

COMPLEX DEVELOPMENT OF STRENGTH, VELOCITY AND TECHNIQUE OF YOUNG JAVELIN THROWERS

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The significance of general and many-sided workouts in the training programme of young javelin throwers is widely accepted. In the process of long term preparation, one of the main characteristics is that the rate of general work decreases and the specific work increases year by year.

The importance of specific exercises in the year-round training process has been well established. The law of specificity says, “the exercise must be specific to the type of strength required and to the demands of the event”. For 18 and 19 year-old javelin throwers (junior and senior age groups), specific exercises play a very important role. At this age the improvement of javelin performance depends firstly on the quality of specific exercises.

Javelin throwing requires very precise execution of technique at the highest possible speed. For example, when Petranoff set a world record of 99.72 meters the release speed was 32.3 m/sec. But high speed release alone does not guarantee top performance and

likewise, skilled technique without speed does not lead to success. Therefore we can say that javelin throwing is a skill-speed oriented event. Therefore we must select such exercises which can improve the technical elements, strength and speed together, as the neuro-muscular system overcomes resistance with a high speed of contraction.

The classification of specific exercises

1. First group of specific exercises (Development of related power)

Exercises for the development of related power concern a specific part of the javelin technique. Generally the thrower imitates the so called "leading movement" of the javelin throw with a submaximum resistance (for example with bar, plate, sandbag, rubber cable, pulley work and other sophisticated equipments).

The outer, visible structure of these specific exercises are similar to the selected javelin movement, but the dynamic structure sometimes deviates from the competitive skill and speed.

That is the reason why some experts do not believe in these exercises. They say: "We don't know the precise effects of these exercises, because their selection has no scientific background". Therefore they think the best way to develop the skill-velocity-strength is through javelin throwing itself with weighted or lightened implements. This is true and we agree with the statement. However, the future necessitates the development of a scientific method, for example electromyography, to determine which special exercises are most suitable and show a

close relationship to the selected parts or technical elements, of javelin technique.

When we created these exercises our starting point was the practice and knowledge of the javelin technique and our experiences verify the usefulness of this method.

The values of these exercises are:

— The emphasis is on those muscle groups and movements which are approximately similar to the javelin throw. We exert isolated effects on the related muscle groups, preparing them for the more specific work.

— The sequences of muscle action are close to the javelin movements, in this way they help the neuro-muscular coordination. The exercises for development of related power are firstly strength, secondly skill, and thirdly speed exercises.

This is the first step in the approach to the complex development. We recommend the use of these exercises in both the specific preparatory period and the competitive period, but with a reduced amount of volume in the later.

2. Second group of specific exercises (Development of throwing power)

Exercises for the development of throwing power are one step closer to the requirements of javelin throwing.

These exercises, the two-handed throw with medicine ball and the one-handed weighted ball throw are partially skill/technical exercises but in addition to the technical elements they develop velocity and throwing power together.

These throwing exercises reproduce the javelin movement entirely or partially, not only the outer movement structure, but the coordination and relative speed pattern as well.

The degree of the similarity depends on the weight of the implement and the range of the movement. For example, throwing a weighted ball from a half or full run up is very close to javelin throwing.

However, a complete reproduction of the javelin technique with these exercises is very difficult. For instance we are unable to simulate the leading of the javelin with an iron or rubber ball. It may be that throwing a ball causes some technical problems because the wrist of the throwing arm bends backwards too early. Of course we can solve this problem with competition specific exercises, but I do not want to speak about them now.

In spite of above mentioned problems, these throwing exercises are very valuable for javelin throwers.

The advantages of these exercises are:

— The thrower can simulate the dynamic structure of the javelin movement in coordination and relative speed pattern.

— The coach can regulate the relationship between the force and velocity very precisely with the alteration of the ball weight, speed oriented power training, or strength oriented power training.

— This method gives a good possibility to increase the volume of the throws.

— The technical work is continuous

within the year-round training programme and so the general conditioning work and technical training are not separated.

When we develop the throwing power the emphasis shifts from the strength to the skill and speed.

Some common methodological aspects of the specific exercises

It is very important to teach the correct technique of the specific exercises, not only the throwing movements, but those exercises which the thrower makes with bar, plate, sandbag, rubber, and so on. Only correct technique will guarantee the reproduction of the selected javelin technique.

— In the training process we recommend first the two-handed exercises, for the symmetrical development of the body, and afterwards the one-handed exercises.

— The weight of the implements must be relatively light, we never use maximum weight. With the lower weight the movement pattern and rhythm are closer to the required javelin technique and the coach can prevent injury.

— The range of the throwing movements must increase step by step from a standstill to a full run up.

— As the throwing exercises approach complete javelin technique the weight of the balls must decrease.

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