

METHODICAL DEVELOPMENT OF HIGH JUMP TECHNIQUE

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Improving the high jump technique requires the use of carefully selected training means in several stages. In the following text the author outlines suggestions on how well planned training loads, volumes and intensities can help to develop an optimal technique. The article is a slightly abbreviated translation from Legkaya Atletika, Russia, No. 6, June 1995. Re-printed with permission from Modern Athlete and Coach.

Like in most track and field events, performances in the high jump can be basically improved by two factors — development of the speed-strength level and its exploitation through a rationally improved jumping technique. These two factors are inseparable because most training means used by high jumpers for the development of speed-strength are at the same time also means to develop jumping technique. However, it should not be overlooked that the development of speed-strength determines the development of technique and must therefore slightly precede the last. The improvement of technique depends largely on the athlete's functional state.

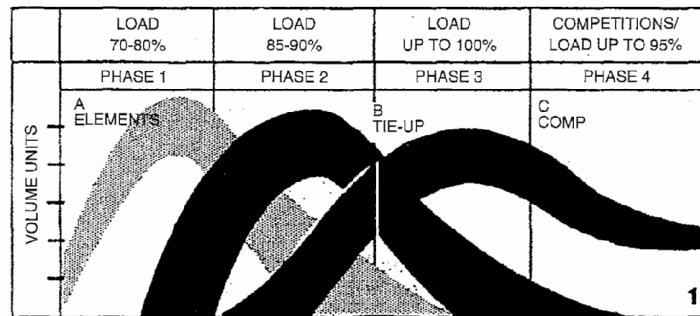
Verhoshansky claimed once that there are two conditions responsible for an effective development of high level performances. Firstly, speed-strength training means must precede deeper technical work, and secondly, it is important that the development of technique takes place in the most intensive training range. Verhoshansky recommended further that it is necessary to improve the speed-strength level by employing concentrated one-directional training loads. The above statements appear to be applicable to the choice of training loads in the development of high jump technique.

LOAD ORGANISATION

A six-month preparation scheme in Fig. 1 represents the organization of training loads in four stages:

1. Stage I: Large volume, low intensity (not over 70 to 80% of the maximal) loads directed to the development of the support movement system.
2. Stage II: Large volume, loads that are not exceeding 80 to 85% of the maximal intensity, reaching 90% at the end of the stage.
3. Stage III: High level loads to develop speed-strength and speed capacities at near maximal and maximal intensities.

4. Stage IV: Participation in competitions.



DURATION AND VOLUME VARIATIONS IN THE USE OF TECHNICAL TRAINING MEANS

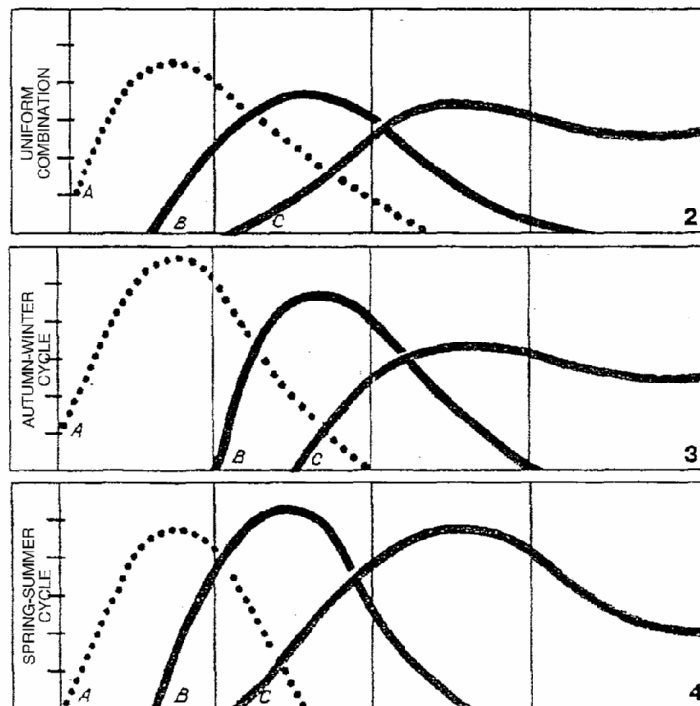


FIG. 1: Organisation of technique development loads in four stages

The duration of each stage depends on the concrete tasks involved. For example, stages I to III might cover two to six weeks, while stage IV can take four to twelve weeks. The technical development means in these stages are divided into three groups and distributed over the whole cycle as follows:

- Group A: Introductory and imitation exercises to teach and establish the single elements of the high jump technique.
- Group B: Exercises that join together different elements of the technique.

- Group C: Transformation of the joined elements into the high jump technique as a whole and its execution at different conditions.

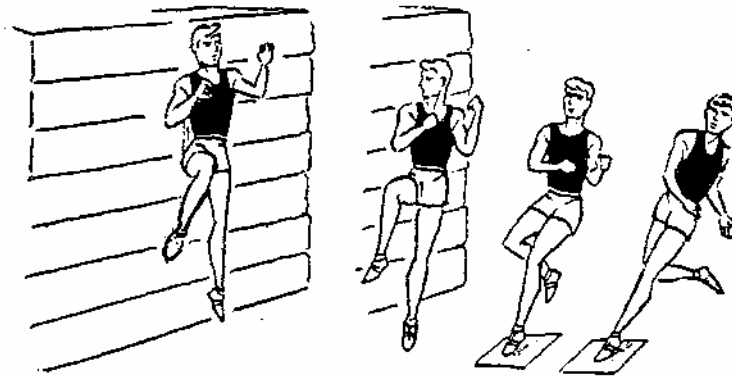


FIG. 2: A typical example of introductory imitation exercises

The division of the technique development into three groups provides an opportunity to employ in the beginning a large volume of simple and low intensity exercises before these elements are joined together in faster and more intensive combinations and finally are performed in high jumping from a full run-up.

VOLUME AND DURATION

The graphs in Fig. 1 show the volumes and durations of the combined technique development means (2 to 4). A combination that is typical for beginners is shown in graph 1. It makes use of nearly simultaneous employment of several training means. The volume is fluently increased and reduced without large concentrations in single phases. This allows finding optimal means and their combinations during the learning processes until the most rational individual technique can be established.

Variations 3 and 4 in the graph are characteristic for elite high jumpers, who make use of large volumes of concentrated training means. Elite performers have developed a constant technique stereotype. An improvement of this stereotype is a difficult task which can be accomplished by limiting the number of general exercises at certain stages to increase technique development intensity.

As can be seen in graph 3, emphasis is first placed on introductory and imitation exercises (group A) and group B and C exercises are included relatively late in order to exploit maximal volumes. This distribution of technique preparation means can be used in a six-month cycle that aims to develop mainly jumping elements with a large volume of highly intensive work. It is particularly suitable prior to the winter competitions phase where the results are not important and the main task is to prepare for the summer season.

Graph 4 should be regarded as the extension to graph 2. As can be seen, the volume of group 3 exercises is reduced to increase the volume of more intensive technical means (Group B and C). This variation appears to be the most rational in the preparation for summer competition in the second half of a yearly cycle.

TRAINING MEANS

Let us next take a closer look at each group of the training means, starting with group A. The exercises in this group are directed to the learning and development of single elements of the high jump, performed in a large volume during the concentrated functional preparation phases. Care must be taken in the choice and the execution of these exercises because they will establish a foundation to the work that follows.

Imitation exercises are performed in a large volume not only to improve technical elements, but also as conditioning exercises. Such exercises provide an opportunity to strengthen specifically muscle groups and tendons which have to tolerate the basic load in the following training stages. This is the main reason why imitation exercises and functional preparation exercises are performed simultaneously.

The single technique elements are gradually joined together at the end of the first training stage to form group B exercises in the second half of a six-month cycle. At this stage group B exercises also serve as speed-strength development exercises. Although training intensity is now considerably increased, the use of group A introductory and imitation exercises is still continued. However, emphasis is now placed on the technically more complicated elements of the jump, because certain elements require time before they are completely mastered.

Short run-up jumps over lower heights are introduced in the second training phase to be followed by group C technical exercises. The last are included only after the athlete has reached an optimal functional state and the volume of group A and B exercises is minimal. The distribution of the training volumes of group C exercises is shown in Fig. 1 (graph 4).

FULL RUN-UP JUMPS

Jumping from a full run-up deserves a closer look because it is not only a technique development means but actually can be regarded as a specific preparation stage. Jumping from a full run-up begins in the second training phase when the single technique elements are joined together. However, as an athlete's functional state is not optimal at this stage, the intensity of the full run-up jumps must be kept low. The bar is lifted higher and the quality of the jumps improves according to the functional state.

The intensity level of jumps from a full run-up also depends on the planned tasks and the individual characteristics of an athlete. If winter competitions are regarded as unimportant, there is no sense in using close to maximal intensity ranges in technical preparation. On the other hand, it would be most important to use close to maximal intensity ranges in the technical preparation prior to competitions where maximal results are the aim.

Under individual characteristics we look at the differences between the best training and competition results. Some athletes can have a rather large 10 to 15cm difference, while some show only a minimal 2 to 3cm deviation. This presents a dilemma in making the choice of intensities in the planning of training. Should intensities be based on the best training jumps or the best competition performances? To us it appears logical to link jumping intensity to best training results. Suggested percentage intensities based on the best training results are shown in table 1.

AUTUMN – WINTER CYCLE		SPRING – SUMMER CYCLE	
STAGE	PERCENTAGE	STAGE	PERCENTAGE
Stage 2	88 - 92	Stage 2	90 - 93
Stage 3	93 - 96	Stage 3	94 - 98
Stage 4	94 - 95	Stage 4	95 - 96

TABLE 1: Suggested percentage intensities for full run-up jumps during different training stages. Percentages are based on best training results.

It must be remembered that the suggested intensity percentages are meant to be used as a technique preparation means with the main task to improve the effectiveness and stability of all technical high jump elements as a whole. At the same time full run-up jumps in the third preparation stage are also used as a basic training means to strengthen the support system. For this purpose full run-up jumps are performed under more difficult conditions. These include jumps from a faster run-up, series of jumps with reduced recoveries, jumps with light additional loads and jumps with the bar placed higher than the athlete's personal best.

Technique development jumps and jumps under difficult conditions can be used in the following three variations:

- Variation 1:
 - First training — technique development
 - Second training — jumps under difficult conditions

- Variation 2:
 - First training — jumps under difficult conditions.
 - Second training — technique development
- Variation 3:
 - In the same training unit — first technique development, following by jumps under difficult conditions.