# SPECIFIC FEATURES OF THE DECATHLON

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*The authors look at the tendencies that occur in the development of explosive power indicators in decathlon training and make suggestions of how to adjust the volume and the sequence the single events are performed in training to the fluctuation in the functional power capacities. The article is a slightly condensed translation from Legkaya Atletika, Moscow, No. 7, July 1987.*

One of the major factors responsible for the progress in the decathlon appears to be the improvements in the level of specific physical preparation. It is therefore extremely important to establish the specific characteristics required for the preparation by taking a close look at the dynamics of the functional indicators and how they change during a year's training cycle.

## LONG TERM TENDENCIES

An analysis of the development of leg extensors, arm extensors and ankle flexors shows an uneven power improvement that does not correspond with the progress of the total decathlon scores. This tendency continues up to 6000-6500 points level when all power indicators begin to correlate with performances in the individual events, as well as the total score.

The results indicate that the importance of muscular power increases considerably when decathlon performances reach a higher level. At this stage every additional point is achieved by improved power indicators, although the rate development of power in different muscle groups varies considerably during multi-year training processes. The fastest development rate, for example, occurs in arm extensors, the slowest in ankle flexors.

It can be assumed that the rapid improvement of power capacities after the 6000-6500 points level is closely related to increased training intensities. Consequently, it appears to be important to introduce more intensive training procedures in the below 6000 point margin by planned specific strength development. This includes weight training exercises with particular emphasis on muscle groups that have lacked development in the basic training stages.

Specific strength training must be complex, which means the inclusion of heavy (90-95% of the maximum) and light (30-35%) resistances, executed explosively. The same applies to bounding exercises, performed over short and long distances. The short jumps are executed with a maximum effort, the long jumps

(up to 50m) with fast take-offs and maintenance of forward speed. These exercises are not to be treated as an addition to the basic training program but should be allocated specific sessions in the first part of the preparation period.

## DEVELOPMENT OF POWER INDICATORS

Training is effective when the development of specific functional capacities takes place parallel to the basic training tasks also during the competition period. Practical experience indicates that the power indicators of high performance decathletes improve relatively evenly during the preparation period when the total training volume is in the early stages rapidly increased. It reaches its maximum in February-March, before being decreased gradually until the end of the competition period. At the same time, the intensity of the training load is continually increased.

The power indicators drop at the end of a training year but not below the level achieved in the previous season. Consequently a new training cycle is always started with the specific strength level exceeding the previous one at the same stage.

The year's training volume of decathletes has two distinct aspects:

- There is a definite order in which training volumes are applied to the two major event groups — sprint training and jumps and throws training. The volume of the first group is emphasized in the beginning of the preparation period, before the second group takes priority.

- The monthly training cycles follow a wavy pattern in which the training load is increased during the first three weeks and considerably reduced n the fourth.

The total training load is closely related to the technique development of the single events. This begins in the early stages of the preparation period with a gradually increasing intensity until it reaches close to maximum efforts at the start of the competition period. The development of technical elements follows a distinct order in which the intensity of sprinting and hurdling is increased first, followed by the jumps and throws.

Experience indicates that a continuous improvement of power indicators can be achieved by concentrating on the development of strength in the first half of the preparation period. In the second half and during the competition season it appears advisable to employ a reduced strength training volume with a high intensity.

## COMPETITIVE ASPECTS

A feature of the decathlon is the changing muscular work performed over two days. This requires an understanding of how the functional state of the muscular system (including explosive performance) of a decathlete changes from one event to the next. A general aspect of this is a drop in the level of power indicators at the end of each competition day. A wavy change in explosive power can be observed during each day. Such events as the 100m and the high jump on the first and the hurdles, discus and javelin on the second day appear to improve the explosive power capacity and provide a good pre-requisite for the event that follows. At the same time, the long jump, shot and 400m on the first and the pole vault on the second day are responsible for a drop in explosive power and make the performance in the following events more difficult.

The shot put on the first and the pole vault on the second day show large drops in power indicators and appear to be, besides the 400m and 1500m, energy consuming events. Attention must also be drawn to the fact that the high jump and the pole vault differ considerably from other events. Both allow for virtually unlimited attempts and the higher an athlete jumps or vaults, the less time will be left for recovery before the start of the next event. All these factors must be taken into consideration in the planning of neuromuscular restoration in competitions.

## THE WEEKLY CYCLES

The decathlon demands that the techniques and performances in all 10 events are developed and improved in parallel. This requires a high level of work capacity from an athlete and the effectiveness of training depends largely on an efficient co-ordination of training methods and work volumes in the weekly cycles.

Although it is common for decathletes to develop the techniques of the single events in the order they are scheduled in the competition, this procedure is not always justified. It should be noted that power indicators of the explosive and technically complicated events (jumps, throws) can improve even when a high training volume with relatively medium efforts are employed. On the other hand, maximum effort training performances will affect power indicators already at a low volume.

Cyclic events (100m, 400m, 1500m and 100m hurdles) are less dependent on the effort level and show improvement in the explosive power indicators under conditions when moderate training volumes are employed. However, a high number of repetitions of short distances and endurance runs can be responsible for a drop in power indicators.

Consequently, as paradoxical as it might appear, the changes that occur in the organism in training do not correspond to the changes taking place in

competition. This can be explained by the differences in the volume of work performed, the duration of training units and the recoveries used in training sessions.

It is therefore advisable to arrange the contents of the weekly training cycles according to the changes that occur in the organism. Particularly important is to plan single training sessions so that they correspond to the changes in power indicators to ensure that the planned training tasks are effectively achieved. Keeping in mind that, as a rule, every athlete has a reliable competition stereotype, the order in which single events are performed in training is not particularly important. Provided, of course, that optimal situations are created for the most productive training results, as shown in tables 1 and 2.

*Table 1: Practical order of training tasks in the preparation period's weekly cycles.*

| Training task | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |
|---|---|---|---|---|---|---|
| Running | 5 | 5 | 2 | | 5 | 4 |
| Hurdles | | 1 | | | 3 | 1 |
| Long jump | 1 | | | 1 | | |
| High jump | 3 | | | | 2 | |
| Pole vault | | 3 | | 3 | | |
| Shot | 2 | | | 2 | | |
| Discus | | 2 | 1 | | 1 | 2 |
| Javelin | 4 | | 3 | | 4 | |
| Weight training | | 4 | | | | 3 |
| Jumping exercises | | | 4 | | | |

*Table 2: Practical order of training tasks in the competition period's weekly cycles.*

| Training task | Mon. | Tues. | Wed. | Thur. | Fri. | Sat. |
|---|---|---|---|---|---|---|
| Sprinting | 1 | | | 2 | | |
| Running | | 4 | 3 | 3 | 4 | |
| Hurdles | | 1 | | | 1 | |
| Long jump | 2 | | | 1 | | |
| High jump | 4 | | | | | |
| Pole vault | | 3 | | | 2 | |
| Shot | 3 | 2 | 1* | | | 1* |
| Discus | | | 1* | 5 | 3 | 1* |
| Javelin | | | 1* | | | 1* |
| Weight training | | 2 | | | | |
| Jumping exercises | | | | 4 | | 2 |

* One of the three throwing events are chosen on Wednesdays and Saturdays.

The changes that take place in the organism and are reflected in the explosive power level when the above recommended training sequences (tables 1 and 2) are employed are graphically presented in fig. 1. It shows the explosive power level at the beginning (vertical lines) and at the end (broken lines) on each training day during the preparation and competition periods.

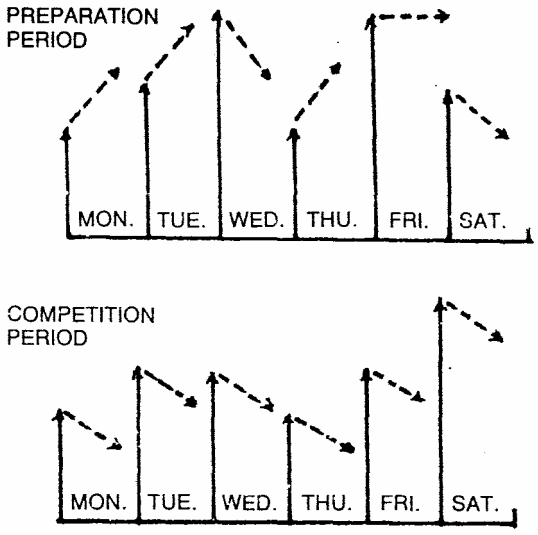


*FIG.1. TENDENCIES IN THE DYNAMICS OF EXPLOSIVE POWER INDICATORS.*

As can be seen, the training procedures during the preparation period lead to power level increases on Fridays with decreases taking place on Wednesdays and Saturdays. These changes are necessary to allow the organism to perform a large volume of work at an optimal level. During the competition period the explosive power level follows a wavy line, dropping at the end of each training day to prepare the athlete for competitions on Saturdays and Sundays. If no competition takes place, the workload and the number of events have to be increased on Friday and Saturday.

As a general rule, emphasis on the first two days is placed on technique development in both the preparation and the competition periods. This is followed on Wednesday by the development of power capacities and on Saturdays, during the preparation period, the development of general and specific endurance.