

Optimization of the Training Process in the Clay Pigeon Shooting, Taking into Account the Dynamics of Load Intensity Changes¹

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Abstract

A questionnaire has been developed and a survey of athletes, specializing in clay pigeon shooting on issues related to effectiveness, an optimal combination of general and special training as well as a balanced alternation of exercise and rest phases and the use of special methods of recovery and rehabilitation has been carried out. It is shown the necessity of influencing on the behavior, emotions, motivation and instilling the positive qualities of character. It has been determined a well-balanced training structure which includes the main points mentioned above as well as necessary recommendations considering specificity of given kind of sports, to minimize the risk of health impairment.

Keywords: clay pigeon shooting, skeet shooting, training load, load intensity, training structure

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Introduction

Clay pigeon shooting – is a complex of sports exercises, based on a large volume of training load that requires concentration and accuracy of muscular efforts from an athlete. Great physical loads are accompanied with high psychophysiological efforts. Therefore, high and stable shooting effectiveness can be achieved when properly structured training process is optimized with exercise selection, intensity and a rhythm of their performance and balanced alternation of load and rest phases.

The aim of investigation is to determine athletes' training structure, considering their load intensity by analyzing training load of athletes of different qualifications in a skeet shooting during their basic training for the competitions, as well as in their pre-competitive cycle.

Research procedure

- A questionnaire development and survey of athletes, specializing in clay pigeon shooting on issues related to the training process. 45 athletes of different qualification were involved in the survey;
- An analysis of data obtained as a result of questionnaire, as well as the main parameters of the training process, which are given in the basic M.I. Polyakov's educational methodical manual in skeet shooting "Strel'ba po letyashim mishenyam" (hereinafter - the Polyakov's manual).

A professional sport in the classic version was based on a selection of talented athletes on the basis of the general scheme of the training process, built on the principle of maximum loads and intensity of training. In other words, the athletes had to fit into a unified training algorithm; otherwise, they would dropped out from the candidates to the national team. Those who have been put on the elite list sacrificed their physical, mental and sometimes moral health for the records. Thus, the professional sport came into a conflict with the social principles of building a harmonious society, rejecting abilities of some and harming the psychophysical condition of others.

Currently, the approach to the training process began to change, from unified algorithm to the individual one. This makes it possible to discover abilities of greater number of athletes on the one hand, and to minimize the risk of health impairment on the other hand.

As an example based on clay pigeon shooting, we tried to involve elements of the individual approach to training, taking into account the age, qualification and gender differences of sport training participants.

The long-term process of preparation of a professional athlete consists of the following types of training that must be skillfully combined:

- physical;
- technical;
- psychological;
- tactical.

Sport training in clay pigeon shooting – is a complex process of athlete's development, aimed on the physical development and health improvement, to master the technique and tactics of shooting and their perfection, instilling the moral and volitional qualities.

Discussion

The load intensity volume in the clay pigeon shooting is estimated by the following parameters:

- a) A number of shots, fired at a certain stage (at the particular training, pre-competitive period, basic training period, within the year, etc.);
- b) A number of symbolic shots, made on simulators or directly on the shooting range, or the shots mentally made by a shooter
- c) Time spent performing the work mentioned above.

Doing so, six people team spend for one series shooting about 25-30 minutes for both skeet and trap shooting. Relaxing and preparation for the following series is approximately the same. Thus, for a daily training consisting of one hundred targets shooting, a MS (Master of Sport) spend not less than 3.5-4 hours.

If we know the intensity volume on a number of shots with and without cartridges as well as a total time spent for performing this action, one can exactly determine the athlete's load intensity both for daily and any training period, as well as we can plan it due to the problems being solved on a certain stage of shooters' preparation.

The intensity of a training exercise is estimated in another way. To determine the intensity of the completely training cycle we can use Keller and Saychik formula for estimation of psychological load intensity, which was applied by Godick in the shooting sport in 1980:

The load intensity of exercise is estimated by the formula below:

$$I = \frac{\sum I_i t_i}{\sum t_i}, I_i - \text{stress intensity,}$$

t_i – performing time.

By this formula, the load intensity can be estimated both in points and in percentages.

Table 1. Training and competitive ranking of exercises according to the load intensity (by the Polyakov's manual)

Type of exercise	Subtypes of exercises	Points
Training without gun	<ol style="list-style-type: none"> 1. General physical training 2. Special physical training 3. Active rest (tourism, hunting, fishing) 	1
Training without cartridges	<ol style="list-style-type: none"> 1. Training on simulators 2. Warming up 3. Training with a symbolic shot on the shooting range 4. Mental rehearsal of the shot 	2
Training without considering shooting results	<ol style="list-style-type: none"> 1. Work on shooting technique 2. Working out the shooting with certain flight trajectories of targets 3. Testing shooting range, guns, cartridges, shooting vest, glasses, etc. 	3
Training considering shooting results	<ol style="list-style-type: none"> 1. Testing reliability of the individual elements of shooting technique 2. Checking the degree of shooting development 3. Self-assessment of the shooting results 4. Shooting results assessing by a coach 	4
Checking shooting	<ol style="list-style-type: none"> 1. Selecting the competition groups 2. Selecting the scoring team 3. Transferable tests 4. Participation in the offset competitions 	5
Medium level competitions	All competitions during a year (except for the highest rank competitions)	6
High-level competition	The main competitions of the year	7

The load intensity in shooting sports is better to be estimated in points.

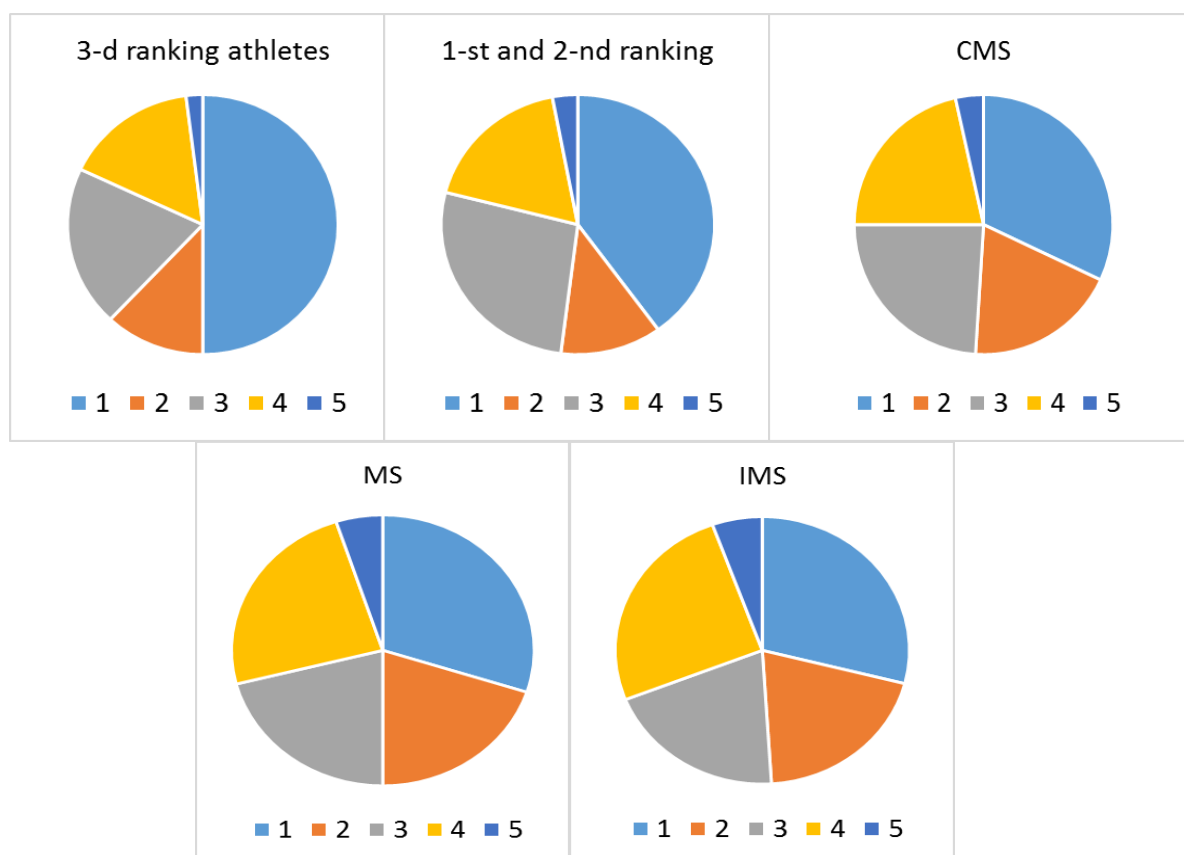


Figure 1. The average statistical training structure of athletes with different qualifications

While working on shooting technique, the individual characteristics of athletes and a rational style of shooting manner that is formed will be identified. The training loads that directly depend on the individual athlete's characteristics, his/her state of health and skill level, must be properly dosed.

It is necessary to estimate the ultimate load for each shooter, after which comes the overtraining effect and athlete, for several days, shows the significantly lower results than its optimum ones. The tasks with ultimate load should not be given in the training process, the maximum ought to be about 10-15% lower than ultimate one. The ultimate load should be assessed at intervals of 3-4 months, and the set maximum load level should not be applied, at least one week prior to the competitions.

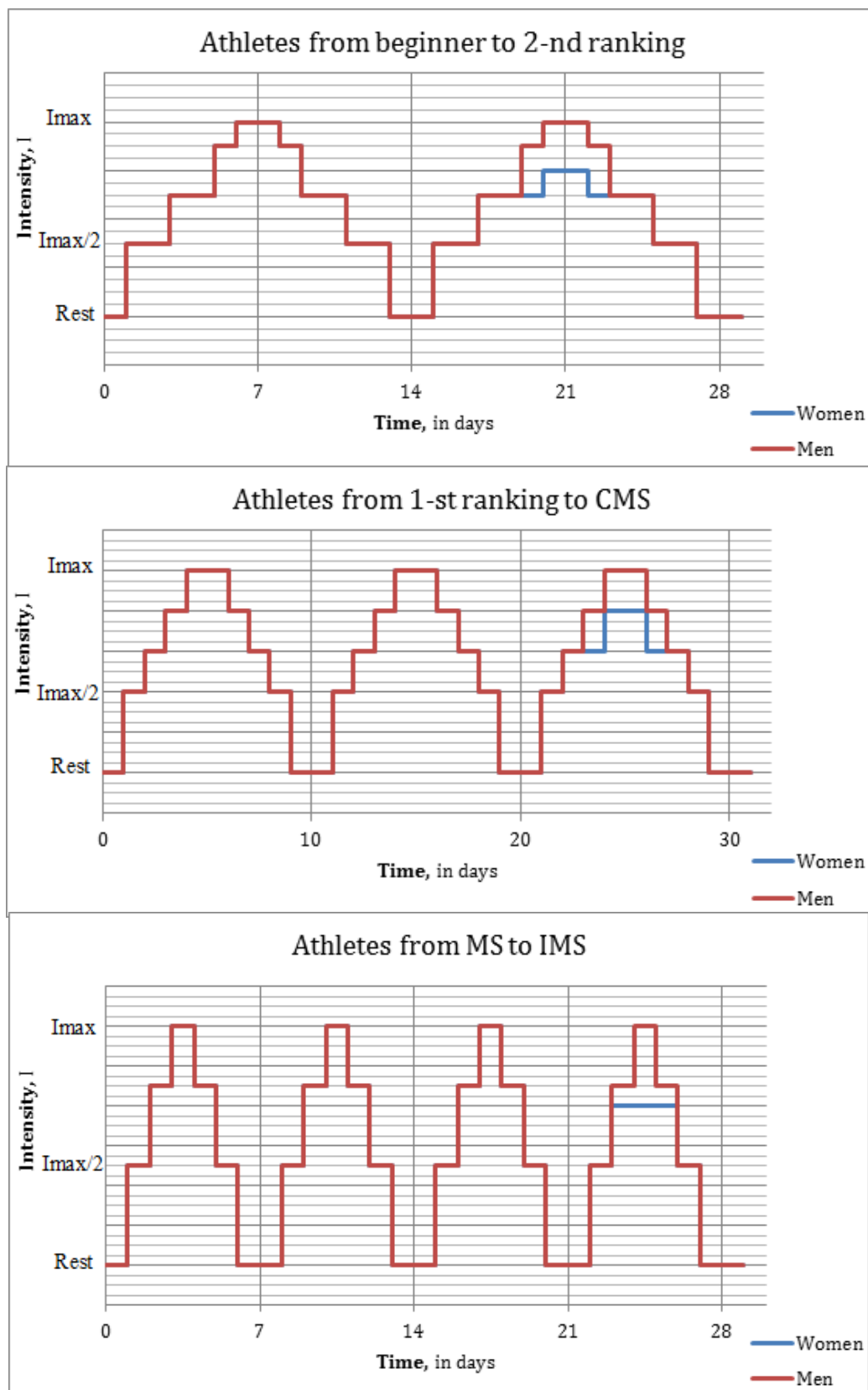


Figure 3. The dynamic of changing athletes' load intensity in a monthly training cycle, depending on their qualification, in clay pigeon shooting.

Conclusion

1. Based on the ranking of load intensity exercises as well as survey data of athletes, specializing in clay pigeon shooting; with the help of the main recommendations of the basic educational-methodical manual in skeet shooting, it was determined a well-balanced training structure for shooters with different qualifications.
2. We established the load intensity of athletes in different training periods. In the main training period it is about 2.1 - 2.6, and can be raised up to 20% in the competitive period. Depending on athletes' qualification, it is suggested to follow the obtained data on the load intensity levels in the training and competitive cycles.
3. The complex of methods and means of optimal physical, technical, tactical and psychological preparation of the athlete should include:
 - individual schedule of the training process, balanced set of exercises, their intensity, dynamics and phase alternation of exercise and rest;
 - modelling competitive terms, various meteorological factors complicating the shooting conditions;
 - instilling the moral and volitional qualities, psychological stability, motivational and positive qualities of athlete's character.

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