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THE TRAINING PROCESS AS A CONTINUOUS METHOD OF INCREASING THE DEVELOPMENT OF ENDURANCE

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ABSTRACT. ***Aim:*** 5-6 years of training are necessary to obtain maximum results in freestyle wrestling. In order to reach a superior level, it is essential that effort should increase progressively within the training process. ***Objectives*****:** Studying evolution of strength and resistance of athletes in specific actions in freestyle wrestling, Analysing training organisation through effort methods, Studying and analysing execution techniques in sessions against the clock ***Methods:*** Dummy throws; going into the bridge position, duration**.** ***Results*****:** The recorded results point to an ascending evolution of values, which emphasises an improvement of the overall execution technique in better endurance conditions. ***Conclusions:*** Through constant and sustained training, we have achieved good progress, which shows that efficient means and correct methods of training were employed. Furthermore, the execution technique has also improved as a result of a large number of repetitions per time unit.

Keywords: *freestyle wrestling, resistance, cadets*

REZUMAT. ***Procesul de antrenament ca modalitate continuă de dezvoltare ascendentă a rezistenţei.*** Pentru obţinerea unor rezultate maxime în lupte libere sunt necesari 5-6 ani de pregătire. Pentru a atinge un nivel superior este necesar ca în cadrul procesului de antrenament creşterea efortului să se facă progresiv. ***Obiective*****:** Studierea evoluţiei forţei şi a rezistenţei sportivilor în acţiunile specifice din lupte libere, Analiza organizării antrenamentelor pe mijloace de efort, Studierea şi analiza tehnicii de execuţie în acţiuni contra-timp. ***Metode:*** Aruncări cu manechinul; Intrări în pod, durata***. Rezultatele*** indică o evoluţie ascendentă a valorilor, fapt ce evidenţiază o îmbunătăţire a tehnicii globale de execuţie într-un regim de rezistenţă mai bun. ***Concluzii:*** Prin antrenament repetat şi susţinut am obţinut o linie de progres bună, care demonstrează că s-au folosit mijloace eficiente şi metode corecte de antrenament. De asemenea s-a îmbunătăţit şi tehnica de execuţie, printr-un număr mai mare de repetări pe unitatea de timp.

Cuvinte-cheie: *lupte libere, rezistenţă, cadeţi*

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Introduction

5-6 years of training are necessary to obtain maximum results in freestyle wrestling. In order to reach a superior level, it is essential that effort should increase progressively within the training process.

Motivation of topic

Considering that the specialised literature (Siclovan, 1990) on wrestling deals less with the development of motor qualities of cadets, our intention is to approach the issue of the growth of endurance and thus to make a minimum contribution to clarifying some general and special resistance-related training rules.

Specialised concepts

The current bout for cadets consists of two periods of 2 minutes with a 30-second break, the duration determining the dynamic and decisive character of disputes (FRL, 2018). Basically, this means that one must be active from the first seconds after the gong sounds by attack, counterattack actions until the session ends (Cismaș, 1987).

The intensity of the current bout requires that the cadet should possess a superior development of all motor qualities and particularly of strength, speed endurance correlated with an efficient technique and a modern wrestling style (Siclovan, 1980).

For cadets aged 15-16, one can employ the means of developing endurance, grouped and standardised based on the criteria of tempo and functional strain level, which determine several stages of intensity: the stage of aerobic effort, the stage of low mixed effort, the stage of high mixed effort and the stage of anaerobic effort, without working to the detriment of speed, skill and mobility (Igumenoof, 1978). For this, the coach must make corrections to the different components of effort according to: age and individual particularities, anatomo-physiological and mental particularities of cadet wrestlers divided into weight categories. Compliance with these particularities will lead to the achievement of superior indices of the effort ability, thus avoiding fatigue and the overtraining phenomenon.

The complexity of the effort is related to the difficulty of acquiring and performing technical and tactical procedures, difficulties arising from the coordination movements that are part of their structure. The groups of procedures

that make up the freestyle wrestling technique are characterised by high complexity; therefore, regardless of the workload, the complexity of effort can never be low. The possibilities of carrying out a heavy workload or a specific activity of high intensity are subordinated to the level of development of the great central nervous system functions and to the morphological development of the body (Alexe, 1993).

In terms of the effort capacity, cadet athletes in high-performance groups are close to junior wrestlers. With them, the volume, intensity and complexity of effort will be increased considerably, avoiding excesses (Siclovan, 1990).

Objectives

- Studying evolution of strength and resistance of athletes in specific actions in freestyle wrestling
- Analysing training organisation through effort methods
- Studying and analysing execution techniques in sessions against the clock

Materials and methods

To carry out this study, we have investigated a batch of 10 athletes (girls), aged 15-16, who have been practising wrestling at the C.S PETROLUL PLOIEȘTI club for 5-6 years (Tabel nr.1). Each of these wrestlers has provided data and comments regarding the evolution of the development of effort endurance by means of certain tests.

Table 1. Group of subjects

No.	Subject names (Initials)	Age
1	A.B	15
2	N.L.A	16
3	M.N	15
4	N.C	15
5	M.S	15
6	S.D	16
7	I.D	15
8	V.V	16
9	P.E	15
10	P.A	15

The study

This experimental research aims to observe how technical results and wrestling style evolve within a 230 lesson-cycle, 6 training sessions per week, 1 February 2017 – 28 November 2017.

The place of the experiment was the training gym of C.S. Petrolul Ploiești.

Materials used for the experiment: record sheets, traction device, dummies, the Olympic barbell with weights, stopwatch, metronome, gymnastics benches; the gym, the mats and the dummies were in perfect hygienic conditions.

Methods of evaluation employed

1. *Dummy throws* – the procedure used was the dummy hip toss by holding the arm and the belt. It runs against time, for 3 minutes and the number of correct procedures is recorded.

2. *Going into the bridge position, duration: 60" - maximum number of executions – 33 repetitions*.

Tests were carried out during the following periods:

01-05.02.2017; 20-25.07.2017; 22 -29.07.2018.

Means used in training – methods and means were elaborated in order to ensure the level of development of the effort and endurance capacity required by current bouts.

Means to develop the aerobic effort capacity:

Periods of training:

- 01-05.02.2017; 20-25.07.2017; 22 -29.07.2018.

1. Long run 15-30' with an intensity of 4' per km.

2. Tempo run 3x800 with an intensity of 2'55"- 3'. Breaks between the series were of 5', ensuring the return of the heart rate to 110-120 bpm.

3. The increase of the aerobic effort capacity was achieved by combining specific wrestling means:

a. in order to improve technique and tactics, the fighting technique in the form of training engagements was employed, with an intensity lower than in competition, the training routine being as follows: 3x3' – 1' active break; 3x3' - 1'30" active break; 2x5' - 2' active break; 65-75% work intensity.

b. dummy throws were also employed, according to the following routine: 3x2' - 1'30" break; 3x3' - 5' break; 60% work intensity.

Means to develop the anaerobic effort capacity:

In order to increase the anaerobic effort capacity of the body, the following means were used:

1. Short distance speed run 20-30 m with 100% intensity - 1' active break. 6-8 repetitions were performed during one training session.
2. As regards mat training, engagements according to the effort alternation method were employed: 15' attack at maximum tempo; 1'30" attack at moderate tempo; 4-5 repetitions at maximum and moderate tempo were performed.
3. Dummy throws were executed in short periods, at maximum tempo: 5x20"- 1' active break.

To improve the glycolytic mechanism, engagements with different partners were employed as follows: 4x2' - 1' active break; 6x1' – 30" active break; 3x1' plus 2x3' – 1' active break; 70% work intensity.

Statistical evaluation can be realised by the next methods:

1. Arithmetic average: is an indicator whose purpose is to approximate the central value, based on data obtained through a real measurement. The more wings are closer, the more the approximation is better. It is carried out by assembling of each variable's value shared at the number of cases.

2. Standard deviation: represents the spreading grade around the average of the values. Homogeneity of a group is viewed hereby:

- high homogeneity if CV < 10%;
- low homogeneity if is CV between10% şi 20%;
- no homogeneity if CV > 20%.

3. Highest value represents superior wing of the group

4. Lowest value represents inferior wing of the group

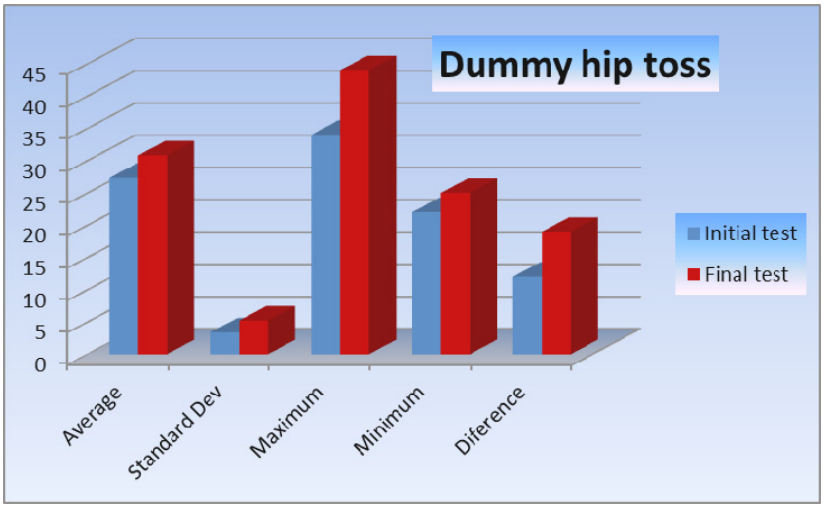
5. The difference represents mathematical value between highest and lowest value.

RESULTS

1. Dummy hip toss (Tabel 2) by holding the arm and the belt 2x2', number of performed repetitions in 2 minutes.

Table 2. Statistical results

Statistical results	Initial test	Final test
Average	27.3	30.8
Standard Deviation	3.38	5.21
Maximum	34	44
Minimum	22	25
Diference	12	19



Graphic no.1 – Statistical results

The following results were obtained after the tests:

The average was 27.3 repetitions in the initial testing and 30.8 repetitions in the final testing (Table 2). The analysis of results points to a positive evolution of the number of executions of throws, showing an increase in the physical condition and endurance specific to freestyle wrestling athletes. Standard deviation represents a value of 3.38 for the initial test end 5.21 for final test. These values prove that the group is homogeny because the athletes had same physical condition. (Table 2)

The maximum values increased from 34 repeats in the initial test to 44 repeats in the final test (Table 2). An increase of 10 repetitions was thus recorded, this being the result of a talented and passionate athlete.

The minimum value rose from 22 repetitions in the initial testing to 25 in the final (Table 2).

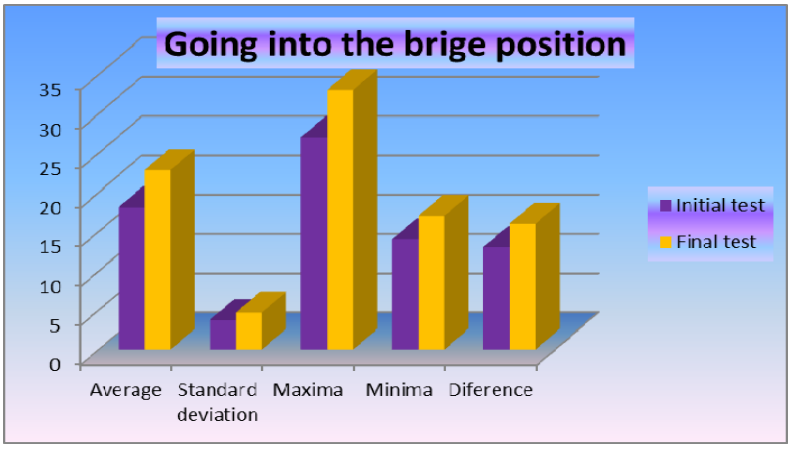
The increase of performance in the dummy toss event points to the improvement of high mixed effort stage, allowing the cadet wrestler to carry out a dynamic fight style which can be maintained throughout the bout.

The deference between the two trails involved 12 repeats for initial test and 19 repeats for final test. We can see an improvement over 50 % from the initial trial to final one. This fact proves that if training is carefully monitories and coordinated the level of the performance is higher. (Table 2)

2. Going into the bridge position, duration: 60" – maximum number of executions (Table 3)

Table 3. Statistical results

Statistical results	Initial test	Final test
Average	18.1	22.8
Standard deviation	3.70	4.66
Maxima	27	33
Minima	14	17
Diference	13	16



Graphic no. 2 – Statistical results

As regards the second event, the following results were obtained:

The average was 18.1 repetitions in the initial testing and 22.8 repetitions in the final testing (Table 3). Progress was thus recorded in this procedure as well, which indicates an increase in the athletes' resistance and also an improvement of the execution technique.

Standard deviation represents a value of 3.70 for the initial test end 4.66 for final test. We recorded at this test small values, because the athletes had a similar physical level that lead to the proof that we had uniformity in the group. (Table 3)

The maximum value increased from 27 repetitions in the initial test to 33 in the final test, this being a very good evolution of the athlete in our study (Table 3).

The minimum value increased from 14 to 17 repetitions, hence a positive evolution of the minimum values (Table 3).

The deference between the two trails involved 13 repeats for initial test and 16 repeats for final test. During our study it can be observed a progress of 25 % that defines conscious mobilization of the athletes as well as of the coach's.

Vitor Marques recorded results to an ascending evolution of values, which emphasises an improvement of the overall execution technique in better endurance conditions. "We found a significant positive correlation between aerobic power of the wrestling athletes and the strength and muscle endurance tests." (Vitor Marques et al., 2019)

Andriy Chernozub **observed, that power indicators of the group A, athletes show an** increase of 43.2% in comparison with the initial data, likewise in our study we recorded a progress between 30-50 % athlete's development of the strength and endurance. (Andriy Chernozub et al., 2018)

Conclusions

Through constant and sustained training, we have achieved good progress, which shows that efficient means and correct methods of training were employed. Furthermore, the execution technique has also improved as a result of a large number of repetitions per time unit.

For the training of cadet freestyle wrestlers, it is necessary to change the effort intensity and rationalise it according to the specific energetic metabolism required by the dynamics of current bouts.

It is also required that standardised exercises should be grouped in terms of tempo and functional strain level, so that several stages of high mixed effort and the stage of anaerobic effort should be achieved.

Recommendations

1. To determine the intensity and functional strain through exercises employed, the coach will assess the evolution of effort by recording the heart rate. This measurement is of major importance in permanently supervising the body reaction of cadet wrestlers, thus avoiding the negative effects of overtraining fatigue.
2. The athlete's training will be mainly oriented to the concept of total risk fight.

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