# VALIDITY OF SOME SITUATION-RELATED MOTOR TESTS FOR THE ASSESSMENT OF TECHNICAL EFFICIENCY OF WRESTLERS

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**Abstract:**

Success in a wrestling bout largely depends on the efficiency of the execution of the technical elements. The issue of predicting the technical efficiency of wrestlers and, therefore, the issue of the research's objective appear to be logical consequences in this matter. In an attempt to determine the possibility of predicting the success in executing the throwing technique, that is, the possibility of predicting the technical efficiency, fifty quality wrestlers were tested using six situation-related motor tests, in which explosive power, speed, speed endurance, flexibility and coordination presented the hypothetical object of measurement. By means of regression analysis it was found that it is possible to predict the efficiency of the execution of throwing techniques carried out from a standing position.

By means of a model which maximizes the covariance of the linear composite formed from the standardized predictor and criterion variables, a significant (.01) multiple correlation (.58) was obtained, which explains 34% of the variance of the criterion - the general technical efficiency of wrestlers. Out of the six situation-related motor tests, two composite tests, in which explosivepower, coordination, flexibility and speed endurance comprised the measurement object, had a significant partial contribution to the explanation of the criterion variable and are, therefore, recommended for the prediction of the technical efficiency of wrestlers.

The results of the comparative regression analysis under the least squares model were almost identical.

***Key words:*** wrestling, situation-related motor tests, technique, prediction

## DIE GÜLTIGKEIT EINIGER SITUATIONSBEZOGENEN MOTORISCHEN TESTS ZUR BEWERTUNG TECHNISCHER EFFIZIENZ BEI DEN RINGERN

**Zusammenfassung:**

Der Erfolg beim Ringkampf hängt im grossen Masse von der effektiven Aufführung technischer Elemente ab. Das führt zum Problem, die technische Effizienz bei den Ringern vorauszusehen, das auch zum Ziel dieser Untersuchung war. Im Versuch, die Voraussehbarkeit der erfolgreichen Aufführung der Wurftechnik, d.h. der technischen Effizienz, festzustellen, sind 50 Leistungsringer 6 situationsbezogenen Tests untergangen, in denen Explosivkraft, Schnelligkeit, Schnelligkeitsausdauer, Flexibilität und Koordination das hypothetische Bewertungsobjekt darstellten. Mittels der Regressionsanalyse wurde es beschlossen, dass es möglich sei, die Effizienz der Aufführung des Wurfgriffs aus stehender Position vorauszusehen.

Mittels eines von den standardisierten Prädiktor- und Kriteriumsvariablen gestalteten Modells, das die Kovarianz der linearen Zusammensetzung maximiert, wurde eine bedeutende (.01) multiple Korrelation (.58) erworben, die 34% der Kriteriumsvarianz - der allgemeinen technischen Effizienz der Ringer - erklärt. Von den 6 situationsbezogenen Tests hatten zwei zusammengesetzte Tests, in denen das Bewertungobjekt die Explosivkraft, Koordination, Flexibilität und Schnelligkeitsausdauer umfasste, einen bedeutenden partialen Beitrag zur Erklärung der Kriteriumsvariable. Sie sind deswegen zum Voraussehen technischer Effizienz der Ringer empfohlen.

Die Ergebnisse der komparativen Regressionsanalyse unter dem Least-Squares-Modell waren fast identisch.

***Schlüsselwörter:*** Ringen, situationsbezogene motorische Tests, Technik, Voraussehen

## Introduction

Research directed towards the possibility of predicting the efficiency in a wrestling bout and the technical efficiency, being the two things that are essential for efficiency in combative sports such as wrestling, is relatively rare. Petrov (1978) and Novykov et al. (1979) emphasized the importance of technical-tactical preparation and its control for the final result in a bout. The research whose results encouraged further research of the technical efficiency of wrestlers and its dependence on situation-related motor

abilities has been done both in judo (Kuleš, 1987; 1988) and in wrestling (Kuleš and Marić, 1989).

Among the many factors which determine the successfulness of a wrestler in a bout the analysis of motor abilities is of extreme importance for kinesiologists. The hypothetical motor-related part of the equation of the specification of wrestling (Egiazarjan, 1976; Marić, 1982 and 1985) shows that the ideal motor profile of a wrestler demands the following hierarchical sequence of motor abilities: strength, coordination, flexibility, speed, balance. Naturally, these basic motor abilities are further transformed, under the influence of training, into specific abilities that are essential both for the accomplishment of the technical and technical-tactical tasks in a bout and for the combat itself. It is because of this reason, being an indicator of the fitness level, that the degree of development of these abilities should be under control in all phases of the training process.

The condition of the motor-functional abilities in wrestlers is controlled by means of motor tests within the periodical, phasic and operational control. The results in these tests create the basis for predicting the success in a bout (Geselevič, 1974), so that it is of interest for sports practice that as many different and quality situation-related motor tests be available in order to analyse as many factors of successfulness as possible. The results varied according to the number of applied variables, according to the very construction of the test battery, according to the suppression effects as a result of the selection of the tests, the diversity of defining the criterion variables and the methodology applied. Therefore, there exists the need for further research on the possibilities of predicting the success in a bout from different aspects (especially, from the aspects of motor efficiency, technical efficiency in a standing position, in ground wrestling, from the aspect of functional abilities, etc.). The objective of this research was to determine the prognostic validity of situation-related motor tests for a successful, that is, efficient execution of the extremely important throwing techniques performed from a standing position, which would offer an insight into the possibility of the efficient prognostication of successfulness of a wrestler in a bout.

## Methods

The sample of examinees was comprised of 50 male quality wrestlers who were included in the competition system at the national and international levels. The sample may, therefore, be regarded as a selected sample.

The sample of variables for the assessment of the technical efficiency of wrestlers (predictor group) was defined by six tests whose objective was to measure the situation-related motor abilities: explosive power, coordination, flexibility and speed endurance. These abilities characterize the motor activity in the execution of throwing techniques from a standing position, and they determine the technical, and thereby also the overall performance of a wrestler in a standing position. In previous research the applied tests showed quality metric characteristics so that they proved to be suitable for application in this paper, with regard to the number of tests, intercorrelations and objects of measurements (situation-related motor abilities important for a quality execution of the throwing techniques from a standing position).

The situation-related motor tests, which represent the predictor group of variables, are:

1. Backward overhead shot put (specific explosive power - BKUG)

In a standing position an examinee is turned with his back in the direction of the shot put, his heels are placed near the very boundary line. He holds the shot with both hands, his arms extended downwards. The examinee should throw a 7.257 kg shot as far backwards and above the head as possible, simultaneously bending the whole body backwards. He repeats the task three times.

2. Hand-tapping (speed and speed endurance - TAPR)

An examinee sits on a chair facing a board. He places the palm of his left hand in the

middle of the board. He crosses his right arm over his left arm and places the palm onto the left plate on the board. At the sign of a timekeeper, the examinee touches with tips of his right-hand fingers alternately the left and the right plate on the board during 15 seconds. He repeats the task three times.

3. Lowering oneself in the wrestling bridge position repeatedly for 15 seconds (specific explosive power, coordination, flexibility - MO15)

Upon the sign of a time-keeper an examinee must go down from a standing position into the bridge position as many times as possible during 15 seconds. Having touched the mat with his head, the examinee should stand up from the bridge either to the left or to the right. He should then start a new cycle. The result of the test is the number of times the correct action is performed during 15 seconds.

4. Pirouette in ground wrestling (specific explosive power, coordination - PIRU)

With his forehead and his hands on the mat an examinee goes into the bridge position from which he then executes a pirouette. The result of the test is the maximal number of cycles executed in a minute. Each cycle consists of going down in the wrestling bridge position and from the bridge into the pirouette. The task is repeated three times.

5. Throwing the wrestling dummy (specific explosive power, coordination - BALU)

In a standing position an examinee holds a wrestling dummy using an around-the-head hold. At the sign of a time-keeper he then throws the dummy onto the floor as many times as possible in a minute. Each throw must be executed from the initial position. The final result is the maximal number of correctly executed throws. The task is repeated three times.

6. Wrestling bridge (specific flexibility - MOST)

From a supine position, his feet, head and hands on the mat, an examinee lifts his body up into the bridge position. The task is to decrease as much as possible the distance between the head and the feet by lifting the hips and by drawing the feet closer to the head. The result of the test is the distance between the head and the feet (in centimetres). The task is repeated three times.

The criterion variable in this research may be described as the general technical efficiency of a wrestler in invariable conditions - strictly defined positions of wrestlers before the execution of a technique and passively holding the wrestler being thrown. It may be defined in four ways:

1. as the general technical efficiency (overall successfulness in the execution of three throwing techniques in a standing position which are commonly called shoulder throw, two-hand somersault throw and around-the-head arm throw;

2. as the efficiency of executing the shoulder-throw technique;

3. as the efficiency of executing the two-hand somersault throw;

4. as the efficiency of the around-the-head arm throw.

The evaluation of the technical efficiency or the successfulness of the execution of throws was done by three competent experts (wrestling referees and coaches) after agreeing upon the assessment criteria. Each examinee received three marks for the execution of each throw, so that the first criterion variable, general technical efficiency, was comprised of 9 marks. The general assessment of efficiency, that is, of the successfulness of the execution of the throwing technique was obtained as the mean value of all the obtained marks, so that each expert partially participated in the general assessment.

To determine the prognostic validity of the battery of situation-related motor tests for the assessment of the efficiency of executing the throwing techniques from a standing position in wrestlers, regression and componential analysis were applied. To analyse the data according to this model the algorithms that are known from literature, that is, the computer programs CAOS (Dobrić, Štalec, Momirović, 1984) and PCREG (Momirović,

Radaković, Erjavec, 1987) were used.

The purpose of the analysis done by the CAOS program was to compare the solutions of regression analysis under the least squares model (LSR) and the results obtained by the robust regression analysis (SRA). Two regression analyses were used because the sample was relatively small and there existed the probability that these two analyses would not produce the same final results because of their different sensitivity to the size of the sample.

By means of the regression analysis under the model LSR the following results were calculated:

- partial regression coefficient (BETA)
- multiple correlation (RHO)
- test of significance (FRHO)
- square of the multiple correlation, that is, the determination coefficient (DELTA)
- regression factor and its reliability (F, TB).

By means of the regression analysis under the model SRA the following results were calculated:

- partial regression coefficient (X)
- multiple correlation (ETA)
- test of significance (FETA)
- square of the multiple correlation, that is, the determination coefficient (ETASQ)
- regression factor and its reliability (S, TX).

The comparison of the solutions under these two regression analysis models is presented by the following indicators:

- correlation between the LSR and SRA models (RELRE)
- correlation between the residuals of the LSR and SRA models (RELER).

By means of an algorithm, that is, the PCREG program, the correlation between the main components and the regression estimations under the least squares model was analysed. The following results were obtained:

- the structure of the main components with the eignevalues vectors
- multiple correlation (RHO) and the corresponding F test of significance (F)
- significance of multiple correlation (P)
- covariances of main components and of the general technical efficiency of wrestlers (RL)
- F test of the significance of correlations (FL)
- probability of the hypothesis (RL = (PL).

## Results and discussion

Tables 1 and 2 display the descriptive statistics of the predictor and the criterion

*Table 1: Descriptive statistics of situation-related motor tests*

| | MIN | MAX | AM | SD | SKEW | KURT |
|---|---|---|---|---|---|---|
| BKUG | 6.20 | 11.70 | 9.12 | 2.40 | .80 | 3.20 |
| TAPR | 9.98 | 20.10 | 16.70 | 2.80 | .30 | 2.70 |
| MO15 | 7.68 | 13.45 | 10.00 | 1.50 | .50 | 2.30 |
| PIRU | 25.30 | 34.00 | 28.25 | 1.70 | .60 | 2.25 |
| BALU | 12.00 | 18.00 | 16.40 | 3.11 | .75 | 3.10 |
| MOST | 0 | 66.35 | 35.30 | 12.15 | .58 | 2.40 |

*Table 2: Descriptive statistics of the variables of the criterion*

| | MIN | MAX | AM | SD | SKEW | KURT |
|---|---|---|---|---|---|---|
| Shoulder throw (RAMBAC) | 2.0 | 5.0 | 3.82 | .83 | -1.12 | 4.07 |
| Around-the-head arm throw (ZAHGLA) | 2.0 | 5.0 | 3.90 | .80 | -1.18 | 3.95 |
| Two-hand somersault (DVORSA) | 2.0 | 5.0 | 3.70 | .90 | -1.52 | 4.25 |

***Table 3:*** *Primary metric characteristics of the assessments of criterion variables*

| | SMC | RMS | S.B. | MAOCV | ALFA | H | V |
|---|---|---|---|---|---|---|---|
| | .84 | .83 | .98 | 83.20 | .97 | .98 | .98 |
| (ZAHGLA) | .84 | .82 | .97 | 82.31 | .96 | .98 | .98 |
| | .81 | .80 | .95 | 79.15 | .94 | .96 | .96 |

*SMC - average correlation between the experts*
*RMS - average correlation between each expert and the other experts*
*S.B. - Spearmen-Brown's reliability coefficient*
*MAOCV - percentage of valid variance*
*ALFA - generalization coefficient*
*H - homogeneity coefficient*
*V - validity coefficient*

***Table 4:*** *Intercorrelation coefficients of situation-related motor tests*

| | BKUG | TAPR | MO15 | PIRU | BALU | MOST |
|---|---|---|---|---|---|---|
| BKUG | 1.00 | | | | | |
| TAPR | .17 | 1.00 | | | | |
| MO15 | .00 | .06 | 1.00 | | | |
| PIRU | .05 | .01 | .40 | 1.00 | | |
| BALU | .49 | .08 | .38 | .15 | 1.00 | |
| MOST | .28 | .03 | .02 | .51 | .15 | 1.00 |

group of variables. The results in both tables show that both the predictor and the criterion variables have a normal distribution and that as such they are suitable for further statistical processing. It is obvious from the displayed data in Table 2 that the sample of examinees is homogeneous and positively selected, and that it is characterized by the quality of the execution of the throwing technique of an average mark for the successfulness in the technique for all three throws of 3.70 - 3.90. This is why the kurtosis values are somewhat higher (KURT).

The data displayed in Table 3 lead to a conclusion about the high degree of concurrence of the experts in their assessment of the execution of throws and about the existence of the common object of measurement of all the three experts which may be defined as the technical efficiency of the execution of wrestling elements in the examinees.

The analysis of the matrix of correlation of the situation-related motor tests (Table 4) shows that, according to the limit values of the correlation coefficients, only four correlation coefficients are significant at the level of .01. The limit value of correlations is exceeded by the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* and the tests *pirouette on the floor* and *throwing the wrestling dummy*, between *backward overhead shot put* and *throwing the wrestling dummy*, and between *the bridge* and *pirouette on the floor*. Regarding the intended objects of measurements in situation-related motor tests *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* and *pirouette on the floor*, it may be said that flexibility of the spine, explosive power and speed endurance are to be found in the background of correlations between these tests. Specific coordination, speed endurance and explosive power probably underlie the correlation between the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* and *throwing the wrestling dummy*, whereas the correlation between the tests *twisting shot put and throwing the wrestling dummy* is explained by the requirement that a high level of explosive power is engaged in the execution of both tests. It is not difficult to interpret the correlation of the tests the *wrestling bridge* and *pirouette on the floor*, since both impose high requirements regarding the flexibility of the spine in the examinees. It is interesting that the test *hand tapping* does not have a single positive significant correlation with the other tests (on the contrary, all the correlations have zero value), so that, taking into account its contents it may not be considered as a situation-related motor test.

The survey of the regression analysis

***Table 5:*** *Regression analysis of the assessment of throws within the space of situation-related motor abilities*

| | Q | BET | F | TB | X | S | TX |
|---|---|---|---|---|---|---|---|
| BKUG | .15 | -.04 | .25 | .79 | .20 | .44 | .30 |
| TAPR | .21 | .17 | .35 | .17 | .29 | .32 | .14 |
| MO15 | .50 | .35 | .83 | .02 | .67 | .79 | .00 |
| PIRU | .22 | .15 | .36 | .37 | .29 | .41 | .13 |
| BALU | .40 | .22 | .67 | .16 | .54 | .77 | .00 |
| MOST | .16 | .22 | .27 | .16 | .22 | .16 | .26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| DELTA | .36 | | RHO | .60 | FHRO | .001 |
| ETASQ | .34 | | ETA | .58 | FETA | .001 |
| | | RELRE | .96 | | | |
| | | RELER | .74 | | | |

*Correlation between the predictor and the criterion (Q), partial regression coefficient (LSR = BETA, SRA = X), regression factors (LSR = F, SRA = S), reliability (LSR = TB, SRA = TX), determination coefficient (LSR = DELTA, SRA = ETASQ), multiple correlation (LSR = RHO, SRA = ETA), correlation between LSR and SRA models = RELRE, correlation between the residuals of the LSR and SRA models = RELER, significance test (LSR = FRHO, SRA = FETA).*

results (Table 5) under the least squares model (LSR) and the model which maximizes the covariance of the linear composite formed from the standardized predictor and criterion variables (SRA) shows almost identical obtained coefficients of multiple correlation between the predictor variables and the general technical efficiency of wrestlers (for LSR .69, for SRA .58). Both are statistically significant at the level of .01, so that the fear that by different methods different results would be obtained because of the relatively small sample of examinees was not necessary. The results of regression analysis show that situation-related motor tests may be used to predict the successfulness in the execution of the wrestling technique, that is, the general technical efficiency of wrestlers. By means of the applied battery of situation-related motor tests a relatively small percentage of the variance of the criterion was explained (for LSR 36%, for SRA 34%). A relatively large unexplained portion of variance of the successfulness of the technique execution or of the technical efficiency of wrestlers leads to the conclusion that the quality of wrestling technique execution depends on some other basic situation-related motor abilities on the one hand, and on some anthropological characteristics on the other, which were, however, not covered with the applied test battery. To research the value of situation-related motor tests and their contribution to the prediction of technical efficiency, this battery should be supplemented in future with an additional three tests (two tests of situation-related coordination and one test of absolute power), whereas the test *hand tapping* should be substituted by some other test of specific speed in wrestlers.

By means of the analysis of partial contributions of situation-related motor tests to the explanation of the criterion variable defined as general technical efficiency (Table 5) it may be established that only two tests have a significant partial contribution to the explanation of the criterion variable of general technical efficiency. According to the SRA model these tests are the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* and the test *throwing the wrestling dummy*. According to the results of regression analysis (LSR) only the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* has a significant partial contribution to the explanation of the criterion.

In both models the obtained regression factors (F, S) are similarly structured and point to the importance of the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* (MO15) and *throwing the wrestling dummy* (BALU) for the prediction of successfulness in the execution of the wrestling technique. From such a result two significant conclusions can be made. First, these two situation-related motor tests for the assessment of the technical efficiency in ground wrestling and the technical efficiency in a standing position have more than satisfactorily covered the area of

***Table 6:*** *Structure of main components*

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. BKUG | -.67 | -.43 | -.07 | .48 | .26 | .23 |
| 2. TAPR | -.29 | -.08 | -.91 | -.23 | -.05 | -.04 |
| 3. MO15 | -.60 | .45 | .20 | -.55 | .06 | .27 |
| 4. PIRU | -.30 | .83 | -.04 | .16 | .32 | -.28 |
| 5. BALU | -.85 | -.06 | .19 | .13 | -.41 | -.19 |
| 6. MOST | -.20 | .78 | .20 | -.40 | .26 | -.25 |
| LAMBDA | 1.75 | 1.69 | 0.95 | 0.79 | 0.41 | 0.30 |

ETA .58 F .4.06 P .001

*LAMBDA -*
*RHO - multiple correlations according to the model LSR*
*F - the corresponding significance test*
*P - probability of the hypothesis RHO = 0*

the general technical efficiency of wrestlers, which proved to be uniform in its specificity. The values of regression coefficients point to an almost equal importance of these two tests for the prediction of the general technical efficiency of wrestlers in the test *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* and *throwing the wrestling dummy*. What follows is the second conclusion that explosive power, speed endurance and flexibility, as situation-related motor abilities, are of the utmost importance for the general technical efficiency of wrestlers (this general technical efficiency being defined by the shoulder throw, the two-hand somersault throw and around-the-head arm throw). Taking into account the obtained results (correlations of the predictor and the criterion, as well as the partial correlations) and any possible future research, it should be stressed that it is interesting to notice that the complex composite tests have proved to be better predictors of the general technical efficiency than the less complex tests. This points to the need to use the composite tests for the prediction of the general technical efficiency in wrestlers. If such tests do not exist, then they should be constructed.

Table 5 also contains the data and the results of the analysis of congruence of the applied models of the regression analysis, which are based on the correlation of the assessment (RELRE) and the correlation of residuals (RELER). High congruence between the correlation of assessment (.96) and a somewhat lower congruence of the correlation of the residual variance (.74) are evident. On the whole, the size of the sample did not affect the values of the multiple correlations in the applied methods. However, the SRA model of regression analysis showed a higher sensitivity to this sample. This resulted in noticeable differences in the size of partial contributions.

The latent structure of situation-related motor tests in wrestling is displayed in Table 6. The main components presented were obtained by means of the algorithm PCREG. On the basis of the vectors of eigenvalues and their values (LAMBDA) two significant main components were obtained, taking into account the Guttman-Kaiser criterion for the extraction of significant components according to which each component that is either equal or higher than 1.00 is considered as significant.

The structure of the first and of the second main component may be interpreted in the best possible way. The tests *throwing the wrestling dummy, backward overhead shot put* and *lowering oneself into the wrestling bridge position repeatedly for 15 seconds* have the highest projections on the first main component. Since it is obvious that the first main component is defined by the tests in which the measurements of explosivepower are dominant, this component may be interpreted as the component of explosive power, also because one part of the variance of the test *pirouette on the floor* (explosive power), in congruence with the measurement object of this test, is to be found in the variance of this main component.

The second main component is bipolar and differentiates between those examinees who have good results in the test *pirouette on the floor* and *lowering oneself into the wrestling*

***Table 7:*** *Relation between the main components and general technical efficiency*

| | RL | FL | PL |
|---|---|---|---|
| 1. | -.85 | 128.60 | .00 |
| 2. | .16 | 1.38 | .24 |
| 3. | .00 | .00 | .98 |
| 4. | -.48 | 14.58 | .00 |
| 5. | .02 | .02 | .87 |
| 6. | -.10 | .49 | .48 |

*RL – correlation between the main components and the assessment of the throw*
*FL – F test of significance RL*
*PL – probability of the hypothesis RL = 0*

The population of 50 quality wrestlers who were selected with regard to their participation in the competition system underwent the testing of the possibility of predicting the technical efficiency by means of situation-related motor tests. The same group of Croatian wrestlers was tested by six situation-related motor tests whose intended measurement objects were explosive power, flexibility, coordination, speed endurance and speed. This group also underwent the assessment of the quality of executing three efficient techniques in combat (shoulder throw, two-hand somersault throw, around-the-head arm throw). The obtained results were processed by regression analyses and by the factor analysis under the componential model. The possibility of predicting the successful execution of the throwing technique in wrestling was established by means of the applied battery of situation-related motor tests which explain 36% of the variance of the throwing techniques applied in this paper. The best predictors of successful execution of the throwing technique in wrestling are situation-related motor tests whose largest portion of variance is comprised of explosive strength, speed endurance, flexibility and specific coordination.

*bridge position repeatedly for 15 seconds* and those who have poorer results in these tests, but who achieve, however, better results in the tests *wrestling bridge* and *backward overhead shot put*. It may, therefore be concluded, that, according to the second main component, the object of the test measurements and the structure of the first component, there exist two types of wrestlers in the applied sample of examinees: the ones with a more expressed coordination who are also expressedly stronger but with poorer flexibility of the spine and those who are more flexible, but somewhat weaker. Since the group in question is a selected group, the poorer results of the more flexible wrestlers - than the results of those with a more expressed coordination - in the tests *pirouette on the floor* and *lowering oneself in the wrestling bridge position repeatedly for 15 seconds* should be explained by their wish to achieve a technical perfection of the bridge execution (high bridge), which is why they lost time while performing this test.

The correlations of the main components with the regressional assessment of the technical efficiency of wrestlers is shown in Table 7 and it is evident that only two values of the correlation coefficients are significant. The correlation with the technical efficiency of wrestlers of the first main component, defined as explosive power and the fourth main component which could not be interpreted because of the lack of information necessary for its definition is significant. As for the correlation between the first main component and the technical efficiency of wrestlers and the object of measurements of the applied situation-related motor tests it may be concluded that the successfulness in the execution of the wrestling technique or the technical efficiency are dominantly determined by the explosive power of wrestlers, by coordination and by the flexibility of the spine.

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