Bulletin of the *Transilvania* University of Braşov
Series IX: Sciences of Human Kinetics • Vol. 12(61) No. 2 – 2019
https://doi.org/10.31926/but.shk.2019.12.61.2.39

ANALYSIS OF THE ABSOLUTE AND RELATIVE VALUES OF THE TOOLS FOR RUNNING AND STRENGTH PREPARATION PER MESOCYCLES IN THE WOMEN'S TRIPLE JUMP DISCIPLINE

Theresa MARINOVA[1]

Abstract: *The objective of this study is to analyze the data of the running training tools per mesocycles and to analyze the data of the physical strength training tools per mesocycles. For this purpose, we have analyzed the absolute and relative values of the preparation tools per mesocycles implemented by Theresa Marinova, Olympic, World and European champion. The analysis of the load parameters of the individual strength training tools per mesocycles has confirmed our finding, as mentioned above, that the basic training tools for the research athlete are the "Semi-squat on one foot", "Semi-squat on two feet" and "Stepping on a high object" exercises.*

Key words: *triple jump, women, training.*

1. Introduction

The primary objective of this study is to reveal the specifics of the training workload organization within the annual training cycle in a highly qualified triple jump female competitor. For this purpose, we have analyzed the absolute and relative values of the preparation tools per mesocycles implemented by Theresa Marinova, Olympic, World and European champion.

In general, the dynamics of the volume of the individual training tools coincides with the dynamics of the total volume of strength training, namely a gradual increase in the preparatory stages and a reduction in the stages of participation in competitions. On the other hand, the maximum cumulative volumes of the individual strength training exercises fall into different mesocycles, which is an indicator of rationality in the rate distribution of the strength training volume within the annual training cycle.

Sports preparation during the analyzed sports competition season begins in October and this is the first mesocycle of the annual preparation.

[1]NSA "Vassil Levski", Sofia, Bulgaria.

During the third mesocycle (December) of the training activities, exercises to develop the maximum running speed are gradually added. Initially, sections of a longer length (100-150 m) are included, and then the speed is developed by means of shorter lengths (20-60 m).

The increase and decrease of the total volume of strength training per mesocycles is directly related to the change in the intensity of performance of the strength training exercises. In the periods of volume decreases, the focus is on the speed of execution, and control exercises

Objectives: To analyze the data of the running training tools per mesocycles. To analyze the data of the physical strength training tools per mesocycles.

2. Material and Methods

As a basis for analysis we chose the year when the athlete achieved the greatest success in her career, i.e. the Olympic title during the 1999/2000 sports competition season.

3. Results

In the first month, the running training tools are limited to running 100-200-meter lengths with an intensity of less than 90%, alternating running, cross-country running, acceleration and specialized running workouts (Tables 1, 2). In the next month (November), the training also includes 20-60 m long sections, which are also run with non-marginal intensity to improve the rhythm and freedom of movement during running.

The volume of the running workout tools of non-marginal intensity is gradually increased in the first three months of preparation, reaching their maximum load values for both shorter and longer sections (20.55 and 19.74%, respectively) in December. The volume of the alternate runs, acceleration runs and number of runs up to the full speed, reaches their highest values in February, March and April.

To develop the strength endurance, sections with 2.5 – 5 kg sled at maximum speed are introduced in February and these exercises are used almost throughout the entire subsequent preparation period.

In general, the change in the volume of the strength preparation tools is “wavy” and the rate of the individual mesocycles is ranging from 2.47% to 14.27% against the total annual load. This shows that the rate distribution of the volume per mesocycles falls within the normal ranges and corresponds to the traditional system (model) of sports preparation, according to which no more than 15% of the total annual volume may be allocated to each mesocycle of the annual preparation. In this sense, it should be noted that according to other systems (models) of preparation (block model – Y. Verhoshansky, 1989), the rate of a particular type of preparation or individual training tool within the different mesocycles may reach a concentrated volume of 25% of the annual one.

The dynamics of the total volume of strength training is characterized by two clearly defined peaks. These are the 6^{th} and 11^{th} mesocycles (March and August), or 12.85% and 14.27% respectively of the total annual volume. The dynamics is directly related to the sports calendar, subject to the rule for increase during the stages for development of strength endurance, speed and strength

endurance, and maximum strength, and decrease during the stages for development of explosive power immediately before the competitive periods. Thus, the total load of strength training increases during the first three mesocycles (October-December), then decreases in January. There is a further significant increase over the next four mesocycles, with a slight decrease in April.

The first competition period for the spring-summer macrocycle is associated with a significant decrease in the volume of strength training (June and July, 5.82% and 9.57% respectively).

August is the month of the second peak of total strength training (14.27%) and this training is entirely focused on preparation for the Olympic Games. In the mesocycle of participation in the most important competition for the year (September) there is a new significant decrease in the load of strength training.

Table 1

Absolute values of the running tools per mesocycles during the 1999-2000 sports competition season (meters)

Months / Tools	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Total
Sections above 95% intensity													
Sections with 20–60m length				1,140	2,160	1,650	2,390	3,110	1,900	3,050	3,550	1,530	**20,480**
Sections with 100–150m length			1,200		600	6,300	4,400	2,950		3,850	3,200	200	**22,700**
Sections with 2.5–5 kg (m) sled, 40–50m length					1,300	1,380	1,040	720		760	720		**5,920**
Sections opposite slope			600							1,200			**1,800**
Sections below 90% intensity													
Cumulative 20–60 m		540	3,040	1980	2,120	2,040	1100	480	720	920	1,370	480	**14,790**
Cumulative 100–200 m	1,900	5,420	6,450	400	4,500	5,000	2,080	600	600	1,800	3,720	200	**32,670**
Alternate running 40–100 m	500	1,100			1600		1,400						**4,600**
Acceleration	1,720	4,500	5,600	4,260	5,040	5880	4,920	5,760	4,320	3,960	5,520	3,360	**54,840**
Runs up to full speed				9				25	7		8	15	**64**
Highly raised knee		1880	720		440	600	160	360	630	250	90		**5,130**
Specialized running workouts	2,960	11,160	9,600	9,900	17,160	18,690	13,200	15,510	12,210	13,500	17,280	8,400	**149,570**
Cross running	10,000	10,000			7,000	2,000	3,000	3,000		3,000			**38,000**

Table 2

Relative values of the running tools per mesocycles during the 1999-2000 sports competition season (%)

Months / Tools	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Total
Sections above 95% intensity (m)													
Sections with 20 – 60 m length				5.57	10.55	8.06	11.67	15.19	9.28	14.89	17.33	7.47	100
Sections with 100 – 150 m length			5.29		2.64	27.75	19.38	13.00		16.96	14.10	0.88	100
Sections with 2.5 – 5 kg (m) sled, 40 – 50 m length					21.96	23.31	17.57	12.16		12.84	12.16		100
Sections opposite slope			33.33							66.67			100
Sections below 90% intensity (m)													
Cumulative 20 – 60 m		3.65	20.55	13.39	14.33	13.79	7.44	3.25	4.87	6.22	9.26	3.25	100
Cumulative 100– 200 m	5.82	16.59	19.74	1.22	13.77	15.30	6.37	1.84	1.84	5.51	11.39	0.61	100
Alternate running 40 – 100 m	10.87	23.91			34.78		30.43						100
Acceleration	3.14	8.21	10.21	7.77	9.19	10.72	8.97	10.50	7.88	7.22	10.07	6.13	100
Runs up to full speed				14.06				39.06	10.94	0.00	12.50	23.44	100
Highly raised knee		36.65	14.04		8.58	11.70	3.12	7.02	12.28	4.87	1.75		100
Specialized running workouts	1.98	7.46	6.42	6.62	11.47	12.50	8.83	10.37	8.16	9.03	11.55	5.62	100
Cross running	26.32	26.32			18.42	5.26	7.89	7.89		7.89			100

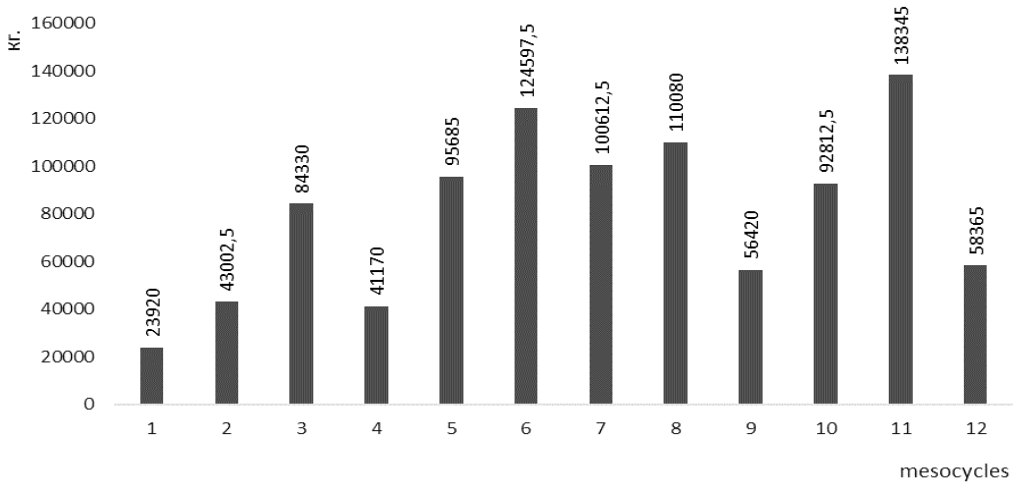

Fig. 1. *Absolute values of the volume of the strength training per mesocycles*

Table 3

Absolute values of the strength training tools per mesocycles for the 1999-2000 sports competition year (kg)

Months / Tools	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Total
Semi-squat on 1 foot	10,600	13,080	20,600	5,520	10,080	40,480	24,890	35,120	9,400	36,380	68,580	24,860	299,590
Hurling	2,040	5,410	6,900	1,325	5,455	5,912.5	3,860	4,095	800	4,425	4,457.5	1,400	46,080
Stepping on a high object	3,560		3,600	3,960	13,720	18,440	29,180	37,660	21,560	33,160	35,000	15,860	215,700
Squat	3,400	7,260	13,580		17,420	6,455	20,225	6,375					74,715
Reversing-squat-hurling	2,400	1,650	1,290		670	1,215							7,225
Reversing to the chest level	1,920	4,402.5	4,930	2,165	11,480	10,215	6,377.5	6,190	1,300	6,267.5	6,057.5	2,005	63,310
Lifting of the ankles with 30-50 kg		1,000	5,250		2,800	6,800	5,600	5,000	4,440		3,800	2,900	37,590
Semi-squat on 2 feet		10,200	25,930	19,810	21,300	26,720	5,040	10,460	12,680	10,080	15,750	6,720	164,690
Jumps from the ankle with 30-40 kg			2,250	2,700	800								5,750
Jumps from semi-squat				5,690	3,680	5,480	2,880	5,180	6,240	2,500	4,700	4,620	40,970
Barbell in motion					8,280	2,880	2,560						13,720
General strength training	23,920	43,002.5	84,330	41,170	95,685	124,597.5	100,612.5	110,080	56,420	92,812.5	138,345	58,365	969,340

Table 4

Relative values of the strength training tools per mesocycles for the 1999-2000 sports competition year (%)

Months / Tools	X	XI	XII	I	II	III	IV	V	VI	VII	VIII	IX	Total
Semi-squat on 1 foot	3.54	4.37	6.88	1.84	3.36	13.51	8.31	11.72	3.14	12.14	22.89	8.30	**100**
Hurling	4.43	11.74	14.97	2.88	11.84	12.83	8.38	8.89	1.74	9.60	9.67	3.04	**100**
Stepping on a high object	1.65		1.67	1.84	6.36	8.55	13.53	17.46	10.00	15.37	16.23	7.35	**100**
Squat	4.55	9.72	18.18		23.32	8.64	27.07	8.53					**100**
Reversing-squat-hurling	33.22	22.84	17.85		9.27	16.82							**100**
Reversing to the chest level	3.03	6.95	7.79	3.42	18.13	16.13	10.07	9.78	2.05	9.90	9.57	3.17	**100**
Lifting of the ankles with 30-50 kg		2.66	13.97		7.45	18.09	14.90	13.30	11.81		10.11	7.71	**100**
Semi-squat on 2 feet		6.19	15.74	12.03	12.93	16.22	3.06	6.35	7.70	6.12	9.56	4.08	**100**
Jumps from the ankle with 30-40 kg			39.13	46.96	13.91								**100**
Jumps from semi-squat				13.89	8.98	13.38	7.03	12.64	15.23	6.10	11.47	11.28	**100**
Barbell in motion					60.35	20.99	18.66						**100**
General strength training	2.47	4.44	8.70	4.25	9.87	12.85	10.38	11.36	5.82	9.57	14.27	6.02	**100**

4. Conclusion

The volume distribution of the main preparation tools per mesocycles is determined by the preset objectives.

The load distribution of the main preparation tools per mesocycles is "wavy". The generic training tools aimed at developing more general, non-specific skills for the triple jump are increased in volume in the first few mesocycles of preparation for each macrocycle.

With the approach of the competition period and the need to enter into a sports shape, the nature of the training changes, including new, more specific, step-by-step and drop-out training tools.

References

1. Jalov, K.: *Training in triple jump*. Sofia, Univers, 1977.
2. Marinova, T., Miladinov, O., Vangelov, A.: Study of competition preparation of elite female triple jump athletes. *Track and fields & science*, 1(15), 2015, Sofia.
3. Popova, S.: Analysis of the bevel training of highly qualified sprinters in the autumn-winter macrocycle. *Questions of Physical Culture,* 1992, vol. 11, p.29.
4. https://www.iaaf.org/athletes/bulgaria/tereza-marinova-110013 Accessed: 06-01-2018.
5. https://books.google.bg/books?isbn=8172542348 Accessed: 06-01-2018.
6. https://books.google.bg/books?isbn=0810867818 Accessed: 06-01-2018.
7. https://books.google.bg/books?isbn=1412976855 Accessed: 06-01-2018.
8. https://books.google.bg/books?isbn=1615353291 Accessed: 06-01-2018