COMPARATIVE ANALYSIS OF METHODS OF TRAINING AND DIETARY HABITS OF SKILLED BODYBUILDERS IN THE RUN-GENERAL PREPARATORY STAGE

Dzhym V.Y.
Kharkov State Academy of Physical Culture

Annotation. *Purpose*: comparative analysis of the characteristics of methods of training and nutrition bodybuilders in the run-general of the preparatory phase (duration 4 - 5 months or 20 microcycles). Analyzed the characteristics of different methods of training bodybuilders to increase muscle mass. *Material*: the study involved 8 skilled bodybuilders, are included in the team of the Kharkiv region. *Results*: a comparative characteristic of the most commonly used methods of exercise and nutrition in bodybuilding. Discovered and proved the optimal technique for athletes depending on the original form at the beginning of general-preparatory phase of training. Driven changes in body weight, depending on the amount used Athlete of carbohydrates, proteins and fats. *Conclusions*: throughout the training period was characterized by severe protein diet orientation. The proportion of the nutrient was 40% in the first quarter, 50% - in the second, 60% in the third. Only in the last two microcycle decreased to 50%.
Keywords: structuring, training, bodybuilding, proteins, fats, carbohydrates, optimal, method, microcycle.

Introduction

Body building is a kind of sports, in which eating determines sportsman's fitness and success. The most important is sportsman's eating in preparatory period of general training period as far as at this stage it is necessary to achieve maximum increasing of muscular mass [1; 2].

Though, up to the present time in domestic sports there has not been scientifically grounded eating methodic in preparatory period of general training period. That is why coaches and sportsmen have to acquire practical experience on the way of trial and error. Acute demand of body builders in scientifically grounded eating methodic in preparatory period of general training period requires analysis of this problem and working out of effective diet principles. One of the most perspective approaches is usage of specialized sport eating (gainers, amino acids, creatine monohydrates). Using of sport eating permits to create in sportsmen's diet rational proportion of proteins, fats, carbon hydrates, minerals and vitamins. It permits to achieve optimal increasing of muscular mass with minimum fat. In preparatory period of general training period sportsmen try to eat maximum vitamins and micro-elements for reducing risk of traumas [6; 9].

In body building preparatory period of general training period lasts 4 – 5 months and is composed of 20 micro-cycles. In this period sportsmen of different qualification, of different age groups and categories try to maximally master technique of exercises, to increase muscular mass at the account of training with maximal weights and at the account of increasing of carbon hydrates in eating. At the end of every micro cycle shape of a sportsman is evaluated by coach and the coach corrects training process and eating. Coach estimates somatic type (proportions, quantity of gained kilograms, volume of muscles and so on). As main criterion own mass of sportsman's body is taken [3;15;16, 17,18].

This problem was dealt with by such outstanding domestic physical culture specialists as V.M. Plaonov, L.S. Dvorkin, A.I. Stetsenko, B.I. Sheyko, V.G. oleshko, G.P. Vinogradov, V.D. Zveriev [4-10]. They based their researches on experience of such foreign specialists as Joe Wider, Ben Wider, E. Connors, T. Kimber, M. Mc Cormik [12-14].

This scientific research has been fulfilled as per topic of combined plan of scientific research works in sphere of physical culture and sports for 2011-2015, topic 3.7 "Methodological and organizational-methodic principles of determination of individual standard of human physical condition" (state registration number 0111U000192).

Purpose, tasks of the work, material and methods

The purpose of the research: comparative analysis of training methodic and eating of qualified body builders in preparatory period of general training period, considering maximal increasing of muscular mass.

The methods of the research: analysis and generalization of literature, pedagogic observation, pedagogic experiment, method of mathematical statistic.

Materials of the research: In the research members of combined team of Kharkov region participated. They were 8 bodybuilders, from them they were 2 masters of sports and 6 candidate masters of sports of 18-25 years old age. Mean body mass of sportsmen was 85±2 - 100±2 kg. The participants were divided by sport qualification into two experimental groups (first – 1 master of sports of Ukraine and 3 CMS and second – 1 master of sports and 3 CMS). The participants trained 4 times a week.

Results of the researches

Using of eating as a component of training conditioned using of two variants of diet, which differed by correlation of main elements (proteins, fats and carbon hydrates). Estimation was fulfilled with the help of eating diaries, in which quantity and kinds of food, taken during day, were registered. Content of main eating components was determined with the help of reference tables of eating chemical composition.

Effectiveness of training was estimated with method of expert evaluations, which stipulated using of information about fulfillment of coach's instructions, dynamic of power and endurance indicators and subjective characteristics (self-feeling, mood, desire to train and etc.).

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Sportsmen of first group trained during 20 weeks with high weights and applied diet with much carbon hydrates and low content of proteins, while sportsmen of second experimental group trained in smooth dynamic with static loads prevailing, with low weights and used diet with high quantity of proteins and low level of carbon hydrates. Quantity of fats in both groups was equal and was 10-20 % in diet, depending on micro-cycle. Before the beginning of experiment we conducted testing weighing of both groups. For weighing we applied body mass analyzer (scale TANITA BC-545 made of Japan). Body mass analyzer calculates sportsman's body mass in kilograms (see table 1, 2).

Statistical processing of the received results was carried out with electronic tables Excel and set of applied programs.

Table 1

Comparison of body mass of qualified body builders at the beginning and at the end I of preparatory period of general training period (first group)

Participants of experiments	Qualification	Mass at the beginning of experiment, kg	Mass at the end of experiment, kg	In total, increment of body mass, kg
1	MSU	92	105	13
2	CMS	87	98	11
3	CMS	95	111	16
4	CMS	85	95	10

Notes: MSU – master of sports of Ukraine, CMS – candidate master of sports.

Table 2

Comparison of body mass of qualified body builders at the beginning and at the end I of preparatory period of general training period (second group)

Participants of experiments	Qualification	Mass at the beginning of experiment, kg	Mass at the end of experiment, kg	In total, increment of body mass, kg
1	MSU	84	92	8
2	CMS	102	108	6
3	CMS	88	95	7
4	CMS	95	100	5

Notes: MSU – master of sports of Ukraine, CMS – candidate master of sports.

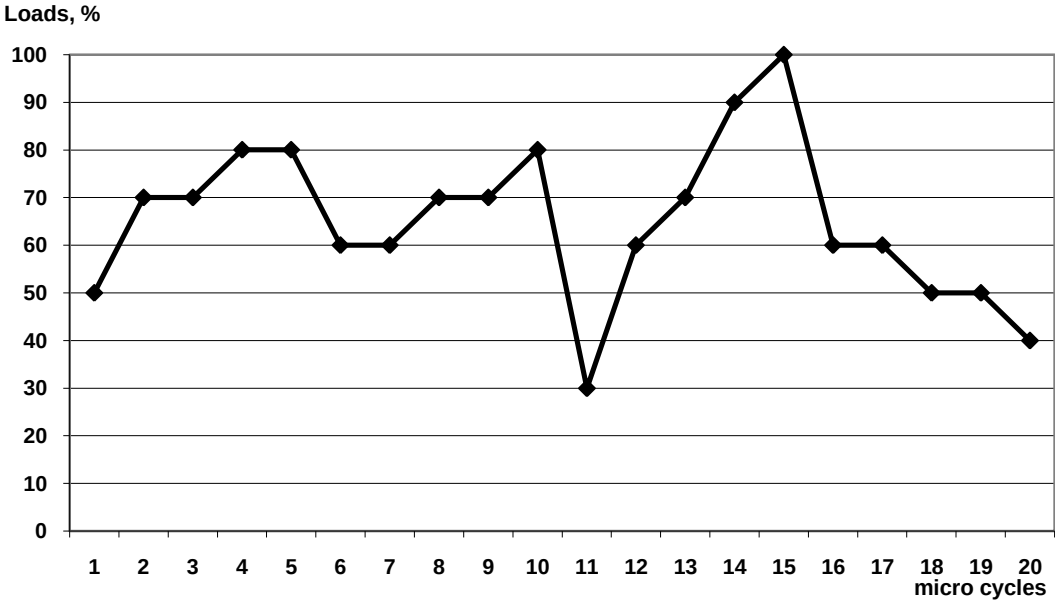

Fig.1. Dynamic of loads (in percents from maximum) in preparatory period of general training stage of qualified bodybuilders (1st experimental group)

The data provided in fig.1 illustrate dynamic of loads of 1st experimental group's sportsmen in the period of pedagogic observation. Specificities of training methodic conditioned significant fluctuations of loads (maximal from

30 to 100%) but such cases took place only in third quarter of training period that was conditioned by its significance in formation of basic physical qualities. Prevailing fluctuation in first quarter of the period was 50-80% from maximal that was oriented on making sportsmen's adaptation to trainings easier and on the most effective achievement of peak of sport form. The second quarter of training was built so that it should gradually increase level of fitness: loads in this period increases from 60 to 80% that is conditioned by demand in prevention from sport traumas and overloading.

As it has been mentioned above just in third quarter qualitative jump in training occurs – sportsmen has already been adapted for loads, ground for substantial improvement of sport form has been created and it permits to substantially increase loads. The last quarter is oriented on fixing of received results that is realized by gradual reducing of loads up to 60 and then to 40%. Thus, dynamic of training process permits to improve quality of training, but from positions of sport physiology it is not an excellent one as far as wide rage of loads' fluctuations increases probability of overloading, over-training, sport traumas and sets increased requirements to adaptation-compensatory mechanism. But the presence of such loads' fluctuations can be called a certain lever that inserts imbalance in homeostasis, reduces its stability. The purpose of such imbalance is to come to principally new level of training, but with it, as it has been already noted, tension of adaptation increases that in future can result in exhaustion and failure of protective mechanisms.

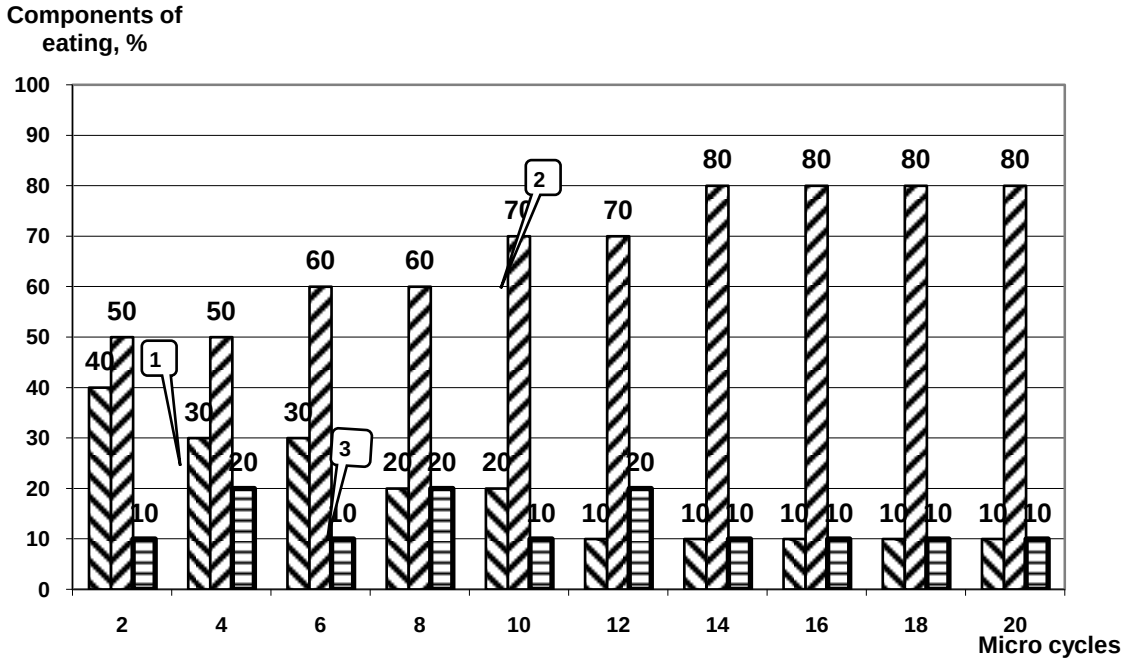

Fig.2. Dynamic of quantity of proteins and carbon hydrates in diet depending on micro cycle (week of training) (1 – proteins; 2 –carbon hydrates ; 3 – fats).

Dynamic of main components, given in fig.2, witnesses about substantial fluctuations of specific weight of proteins, fats and carbon hydrates in training period of general training stage. First quarter is characterized by expressed imbalance to side of proteins (40-30%), in second and third quarters – this disproportion still increasesy that is conditioned by demand in gaining body mass; specific weight of proteins in these quarters is 60-70%. Such situation shall be recognized a kind of test for organism's metabolism, increasing of load on liver and digestion tract. That is why in the last quarter the only way is renewal of proteins-carbon hydrates - fats balance by rational diet (1:1:4). Certainly, it, on the one hand is a protective measure for prevention from unfavorable disorders in organism and on the other hand, to certain extent worsens sport form at the account of slowing of body mass gaining.

Disadvantages of this methodic are also quick increasing of body mass, which negatively influence on strength and mobility of sportsman and brakes development of his muscles.

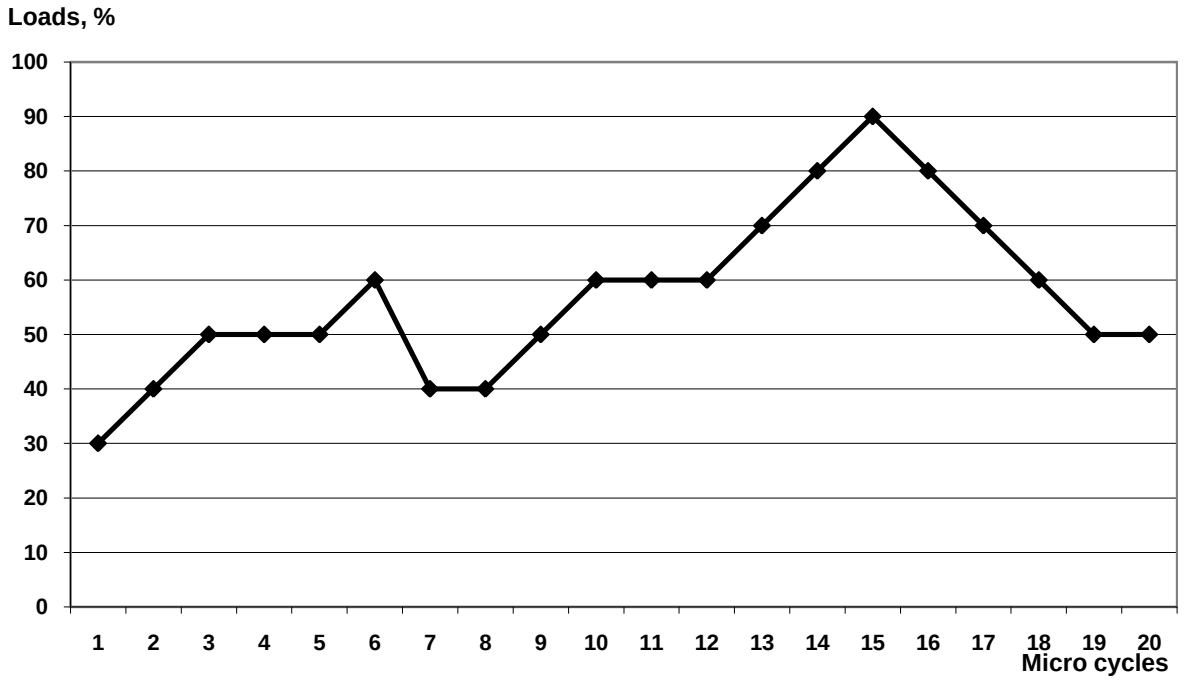

Fig 3. Dynamic of load (in percents from maximum) in preparatory period of general training stage of qualified bodybuilders (2nd experimental group).

Building of training process in EG2 is given in fig.3. With practically equal maximal fluctuations of loads (30-90%), it is characterized by principal difference from the previous one. Absence of zigzags in dynamic of loads permits to stabilize training; besides there is no demand in in reduction of loads in intermediate micro cycles. In general dynamic is characterized by gradual increasing both of loads and physical form of sportsmen. Important moment of training is the fact that specific weight of static loads is gradually growing that ensures prevention from overloading and permits to keep required form.

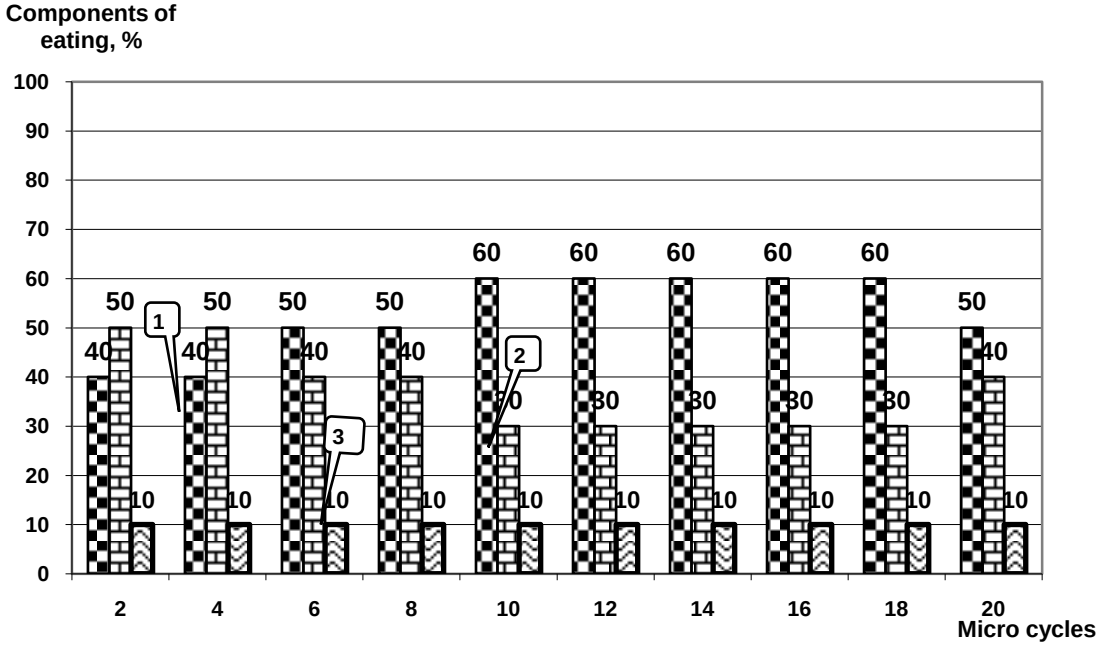

Fig.3. Dynamic of quantity of proteins and carbon hydrates in diet depending on micro cycle (week of training) (1 – proteins; 2 –carbon hydrates ; 3 – fats).

In EG2, during all period of training diet is characterized by expressed protein orientation; specific weight of this component was 40 % in first quarter, 50% - in second, 60 – in third and only in two last micro-cycles it was reduced up to 50 %. In our opinion it facilitates most effectively increasing of muscular mass, reduces to certain extent loading on metabolism at the account of gradual organism's adaptation to high content of proteins. But such building of

diet sets increased requirements to transitive period, when gradual re-construction of diet shall be oriented on forcing of main organs' functioning to usual mode.

The novelty of the methodic, except mentioned above, is also in gradual dynamic of loads' increasing, considering static exercises.

Conclusions:

Thus, comparative analysis of training methodic and peculiarities of eating permits to think that in EG2 effect was more expressed and level of fitness was more optimal. In this group loading dynamic substantially reduces probability of formation of unfavorable functional disorders (overloading, overtraining, traumas), permits to achieve required level of sport form without over-tension of adaptation-compensatory mechanisms. Concerning diet, in EG2 eating more facilitates fulfillment of the set task - increasing of specific mass of muscular mass, instead of all body mass that was characteristic for EG1 sportsmen..

This methodic can be recommended for training of qualified bodybuilders with observing of requirements of medical and sport control, ensuring effective and qualitative renewal in transitive period.

Further researches shall include foundation and working out of new methodic, oriented on renewal in transitive period, removal of metabolism's disorders, which can appear as a result of specialized eating.

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Information about the author:

Dzhym V. Y.: ORCID: http://orcid.org/0000-0002-4869-4844; djimvictor@mail.ru; Kharkov State Academy of Physical Culture; Klochkovskaya str. 99, Kharkov, 61022, Ukraine.

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