

TRANSFORMATION OF MOTOR AND SITUATIONAL-MOTOR ABILITIES OF BOYS UNDER THE INFLUENCE OF PROGRAMMED VOLLEYBALL PRACTICE

Branimir Mikić¹, Ismet Bašinac², Izudin Tanović³ and Vladimir Ivanek⁴

¹ Faculty of physical education and sport, Tuzla university, Bosnia & Herzegovina

² Faculty of Education, University of Travnik, Bosnia & Herzegovina

³ University of Mostar, Educational faculty, Bosnia & Herzegovina

⁴ The Fifth elementary school, Brčko district, Bosnia & Herzegovina

Original scientific paper

Abstract

This research was conducted on a sample of seventy-two boys who were eleven and twelve years old and who were members of volleyball school. The aim of this research is to establish the partial quantity differences in transformation of motoric and situational- motoric abilities of volleyball school member boys between initial and final measurement under the influence of programmed volleyball practice. Fifteen basic-motoric variables and five variables for assesment of situational-motoric abilities of volleyball players were used in this research. With the use of T- test for dependable causes, it was established that programmed volleyball practice has produced statistically important partial transmission effects in the area of motoric and situational-motoric abilities of the participants between the initial and the final measurement.

Key words: volleyball, transformation, motoric, situational motoric, boys, variables

Introduction

The high demands that are being set to volleyball players during the practice and competition process are the result of connection between the science and practice, where the whole system of preparation is in the function of achieving the high individual quality of volleyball players from the point of volleyball game as a collective sport. To achieve top sport volleyball demands at senior level, we have to fulfil three conditions in order to get to the top level. They are articulated as a sport models (Bonacin, Bilić and Bonacin, 2008).

A the first condition is knowing of volleyball model, or knowing the characteristics of a game that is played and characteristics of players who are part of such realization. B. the second condition is knowing the transformation process that takes beginners (seven and eight year old players) to the top results. And finally C. the third condition is identification of potentially talented children for volleyball, according to their characteristics (Bonacin and Smajlović, 2006).

Therefore, selection is one of the basic ideas in such line and we cannot approach to that assignment easily and without considering the future of a sport itself and the future of a child who plays that sport for ten, fifteen or more years and who tries to achieve the top result. (Bonacin et al., 2008). The main Aim of this research is to establish the partial quantity differences of morphological and situational-motor abilities of eleven and twelve year old boys , between the initial and the final measurement under the influence of programmed volleyball practice.

Methods

Participant sample

This research was conducted on a sample of seventy-two eleven and twelve year old boys, who are members of volleyball school. The programmed training process lasted for six months (seventy-two practices).

Variables

The choice of variables was made based on former similar researches, considering their importance for efficiency in volleyball game. Basic motor abilities are presented with fifteen variables and their choice was made according to structure of volleyball game, the analysis of reliability and factor accuracy of tests which gives good metric characteristics. Tests assessing explosive strength: 1. MESSUD - length jump, 2. MESSUV - height jump, 3. MESTIM - triple jump, 4. MESBML - throwing of medical ball from the lying position; Tests assessing coordination: 1. MKOUZR - air spinning, 2. MKKOVT - envelope test, 3. MKOSAS - the eight with bending; Tests assessing the frequency of the movement (segment speed): 1. MSBTRU - hand tapping, 2. MSBTNO - leg tapping, 3. MSBTNZ - leg tapping against the wall; Tests assessing repetitive strength: 1. MRSPTR - body lifting, 2. MRSZTK - body bending on the bench, Tests assessing flexibility: 1. MFPNAK - bending on the bench, 2. MFISPA - distortion with the bat, 3. MFBSPA - side splits. The area of situational motor is covered with five variables, which are chosen based on the analysis of the structure of volleyball game, and on which the efficiency of technical-tactic demands of a game relies: 1. SMJAPT - Japan test, 2. SMTESJ - sitting test, 3. SMPRSE - serving preciseness, 4. SOPKNZ - ball reflecting in a circle on the wall, 5. SOPPOZ - forearm ball reflecting against the wall.

Data processing methods

In order to establish the partial quantity changes of motor and situational-motor abilities between the initial and the final measurement T- test for dependable causes was applied.

Results and discussion

Partial quantity changes-differences

In order to establish the partial quantity differences (partial quantity change effects), especially for changes in tests assessing basic motor abilities and for changes in tests assessing situational-motor abilities in volleyball, the univariant testing level was applied (T-test for dependable causes). The results of T- test for the group of participants, according to tests assessing basic motor abilities are shown in table 1. The results of T-test for the group of participants, according to tests assessing situational-motor abilities are shown in table 2.

T- test variables assessing basic motor abilities

Table 1. t-test (paired samples)

MESSUD	-17.32	15.61	1.71	-19.84	-12.97	-9.56	0.000
MESSUV	-3.45	4.53	0.40	-5.26	-2.78	-7.84	0.000
MESTIM	-0.84	0.54	0.43	-0.89	-0.77	-16.44	0.076
MESBML	-1.36	1.29	0.16	-1.59	-0.80	-0.85	0.000
MKOUZR	0.86	0.72	0.15	0.71	0.51	11.36	0.000
MKKOVT	3.33	2.57	0.29	2.46	3.42	9.84	0.068
MKOSAS	1.13	1.88	0.21	0.74	1.53	6.13	0.000
MSBTRU	2.65	2.93	0.41	-4.02	-1.93	-7.36	0.000
MSBTNO	-1.64	2.24	0.25	-1.97	-1.13	-6.25	0.000
MSBTNZ	-3.95	2.87	0.33	-5.64	-3.25	-10.35	0.121
MRSPTR	-8.14	5.17	0.62	-8.47	-6.45	-15.23	0.000
MRSZTK	-7.55	7.46	0.82	-9.13	-6.35	-9.66	0.000
MFPNAK	-4.07	4.16	0.38	-4.84	-3.42	-9.27	0.000
MFISPA	-35.47	16.60	4.48	-62.17	-60.29	-11.35	0.000
MFBSPA	-26.36	10.73	2.33	-18.35	-13.47	-9.07	0.000

Based on the arithmetic middle results in tests assessing basic motor abilities, at the beginning and at the end of conducted programmed volleyball practice, and based on the importance of changes tested with T- test for dependable causes, it became obvious that programmed volleyball practice has produced statistically important partial transformation effects.

With tests assessing basic motor abilities, which in this research, are shown with variables assessing explosive strength: MESSUD- length jump, MESSUV- height jump, MESBML- throwing medical ball from lying position, with variables assessing coordination: MKOUZR- air spinning MKOSAS- the eight with bending, then with variables assessing frequency movement (segment speed): MSBTRU- hand tapping, MSBTNO- leg tapping, with variables assessing repetitive strength: MRSPTR- body lifting, MRSZTK- body bending on the bench, with variables assessing flexibility: MFPNAK – bending on the bench, MFISPA - distortion with the bat , we came to statistically important positive progress of

arithmetic mean variables with most tested variables in final measurement, on statistically important level except variables MESTIM- triple jump, MKKOVT- envelope test, MSBTNZ – leg tapping against the wall and MFBSPA– side splits.

T-test variables assessing situational-motor abilities

Table 2. t-test (paired samples)

SMJAPT	1.89	1.90	0.22	1.45	2.47	0.83	0.000
SMTESJ	2.80	3.55	0.41	2.14	3.67	0.75	0.000
SMRSE	-6.99	4.09	0.45	-7.47	-6.90	-15.39	0.000
SOPKNZ	-7.11	3.50	0.40	-7.86	-6.64	-16.78	0.000
SOPPOZ	-6.14	4.70	0.56	-7.52	-5.15	-12.95	0.000

Based on the arithmetic means results in tests assessing situational-motor abilities, at the beginning and at the end of conducted programmed volleyball practice, and based on the importance of changes tested with T- test for dependable causes, it became obvious that programmed volleyball practice has produced statistically important partial transformation effects. With tests assessing situational- motor abilities, which in this research, are shown with variables SMJAPT- Japan test, SMTESJ- sitting test, SMRSE- serving preciseness, SOPKNZ- ball reflecting in the circle on the wall and SOPPOZ- forearm ball reflecting against the wall, we came to statistically important positive progress of the arithmetic middle values with all tested variables in the final measurement at the most important level. T- test results (table 2) with all variables assessing situational-motor abilities, show statistically important differences between initial and final measurement at Sig 0.00 level, which means that programmed volleyball practice, conducted on a tested group of participants has produced important partial transformation effects in the area of situational-motor abilities.

Conclusion

The aim of this research is to establish the partial quantity differences of basic motor and situational-motor abilities of eleven and twelve year old boys, between the initial and the final measurement under the influence of programmed volleyball practice. The research was conducted on an sample of seventy-two boys, volleyball school members. T-test results with the most variables assessing basic motor abilities showed statistically significant differences between the initial and the final measurement. Statistically significant differences between the initial and the final measurement with all variables assessing situational-motor abilities are established. Programmed volleyball practice has produced statistically significant partial transformation effects in the area of motor and situational-motor abilities on the tested sample.

Because of the specific volleyball game characteristics and the rules which limit only three ball touching on one side of the field, the realization of all elements demands the high level of significant motor and situational-motor abilities.

Literature

- Alić-Partić, M., & Đug M. (2005). *Factor analysis of anthropometric characteristics and motor abilities of volleyball girl players in the team of BiH*. Tuzla: Faculty for PE and sport.
- Ahmetović, Z. (1987). *Tests establishing the level of bio-motor abilities of sport players*. Novi Sad: FFK.
- Bala, G. (1986). *Logical base of methods analyzing research data in physical education*. Novi Sad: FFK.
- Bonacin, D., Bonacin, Da., & Bašinac, I. (2008). Simulation of some bio-motor dimensions for selection of volleyball players age 7. *Sport science*, 2(1), 49-51.
- Bonacin, D., & Smajlović, N. (2005). The universal selection model for the top sport work. *Homo sporticus*, 8, 36-40.
- Ćeleš, N. (2009). *The influence of programmed practice on transformation of morphologic characteristics, motor abilities and knowing of technical volleyball elements*. Doctor's dissertation, Tuzla: Faculty for physical education and sport.
- Delija, K. (1993). *The influence of differential physical treatment on quantitative and qualitative differences of motor abilities*. Doctor's dissertation. Zagreb: FFK.
- Gabrijelić, M. (1977). *Obvious and hidden dimensions of top athletes in some team sports in motor, cognitive and conative area*. Doctor's dissertation. Zagreb: FFK.
- Ilić, S. (1984). *Control of physical preparedness of volleyball players*. Beograd: FFK.
- Ilić, S. (1986). *Construction of tests assessing and monitoring the development of some pioneer volleyball players abilities*. Beograd: FFK.
- Ilić, S. (1988). *Experimental pioneer volleyball school work results*. Beograd: FFK.
- Janković, V., & Marelić, N. (1994). *Volleyball*. Zagreb: FFK.
- Krsmanović, R., Najšteter, Đ., & Hadžikadunić, M. (1986). *Canonical relations of cardio-vascular functional system abilities and psychomotor abilities*. Titograd: FFK.
- Lačić, O. (2001). *Canonical relation of morphologic characteristics and situational-motor readiness of volleyball players*. Master's thesis. Tuzla: Faculty of philosophy.
- Marelić, N., & Janković, V. (1997). Development of specific volleyball players speed of movement without a ball. Zagreb: FFK.
- Mikić, B., (1991). *Transformation of anthropologic dimensions of students of Tuzla university under the influence of regular physical education*. (Doctor's dissertation). Novi Sad: FFK.
- Mikić, B. (1998). *The basic of human psycho-motorics*. Tuzla: Faculty of philosophy.
- Mikić, B., Nožinović, F., & Mulabegović Š. (1997). *Research work methodology of physical education – physical sciences*. Tuzla: Faculty of philosophy.
- Mikić, B. (1999). *Sport testing and measurement*. Tuzla: Faculty of philosophy.
- Nožinović, F. (1990). Correlation of functional abilities and morphologic characteristics of volleyball students. Proceedings. Tuzla: Faculty of philosophy.

TRANSFORMACIJA MOTORIČKIH I SITUACIJSKO – MOTORIČKIH SPOSOBNOSTI DJEČAKA POD UTJECAJEM PROGRAMIRANOG TRENINGA ODBOJKE

Sažetak

Istraživanje je sprovedeno na uzorku od 72 dječaka člana škole odbojke, uzrasta 11-12 godina. Cilj ovog istraživanja je utvrđivanje parcijalnih kvantitativnih razlika u transformaciji motoričkih i situacijsko-motoričkih sposobnosti dječaka članova škole odbojke između inicijalnog i finalnog mjerenja pod utjecajem programiranog treninga odbojke. U istraživanju je primjenjeno 15 varijabli za procjenu bazično-motoričkih sposobnosti i 5 varijabli za procjenu situacijsko-motoričkih sposobnosti odbojkaša. Primjenom T-testa za zavisne uzorke je utvrđeno da je programirano vježbanje odbojke proizvelo statistički značajne parcijalne transformacijske efekte u prostoru motoričkih i situacijsko-motoričkih sposobnosti ispitanika između inicijalnog i finalnog mjerenja.

Ključne riječi: odbojka, transformacija, motorika, situacijska motorika, dječaci, varijable

Received: March 07, 2011

Accepted: June 02, 2011

Correspondence to:

Prof. Branimir Mikić, PhD.

University of Tuzla

Faculty of Physical Education and Sport

75000 Tuzla, 2. Oktobra br. 1, B&H

Phone: +387(0)35 278 537

E-mail: branimir.mikic@untz.ba