of muscles-antagonists. It means that the display of flexibility depends on ability arbitrarily to weaken protractile muscles and strain muscle, which carry out motions, that from the degree of perfection of intermuscular co-ordination.

### Structure of joints, elastic properties of copulas and muscles, nervous adjusting of tone of muscles

By a determinative, there is a type of joint. Connections of bones are in our body:

1. Continuous - I.e. by the different types of connecting fabric. Such connections are bones of skull, breastbone, pelvic bones. Motion in such connections is impossible.
2. Joints are irregular connections, consisting of arthral surfaces, covered arthral gravel (grit), arthral capsule, arthral cavity and synovia.

Joints differ from each other in a due form. Depending on the form of joint the amount of axes of rotation is determined (to mobility):

- spherical joints have three ax of rotation;
- egg-shaped and saddle-like joints - two ax of rotation;
- trochleariform and cylindrical joints - one ax of rotation;
- flat joints do not have axes of rotation, the only limited sliding is possible.

Limit mobility and such anatomic features of joints, as bone ledges, being on the way of motion of arthral surfaces.

Limitation of flexibility is related to the ligamentary vehicle: what thicker than copula and arthral capsule and than anymore pull of arthral capsule, the mobility of the joined segments of body is anymore limited.

### To elasticity of muscles, copulas, arthral bags

Elasticity of tendons and copulas, circumferential a joint has influence on flexibility, they little extensible (elastic; tensile; expansible; stretchable) and possess considerable durability. Influence on flexibility renders elasticity of skin. Limitation of flexibility is created by traumas. Trauma fabric is badly resilient and elastic. The display of flexibility depends not only on elastic properties of muscles, copulas, form and features of joints, but also from ability to combine the arbitrary weakening of protractile muscles with tension of muscles, productive motion (from perfection of muscular co-ordination). What higher capacity of muscular (muscle) co-ordination for tension, the motions are

“easier executed” on flexibility. Insufficient mobility in joints, related to uncoordinated work of muscles, causes “enslaving” of motions, sharply slows their implementation, hampers the process of stretch. In a number of cases exercises of the co-ordinated motions on flexibility, in general can not be executed from the limited mobility. To the decline of flexibility can bring application over of power exercises, if here exercises are not included on a stretch.

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### Degrees of activity of protractile muscles

At tension a muscular (muscle) fibre stretches on complete length, connecting fabric is strained and retains this position, but there are not all of fibres in the stretched state, than anymore in the muscle of the stretched fibres, the it is anymore stretched. Nervous non-free endings in tendons, joints, inform about position, motion, change tension of muscles. A rapid stretch strongly enslaves muscular (muscle) fibres is the protective reaction of organism, protecting muscles from a trauma.

At strong tension at a stretch, there is an extending reaction for avoidance of trauma of copulas, they are weakened. Grounded this the circumstance that at implementation of exercises on stretches, holding for some the time itself in eventual position a few seconds, it is possible to sprawl yet a bit. Therefore at regular employments our flexibility is gradually increased.

What as needed to do, to increase flexibility. At first it is necessary determined, what variety of flexibility needs to be developed - active or passive:

- active flexibility develops at an active and static stretch.
- for development of passive flexibility, the most effective are consider isometric stretches and different techniques of his implementation.

## Day's periodicals

Flexibility is mionectic in the morning, the most high indexes of flexibility are registered a from 12 to 17 o'clock of days and in the conditions of enhanceable ambient temperature. Planning:

- Morning training: exercises on a stretch.
- Daily training: exercises on force, weakening and stretch.
- Evening training: exercises on force, weakening and stretch.

## Half, age

To develop this quality the best of all in 11-14 years, children are more flexible, than adults. Usually for girls and girls it quality on 20-25% is more expressed, than for boys and youths. Flexibility is increased with age approximately to 17-20 years, whereupon amplitude of motions of man diminishes because of age-dependent changes. For women flexibility on 20-30% is higher, than for men.

Mobility of joints less than, than at the persons of muscular (muscle) and pyknic type of build for the people of asthenic type.

## Mental condition

Emotional getting up - at excitation instrumental in the increase of flexibility. Positive emotions and motivation improve realized of development of flexibility, opposite personality-psychological factors worsen. A factor, influencing on mobility of joints, is also the general functional state of organism presently: under influence of local fatigue the indexes of active flexibility diminish on 11,6% (due to the decline of ability of muscles to the complete weakening after preceding reduction), and passive - increased on 9,5% (due to the myotonus of muscles, counteractive tension).

## Temperatures of environment and body, massage

To the factors, to influencing on flexibility, it is necessary to take the temperature of body - at more high temperature the level of flexibility rises. Exactly this is ground a necessity to execute a limbering-up before implementation of exercises on a stretch. Preliminary massage, hot shower, moderate excitation of protractile muscles is also instrumental in the increase of flexibility more than on 15%.

## Training employment

For development of physical quality there is flexibility, it is necessary systematic day after a day to conduct the complexes of the specially directed exercises. In the process of exercises on a stretch in the static mode executor accept a certain pose and retain it

60 - 90 seconds, here they can strain the stretched muscles. Physiological essence of foot-dragging (stretch) consists in that the processes of circulation of blood and exchange of matters activate at this time. Besides the use of foot-dragging (stretch) in a limbering-up, as a mean of preparation of muscles, tendons and copulas to implementation of the by volume or high-intensive program of employments, it is necessary to apply exercises on a stretch in basic part of lesson in pauses between changing of types of activity, that allows to restore breathing, promote mobility in joints, and also at the end of employment, as a mean of renewal after the high loadings and prophylaxis of traumas of locomotorium.

## Tests characterizing mobility in area of spine, in the joints of humeral belt and lower extremities

Test, research

1. in psychology and pedagogics - the standardized task, on results implementation of which judge about psychological and physiological, personality descriptions, and also knowledges, ability and skills of examinee.
2. in physiology and medicine are the trial affecting organism with the purpose of study of different physiological processes in him, and also for determination of the functional state of separate organs, fabrics and organism on the whole.

### 1. Neck department of spine

- Test 1. Forerake of head - in a norm a chin touches a breast
- Test 2. Lay-back of head - in a norm a look is sent exactly up or a bit back
- Test 3. Turn of head aside - in a norm a look must be turned exactly aside
- Test 4. Inclination of head aside - in a norm an overhead edge of one ear is above a lower edge other

### 2. Humeral joints

A humeral belt takes part in respiratory motions, high mobility of his joints influences on the size of inhalation and exhalation. Also for the maintainance of correct carriage.

- Test 1. To heave up arcuated in elbows hands and cross forearm after a head so that fingers were directed to the shoulder-blades - in a norm finger-tips must touch shoulder-blades
- Test 2. To bend a hand an elbow upwards, and other - by an elbow downward, forearm after a head and after the back - in a norm it is necessary to touch the fingers of one hand of fingers other. Changing position of hands

- Test 3. To get up the back to the wall in the distance feet (partner), hands in sides by hands forward - in a norm it is necessary will touch the fingers of wall racemes, not declining a trunk from a vertical line
- Test 4. To get up the back to the chair (partner) and to take hands for his back from above. To move aside forward one leg and to sit down as lower as possible, not tearing away hands from the back of chair and not declining a trunk from a vertical line - in the norm of line of hands and trunk must form a direct corner

### 3. Elbow joint

Natural mobility as a rule suffices and does not require the special training. Strongly developed musculature quite often the complete unbending is impossible in an elbow joint, that is related to the increase of tone of muscles - flexor of forearm. With the poorly developed musculature it is possible to look after a hyperextension even, there is greater part of traumas of elbow joint exactly on their stake.

- Test 1. To get up before a mirror and fish out hands in sides - in the norm of forearm must be continuation of shoulder, to make a straight line
- Test 2. To lay on a table hands, arcuated in an elbow joint on 90 degrees - in a norm at a rotation inward to itself a brush must touch a table a palm, and at a rotation outside - by a dorsum

### 4. Radiocarpal joint

Overhead extremities consist of three departments - shoulder, forearm and brush.

- Test 1. To fish out hands forward and to drop brushes downward - hands must be lines - in a norm a forearm must be perpendicular the back of palm
- Test 2. To put hands on the floor by fingers forward, fully straightening elbows and fingers - in a norm a forearm must be perpendicular a palm
- Test 3. To put hands fingers forward and to take them as possible farther toward little fingers, not tearing away from a table and not bending - in a norm foundation of index finger must appear on one line with the elbow edge of forearm

### 5. Spine

Flexibility of total-body is largely determined mobility of joints of spine.

- Test 1. To get up straight, feet together, will lean as lower as possible forward, dropping hands downward - in a norm finger-tips must touch a floor
- Test 2. Lying on a stomach with the fastened feet, to raise a trunk due to unbending of the back back - in a norm at raising of trunk distance between a pectoral bone (by a breastbone) and floor must make 10-20

- Test 3. To get up the back to the wall, feet in the distance 30 see from each other. Will bend over as lower as possible aside, touching the back of wall. In other the side - in a norm finger-tips must go down hardly below than knees
- Test 4. To sit down on a chair by a person to the back and to resist hands in the knees of the divorced feet. Not changing position, to turn a head and trunk as many as possible back - in a norm at a turn must see a partner, costing in the distance two meters behind

## 6. Thurl

The greatest in a human tel. He is the mestome of attachment of large, well developed muscles. These muscles provide possibility of implementation of various motions - at run, jumps and other Mobility of thurl is important for making of correct position of pelvis, and, and carriages.

- Test 1. Lying on the back, to bend a leg, take it both hands for a knee and to attract as possible nearer to the breast. Other leg remains direct - in a norm a thigh must adjoin with the front surface of trunk
- Test 2. Lying on a stomach, to bend a leg and by hands to endeavour to touch the heel of buttocks. The thigh of arcuated leg must not unstuck from a floor - in a norm a heel must touch a buttock
- Test 3. Bow (down) one leg by a knee inward so that a shin was perpendicular the straightened leg. A pelvis must be immobile - in a norm the knee of arcuated leg must almost touch a floor
- Test 4. Sitting, a trunk is vertical, to divorce the straightened feet as possible wider - in a norm a corner between feet must make no less than 90 degrees
- Test 5. Bow (down) one leg and to put it a foot higher than knee other - in a norm a shin over of arcuated leg can be brought by hands in horizontal position

## 7. Knee-joint

Mobility usually is satisfactory. There is (not) unbend, and hyperextension. In last case a joint becomes especially vulnerable for traumas at sharp tension, unsuccessful landing after jumps. Deviations from a norm in the structure of knee-joints tells also on the form of feet of O-obraznoy. A correction of these defects is most effectively in early age. The special exercises in some measure are instrumental in shortening of weak, stretched muscles and weakening shortened, therefore at a persistence it is possible to decrease easy curvature.

- Test 1. Sitting on the floor, maximally to bend hands knees upwards - in a norm a gastrocnemius muscle must adjoin with the back surface of thigh

- Test 2. To get up sideways (to the mirror), feet lines - in a norm a shin must be natural continuation of thigh
- Test 3. Sitting on a hard surface, maximally straightening feet, pinning them against a floor under knees. If here heels considerably unstuck from a floor, you have hyperextension, (overextension) in a knee-joint. If you did not succeed to the end to straighten a leg and between knees and floor there is free space, for you insufficient mobility in a knee-joint.

## 8. Talocrural joint

- Test 1. To sit down, not tearing away socks and heel from a floor, hands along a body - at normal mobility of talocrural joint a corner between the surface of support and shin must make 45 - 55 degrees
- Test 2. To move aside the straightened leg as possible farther back, not tearing away a heel from a floor. Socks and knees are directed strictly forward - at the norm of mobility a corner between a floor and leg must make 50-60 degrees
- Test 3. From position upright on knees to sit down on heels - in a norm you must touch a floor the dorsum of foot and talocrural joint. Socks here must not be turned inward.