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Improving the training process of highly skilled bodybuilders in the preparatory period, general preparatory phase

Abstract. ***Purpose:*** *to improve the method of training highly skilled bodybuilders.* ***Material and Methods****: the study involved eight highly skilled athletes, members of the team of Ukraine on bodybuilding.* ***Results:*** *comparative characteristics of the most commonly used methods of training process in bodybuilding. Developed and substantiated the optimal method of training highly skilled bodybuilders during the general preparatory phase of the preparatory period, which can increase body weight through muscle athletes component.* ***Conclusions:*** *dynamic load factor to raise the intensity of training loads allows orientation help to increase volumes shoulder muscles.*
Keywords: *General preparatory stage training process, qualified bodybuilder, muscular component, the optimum method.*

Introduction. Bodybuilding – is a kind of sport where sportsmen compete by a harmonious development of muscles of a body. The main criteria of an assessment at bodybuilding are volumes of muscles of a sportsman, their proportional development, and also a definition and separation. In the federation IFBB sportsmen compete in such obligatory poses: "a double biceps in front", "the best muscles of a back, chest muscles in front", "chest muscles, a biceps sideways", "a double biceps from behind", "the widest muscles of a back from behind", "a triceps of any hand", "a press hip". There are seven obligatory poses, in four of which the main attention of referees is directed on muscles of hands ("a double biceps in front", "chest muscles, a biceps sideways", "a double biceps from behind", "a triceps of any hand") [1–7; 15].

The analysis of domestic and foreign special literature showed that the problem of increase in volume of muscles of a shoulder was considered by such specialists of the branch as V. G. Oleshko, V. Y. Jim, A. V. Samsonova, Joe and Ben Weider, Mike and Ray Mentzer, Arnold Schwarzenegger [14; 4–10; 15].

However there is still no evidence-based technique of training for the increase in volume of muscles of a shoulder in domestic sport. Therefore coaches and sportsmen should get a practical experience by trials and errors. Athletes copy training programs of professionals of bodybuilding very often which have great opportunities for renewal, better meal and sports food [9; 10]. Firms of sports food provide sportsmen that they are represented to everything necessary. In the USA for the team works each professional sportsman which consists of a trainer, a sports doctor, a massage therapist, a research laboratory, managers but others. Such sportsmen are provided to all necessary for growth of muscular volumes and renewal. In Ukraine in 2015 Alexander Slobodyanyuk is the only sportsman who has the card of the professional. It is necessary for most of domestic sportsmen to look for sources arrived for ensuring preparation which needs a large number of material resources. Therefore copying of programs of western bodybuilders by domestic sportsmen threatens with an overtraining [7; 9; 11]. It testifies to need of the search of an optimum technique of training of highly skilled bodybuilders.

Communication of the research with scientific programs, plans, subjects. The scientific research is executed by a subject of the Built plan of the research work in the sphere of physical culture and sport for 2011-2015 by a subject 3.7 "Methodological and organizationally-methodical bases of definition of an individual norm of a physical state of a person" (number of the state registration is 0111U000192).

The objective of the research: the foundation of an advanced technique of training of muscles of a shoulder for highly skilled bodybuilders.

Materials and methods of the research. *Methods of researches:* theoretical method and generalization of literature, pedagogical supervision, pedagogical experiment, method of mathematical statistics. *Materials of researches:* 12 bodybuilders of high qualification took part in the experiment. The age of sportsmen is 25-31 years old. The body weight of sportsmen makes: from 80±2 kg – till 120±2 kg. Participants were distributed on three experimental groups on four sportsmen of an identical sports qualification in everyone (1 MSIC and 3 MSU). Also before the experiment the testing in special exercises was held which were used in the experiment in order that all groups had identical power opportunities in the offered exercises. Participants of the experiment trained 4 times for a week within 8 weeks.

Results of the research and their discussion. The use of the training process of highly skilled bodybuilders caused an application of three options of training techniques which differed in loading and volume of training exercises, rest and intensity. The assessment is carried out by means of diaries of training in which the quantity and volumes of training work were specified.

The efficiency of preparation was estimated by means of method of expert evaluations which provided an application of information concerning the implementation of instructions of a trainer, dynamics of power and endurance indicators, and also anthropometrical intentions.

Participants of the experiment trained four times for a week. Sportsmen of the EG1 trained by a technique of such split:

1. Monday – muscles of a chest and a triceps.
2. Tuesday – a back and a biceps.
3. Wednesday – rest.
4. Thursday – delta-like muscles and muscles of an abdominal tension.
5. Friday – muscles of feet.
6. Saturday and Sunday – rest.

As you can see from the split, muscles of a shoulder trained together with their synergists (tab. 1). This technique is

widely used by highly skilled bodybuilders which was published in the magazine “Muscle and Fitness” by the famous trainer Joe Weider for the first time.

Table 1

Load of shoulder muscles for the EG1 during one microcycle

Name of exercise	Number of trials	Number of repetitions	Weight of gymnastic apparatus (kg)	Time of rest (min)	NRB	Tonnage (kg)
Monday (muscles of a chest and a triceps)						
Bar press, lying	4	10	150	2	40	6000
Bar press at an angle	3	12	120	1,5	36	4320
Spreadings with dumbbells, lying	3	15	18	1,5	45	810
Bringing together on exercise machine “Peck-back”	3	15	40	1,5	45	1800
Press, lying by a narrow girth	4	12	110	2	48	5280
The French press of a bar, lying	3	10	40	1,5	30	1200
The French press of a dumbbell, sitting by one hand	3	8	18	1,5	24	432
Extensions of hands on the block	3	15	30	1,5	45	1350
Tuesday (muscles of a back and a biceps.)						
Pull of the vertical block for a chest	3	12	60	1,5	36	2160
Draft of a bar in an inclination	3	10	100	2	30	3000
Deadlift	3	12	180	2	36	6480
Bendings of hands with a bar, standing	4	8	49	1,5	32	1568
Bending of hands with dumbbells, sitting	3	12	18	1,5	36	648
Bending “Molot»	3	10	16	1,5	30	480
Concentrated bendings of hands on the crossover	3	15	10	1,5	45	450
Sum of load of two-headed and three-headed muscles of a shoulder	26	90	291		290	11408

Note. *In the table load of shoulder muscles is noted during a week microcycle, load of muscles of a chest and a back which trained in the same days isn’t considered. NRB – a number of raising of bars, a tonnage – a number of the kilograms which were lifted during an exercise performance.*

The feature of this technique is that muscles of a biceps work in a work for a back, and muscles of a triceps in work for muscles of a chest. A lack of such technique is that muscles of a shoulder are tired during the work on muscles of a back and a chest that leads to the decrease in intensity when performing special exercises for these muscular groups.

Training of sportsmen of the EG2 differed in that a biceps and a triceps of a shoulder trained throughout one classes. The split was so:

1. Monday – muscles of a back and a chest.
2. Tuesday – muscles of feet.
3. Wednesday – rest.
4. Thursday – muscles of a shoulder and a forearm.
5. Friday – delta-like muscles.
6. Saturday and Sunday – rest.

Sportsmen of the EG3 also trained four times for a week, had the similar split to the EG2, only a day of training of muscles of hands differed. The program of trainings of muscles of a shoulder for the EG2 was in such a way: at first exercises on a triceps were carried out. The number of exercises was made – 4, number of attempts in exercise – 3–4, number of repetitions fluctuated from 8 to 12, rest between attempts made 1,5 min. After training of a triceps sportsmen of the EG2 worked on a biceps. The number of exercises – 4, number of attempts – 3–4, number of repetitions – 8–12, rest between attempts – 1,5 min. The time of training made 55 min (tab. 2).

The program of training of muscles of a shoulder for the EG3 was developed by the author of the research and was in such a way: two exercises were chosen, one on a triceps, one on a biceps. One attempt of the first exercise on a triceps, rest 1,5 min, then attempt on a biceps was carried out. After that rest 1,5 min, so four attempts were carried out.

Thus, rest between attempts on one group of muscles made 3 min. It allows muscle to train in a zone of the sub-maximum intensity, and due to longer rest the sportsman can train with a big weight which promotes the development of muscular volumes at the expense of hypertrophy of myofibrils. The example of the program for the EG3 is given in tab. 3.

As a result of the conducted by us research it was revealed that sportsmen of the first experimental group during a week microcycle executed 290 raisings of a bar on shoulder muscles. The tonnage made 11,408 kilograms, the time for rise in this weight made 45 min in the sum. Sportsmen of the second experimental group executed 290 raisings of

Table 2

Program of training of muscles of a shoulder for the EG2

Name of exercise	Number of trials	Number of repetitions	Weight of gymnastic apparatus (kg)	Time of rest (min)	NRB	Tonnage (kg)
Bringing together on exercise machine "Peck-back"	4	12	120	2	48	5760
The French press of a bar, lying	3	10	50	1,5	30	1500
The French press of a dumbbell, sitting by one hand	3	8	20	1,5	24	480
Extensions of hands on the block	3	15	35	1,5	45	1575
Bendings of hands with a bar, standing	4	8	50	1,5	32	1600
Bending of hands with dumbbells, sitting	3	12	20	1,5	36	720
Bending "Molot»	3	10	18	1,5	30	540
Concentrated bendings of hands on the crossover	3	15	12	1,5	45	540
Sum of load of two-headed and three-headed muscles of a shoulder	26	90	325		290	12715

Note. *NRB – a number of raising of bars, a tonnage – a number of the kilograms which were lifted during an exercise performance.*

Table 3

Program of training of a shoulder for the EG3

Name of exercise	Number of trials	Number of repetitions	Weight of gymnastic apparatus (kg)	Time of rest (min)	NRB	Tonnage (kg)
Bringing together on exercise machine "Peck-back"	4	12	4	132	48	6336
Bendings of hands with a bar, standing	4	8	3	52	32	1664
The French press of a bar, lying	3	10	3	55	30	1650
Bending of hands with dumbbells, sitting	3	12	3	22	36	792
The French press of a dumbbell, sitting by one hand	3	8	3	21	24	504
Bendings "Molot»	3	10	3	20	30	600
Extensions of hands on the block	3	15	3	35	45	1575
Concentrated bendings of hands on the crossover	3	15	3	12	45	540
Sum of load of two-headed and three-headed muscles of a shoulder	26	90		349	290	13661

Note. *NRB – a number of raising of bars, a tonnage – a number of the kilograms which were lifted during an exercise performance.*

bars on shoulder muscles. The tonnage made – 12,715 kilograms during a microcycle, the spending time – 45 minutes. Sportsmen of the third experimental group also executed 290 raisings of a bar on shoulder muscles, the tonnage equaled 13,661, the spending time made 45 min (tab. 4).

Table 4

Comparisons of loading during one microcycle for EG1, EG2, EG3

Training groups	Tonnage (kg)	Time (min)	NRB	Coefficient of intensity
EG1	11408	45	290	253,5
EG2	12715	45	290	282,6
EG3	13661	45	290	303,6

Note. *The tonnage – a number of the lifted kilograms on this group of muscles, NRB – a number of raising of a bar, time – a number of the minutes spending for a performance of this work, coefficient of intensity equals to number of the lifted kilograms for a unit of time.*

Apparently from tab. 4, the time and the number of raisings of a bar in all three groups remained identical. Sportsmen of the first group showed the smallest intensity in a type of fatigue of muscles of hands in operating time over synergists of these muscles. The greatest intensity and working weight was shown by sportsmen of the experimental group No. 3 that trained by the offered by the author technique.

In tab. 5 it is brought data of a muscle gain of a shoulder of all sportsmen who took part in the experiment. Apparently

from the table, sportsmen of the experimental group No. 1 increased volumes of muscles of a shoulder on average on 0,97 sm, sportsmen of the experimental group No. 2 – on 1,22 sm, sportsmen of the experimental group No. 3 – on 1,45 sm.

Table 5

Gain of volume of muscles of a shoulder during the experiment (EG1, EG2, EG3), sm

Sportsman	Category	The volume of muscles of a shoulder at the beginning of the experiment	The volume of muscles of a shoulder at the end of the experiment	Gain of volumes	Average gain in group
Experimental group 1					
1	MS	47,5	48,45	0,95	0,9725
2	MS	44	44,88	0,88	
3	MS	52,5	53,55	1,05	
4	MSIC	50,5	51,51	1,01	
Experimental group 2					
1	MS	46,5	47,6625	1,16	1,22
2	MS	44	45,1	1,1	
3	MS	52	53,3	1,3	
4	MSIC	52	53,3	1,3	
Experimental group 3					
1	MS	45,1	46,47875	1,35	1,45
2	MS	46,2	47,586	1,39	
3	MS	49,4	50,882	1,48	
4	MSIC	52,1	53,6424	1,56	

Conclusions. Thus, it is revealed that the technique developed by the author is optimum for the accumulation of volumes of two-headed and three-headed muscles of a shoulder of highly skilled bodybuilders. Sportsmen who used this technique within two months in the experimental group No. 1 increased volumes of muscles of a shoulder on average on 0,97 sm, sportsmen of the experimental group No. 2 – on 1,22 sm, sportsmen of the experimental group No. 3 – on 1,45 sm. The compliance between the increase in intensity of training and a gain of muscular weight is also revealed. The volume of these muscles grows with the increase in intensity in special exercises on a group of muscles. The advanced technique of training of muscles of a shoulder can be recommended to highly skilled bodybuilders who try to increase the volume of these muscles at the expense of hypertrophy of myofibrils.

The subsequent researches have to contain the development and foundation of the training process of highly skilled bodybuilders in the competitive period of preparation.

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