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COMPARATIVE STUDY OF SPEED LEVEL IN WHEELCHAIR
BASKETBALL FROM DIFFERENT COUNTY

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Abstract

Wheelchair basketball is one of the Paralympic performance sports and the only team-based sport played at the elite level by people with spinal cord injuries. It can also be performed by people diagnosed with paralysis, amputated limbs, fragile bone structure and other disabilities. In Romania, wheelchair basketball is an amateur sport. We have developed a programme including 1-2 training sessions weekly, basically due to the activities in which these people are engaged, the financing level and the required preparation for the research subjects. So, the participants were 34 Romanian wheelchair basketball players coming from different counties: Sibiu, Prahova, Ilfov and Brasov. Purpose: This study aims to make a synthesis by using a comparative analysis between the speed level of the Romanian wheelchair basketball players and those from Poland and Lithuania, two countries in top 10 at the 2015 European Wheelchair Basketball Championship. For this, we selected the following tests: 20m sprint and slalom without the ball. Research questions: Are the Romanian wheelchair basketball players rising to the level of the top 10 European teams? Findings: The first and fourth classes, according to the International Wheelchair Basketball Federation (IWBF), got poor values for 20m sprint, while the second and third classes got below values. In slalom without the ball, the first and second classes got poor values, and the third and fourth classes got below values.

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Keywords: Basketball, disabilities, wheelchair, speed.



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1. Introduction

Wheelchair basketball has been one of the most beloved Paralympic sports from the very beginnings of the Olympic Games in Rome, Italy, in 1960 (Wheelchair Basketball Canada, 2017).

Wheelchair basketball is one of the Paralympic performance sports and the only team-based sport played at the elite level by people with spinal cord injuries. It can also be performed by people diagnosed with paralysis, amputated limbs, fragile bone structure and other disabilities. In Romania, wheelchair basketball is an amateur sport. We have developed a programme including 1-2 training sessions weekly, basically due to the activities in which these people are engaged, the financing level and the required preparation for the research subjects.

Practice does not necessarily make perfect, however it does make permanent (Hedrick, Byrnes, & Shaver, 1989). To make wheelchair basketball grow, we need new players and more professionally trained coaches and administration (Owen, 1998).

In this paper, we try to present some aspects about wheelchair basketball in Romania. We can say that this sport has a development trend, but we are at the very beginning, because there is no championship in our country, but only isolated specific competitions. In the present study, we show the level of Romanian players compared to the levels of Polish and Lithuanian players. We divided our players according to the classification model of the International Federation of Wheelchair Basketball: 1 (1.0-1.5) points for athletes with lowest ability, 2 (2.0-2.5) points, 3 (3-3.5) points, 4 (4-4.5) points for athletes with minimal disability (IWBF, 2004).

The results of the Polish and Lithuanian players are taken from Molik et al. (2010).

2. Problem Statement

The results reveal the preparation of Romanian players regarding motor ability, speed and wheelchair manoeuvrability. We obtained the data by testing 34 Romanian wheelchair basketball players from 4 different teams. Our research groups were: “Roțile Astrale” Sports Club Association - Sibiu, “Roțile Schimbării” Sports Club Association - Prahova, AJIF Motivation - Ilfov, “Fii Independent” Sports Club Association - Brașov. The research will compare the Romanian, Polish and Lithuanian players’ results.

Training sessions were performed 1-2 times per week, due to the daily schedule of the participants who had to go to work or school. Testing was performed between January 2017 and March 2017, during each training session of the team.

3. Research Questions

Are the Romanian wheelchair basketball players rising to the level of the top 10 European teams?

4. Purpose of the Study

The aim of this study is to highlight the speed level of the Romanian wheelchair basketball players in relation to other players from two countries in top 10 at the 2015 European Wheelchair Basketball Championship, namely Poland and Lithuania.

5. Research Methods

The research methods used were: comparative analysis; statistical method; graphical method.

To evaluate the abilities of basketball players, we used the literature (Molik et al., 2010; Vanlerberghe & Slock, 1987) as follows:

Tests:

- 20m sprint
 - Objectives: to test the travel speed over short distances (specific to wheelchair basketball)
 - Description: start according to the player's desire
 - Evaluation: time elapsed to cover the entire route
- Slalom without the ball
 - Objectives: to verify the wheelchair manoeuvrability
 - Description: start according to the player's desire, slalom ride between the poles
 - Evaluation: time elapsed to cover the entire route

Table 01 shows the representative values.

Table 01. Typical skill test values for wheelchair basketball athletes (Ergun, Düzgün, & Aslan, 2008)

Values	20m sprint		Slalom without the ball	
	Classes 1-2	Classes 3-4	Classes 1-2	Classes 3-4
Very good	<5.6	<5.1	<8.8	<8.4
Good	6.4-5.6	5.6-5.1	10.6-8.8	9.4-8.4
Below	7.2-6.4	6.2-5.6	12.4-10.6	10.4-9.4
Poor	>7.2	>6.2	>12.4	>10.4

6. Findings

Individual results of the Romanian players for 20m sprint and slalom without the ball are shown in Tables 02, 03, 04 and 05.

Table 02. Individual results of the Romanian players – Class 1

Class 1					
Group of subjects	Class 1	20m sprint		Slalom without the ball(s)	
1		7.18	Below	11.4	Below
2		7.25	Poor	12.4	Poor
3		7.89	Poor	12.8	Poor
4		7.01	Below	11	Below
5		7.98	Poor	12.6	Poor
6		8.25	Poor	13.67	Poor
7		8.1	Poor	13.2	Poor
8		7.6	Poor	12.3	Below

9	8.22	Poor	13	Poor
10	8.41	Poor	13.23	Poor
11	7.23	Below	12.98	Poor
12	7.13	Below	12.54	Poor
13	7.98	Poor	12.78	Poor
14	8	Poor	13	Poor

Table 03. Individual results of the Romanian players – Class 2

Class 2				
Group of subjects Class 2	20m sprint		Slalom without the ball(s)	
1	6.66	Good	9.2	Good
2	6.9	Below	9.39	Good
3	7.1	Below	10.9	Below
4	6.54	Below	10.67	Below
5	6.98	Below	10.75	Below
6	7.45	Poor	12.8	Poor
7	8.23	Poor	13.2	Poor
8	6.5	Below	10	Good
9	6.58	Below	10.62	Below

Table 04. Individual results of the Romanian players – Class 3

Class 3				
Group of subjects Class 3	20m sprint		Slalom without the ball(s)	
1	6.05	Below	9.12	Good
2	6	Below	9.22	Good
3	6.34	Poor	9.68	Below
4	6.79	Poor	10.45	Poor
5	6.1	Below	9.56	Below

Table 05. Individual results of the Romanian players – Class 4

Class 4				
Group of subjects Class 4	20m sprint		Slalom without the ball(s)	
1	6.4	Below	9.45	Below
2	5.98	Below	9.55	Below
3	6.78	Poor	10.01	Below
4	6.5	Poor	9.89	Below
5	6.2	Poor	9.78	Below
6	6.9	Poor	10.4	Below

Table 06 shows a statistical analysis of the results for the Romanian wheelchair players in both tests (20m sprint, slalom without the ball), where we can notice: Class 1 has an average of 9.94s for 20m sprint, which is a poor value. Class 4 has the same value for 20m sprint. Class 2 has an average of 6.99s, and class 3, an average of 6.26s for 20m sprint, which is a below value. After covering the route through slalom without the ball, classes 1 and 2 got the poorest values (12.79s and 10.87s), while classes 3 and 4 did better, but still got below values (12.79s and 10.87s)

Table 06. Statistical analysis of the results: 20m sprint and Slalom without the ball(s)

Romania								
Statistical indicator	20m sprint (s)				Slalom without the ball(s)			
Class	Class 1	Class 2	Class 3	Class 4	Class 1	Class 2	Class 3	Class 4
Mean	7.73	6.99	6.26	6.46	12.64	10.84	9.61	9.85
Standard Error	0.13	0.19	0.15	0.14	0.19	0.46	0.24	0.14
Median	7.94	6.90	6.10	6.45	12.79	10.67	9.56	9.84
Average	7.73	6.99	6.26	6.46	12.64	10.84	9.61	9.85
Standard Deviation	0.48	0.56	0.33	0.35	0.71	1.37	0.53	0.34
Sample Variance	0.23	0.31	0.11	0.12	0.50	1.87	0.28	0.12
N	14	9	5	6	14	9	5	6

In Figure 01, we can see a comparison between the average results by class for the Romanian athletes and the average of the Polish and Lithuanian athletes.

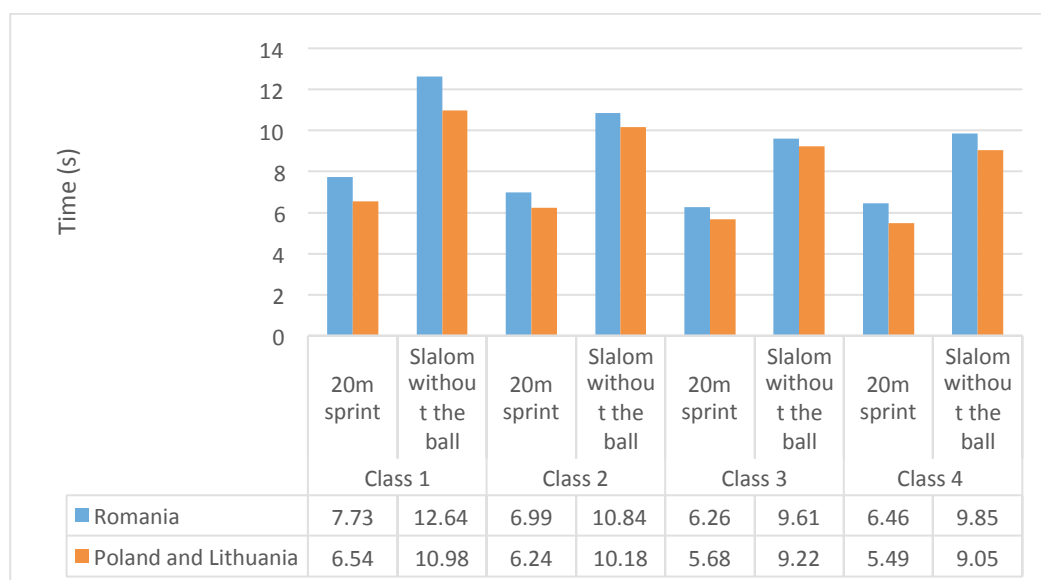


Figure 01. Comparative results for 20m sprint and slalom without the ball between the Romanian players and the Polish & Lithuanian players

In Figure 01, we notice that the Polish and Lithuanian players in the first class are faster than the Romanians by 1.19 seconds in the 20m sprint test and 1.66 seconds in slalom without the ball.

In class 2, the Romanian athletes were poorer, while the Polish and Lithuanian athletes had a good value, the difference being 0.75 for 20m sprint, and for slalom without the ball, the Romanians got a poor value, 10.84, while athletes from Poland and Lithuania had a good score, 10.18s.

In class 3, the difference between the athletes from the three countries is 0.58s for 20m sprint and 0.39s for slalom without the ball, in favour of those from Poland and Lithuania.

As for the athletes in class 4, there is a difference of 0.97s for 20m sprint in favour of the athletes from Poland and Lithuania and for slalom without the ball, the difference is 0.80s. The Romanian athletes got very poor ratings for 20m sprint and poor for slalom without the ball.

The differences between classes for the athletes of the three countries are 0.58s for 20m sprint and 0.39s for slalom without the ball in favour of those from Poland and Lithuania.

Between the 4th-class athletes, the difference is 0.97s for 20m sprint in favour of the athletes from Poland and Lithuania, while for slalom without the ball, the difference is 0.80s. The Romanian athletes achieved a poor value for 20m sprint and a below value for slalom without the ball.

7. Conclusion

According to the poor and very poor results of the Romanian wheelchair basketball players for 20m sprint and slalom without the ball, we can say that they do not reach the level of the Polish and Lithuanian athletes.

In conclusion, in order to reach the level of the top 10 athletes, we propose to carry out the preparation of wheelchair basketball players with more rigour, which requires a change in the mentality about their training, but also more professionally trained coaches. The purpose is to attract a large number of disabled people to practice wheelchair basketball, to develop and popularise this sport and create a wheelchair basketball championship.

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