

THE CONTRIBUTION OF MOTOR RESISTANCE QUALITY IN THE PHYSICAL TRAINING OF C. S. S. TÂRGOVIŞTE JUNIOR B FOOTBALL TEAM (15 – 16 YEARS OLD)

A. UNGUREANU¹ C. PRISĂCARU¹

Abstract: *In present time the complex research of sportive activities acquires interdisciplinary aspects (physiological, sportive and pedagogical, mechanical, medical, kinetotherapeutical aspects). There is no question about the opportunity of such a research as long as all sportsmen and trainers are trying to find a complex index of sports performance. The fact that, through correctly guided maximum VO₂ training, the most constant index of the aerobic effort capacity may increase by 25 %, alone offers a solid motivation to the present work. The present research is trying to systematize certain scientific information in a language accesible to both sportsman and trainer, about effort, capacity effort and training influence on them. This is the reason we have tried to elaborate this reserach exactly for the opportunity to give answers to border problems. The above mentioned reasons made me choose this experimentally applied subject on 19 sportsmen from the C. S. S. TÂRGOVIŞTE Junior B football team (15 – 16 years old) which is a club with very good conditions. I started the research from a few hypothesis that were pointing towards a progress of the physical education and of the motor quality – resistance; creating a proper base for learning, consolidating and perfecting the technico-tactical actions; obtaining better results in competitions; all these if there was an action mainly meant to develop general resistance as well as football specific resistance. The elaborated methods and means that were both classical and characteristic, for increasing resistance in the football game, proved their efficiency and the formulated hypothesis were confirmed. There was progress for all the control tests as follows: the Cooper test – 4.12%; the Shuttle on 180m – 1.68 %; the Specific test – 2%.*

Key words: *effort capacity, sportsman, adaptation, sports performance, competition.*

1. Introduction

The football game is considered to be the most popular game as it is known to be

practiced worldwide. Because of the speed it spreads all over the world there are needed permanent adjustments of the conceptual indices of sports training at all echelons.

¹ University of Bacău “Vasile Alecsandri”.

The echelon in this research is Junior B aged 15-16 which is very close to adult characteristics.

„The respiratory system is morphologically almost similar to an adult's but in use it does not, as it continues to develop.

There are observed morphological changes all along this period as, for example: nazal cavity enlargement, larynx development, stretch of the pulmonary elastic fibres.

Functionally, the pulmonary ventilation parameters grow, the breathing frequency decreases and the width of the respiratory movements increases as well as the vital capacity (about 3200-4000 cm³), the maximum use of oxygen considerably grows.

The improvement of the respiratory functions correlated with the increased values of the cardiovascular functions insures a better oxygenation of the tissues, thanks to the balance between the vessels and the heart size”[3].

According to the previous arguments we can assert that resistance in sportsmen bodies, at this echelon, compared to the growing and developing periods before that, has higher and higher values and they also have developing availability.

That is why we decided to interfere into training by using mainly action means, specially elaborated in order to develop the general resistance and the specific resistance in football at the same time.

We thought that these things would have an effect on the physical training and especially on the motor quality – resistance; on learning, consolidating and perfecting technical and tactical actions; as well as on getting better results in competitions.

„Physical training includes an entire system (ensemble) of measures that assure a high functional capacity of the body through the elevated development of the

basic and specific motor qualities, optimal values of the morphofunctional indices, total control of the used exercises and perfect health.”[4]

In consequence, physical training is a component with an utmost part in sports training, playing the basic element for the other factors of the training.

„Sportive activity represents one of the factors that have a close relation with the adapting processes of the body, in a large sense, being valid for all situations and realities that are connected to training and competition.” [5].

„A long term adaptation comes after great efforts that have as a result the hyperfunctioning of the body organs and systems (intensive effort leads to the growing functional capacity of those different organs and systems in a relatively short amount of time – 3 trainings a week along two months lead to a 15-30% growth of the muscular mass; the heart volume increases with 200 cm³, VO₂max with 10-15%).

The competition is very important for the improvement of the training state. It is acknowledged to be a special kind of treatment, of adaptation, not only as a kind of review of the activity along a certain period of time.

Adaptation takes place during a contest-like training, the reviewing competitions, preliminary competitions that are nothing else but adaptation stages for the main competition.”[6]

The purpose is to contribute, through activities of developing the general and the specific resistance that is characteristic to football, to the physical training of the team.

2. Hypothesis

The physical training of the football team and the sportsmen resistance will have a significant progress in the final test if there was a prevailing effort towards the

development of the general resistance as well as of the one specific to football.

Giving a bigger priority to physical training, then there would be assured a corresponding base to learning, consolidating and perfecting of the technical and tactical actions that are fundamental and specific to the posts that will lead to getting better results in competitions.

3. Methods of the research

The preliminary detailed training, compulsory for any scientific research, refers to stating the goals of the research, tracing concrete tasks, choosing methods, preparing tools and subjects.

From the multitude of general and specific methods, physical education and sports take advantage of, in the present research there were used only the following: studying specialized literature, pedagogical observation, pedagogical experiment, the speech method, the statistical method, the test method.

Within the statistical method we calculated the following statistical parameters: the arithmetic average, the difference between the final and the initial tests, difference in percentage, the arithmetic average of the differences, the standard error of the average, the calculated t factor. We applied the Student Test in order to show if there are significant differences between the final and initial test results. For the test we used the following control tests to round up the formulated hypothesis:

1. The Cooper Test – running timing on 3200 m distance.

2. The Shuttle on 180 m – accelerated counter chronometer running, with 3 cones rounding, set at a 10 m distance from each other, according to the pattern:

AB + BA + AC + CA + AD + DA + AC + CA + AB + BA.

where: AB=10m; AC=20m; AD=30m

3. The specific sample – the test took place on the football pitch inside the two 16 metres squares and included:

- Accelerated running on 24 m (to the center), starting at a loud signal;
- Backwards running on the walking line (24 m) to the opposite 16 m square;
- Rounding a cone and running on 24 m to the centre;
- Taking possession of the ball;
- Right oblique pass – running – getting the ball back (pass from the centre and getting back 1 – 2 develops on 15 metres);
- Dribbling through three cones set at three metres from each other (on a 9 metres distance);
- Finishing from the 16 m square on the goalpost;
- Fast turning, rounding a cone set obliquely on the right;
- Accelerated running (on 24 m) to the centre;
- Backwards running on the walking line on 24 m to the opposite 16 m square where the exercise ends.

4. Content of the experiment

The experiment took place during the competition year 2011-2012 at C. S. S. Târgoviște Junior B football team which has the best sports conditions. The tested subjects were 19 junior B football players (15 – 16 years old).

The used methods and means were both classical and specific to football, for the development of resistance and they were applied during the training classes all along the experiment.

The training class in the experiment group happened as follows:

- the introductory part – using the classical methods it included general and specific warm-up.

- within the fundamental part, as a last task, the motor quality was approached resistance, developing different forms of manifestation through elaborated acting means.

There were maintained 8 -10 lessons with the same objective – resistance (aerobe, anaerobe, football specific, in

speed conditions, etc.), and then it changes. The other tasks, inside the same lesson, were from football and/ or another motor quality, developed through classical and specific means; The final part developed according to the classical model.

The results of control samples on both tests (initial and the final) Table 1

C N	The Cooper Test		The Shuttle on 180 m		The specific sample	
	TI	TF	TI	TF	TI	TF
1	12.25	12.02	43.81	43.52	29.82	29.53
2	12	11.42	41.7	41.32	27.97	27.34
3	12	11.43	42.18	41.35	28.15	27.62
4	13.3	13.02	43.74	42.31	31.11	29.78
5	12.2	12.01	44.02	43.35	28.98	28.17
6	13	12.37	47.37	46.33	31	30.37
7	12.3	12.12	44.65	44.34	31.39	29.99
8	14	13.21	46.76	46.02	28.45	28.02
9	15	14.24	43.08	42.42	29.67	29.08
10	12	11.42	43.5	43.24	29.95	29.38
11	12.25	12.05	41	40.12	30.21	29.76
12	14	13.21	47.37	46.43	29.92	29.32
13	13.05	12.52	44.66	44.21	30	29.56
14	14	13.08	44.62	44.43	29.37	28.89
15	13	12.45	45.91	44.42	31.17	30.78
16	13.42	13.11	52.27	51.51	31.99	31.69
17	12.1	11.42	41	39.42	29.29	28.87
18	13.05	12.32	42	41.35	29.91	29.16
19	12.2	11.52	46	45.38	29.14	28.77

Table 2

The statistical and mathematical processing and the results interpretation of the test trials

Control Sample // Statistical parameter	The Cooper Test	The Shuttle on 180 m	The specific Sample
The average arithmetic differences	0.54	0.75	0.60
The arithmetic average of progress	4.12	1.68	2
The standard deviation of the differences	0.23	0.41	0.30
The standard deviation of the mean	0.05	0.09	0.07

By interpreting the results of the two tests there can be seen a growing resistance in all the three tests, as follows: The Cooper test – in the final test there is a 0.54 growing (a 4.12% progress rate) compared to the initial test. The Shuttle on 180 m – there is a 0.75 growing in the final test (a 1.68% progress rate) compared to

the initial test. The specific test - there is a 0.60 growing in the final test (a 2% progress rate) compared to the initial test. From the *t* calculated and *t* table values which can be seen in table no. 3 we can observe that the difference between the results in the initial and final tests are significant (calculated *t* > table *T*).

The values t calculated and t table (the Student Test) Table 3

Control sample	t calculated	t table 0,05	t calculated – t table
The Cooper Test	10.220	2,101	8.13
The Shuttle on 180 m	8.077	2,101	5.98
The specific Sample	8.859	2,101	6.77

5. Conclusions

We thus have arguments to agree that programming resistance development in 15-16 years old football players on a longer period of time (about 1 year) leads to bettering its indices and to getting a good physical training. Analyzing the results we can assert that in the two tests (initial and final) can be seen a better physical training and a growing resistance in all the three tests.

The highest growing of the resistance indices was registered in the Cooper test which proves that this football specific test precisely indicates the accumulated gain of the sportsmen.

A good physical training assured the best base for learning, consolidating and perfecting the technical and tactical actions that are fundamental and characteristic for the posts, which led to getting better results in competitions where the team came third compared to the fourth position the previous year.

6. Proposals

1. After puberty a sportsman becomes a young man who, from the point of view of the morph functional

development, the effort capacity and psychological characteristics, comes closer to the adult.

2. That is why, in addition to effort based on developing speed, the effort to resistance can be gradually increased on the condition that effort is properly dozed and sportsmen are periodically given medical examination.
3. The trainer should individualize effort according to the psychological development of the sportsman. Knowing and respecting age particularities represents a pedagogical need which results into selecting and using training methods and means according to the developing possibilities and particularities of the sportsmen.
4. Within the football game training, physical education must have different parts during training sessions, according to the age and value of the sportsmen and to how many games they have to play during a certain period of time.
5. The well-elaborated experimental model, even if confirmed, assumes a permanent updating of the training process.

References

1. Cataneanu, S. M.: *Elemente de teoria antrenamentului sportiv (Elements of sports training theory)*. Craiova. Universitaria Craiova, 2002, p. 119-121.
2. Cataneanu, S. M., Ungureanu, A.: *Educație fizică școlară și sportivă - Teoria și metodologia de predare (Physical and sportive school education (Theory and teaching methodology)*. Craiova. Universitaria Craiova, 2011, p. 264-265.
3. Dragnea, A.: *Antrenamentul sportiv (Sports training)*. Bucharest. Didactics and Pedagogics, 1996, p.136-137.
4. Teodorescu, S.: *Periodizarea și planificare în sportul de performanță (Periodization and planning in sports performance)*. Buzău. ALPHA MDN, 2009, p. 27-29.