

CONTRIBUTION OF MOTOR VARIABLES TO PREDICTION OF SUCCESS OF FIRST-YEAR STUDENTS IN SHOT PUT

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(Preliminary communication)

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Abstract:

The study was carried out on a non-selected sample of 60 first-year students of the Faculty of Physical Education and Sport of the University of Tuzla. The survey aims to determine contribution of individual motor variables to prediction of success in the shot put with O'Brien technique. Results of regression analysis in the manifest area indicate that application of motor variables can enable prediction of success in shot put, particularly with variables for estimation of the absolute force of arms and shoulders of explosive and repetitive nature.

Keywords: testing, motor skills, regression analysis

INTRODUCTION

Previous researches (Ropert, 1969; Milanović, 1976) indicate a significant connection between motor skills and results in shot put. The importance of absolute force, explosive force and force speed for achieving great results in shot put are underlined. We can anticipate that for selected and top shot putters, the strongest and almost equal contribution to result in shot put is given by absolute force, explosive force of all body parts, speed of movements and coordination. Contribution of individual motor skills to results in shot put for non-selected sample with insufficiently automated techniques of shot put is questioned. That is why the objective of this research was to define contribution of individual motor variables to prediction of success in shot put of non-selected sample of first-year students with insufficiently automated technique of shot put.

RESEARCH METHODOLOGY

Sample examinees of this research were sixty first-year students of the Faculty of Sport and Physical Education of the University of Tuzla.

This research applied 14 motor variables which were concerned relevant for success in shot put, and they were: Frequency of movement, Explosive force, Repetitive force and Coordination.

The following tests were applied for an assess-

ment of such motor dimensions:

1. Hand tapping (MBFTAP), 2. Foot tapping (MBFTAN), 3. Hand circling (MBFKRR), 4. Standing long jump (MFESDM), 5. Triple jump (MFETRS), 6. Throwing a medicine ball from a recumbent position (MFEBML), 7. Throwing a medicine ball over head (MFEBMG), 8. Running in a rectangle (MAGONT), 9. Broaching and skipping (MKAPOPOP), 10. Hand dribble between cones (MKAVLR), 11. Bench press (MRCBPR), 12. Deep squats with a load (MRCDUC), 13. Push-ups (MRASKL), 14. Lifting the trunk from sitting position (MRCDTS).

A criterion variable was a result of shot put with O'Brien technique.

In order to define influence of the prediction system (motor skills) on the criterion variable (result in shot put) one applied a regression analysis in the manifest area.

RESULTS AND DISCUSSION

Results of the regression analysis are shown in Table 1.

A significant multiple correlation of the level $R = .62$ and a determination coefficient of 37% were obtained. This indicates that shot put success can be predicted with the applied group of motor variables.

Among all of the applied motor tests, those

Table 1. Regression analysis criterion variable (result in shot put) of variables of prediction system (motor skills)

Variables	R	Part-R	Beta	T	Q
MBFTAP	.12	-.09	-.09	-1.06	.27
MBFTAN	.15	.07	.07	1.04	.36
MBFKRR	.11	.08	.09	1.10	.22
MFESDM	.32	.14	.14	4.53	.06
MFETRS	.27	.07	.08	2.18	.18
MFEBML	.43	.18	.19	7.32	.01
MFEBMG	.30	.17	.18	5.43	.04
MAGONT	-.28	-.12	-.13	2.56	.11
MKAPOP	-.14	.13	.16	-1.96	.09
MKAVLR	-.36	-.19	-.18	5.52	.03
MRCBPR	.38	.20	.22	7.92	.00
MRCDUC	.16	-.04	-.06	-.46	.41
MRASKL	.29	.19	.19	5.26	.05
MRCDS	.18	.05	.06	1.16	.32

D = .37

R = .62

F = 7,62

Q = .00

which are most significant for prediction of shot put success are: bench press (.00), throwing a medicine ball from a recumbent position (.01), throwing a medicine ball over head (.04), push ups (.05) and hand dribble between cones (.03).

In regard to a dynamic structure of a stereotype of motion in shot put with a predominant absolute force component (which is proportional to morphologic dimensionality), significance of the following tests in the hierarchy of motor variables is obvious: throwing a medicine ball from a recumbent position (MFEBML), bench press (MRCBPR), throwing a medicine ball over head (MFEBMG) and push ups (MRASKL).

The examinees of this research were characterized with poor knowledge of the technique of performance of this complex motor activity (shot put). This is visible through insufficient participation of tests of explosive force of lower limbs and tests of absolute strength of legs and trunk in the prediction of success of this athletic field.

Shot putters of better level of quality in all sequences of the activity maximally engage capacities of speed and force of lower limbs, particularly in realization of eccentric take off impulse and pushing from the base in the phase of maximum strain.

Probably due to a small fund of information about the techniques of performance of shot put, examinees from this research (which is typical for beginners) applied a bad technique and performed

shot put mostly using upper limbs force and partially lower limbs force and without any significant usage of trunk.

CONCLUSION

Fourteen motor tests (as prediction variables) were applied to sixty first-year students of the Faculty of Sport and Physical Education of the University of Tuzla. Shot put result was used as a criterion variable.

Results of the regression analysis in the manifest area indicate that one can predict shot put success using applied motor variables, particularly with variables for assessment of absolute force of arms and shoulders of an explosive and repetitive nature.

Undeveloped shot put technique and non-selected sample probably are the reason why other motor variables (force of legs, force of trunk, coordination) did not turn to be significant in the prediction of shot put result.

The results of the research indicate that the absolute force of upper limbs (arms and shoulders) is significant for prediction and selection and orientation of children for this athletic field.

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ПРИДОНЕС НА МОТОРНИТЕ ВАРИЈАБЛИ ВО ПРЕДИКЦИЈАТА НА УСПЕХОТ ПРИ ФРЛАЊЕТО НА ЃУЛЕ КАЈ СТУДЕНТИТЕ ОД ПРВА ГОДИНА НА СТУДИИТЕ

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(Прейходно соопштение)

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Апстракт:

Испитувањето е спроведено на неселектиран примерок од 60 студенти од прва година од Факултетот за физичко воспитување и спорти при Универзитетот во Тузла. Целта на испитувањето беше да се утврди придонесот на одделни моторни варијабли во предвидувањето на успехот при фрлањето на ѓуле О' Браен техника. Резултатите од регресивната анализа во манифестниот простор, покажаа дека со примените моторни варијабли може да се предвиди успехот при фрлањето на ѓуле. Притоа, статистички значајно влијание покажаа варијаблите за проценување на ајсолутивна снага на рацете и рамениот појас со експлозивен и рејитивен карактер.

Клучни зборови: *тестирање, регресивна анализа, моторни способности*