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SOME RELATIONS BETWEEN THE MOTORIC TESTS FOR ASSESSMENT OF COORDINATION AND EXPLOSIVE POWER WITH THE MEASURES OF THE SUCCSESSFUL PERFORMANCE OF THE GYMNASTIC ELEMENT, FORWARD DISMOUNT WITH STRADDLE LEGS ON RINGS

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(Original scientific paper)

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Abstract

For the purpose of implementing the aims of this research, a procedure has been conducted consisting of 68 examinees, i.e. male first-year students from the Faculty of Physical Education in Skopje. A total of 20 manifest motoric variables have been applied on this sample section of examinees, out of which 12 refer to coordination assessment and 8 refer to motoric tests for the assessment of explosive strength. The evaluation of the technical performance of the gymnastic element forward dismount with straddle legs on rings has been executed by 4 qualified referees who are well acquainted with the subject of assessment. Using the method of regressive analysis, the effectiveness of the applied evaluation tests for coordination and explosive strength assessment on the successful performance of the gymnastic element forward dismount with straddle legs has been affirmed.

Key words: *rings, coordination, explosive strength, regressive analyses*

Introduction

It is undoubtedly pointless to be physically active if the process of that activity cannot be controlled, or if the achieved result cannot be objectively assessed. For that reason, there are justifiable assumptions that in order to participate in a certain sports discipline successfully, the integrity and the anthropological dimensions of the person in question are of paramount importance.

In the past researches, the anthropological space has been examined globally and partially. In sports gymnastics however, are realized the researches in manifest and latent space which relate to the affirmation of the connection between the anthropometric variables and the motoric tests and abilities through the successful performance of the gymnastic elements and the achieved results in sports gymnastics (Pop-Petrovski V. (1997), O. Mitevski (2000), E.Petkovic (2004) K. Spasovska (2008, 2013).

Starting from the fact that motor abilities are one of the main factors in the resolving of motor abilities, in this case in sports gymnastics, the process of determining the motor space structure as a segment of the anthropological space of a person has been preoccupying the thoughts of many national and international professionals for years. However, despite the numerous researches and the extensive data thanks to the advance of technology, they are still not sufficiently explored and are constantly in the research professionals' focus.

In sports gymnastics in most cases there are exercises with complex structure. In the case of some elements and exercises on certain apparatus the success rate is determined mostly by particular motor abilities; in some exercises there is a bigger influence by the anthropometric variables, while in other cases, besides the enumerated factors, the cognitive and conative abilities have a major influence as well. Being familiar with the structure of gymnastic elements and my experience of several years obtained through the regular practical classes of sports gymnastics, knowing that it is a sport which demands that the student have high motor abilities, I have tried to validate the practical knowledge through statistical mathematic method, hoping that I would find out more specifically which coordination factors and explosive strength, as segments of motor abilities of a person, are important in the process of acquiring the gymnastic element forward dismount with straddle legs.

Therefore, diagnosing the success in sports gymnastics which is the focus of this paper, is discovering the relations in the motor space between the coordination and explosive strength of certain body parts with the successful performance of the gymnastic element forward dismount with straddle legs on rings. Tracking and recording them has provided us with insight into perceiving the success in the process of education.

Working Methods

In this reasearch based on sample section of examinees consisting of 68 first-year male students from the Faculty of Physical Education in Skopje, 20 manifest motor variables have been applied, out of which 12 refer to coordination assessment of certain body parts (full body coordination(3), legs coordination(3), coordination of quick complex movements(3) and reorganization of dynamic stereotypes(3), as well as eight (8) tests for the assessment of explosive strength (type of jumps (3) and type of throw (5)).

Most of the tests for the assessment of the motor abilities for coordination and explosive strength were measured based on Metikos .D‘s recommendations (1989). While the tests: crossing parallel bar, jumping over horizontal rope, climbing and descending on Swedish climbers, long jump backwards and the test climbing and descending stairs backwards are measured based on the recommendations of Gredelj M., Metikos D.,Hosek A. I Momirovic K. (1975)

The test jumps up-down-far represents type of the original version of Godik M.A (1988), and is taken from the doctoral dissertation of Pop-Petrovski V. (1997).

The evaluation of the technical performance of the gymnastic element forward dismount with straddle legs on rings, with standardized criteria has been executed by 4 qualified referees who are well acquainted with the subject of assessment. Using the method of regressive analysis, the effectiveness of the applied evaluation tests for coordination and explosive strength assessment on the successful performance of the gymnastic element forward dismount with straddle legs on rings has been affirmed.

RESULTS

Chart 1 shows the results from the regressive analysis for the impact of some motor variables for assessment of the coordination, like predictive system above the variable forward dismount with straddle legs on rings as criterion.

With inspection on chart 1 you can see that the predictive system for coordination is significantly and highly (0.62) connected with the criterion KRSRA – forward dismount with straddle legs. The variability of the criterion with the system is explained 39%. With the predictive system we can predict the success of the criterion.

Chart 1 Results of regressive analysis of the criterion KRSRA – forward dismount with straddle legs with the predictive system for coordination

Variables	r	Part-r	BETA	t-test	Q
MKOPOD	-0.45	-0.31	**-0.42**	-2.40	**0.02**
MKOVOZ	-0.26	-0.04	-0.04	-0.30	0.77
MKOPPP	-0.41	-0.21	-0.27	-1.60	0.12
MKNPHJ	0.02	-0.19	-0.21	-1.43	0.16
MKNKSS	-0.24	-0.05	-0.06	-0.40	0.69
MKNCVS	-0.23	-0.04	-0.04	-0.29	0.77
MKBPIP	-0.23	0.09	0.10	0.64	0.53
MKBKSKR	-0.22	-0.07	-0.07	-0.52	0.61
MKBOSN	-0.03	0.35	**0.37**	2.78	**0.01**
MRSDNA	0.29	0.10	0.10	0.73	0.47
MRPONA	-0.27	-0.12	-0.13	-0.87	0.39
MRKSSN	-0.30	-0.04	-0.04	-0.27	0.79
Delta	RO	DF 1	DF 2	F	Q
0.39	0.62	12.00	55.00	2.92	0.00

Significantly and low partial regressive coefficients criterion has with the variables for full body coordination MKOPOD (-0.42) – mobility on the mat and with the variable for coordination of fast complex movements MKBOSN (0.37) – eight with leaning.

With these coordination tests it can be predicted the success of the criterion KRSRA – forward dismount with straddle legs.

The connection of the overall predictive system of the motor variables for explosive strength and the successful performance of the gymnastic element on rings, KRSRA – forward dismount with straddle legs is 0.58 (chart 2), which explains the common variability between the predictive system and the criterion's variable about 34%. Such a connection is very significant on level of Q=0.00. With the predictive system for explosive strength the successful performance of the criterion's variable can be predicted.

Analyzing the predictive variables for explosive strength individually can be noted that the criterion positively, significantly and low is connected only with the variable MSGDD (0.45) – jumps, up, down, far. With this predictive variable for explosive strength – type of jumps can be done prediction of the criterion.

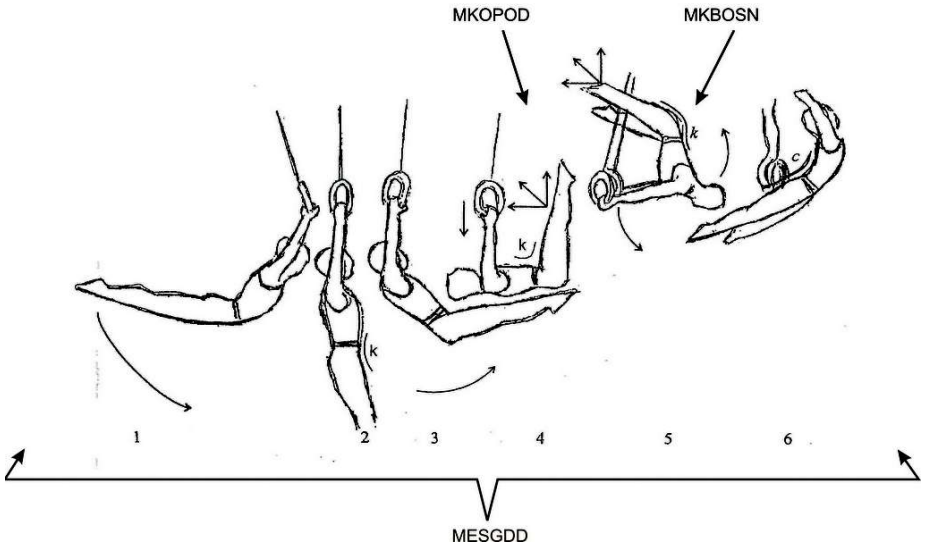
Chart 2 Results of regressive analysis of the criterion KRSRA – forward dismount with straddle legs with the predictive system for explosive strength.

Variables	r	Part-r	BETA	t-test	Q
MESSDM	0.19	0.05	0.05	0.35	0.72
MESGDD	0.50	0.46	**0.45**	3.95	**0.00**
MES20M	-0.13	-0.05	-0.04	-0.37	0.71
MESFMNR	0.04	-0.10	-0.09	-0.76	0.45
MESFMNN	0.20	0.12	0.11	0.95	0.35
MESPVNY	0.31	0.21	0.26	1.68	0.10
MESPVNP	0.24	-0.02	-0.03	-0.19	0.85
MESPVNR	0.20	0.04	0.06	0.30	0.76
Delta	RO	DF 1	DF 2	F	Q
0.34	0.58	8.00	59.00	3.81	0.00

To show the partial impact of the predictive variables which have significant influence on the technique's performance we will try to analyze the technique of performance of the element.

From swinging in the air when the body moves in the back is slightly bent backwards. From this position the movement of the body and legs to the vertical is accelerated under the influence of the gravity force. After the vertical is performed bending at the hip joint and the legs continue to move faster than the corpse.

Picture 1 Forward dismount with straddle legs on rings



When the body comes in front is in bent position, which meas the legs and the corpse are at an angle of 90 degrees position. At this point it's performed fast opening with his legs upwards and backwards, and simultaneously are activated the abductors in the hip joint, in other words the legs are widely spread aside.

The moment when the body moves backwards is under the influence of partial predictors for coordination of the whole body (MKOPOD – coordination on the mat) and of the test for coordination of fast complex movements (MKBOSN – eight with leaning).

When the shoulders will pass the height of the rings a pushing is done with straighten arms on the rings downward and forward. Once the gymnast leaves the apparatus before the upper vertical, the body in an upright or slightly bent position falls downward, or in other words the gymnast performs the landing. The successfully performed landing is a result of the test for explosive power of the type of jumps, MESGDD, up, down, far (pic.1).

From chart 3 for frequency of the assessments it can be noticed that during the performance of this element the number of those students who managed to perform it the best way possible is as high as 11. This means that the 16.18% received grades from 9.00 to 10.00. An equal number of students received grades from 8.00-8.99. The total number of students who were assessed as having high score is 32%, which indicates that for the students this element was a difficult task. The largest number of students 64% of this gymnastic element mastered on low level with little assistance and errors in the technical performance.

The resulting significant connection in the regressive analyzes of the tests for coordination and explosive strength with the criterion shows the need to develop the coordination and the explosive power to a higher level and the need to learn and master the art of performing at a higher level of this gymnastic element.

Chart 3 Frequency of assessments for the element KRSRA – forward dismount with straddle legs

Ocenki	F	%	Kumulativno %
5.00-5.99	2	2.94	2.94
6.00-6.99	21	30.88	33.82
7.00-7.99	23	33.82	67.64
8.00-8.99	11	16.18	83.82
9.00-10.00	11	16.18	100

Conclusions

According to the received results we can come up with a conclusion that to successfully perform this element despite the other motor abilities, it is necessary that the mentioned motoric tests for full body coordination, fast complex movements and explosive strength, type of jumps and throws with the arms and legs should be developed on the required level, and then to start the process of learning and mastering the technique.

With proper guidance of the students towards the development of these motor abilities on required level before starting the process of learning, or mastering the technique are created conditions for faster and more efficiently mastering the technique of the element.

Because in the previous researches different results were obtained in different samples of examinees with different level of motor abilities as well as different level of knowledge of the sports gymnastics every research will have its own contribution towards the determination of the impact of certain factors of the anthropological status (different motor abilities, morphological, sociological, conative and cognitive dimensions) on the success in sports gymnastics.

References

Babijak J. (1981) Relacije izmedju motorkih sposobnosti i uspeha u spordskoj gimnastici. Fizicka kultura, Beograd,

Velickovic S. i Petkovic E. (2005) The objectivity of situational – motor coordination measuring instruments in gumnastics, Physical Education and Sport, vol. 3 N. 1

3.Delas S. i Dragicevic S. (2006 god.) Kriterium za ocjenjivanje uzmaha jednonoznog, Fakultet PMZ i Kineziologije, Split

4.Metikos D., Milanovic D., Prot F.,Jukic I. i Markovic G. (2003) Teorijske i metodicke osnove razvoja koordinacij,www. Kondiciska priprema sportasa, Zagreb,

Митевски О. (2000) Латентна поврзаност на антропометриските и моторните фактори со успешната изведба на гимнастичките елементи кај учениците од 17 годишна возраст. Дисертација.ФФК,Скопје2000

Митевски О. (2007) Прирачник за оценување во спортска гимнастика, Скопје

Митевски О. (2003) Практикум по спортска гимнастика, Скопје

Поп-Петровски, В. (1997) Релации меѓу антропометриските карактеристики, моторичките способности сила и снага и успехот по гимнастика. Факултет за физичка култура Скопје. Докторска дисертација. Скопје

Petkovic E. (2004) Relacii na situaciono - motorcka koordinacija i natprevaruvackata uspesnost na gimnasticarkite, Fakultet za fizicka kultura, Nis vol.2 br.1 str.25-33

Спасовска ,К. (2008) Одредени релации помеѓу моторичките тестови за проценка на координација и експлозивна снага со успешната изведба на гимнастички елементикај студентите од прва година на Факултетот за физичка култура во Скопје. Магистерски труд,

Спасовска ,К. (2013) Структура на антропометриските карактеристики, моторичките способности и психолошките особини и нивното влијание на успешната техничка изведба на елементите од спортска гимнастика кај студентите од прва година на ФФК во Скопје. Докторска дисертација.