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

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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 6th and 11th 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 | X | XI | XII | I | II | III | IV | V | VI | VII | VIII | IX | Total |
|--------|---|----|-----|--|----|-----|----|---|----|-----|-----|----|-------|
| Sections above 95% intensity | | | | | | | | | | | | |
| Sections with 20-60m length | 2,140 | 2,160 | 2,160 | 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 | 3,050 | 3,200 | 200 | 22,700 | | |
| Sections with 2.5-5 kg (m) sled, 40-50m length | 1,300 | 1,380 | 1,040 | 720 | 700 | 720 | | | 5,920 | | |
| Sections opposite slope | 600 | | 1,200 | | | | | | 1,800 | | |
| Sections below 90% intensity | | | | | | | | | | | | |
| Cumulative 20-60 m | 640 | 5,040 | 1,190 | 2,120 | 2,040 | 1,100 | 490 | 720 | 920 | 1,370 | 480 | 14,780 | |
| 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 50-100 m | 500 | 1,100 | 1,100 | | | | | | | | 1,400 | 4,600 | |
| Acceleration | 1,720 | 4,500 | 5,800 | 4,260 | 5,040 | 5,000 | 4,920 | 5,780 | 4,320 | 3,960 | 5,520 | 3,360 | 54,840 | |
| Runs up to full speed | 9 | 25 | 7 | 8 | 15 | 64 | | | | | | | |
| Highly raised knee | 1,000 | 720 | 440 | 600 | 160 | 360 | 630 | 250 | 90 | | | 5,130 | |
| Specialized running workouts | 2,960 | 11,100 | 9,600 | 9,000 | 17,160 | 16,680 | 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

| Months | 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 | | | | | | | | | | | | |
| 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 | 13.74 | 1.22 | 13.77 | 15.30 | 6.37 | 1.84 | 1.84 | 5.51 | 11.39 | 0.01 | 100 |
| Alternate running 40 – 100 m | 10.97 | 23.51 | 34.76 | 30.43 | | | | | | | | |
| Acceleration | 3.14 | 8.21 | 10.21 | 7.77 | 9.19 | 10.72 | 8.97 | 10.50 | 7.88 | 7.22 | 10.67 | 6.13 | 100 |
| Runs up to full speed | 14.06 | | | | | | | | | | | | |
| 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 | | | | | | | | | | | |

Fig. 1. Absolute values of the volume of the strength training per mesocycles
Table 4

| Months | X | XI | XII | I | II | III | IV | V | VI | VII | VIII | IX | Total |
|--------|---|----|-----|---|---|-----|----|---|----|------|-------|----|-------|
| Semi-squat on 1 foot | 10.60 | 13.08 | 20.60 | 5.20 | 10.08 | 40.40 | 24,890 | 35.12 | 9.40 | 36.38 | 68.50 | 24,860 | 299.590 |
| Hurling | 2.04 | 5.41 | 6.00 | 1.32 | 5.45 | 5.912 | 4.095 | 800 | 4.425 | 4.457 | 5.4 | 4.03 | 129.5 |
| Stepping on a high object | 3.56 | 3.60 | 3.960 | 13.73 | 18.440 | 29.180 | 37.600 | 21.560 | 33.100 | 35.000 | 15.860 | 215.700 |
| Squat | 3.40 | 7.260 | 13.580 | 17.420 | 6.635 | 20.225 | 6.375 | 74.715 |
| Reversing-squat-hurling | 4.80 | 1.650 | 1.290 | 670 | 1.215 | 7.225 |
| Reversing to the chest level | 1.920 | 4.402 | 5.430 | 2.165 | 14.40 | 10.215 | 6.3775 | 6.190 | 1.300 | 6.2675 | 6.0575 | 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 | 37.500 |
| 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 | 40.700 |
| Barbell in motion | 8.280 | 2.880 | 2.560 | 13.720 |
| General strength training | 23.920 | 43.002 | 5.843 | 41.120 | 95.685 | 124.597 | 5.843 | 58.965 | 969.340 |

Table 4

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