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

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### 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.

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## 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 1<sup>st</sup> – January 31<sup>st</sup>  
Competition period February 1<sup>st</sup>- march 4<sup>th</sup>  
Recovery period March 6<sup>th</sup>- 15<sup>th</sup>  
Transition period March 15<sup>th</sup> – 20<sup>th</sup>  
Preparatory period March 20<sup>th</sup> – May 15<sup>th</sup>  
Competition period May 20<sup>th</sup> – September 1<sup>st</sup>  
Recovery period September 1<sup>st</sup> – September 15<sup>th</sup>  
Transition period September 15<sup>th</sup> – September 30<sup>th</sup>

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;

lifting the trunk in different positions with weights; 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 sacrolumbar muscles we can use the following exercises:

bending the trunk while sitting on a non-levelled belt;

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



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

TRAINING FOR ACHIEVING A SPORTIVE SHAPE					
THE INITIAL FORM OF DEVELOPMENT OF THE SPORTIVE SHAPE			COMPETITION PERIOD		
TRAINING PERIOD			ACHIEVEMENT OF THE SPORTIVE SHAPE		
CREATING THE DATABASE FOR OBTAINING SPORTIVE SHAPE			PLANNING THE SPORTIVE SHAPE	ACCELERATING THE SPORTIVE SHAPE	STABILIZING THE SPORTIVE SHAPE
GENERAL BASIS	DOMINANT BASIS	SPECIFIC BASIS	CONTOURING THE SPORTIVE SHAPE	ACCELERATING THE SPORTIVE SHAPE	STABILIZING THE SPORTIVE SHAPE
5 weeks	3 weeks	3 weeks	2 weeks	3 weeks	5 weeks
		1 Training contest with the results: 6.72m and 11.71for 100mp	2 Training contests with the results: 6.98m and 6.78m		4 Contests with the results: 7.09m, 7.14m, 6.90m, 6, 83m

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

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
5 minutes - Gymnastics	5 minutes easy running	20 minutes of warming up	Warming up 20 minutes.	Warming up 20 minutes	Warming up Force:
3 minutes easy running	5 minutes gymnastics	2-3x60 m Running exercises	1X60 m running exercises	Fence running:	Squats with weight:
5 minutes - Gymnastics	Force: squats with weights:	6x200m ½	10 decajumps	15x4g x5	10x50Kg
5 minutes of easy running	2x10x50 Kg,	50 abs repeated	10x100m	steps	10x70kg
10 minutes running exercises	2x10x60 kg,	2x10 backs repeated	60%	3x30 m	10x90 Kg
6x100m Acc. ¾	2x10x70 kg		40 abs repeated	running with knees high	Semi squats with jumps:
6x10 Abs	Lift on toes with weights:		2x10 Backs repeated	8x60m ½	3x10x80 Kg
3x10 repeat back	15x70Kg			40 abs repeated	Tie lifts:
	15X80 Kg			2 x 10 back	4x10x15 Kg
	Pulling:				Jumping steps: 2x10
	2x10x30 Kg				50 abs repeated
	60 abs repeated				5x200m 1/2
	10 minutes easy				



running

**Table 3.** Example of weekly training cycle during the training period (creating specific database):

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Warming up 20 minutes 15 jumps standing down Timed running: 2x10m 2x20m, 3x30m Running with knees high: 3x40m 8x100m 1/2 //////////////////////////////////// Warming up Long jump with small take-off: 5jumps with 5 steps 7 jumps with 7 steps 10 long jumps without take-off	5 minutes of easy running 5 Min. Gymnastics Force: squats with weights: 2x10x50 Kg, 2x10x60 kg, 2x10x70 kg Lifting on toes with weights: 15x70Kg 15X80 Kg Pulling: 2x10x30 Kg 60 abs repeated 10 Min. easy run	Warming up 20 minutes 3x50m jumping steps 3x50m jumping steps 15 long jumps without take-off 10 jumps on steps 50 abs repeated 2x10 backs repeated	Warming up 20 minutes Running 5x200m 1/2 40 repeated abs 2x10 backs repeated //////////////////////////////////// Warming up 20 minutes Running with different tempos 6x100m Timed running: 2x30m 1x50m 2x100m 8 decajumps	Warming up Timed running: 3x30 m 1/1 Running with knees up 3x40m Long jumps: 5 jumps with 5 steps 5 jumps with 7 steps 8 jumps with 9 steps Speeded run: 4x100 (75%-85%) Abs with 40 repeats. 2 x10 back	Warming up Jumps standing down:12 repeats Timed running: 3x80m Force: Semi squats with jumps: 10x50 Kg 10x80Kg 10x90kg 10x100Kg 10x90kg 10x80Kg 10x60 Kg Launched run: 8x80m (1/2) 50 abs repeated

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

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Warming up 20 minutes Timed running: 2x30m 2x50m Triple jumps: 5 repeats Long jump :5 repeats Launched running: 2x100m 1/2 Abs: 60 repeats	5 minutes of easy running 5 minutes of gymnastics Speeded running:2x100m Pole-jump: 4 jumps Tripe jumps Running with the knees high: 1x30m (1/1) 60 repeated abs 5 minutes easy running	CONTEST Reached performance: 6.78m	Warming up 20 minutes Launched running: 4x100m (1/2)	Warming up Timed running: 3x30 m Triple jump: 3 times Long jump: 3 jumps with 7 steps 5 jumps with 9 steps Pentajump: 7 repeats Running with knees high: 3x30m Speeded run: 4x100 (75%-85%) Abs 40 Repeat.	Warming up Force: Squats with jump: 7x50 Kg 6x70Kg 4x80kg Semi with jump: 10x60Kg 10x70kg 10x80Kg 10x60 Kg Lifting on toes: 15x70 kg 15x80 Kg Lifting on tie: 4x8x15 kg 50 abs repeated

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

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Leaving for contest in Vienna //////////////////////////////////// Warming up 20	5 minutes of easy running 5minutes of gymnastics Speeded run:2x100m	CONTEST Performance obtained:	Warming up 10 Min. Force: Squats with jumps: 7x50 Kg	Leaving for contest Sofia //////////////////////////////////// Warming up Timed running:	Warming up Jumps standing up: 5x10m (1/1) Long jumps without take-	<b>Contest</b> Performance obtained: 7.14 m



minutes	Triple jump: 3	7.09 m	5x60Kg	2x30 m	off: 5repeats
Times run:	jumps		4x70kg	Triple jump:	Speeded run:
2x30m	Running with		2x4x80Kg	3 repeats	2x100m
Triple jump: 5	knees high:		Semisquat	Pentajump: 3	(3/4)
repeats	1x30m (1/1)		with jump:	repeats	Abs: 20
Long jump	30 Repeat. Abs		8x50Kg	Running with	repeats
standing:5 repeats	5 Min. easy		7x60kg	knees high:	
Running with	running		5x70Kg	1x30m (1/1)	
knees high:			2x4x80 Kg	Speeded run:	
2x30m (1/1).			Lifts on toes:	4x100m	
Launched			15x70 kg	(75%-85%)	
running: 2x100m			15x80 Kg	Abs 40	
1/2			Lifts on tie:	Repeats	
Abs: 40 repeats			4x8x15 kg		
			50 Abs		
			repeated		

### 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

- contest competition performed during the training: in the same conditions as during contest, in modified conditions as to contest ones, having different types of take-off: small take-off (5 steps), medium take-off (7 steps) and big take-off.
- special exercises for consolidating and perfecting the jump technique and developing motric qualities.

Used means during competition stage:

- exercises for perfecting the jump technique
- jumps with big take-off
- timed run

Specific means for the recovery period:

- Active rest; movement games, swimming, other sports
- Physiotherapy, if necessary

The hypothesis of the study was confirmed, the data of the work are real, verified, this study has at its basis the data gathered from the training schedule of an Olympic cycle that was performed and finalised, obtaining worldwide performance in long jumps.

### Conclusions.

The general **conclusion** of the present research underlines the fact that weekly training cycles differ according to the training stages by the diversity of means used during the training class as well as the characteristics of training effort whose indicators differ in importance according to the requests and objectives of the stage.

This aspect is presented and demonstrated by Professor- Trainer Ionescu Bondoc, in his PhD thesis, sustained at Chişinău, (2004). He thus presents the effort means and indicators whose parameters are differentiated according to the requirements and objectives of each stage. Professor and trainer (1987) in his book „Performance Athletics ” 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. 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.

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