

# THE ROLE OF STRENGTH IN THE PHYSICAL TRAINING OF C. S. S. TÂRGOVIŞTE JUNIOR B FOOTBALL TEAM

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**Abstract:** *The methodological procedure of developing strength – the circuit – has amazing effects on developing the morphofunctional indices and on the motor qualities by requiring at the same extent all the muscle groups and the cardio-vascular system. We maintain and improve physical training during the cold season, and also action with priority on developing the motor quality – the circuit. The chosen team was C.S.S. Târgovişte Junior B football team, made of 19 - 15-16 year old sportsmen and all the activity took place at the end of the return and the beginning of the championship tour 2011-2012 (fifteen weeks).*

*In this regard we set forth the hypothesis according to which by applying the circuit for developing general strenght all along the cold season it will have a significant progress and will implicitly contribute to enriching the physical training of the juniors. The action systems were the exercises of the 9 stations of the circuit, evidently with the individual dosage for each junior (½ from the maximum possibilities + the growth rate) which was agreed on after the first meeting and was later modified according to each sportsman's progress. The same exercises (as maximum number of performances) were transfered to the trials applied for the two testings (initial and final). Afterwards, there was seen progress from the initial to the final testing in all juniors for each station of the circuit which gets to the conclusion that the application of it is efficient for the general development of strength, fact that draws an improvement of the physical training.*

**Key words:** *circuit, station, junior, maximum possibilities, preparing period, action systems.*

## 1. Introduction

Football „is characterized through alternating maximal, submaximal and medium effort with passive and active pauses, sometimes unequal and incomplete as well as through spontaneous and

unexpected physical actions in time and intensity” [1].

Strength „is unanimously considered to be the most important of the motor qualities of a man because making any move means overcoming some sort of resistance, internal or external, (the body

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idleness or that of its parts, gravity, resistance opposed by an object that we want to move, etc.); each strength of this kind implies a mechanical force of the muscles (muscular contractions)” [3].

The strenght of the human body „consists in the capacity of making defeating efforts, holding on or giving up efforts in relation with external or internal endurance, through contracting one or several groups of muscles” [4].

At this age (15-16), strength is naturally growing because of the phenomenon of muscles thickening. The muscle mass considerably grows to the point of representing 44% of the body mass of a boy. Muscle volume growing triggers a muscle mass growing too, directly dependent of the physiological section of them.

Specialized literature stresses that each square centimetre of muscular area (in physiological section) matches, at this age, 10fkg in boys. Trained young men are an exception because the values of force are bigger proportionally with the training degree. Reported to an adult’s, the force indices are below the speed and coordination indices which suggests training disponibilities at this age.

The circuit is a methodological procedure of developing force in endurance conditions as it has advantages such as:

- short time for its application which leads to reducing the time used for training;
- the individual dosage can be applied through half the maximus possibilities of the sportsman + the growing procentage, according to the needs and possibilities of the players, that is why it is a good individual training means;
- it contributes to solving complex tasks of the global training together with the other training methods.

If the procedure is used for a longer period of time then, during the first meeting, they learn how to do the exercises correctly (they must be easy to do) and at the same meeting or the following an individual dosage is established ( $\frac{1}{2}$  of the maximum possibilities + growth rate).

“The method is largely used in working with children and juniors, during the sportive training, but it is also frequently met in activities with seniors, especially during general training” [2].

Being applied while training, the circuit consists of consecutively making exercises during workshops (stations), in order to develop strength, in endurance conditions, by passing sportsmen from one station to another and by working simultaneously.

“If the exercises that make the circuit are various (different manners of movement) and involve alternatively all body parts, without particular stress on one or another of the factors of differentiating effort, there comes a complex development of the motor qualities and therefore a multilateral physical training” [4].

Football, practiced since old times (1175 London, 1903-Romania) to present, become incredibly played and one of the fundamental tasks f trainers is the physical training, regardless of the echelon it is addressed to because it represents the starting point for the entire future training of the sportsmen.

Physical training is very important on the entire process of training sportsmen, as it makes the connection with the other parts of training and it influences the results of sportsmen in competitions.

Winter season coincides with the end of the tour (the competitional period) which implies getting closer to the transition and the training period of the return where the base of a good physical training should be set.

During the transition period, following the structure of the competition schedule,

at B junior level, there is a break (the holiday) and it is already known that they do not work independently, which most of the times leads to a lowering of the acquired physical training, as well as the risks they expose themselves to when they come back.

Physical training is a component of the sportive training which is placed at the beginning of the training period, as it represents the starting point in training sportsmen to get good results in competitions.

During football playing, physical training plays different parts while training, according to age, sportsmen level of performance and the competition schedule (tour – return matches or other competitions). Thus, this has a greater proportion in transition time (when unspecified effort and rest is planned); while training; while the team is in poor shape; while recovering from various accidents.

After all the previous arguments we decided to emphasize the development of strength in endurance conditions, on the already mentioned football team, where the age of the sportsmen is between 15-16, in order to get good physical training. We therefore chose the circuit as a methodological procedure of developing strength in endurance conditions, applied during the cold season.

## **2. The purpose of the work**

The purpose of this work is to apply the methodological procedure – the circuit, to develop strength in endurance conditions during the cold season in order to improve the physical training of the juniors in the football team subjected to the experiment.

## **3. The hypothesis of the work**

Applying the circuit for the development of general strength throughout the cold season will have a significant progress and it will implicitly contribute to a better physical training of juniors.

## **4. The methods of the research**

For the present research we used the following research methods:

- studying specialized literature

We had in mind the problematics of developing the motor quality - strength – by using the methodological procedure – the circuit for a better physical training of the sportsmen, members of the already mentioned football team.

- the conversation

It referred to the talking we had with other factors involved into the physical education and sportive training process (teachers, trainers, sportsmen, etc.), that had as a result a change of opinions which led to a clarification of the researched phenomenon.

- the observation

We used this method in order to follow the motor quality degree of development – strength through classical methods as well as the reaction sportsmen had to those means. The results of the pedagogical observations convinced us of the necessity of applying more efficient and more attractive means for the development of the motor quality – strength that is the methodological procedure – the circuit, for a better physical training of the students in the team.

- the pedagogical experiment

The experiment referred to our active intervention through organizing and working measures for the checking of the hypothesis previously established. If the

difference between the results in the two tests (initial and final), during the control tests, will have a significant value at the end of the experiment, in favor of the final testing, then, the hypotheses will verify themselves.

- the statistical method

It was used in order to express the quantity of the quality values and it consisted in gathering mathematical data, interpretations and statistical elaborations. We calculated the indices (with different degrees of complexity) such as: the arithmetic average, the difference between

the results in the initial and final tests, the difference between the results in the initial and final tests given in rates, the standard error of the differences, *the standard error of the average, the calculated t coefficient*. We applied the *Student Test* to show if there are significant differences between the results in the initial and final tests.

- the test method

We applied as tests exactly the same exercises that made each station of the circuit (table no. 1.), both for the initial and final tests. The students practiced correctly as many times as they can.

Table 1

*Exercises from the stations of the circuit that are tests and action systems at the same time*

Stations	Trial tests (exercises from the stations)
1	P.I. – leaned forward with the palms on the ground, at the chest level: stretching and bending arms – (push-ups).
2	P.I. – sit-up form: - high jumps as if hitting the ball with the head.
3	P.I. – laying back: forward elevation.
4	P.I. – leaned forward with the palms on the ground at the chest level: - body extension by stretching arms.
5	P.I. – bent forward with the palms on the ground at the chest level:- stretching and folding arms (push-ups) alternatively lifting the legs.
6	P.I. – standing coastally to the gymnastics bench: - both legs jump on one and the other side of the bench.
7	P.I. – laying back, hands at the back of the head: lifting feet at 90 degrees, maintaining 5”, getting back to lain back position, etc.
8	P.I. – standing: - dropping forward on the palms, jumping into sit-up form followed by extension jump and again.
9	P.I. – standing: - sported, on the spot, steps.

## 5. The content of the experiment

The team the experiment was applied on C. S. S. TÂRGOVIŞTE Junior B football team made of 19, 15-16 year old sportsmen, the activity took place during the competition year 2011-2012.

All along the research, the following stages were covered:

- ✓ the action systems within the experiment were elaborated and they

were the exercises that made the nine stations of the circuit;

- ✓ the maximum number of repetitions were tested for each junior (correctly executed);
- ✓ it was made a training for learning the exercises and their order in the stations. The circuit was made two times for each training with a three minute brake, with stress on the quality of each exercise execution;

- ✓ each junior dosage was established by the formula mentioned in the theory section of the paper, and the growth rate was set according to the particularities of each sportsman with following modifications if there was need.
- ✓ the circuit was applied for 15 weeks from which:
  - six weeks during the competition period, once a day, aside from the other training methods;
  - three weeks during the transition period (winter holiday), two times a day, (at 9 a.m and 6 p.m.), when there were no other training scheduled;
  - three weeks, during the general physical training, two times a day;
  - three weeks, during the specific physical training, once a day.
- ✓ the final testing was applied by registering the maximum number of repetitions of each junior for the exercises in the circuit „stations”;
- ✓ The results of the two testings, initial and final, throughout the period of applying the circuit;
- ✓ In the end the conclusions and the proposals were drawn.

## 6. Results

*Table with statistical parameters calculate, to all stations*

Table 2

	<b>The average arithmetic Ti</b>	<b>The average arithmetic Tf</b>	<b>The difference D</b>	<b>Progress D%</b>
S1	45.33	51.67	6.33	14.94
S2	34.53	39.87	5.33	15.81
S3	36.93	41.93	5.00	13.53
S4	32.67	37.53	4.87	15.19
S5	32.87	37.53	4.67	14.86
S6	46.93	51.47	4.53	10.02
S7	36.53	40.27	3.73	11.05
S8	37.33	41.53	4.20	11.97
S9	88.73	104.13	15.40	17.70

We can say that the application of the circuit during the mentioned time finds its efficiency because the differences between the initial and final tests are significant for all stations, as follows:

For STATION 1 – the progress is of 14.94 % (with a difference of 6.33).

For STATION 2 – there was an arithmetic average of 34.53 in the initial test and 39.87 in the final test, with a growth of 5.33 and a 15.81 % progress.

For STATION 3 – there was a difference of 5.00 and a 13.53 % progress.

For STATION 4 – the progress registered was of 15.19 % (with a 4.87 difference).

For STATION 5– there was an arithmetic average of 32.87 in the initial test and 37.27 in the final test, with a growth of 4.67 and a 14.86 % progress.

For STATION 6 – there was a difference of 4.53 and a 10.02 % progress.

For STATION 7 – there was a growth of 3.73 in the final test (40.27), compared to the initial test (36.53), with an 11.05% progress rate.

For STATION 8– there was an arithmetic average of 37.33 in the initial test and 41.53 in the final test, with a growth of 4.20 and an 11.97 % progress.

For STATION 9 – the progress is of 17.70 % (a difference of 15.40).

From the  $t$  calculated and  $t$  table values that can be seen in table no. 3 we can appreciate that the difference between the results in the initial and final tests are significant ( $t$  calculated  $>$   $T$  table 2.101) with a 95% certainty ( $p = 0, 05$ ).

*The values of the statistical parameters of Test Student*

Table 3

Station	$t$ calculated	$t$ table (f=n-1=18) to the threshold 0,05	$t$ cal- $t$ tab
S1	<b>2.331</b>	2,101	0.230
S2	<b>2.591</b>	2,101	0.490
S3	<b>3.416</b>	2,101	1.315
S4	<b>3.906</b>	2,101	1.805
S5	<b>2.160</b>	2,101	0.059
S6	<b>2.455</b>	2,101	0.354
S7	<b>2.798</b>	2,101	0.697
S8	<b>2.131</b>	2,101	0.030
S9	<b>2.145</b>	2,101	0.044

## 6. Conclusion

By drawing the conclusion we can say that the proposed hypothesis was confirmed, strength in endurance conditions developed by applying the methodological procedure – the circuit, which implicitly contributed to the improvement of the physical training of the juniors in the team.

## 7. Proposals

1. If a circuit was applied two times a day, during the transition period (winter holiday) when no other trainings are planned, the physical training will not be lost and at least it will maintain if not improve. By continuing to apply the methodological procedure—the circuit—after the winter holiday, during training time, for the general and specific physical training, it will contribute to the continuous development of general strength.

2. If, after the application of the circuit, for an established period of time, the maximum number of repetitions will improve, then the dosage for each player will increase.

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