THE COMPARATIVE ANALYSIS OF THE SPECIFICATIONS OF WEEKLY TRAINING CYCLES AS COMPARED TO THE TRAINING STAGES OF A LONG JUMPER

DULGHERU MIRELA

Abstract

The Training Objectives for a long jumper are represented, on the one hand, by the activities of learning and perfecting the techniques of the jump and, on the other hand, by activities meant to develop the motric capacity. The effort characteristic to long jumps is an intense one; it takes time and requires constant improvement of the motric capacities, and is essential for attaining the high performances.

The Present research intends to validate the hypothesis thus formulated: if we plan the training that aims at the preparation stages, that precedes the competition, as well as those occurring during and after competitions or the recuperation, for the long jump competition, then we have to take into consideration the technical and method particularities in order to choose the right means and dosage of effort during the training that has to be different between the weekly training cycles. These aspects are essential between the weekly training cycles for each stage. The present research aims at the Olympic cycle, of 4 years, period in which we registered all the training means used during each stage, taking into consideration the volume of training as well as the intensity of the effort.

The Methods used for the research in the scientific endeavour of this research were the following: the bibliographic method, the making of a record, the analysis and the comparison of data, as well as the statistical method. The research has at its basis the documents according to which the activity of a long jumper was planned (the author of the research) who had high results in the world classifications of this competition (7.14 m).

The General Discussion and Conclusion of the present research underlines the fact that the training weekly cycles differ according to the preparatory stages, as to the diversity of the used means during the training course as well as from the point of view of the training effort whose indicators are different, in accordance to the demands and objectives of that particular stage. Domain experts have demonstrated the effort means and indicators whose parameters are differentiated according to the requirements and objectives of each stage and presents structures, periodizations and training cycles as well as action technologies in applying the weekly cycles whose principles can be perfectly applied to the conclusions of the paper herewith.

Key words: training stages, long jump, dosage means.

1Department Of Motric Universitary Activities And Sports, “Oil And Gas” University, Ploiesti, ROMANIA
Email: dmirela714@yahoo.com
Introduction

A modern training requires more and more effort from the part of a long jumper. Achieving performance in this athletic test, at the level of nowadays worldwide requirements makes it necessary to devote a lot of time to training and the energy spent during this training must be oriented and adapted to the requirements of each stage. A continuous training regularly performed throughout the year represents a mandatory condition in the athlete preparation, regardless to the competition he is training for and is specialized in.

The distribution of the training throughout the year must be done according to the need to achieve superior indicators of performance in certain stages set in the athletics timetable. This is why the annual schedule must be structured so that it alternates the periods, training stages, pre-completion, with the competition stages of the schedule. This is also the reason why the annual training cycle must be structured in such a way that it alternates the periods, stages of training, pre-competition with the competition ones, of recovery and transition. During training we shall take into account especially the competition schedule, the performance objectives, the tasks of the training and the necessary time to solve them. The organisation of the training for the long jump, athletic task with competition season indoors and outdoors, shall be done as follows:

Preparatory period November 1st – January 31st
Competition period February 1st- March 4th
Recovery period March 6th- 15th
Transition period March 15th – 20th
Preparatory period March 20th – May 15th
Competition period May 20th – September 1st
Recovery period September 1st – September 15th
Transition period September 15th – September 30th

Each of these periods has specific tasks and objectives well defined under the aspect of means, specific to training effort and competition, to the characteristics of effort indicators etc.

The preparatory period is characterized by training that aims at achieving motric indicators, physiologically heightened compared to the ones of the precedent year. There where this is possible, a higher training volume, the general development of the of the motric qualities as well as those specific to the competition in which he specializes, the raise of work capacity of the important body functions, the accumulation of theoretic knowledge that can offer the athlete another perspective in approaching training. During the preparatory period we are interested in the general physical training that aims at ensuring the body of the jumper a good work capacity for effort and has to reinforce and maintain a good health, to increase body resistance, improve motric capacity and also increase motric habits, perfect the manifestation of these motric abilities and the ability to adapt to different situations, obtaining a high training level in order to help the athlete get in shape easily and maintain that physical shape. Among the physical training means used during training we can enumerate: sprints, fencing, runs on different types of terrain, different types of throws. The competition period is the time we try to obtain a high sports physical shape in order to achieve high performance. We develop motric qualities specific to the test, we increase the training degree, we maintain the physical training at a high level, we ensure a good technical training, perfect the technique, we ensure a good psychological training and we try to perfect this technique through competitions, to obtain competition experience. We notice that we need to continue to develop the motric qualities specific to the long jump. For example, speed – that is an important motric quality for a long jump is situated on the same level as force or detent. For the long jump, speed tends to reach its maximum point on the last part of the take-off and this makes us focus on it even more during training, especially for distances of 40–50 m take-offs. The training for speed development of the long jumper, as the quality of his sports master ship increases, becomes more and more specialized and is oriented towards the requests of the competition. The special speed is defined by the capacity to execute at a required speed, usually very high, the competition exercises, its elements and parts. The special speed, especially the maximum one is specific and it refers strictly to the learnt movements of the action, that are perfected during training for the exercises it refers to. The speed of the movement is conditioned mainly by the brain cortex, the nervous process that command contraction, strain and muscle relaxation that directs and coordinates the action of the jumper. Speed exercises are included in all the stages of the annual cycle, but during winter the running distances are smaller, but the exercises for developing reaction speed and execution will be increased. During all take-off and summer stages the training will focus on developing movement speed. The general volume of these exercises won’t be very great, taking into account the high intensity of the execution. During the competition stages, when full take-offs are used, apart from special speed exercises, the development of this skill will be performed separately or at the same time as the technique, during take-offs, as some specialists state; Todea, (1971), Bauersfel, (1979), Gracev, (1981), Tatu, (1981) all quoted by professor Ionescu, Ionescu Bondoc, PhD thesis, Chișinău, 2004.
As a result of the discussions held with the trainers and elite jumpers, and also taking into account my personal experience of long jumper, in order to develop the necessary motric qualities to obtain notable results in this competition, special methods and training means are used, and they all can be met in the literature in this field.

The trainers have the task to dose them according to the athlete capacity, his level of training and objective. We will present as follows examples of such means for every single one of these motric capacities. We can develop these motric capacities in the long jump using the following exercise:

- run with start standing over distances of 20-60 m and tempo of 95-100%;
- run with launched start over distances of 20 – 50 m in tempo of 95-100%;
- run with start standing down over distances of 20 – 50 m in tempo of 95-100%.

To these exercises that are specific to a sprint runner we must add exercises that are specific to the long jump with take-off, such as:

- run with take-off passing over the threshold;
- running at different paces over distances of 40 – 60 m.

We often use exercises that develop reaction speed:

- sprint with start standing down at command, over short distances of 10 – 15 m;
- Running with varied tempos on short distances at command.

The force is not only an important motric quality in the training of long jumpers and is presented in training throughout the year at almost every stage, but the means and its intensity and volume differ according to the stage we are at.

Developing muscular force for long jumpers has many methods, among which, the most well-known and used one is the weight lifter method.

In the development process of force we are first of all interested by the muscles that perform the main effort in the long jump. Thus, we have established exercises that are meant to increase force in the body segments, as follows:

In order to increase force at the level of lower limbs the following strengthening exercises shall be used:

- the semi- squat while expanding the legs or finalized by jumps;
- pushing weights with the legs while lying (fixed position);
- jump with weights and without;
- lift on the toes with the weight on the shoulders;
- running uphill;
- jumps over different types of fences;
- multiple jumps in semi-flexion;
- extension jumps with counter-movement.

In order to develop the muscular force of the trunk we can use the following exercises:

- bending ahead and regaining straight positing with the weight on the shoulders;
- bending the trunk while lying on a non-levelled bench with weights on the back of the head;
- throwing the medicinal ball in different positions.

In order to develop arm muscles and those of the scapular belt we can use the following exercises:

- lifting the weight to the chest while sitting;
- pushing while lying;
- squatting.

In order to develop the abs and those of sacro-lumbar muscles we can use the following exercises:

- bending the trunk while sitting on a non-levelled bench;
- lifting the legs above the head while hanging from the trellis.

Another motric quality of development that will be permanently found during the training classes of the long jumper, regardless of the training stage we refer to is grace.

Grace is a motric quality that helps the easiness with which the athlete runs as well as to the performance of the take-off and jump. We noticed that grace manifests itself especially during the take-off by the amplitude of the steps and influences the personal results of top jumpers of the years 1992-2000. We must also add that long jumpers are also excellent speed runners, (fact that I must personally insist on, myself being an excellent sprinter, even a national record man), as during take-off a maximum controllable speed can be developed through the last stride and leap from the ground.

All these means and methods that we described are present during the training throughout the year, weather when we talk about the training stage, pre-competition stage, competition, but they all bear different significance on the volume and intensity at which we work with them in full accordance with the stage we refer to.

The recovery period is obligatory but can have a different approach according to the number of contests at which the athlete takes part in, the degree of physical and psychical effort the athlete had to undergo, whether he suffered or not from accidents throughout the training period or during competition.

The transition period is one that facilitates a gradual passing from relaxation or rest to the active state of training, the re-accommodation to effort, to a very orderly program to regard to sleep and diet.

The Hypothesis and Scope of the Research

The present study wants to validate the hypothesis thus stated: if we schedule the training that is made of preparatory stages, pre-competition one, competition and recovery, for the long jump, we must take into account the technical and methodical particularities as to the means and effort dosage in different training that is specific to every stage of the training. The
The present research refers to an Olympic cycle, namely one of 4 years, period that registered all the training means characteristic to every development stage, taking into consideration the volume and intensity of the effort. In choosing the methods of development of different motric qualities necessary to obtaining high performance, we tried to use complex ones, measuring the exterior qualities and the internal ones, permanently trying to transform the temporary uncontrollable, the uncontrollable (unknown) in measurable (known, controllable). Only by doing so their effect and biological echo became favourable to this type of competition – the long jump.

Research Methods
The research took place during the Olympic cycle 1988 – 1992, the data was gathered from my personal annual training, that generally followed the same schedule, the difference represented the quality of the training, its volume, that was gradually increased every year, but each starting point of the training consisted of the values of the high indicators that allowed us to boldly approach the yearly schedules, while continuously increasing the volume and intensity volume. Every year we approach the two competitive seasons. We must mention that in the year 1992 we were especially interested in the open air competition, namely the Olympics in Barcelona 1992. The used research methods during the scientific endeavour were as follows: the bibliographic method, the registration and data comparison, the statistic method.

The research was based on the schedule documents of a long jumper (the author of this study) who had top performance in the world classifications of this competition (7.14 m). Herewith, I shall include the schedule of my training program for the Olympic year 1992:

Results

Table 1. The Schedule of the Training Plan

<table>
<thead>
<tr>
<th>TRAINING PERIOD</th>
<th>COMPETITION PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATING THE DATABASE FOR OBTAINING SPORTIVE SHAPE</td>
<td>PLANNING THE ACHIEVEMENT OF THE SPORTIVE SHAPE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL BASIS</th>
<th>DOMINANT BASIS</th>
<th>SPECIFIC BASIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 weeks</td>
<td>3 weeks</td>
<td>1 Training contest with the results: 6.72 m and 11.71 m</td>
</tr>
<tr>
<td></td>
<td>2 weeks</td>
<td>2 Training contests with the results: 6.98 m and 6.78 m</td>
</tr>
</tbody>
</table>

Table 2. Example of weekly training cycle during the training period (creating general basis).

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minutes Gymnastics</td>
<td>5 minutes easy running</td>
<td>20 minutes of warming up 2-3x60 m Running exercises 6x200m 1/2</td>
<td>Warming up 20 minutes. 1X60 m running exercises</td>
<td>Warming up 20 minutes. Fence running:</td>
<td>Warming up Force: Squats with weight: 10x50 Kg, 10x70 Kg, 10x90 Kg</td>
</tr>
<tr>
<td>3 minutes easy running</td>
<td>5 minutes gymnastics</td>
<td>50 abs repeated 2x10x50 Kg, 2x10x60 Kg, 2x10x70 Kg</td>
<td>10 decajumps 15x4 g x5 steps</td>
<td>Semi squats with jumps: 3x10x80 Kg</td>
<td></td>
</tr>
<tr>
<td>5 minutes Gymnastics</td>
<td>5 minutes easy running</td>
<td>6x100m Acc. 3/4</td>
<td>50 abs repeated 2x10 back repeated</td>
<td>40 abs running repeated with knees high</td>
<td>Tie lifts: 4x10x15 Kg</td>
</tr>
<tr>
<td>6x10 Abs</td>
<td>Lift on toes with weights: 15x70 Kg, 15x80 Kg</td>
<td>60 abs repeated</td>
<td>2x10 Backs repeated 8x60 m 1/2</td>
<td>2 x10 backs repeated</td>
<td>Jumping steps: 2x10</td>
</tr>
<tr>
<td>3x10 repeat back</td>
<td>Pulling: 2x10x30 Kg</td>
<td>10 minutes easy</td>
<td>40 abs repeated</td>
<td>50 abs repeated</td>
<td>5x200m 1/2</td>
</tr>
</tbody>
</table>
Table 3. Example of weekly training cycle during the training period (creating specific database):

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td></td>
</tr>
<tr>
<td>15 jumps standing down</td>
<td>5 Min. Gymnastics</td>
<td>Running: 2x30m</td>
<td>Running: 3x30m 1/1</td>
<td>Running: 3x30 m 1/</td>
<td></td>
</tr>
<tr>
<td>Timed running: 2x10m, 2x20m, 3x30m</td>
<td>Timed running: 3x50m jumping</td>
<td>2x10 backs repeated</td>
<td>2x50m jumping</td>
<td>40 repeated abs</td>
<td></td>
</tr>
<tr>
<td>Running with knees high: 3x40m</td>
<td>Running with knees high: 15 long jumps</td>
<td>Running with knees up</td>
<td>Running with knees up</td>
<td>Running with knees up</td>
<td></td>
</tr>
<tr>
<td>Lifting on toes with weights: 5 jumps on steps</td>
<td>Lifting on toes with weights: 2x10 backs repeated</td>
<td>5 jumps with 5 steps</td>
<td>5 jumps with 5 steps</td>
<td>5 jumps with 5 steps</td>
<td></td>
</tr>
<tr>
<td>8x100m ½</td>
<td>10 jumps on steps</td>
<td>8x100m (75%-85%)</td>
<td>8x100m (75%-85%)</td>
<td>8x100m (75%-85%)</td>
<td></td>
</tr>
<tr>
<td>Long jump with small take-off: 60 abs repeated</td>
<td>10 Min. easy run</td>
<td>Abs with 40 repeats</td>
<td>Abs with 40 repeats</td>
<td>Abs with 40 repeats</td>
<td></td>
</tr>
<tr>
<td>5 jumps with 5 steps</td>
<td>10 Min. easy run</td>
<td>2x30m repeats.</td>
<td>2x30m repeats.</td>
<td>2x30m repeats.</td>
<td></td>
</tr>
<tr>
<td>7 jumps with 7 steps</td>
<td>1x50m</td>
<td>3x30m</td>
<td>3x30m</td>
<td>3x30m</td>
<td></td>
</tr>
<tr>
<td>10 long jumps without take-off</td>
<td>2x100m</td>
<td>2x100m</td>
<td>2x100m</td>
<td>2x100m</td>
<td></td>
</tr>
<tr>
<td>Running: 8x decijumps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Example of weekly training cycle for the competition period:

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td>Warming up 20 minutes</td>
<td></td>
</tr>
<tr>
<td>Timed running:</td>
<td>Launched running: 4x100m (1/2)</td>
<td>Timed running:</td>
<td>Timed running:</td>
<td>Timed running:</td>
<td></td>
</tr>
<tr>
<td>2x30m</td>
<td>2x30m</td>
<td>3x30 m</td>
<td>3x30 m</td>
<td>3x30 m</td>
<td></td>
</tr>
<tr>
<td>2x30m Speeded CONTEST</td>
<td>Speeded CONTEST</td>
<td>Speeded CONTEST</td>
<td>Speeded CONTEST</td>
<td>Speeded CONTEST</td>
<td></td>
</tr>
<tr>
<td>Triple jumps: 5 repeats running:2x100m</td>
<td>Reached: 3 jumps with 7</td>
<td>Long jump: 4x80kg</td>
<td>Long jump: 4x80kg</td>
<td>Long jump: 4x80kg</td>
<td></td>
</tr>
<tr>
<td>Long jump:5 repeats</td>
<td>3 jumps with 7</td>
<td>10x60Kg</td>
<td>10x60Kg</td>
<td>10x60Kg</td>
<td></td>
</tr>
<tr>
<td>Launched running:</td>
<td>Penta-jump: 7</td>
<td>Running with 15x70 kg</td>
<td>Running with 15x70 kg</td>
<td>Running with 15x70 kg</td>
<td></td>
</tr>
<tr>
<td>2x100m ½</td>
<td>3x30m</td>
<td>3x30m</td>
<td>3x30m</td>
<td>3x30m</td>
<td></td>
</tr>
<tr>
<td>Abs: 60 repeats</td>
<td>60 repeated abs</td>
<td>60 repeated abs</td>
<td>60 repeated abs</td>
<td>60 repeated abs</td>
<td></td>
</tr>
<tr>
<td>Running with the knees high: 1x30m (1/1)</td>
<td>5 minutes easy running</td>
<td>5 minutes easy running</td>
<td>5 minutes easy running</td>
<td>5 minutes easy running</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Example of weekly training cycle for the competition period with 2 competitions of objective:

<table>
<thead>
<tr>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaving for contest in Vienna</td>
<td>Leaving for contest Sofia</td>
<td>Leaving for contest Sofia</td>
<td>Leaving for contest Sofia</td>
<td>Leaving for contest Sofia</td>
<td>Leaving for contest Sofia</td>
<td>Leaving for contest Sofia</td>
</tr>
<tr>
<td>Warming up 20 minutes</td>
<td>Warming up 10 Min.</td>
<td>5 Min. Gymnastics</td>
<td>5 minutes of</td>
<td>Speeded CONTEST</td>
<td>5x10m (1/1)</td>
<td>7x50 Kg</td>
</tr>
<tr>
<td>Timed running:</td>
<td>Force:</td>
<td>Running:</td>
<td>running 5 minutes of</td>
<td>Performance:</td>
<td>7x50 Kg</td>
<td>7.14 m</td>
</tr>
<tr>
<td>5 minutes of</td>
<td></td>
<td>Running with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 minutes of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2x100m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 minutes easy running</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussions

Following a certain type of schedule that aimed at scheduling the training period as well as that of the competition itself, we managed to draft, for each year, a training schedule that has the same principles, but different data. All the training techniques have the same major objective in reaching a sports good shape, according to the competition timetable.

As we can notice from Table 1, the training period has as main objective creating a database for achieving sportive shape. We refer to three types of basis: general, dominant and specific, that differ in terms of length, importance of means, have different characteristics as to the volume and intensity of effort. For the period in which our objective is to create general basis we work with an effort intensity of 70% and a training volume of 95%-100%. During the training for forming the dominant basis, the trimming volume registers a slight decrease, between 90%-85%, and the effort intensity registers a slight increase, reaching a level of 75%-80%. At the end of the training period, we create the so called specific basis for training, that will have a volume that will not exceed 75%-80% but we’ll register an increase of effort of 90%.

We enter gradually in the competition stage, by increasing the intensity volume during the period in which we contour the sportive shape, the training volume is gradually reduced, reaching 50-60% during the stage of sportive shape stabilization. The means of general physical training:
- sprint
- fence jumping,
- running on different types of terrain,
- multiple jumps,
- different types of throwing exercises.

Means of special physical training:
- contest competition, mainly the long jump performed during contests
as action technologies in applying the weekly cycles whose principles can be perfectly applied to the conclusions of the paper herewith. We recommend staging the training schedule according to table 1, as the preparatory stages fulfilled and stresses all the demands of the training stages, makes it easy to choose the necessary means and allows efficient dosage of the 2 indicators and the training effort, namely volume and intensity and it also adapts the training effort according to its specific needs and the requests of the training task and the competition demands.

Bibliography

Ardelen, T., 1982, Particularităţile dezvoltării calităţilor motrice. Bucureşti: Note de curs, ANEFS.


Bota, C. 1993, Fiziologia efortului fizic şi sportului, Publishing House ANEFS.


Dulgheru, M., 2006, Componente motrice nemetabolice în definirea specificităţii mişcării. Study no.3. Universitatea from Pitești.

