

## THE STATUS OF BALANCE IN PRESCHOOL CHILDREN INVOLVED IN DANCE PROGRAM

UDC: 793.3.012.266-053.4  
(Professional paper)

**Marija Stanković<sup>1</sup> and Oliver Radenković<sup>2</sup>**

<sup>1</sup>University of Niš, Serbia, Faculty of Sport and Physical Education, PhD student,  
Niš, Serbia

<sup>2</sup>State University of Novi Pazar, Sport and Physical Education,  
Department of Biomedical Sciences, Novi Pazar, Serbia

### Abstract

*The main objective of this research is to obtain relevant information about the differences in the balance as the motor skill of the boys and girls aged 5-6 years participating in a simple dance program. The study included  $n = 39$  children aged 5-6 years ( $n_1 = 26$  boys and  $n_2 = 13$  girls). Variables that were discussed: body height (cm), weight (kg) time required to walk 3 m backward DRAV (s), time standing on one leg with eyes open STBA (s) and time standing on one leg with closed eyes MRAV (s). The *t*-test was used to determine the differences, and it showed no statistically significant differences in motor skill of balance between boys and girls in preschool age who are involved in the dance program.*

**Keywords:** tests, *t*-test, motor skills

### INTRODUCTION

The structure of motor abilities is very complex, and different approaches to this issue can be followed nowadays. One of the basic motor skills, which is necessary for upright posture and every human movement is balance. The balance can be defined as the ability to preserve a relatively stable body position at various movements, poses and other locomotion. It is a basic motor ability, without which many human activities could not perform (an upright position of man, walking, jogging, skating, driving) (Stojiljković, 2003). Balance is the ability to maintain stable, proper body position when it is moving or standing. There are static and dynamic balance (Kostić, 2001). The balance should be understood, not just as the ability to maintain position, but rather as an ability to quickly return to stable position after the disruption in standing position, or in terms of movement.

The balance depends on numerous factors. The most important are: genetic determinism, the state of the vestibular apparatus, age, support area, the center of gravity height, the number of motor habits,

training status, strength, coordination, flexibility and emotional state. Children acquire new skills, abilities and knowledge during the preschool period. It is important that each child grows and develops at their own pace. That goes the same for their motor development, although there are some general guidelines related to age. Many factors affect the children's motor development: physical maturity, participation in physical activities, the ability to exercise or motor skills, and above of all the health status.

Dance structures that are used in preschool children firstly has to improve their motor skills, especially coordination. It is important for implemented dance programs that it should be easy and interesting, without complicated rhythmic demands.

The main objective of this research is to obtain relevant informations about the differences in the balance as the motor skill of the boys and girls 5-6 years old that live in Nis involved in a simple dance program, using appropriate tests for evaluation.

Table 1. Descriptive statistics - girls

Var.	Min	Max	Mean	Std. Dev
TV	113.0	132.0	122.2	5.1
TM	16.0	30.0	22.8	4.1
DRAV	7.9	27.1	13.7	5.4
MRAV		15.9	7.3	3.6
STBA	11.3	58.7	28.8	13.8

Table 2. Descriptive statistics - boys

Var.	N	Min	Max	Mean	Std. Dev
TV	26	108.0	137.0	121.0	6.7
TM	26	16.0	40.0	22.9	5.5
DRAV	26	7.8	39.9	14.8	4.6
MRAV	26	1.6	16.8	6.5	3.7
STBA	26	2.3	60.0	22.9	17.6

## RESEARCH METHODS

The study included  $n = 39$  children 5-6 years old ( $n_1 = 26$  boys and  $n_2 = 13$  girls) who attend preschool group in elementary school "Kole Rasic" in Nis, with good health status (body weight  $22.75 \pm 0.21$  kg, body height  $121.37 \pm 0.63$ cm), who attend a simple dance program twice a week for 45 minutes under the guidance of physical education professor. For measuring the basic anthropological size (height and weight) it was used standard instrument prescribed by the International Biological Program (IBP): height (cm), weight (kg).

To assess the balance, the battery of three tests was used: 1. walking 3 meters backwards (DRAV) (s), 2. standing on one leg with eyes open (STBA) (s), 3. standing on one leg with eyes closed (MRAV) (s). Each test was performed three times and the best result was statistically analyzed. Obtained data were processed by SPSS 17.0. Methods used for data processing are the basic statistical parameters (min, max, mean and std. deviation) and t-test for small independent samples (the difference between the boys and girls). Variables covered in the statistical package are: height (cm), weight (kg), time required to walk 3 m backward DRAV (s), time standing on one leg with eyes open

STBA (s) and time standing on one leg with eyes closed MRAV (s).

## RESULTS AND DISCUSSION

Tables 1. and 2. show descriptive statistics for girls and for boys separately. Adequate sensitivity shows only DRAV-test in boys ( $14.89 \pm 4.63$ ). The mean values of all variables are approximately equal regardless of subjects gender, and it already points to the probable lack of differences between the balance ability in preschool children.

In determining the existence of differences in the space of balance as a motor skill the t-test for independent small samples (table 3) was used. In this way it was showed no statistically significant differences in motor skill of balance between boys and girls of preschool age who are involved in the dance program, at the univariate level.

Preschool children motor skills researches are very demanding, especially for the balance as one of them, so that a small number of studies have been done with regard to this issue. Author Kostić, R., Miletić, Đ., Jocić, D., Uzunović, S. (2002). were tested the anthropometric structure in children aged 5.5 to 6.5 years in the study "The influence of dance structures on the motor skills of preschool children", which is testing a sample that is not often examined.

## CONCLUSION

Research that estimate the motor skills in preschool population are demanding because of subjects typical age, and are therefore rare. There are several batteries of tests that is often used for basic and fine motor skills evaluation, but a question of balance as a measure of basic motor skills is not covered at all. Balance is very specific motor ability. Although it is known that some of its forms developing at early preschool age (from 4 years and beyond) it often represents an additional chal-

Table 3. T-test

Var.	F	t.	df	Sig.
DRAV	.063	-.687	37	.496
		-.651	20.973	.522
MRAV	.083	.576	37	.568
		.581	24.644	.566
STBA	.925	1.043	37	.304
		1.134	30.035	.266

lenge in determining the appropriate test protocol for its assessment. An additional problem in determining the tests that assess the balance ability is its complexity. There are static and dynamic balance, a balance with open and closed eyes. In addition, preschool children tasks should be interesting and challenging enough, because only in this way we can get a real picture of preschool children motor skills.

In this study, it was suggested a test for balance assessment in preschool children, consisting of tests: walking 3 meters backwards (DRAV), standing on one leg with eyes open (STBA) and standing on one leg with eyes closed (MRAV). The importance of this study is that it deals with finding the better way to assess the area of ??basic motor skills in preschool children. Further research might be related to verifying the validity of the applied tests battery, and to determine the effects of various intervention programs in preschool children.

## REFERENCES

- Kostić, R. (2001). *Ples teorija i praksa* [Dance Theory and Practice. In Serbian.] Niš: Grafika „Galeb“.
- Kukolj, M., Jovanović, A. & Ropret, R. (1992). *Opšta antropomotorika operativno-metodički aspekti* [General anthropomotorics operative methodological aspects. In Serbian.] Beograd: Fakultet fizičke kulture.
- Tares, M. (2006). *Anthropomotorics*. New York: “Vizartis”.
- Stojiljković, S. (2003). *Osnove opšte antropomotorike* [Fundamentals of general anthropomotorics. In Serbian.]. Niš: „Crveni krst“.
- Kostić, R., Miletić, Đ., Jocić, D. & Uzunović, S. (2002). The influence of dance structures on the motor abilities of preschool children [Uticaj plesnih struktura na motoričke sposobnosti dece predškolskog uzrasta. *Facta Universitatis, Series Physical Education and Sport*, 1(9), 83-90.

Correspondence:  
 Marija Stanković  
 University of Niš,  
 Faculty of Sport and Physical Education,  
 Čarnojevićeva 10A, 18000, Niš, Serbia  
 E-mail: smari79@gmail.com

## СТАТУСОТ НА РАМНОТЕЖАТА КАЈ ДЕЦАТА ОД ПРДУЧИЛИШНАТА ВОЗРАСТ КОИ СЕ ВКЛУЧЕНИ ВО ПРОГРАМА ЗА ТАНЦУВАЊЕ

УДК:793.3.012.266-053.4  
(Сѝручен ѝруд)

Марија Станковиќ<sup>1</sup> и Оливер Раденковиќ<sup>2</sup>

<sup>1</sup>Универзитетот во Ниш, Факултетот за спорт и физичко воспитување,  
докторант, Ниш, Србија

<sup>2</sup>Државен Универзитет во Нови Пазар, Оддел за био-медицински науки,  
Нови Пазар, Србија

### Апстракт

Основна цел на испитувањето беше да се добијат сознанија за разликите во моторните способности рамнотежа меѓу машките и женските на возраст од 5-6 години кои се вклучени во едноставна програма за танцување. Во испитувањето беа опфатени 39 ентузијастички (26 машки и 13 женски). На нив беа применети следните манифестни варијабли: телесна височина (ТВ), телесна маса (ТМ), одење 3 метри назад (DRAV), стојење на една нога со отворени очи (STVA), стојење на една нога со затворени очи (MRAV). За утврдување на разликите применети т-тести. На тој начин е утврдено дека нема статистички значајна разлика во моторните способности рамнотежа меѓу машките и женските од предучилишната возраст кои се вклучени во програмата за танцување.

**Клучни зборови:** тестови, т-тести, моторни способности