

THE IMPACT OF MOTOR ABILITIES ON EFFICIENCY OF ORIENTAL DANCE PERFORMANCE IN FIFTEEN-YEAR-OLD STUDENTS

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Abstract

The impact of motor abilities on the efficiency of performing the wave element has been done on the sample of 80 female students in the first grade of Medical high school in Split. The aim of this research was to determine relations between some basic motor abilities with efficiency in realization of oriental dance element called the wave. The evaluation of motor abilities was based on 12 measuring instruments which covered the following abilities: body coordination, agility, equilibrium, movement frequency, coordination in rhythm, explosive power, and flexibility. To assess specific motor knowledge in oriental dancing, we applied VALR variable – waves with arms. By analyzing basic function parameters of the distribution of motor variables, it was evident that variables did not significantly deviate from normal distribution. We performed regression analysis which determined a connection between predictor variables with efficiency in the performance of the element of wave. The test of non-rhythmic hand tapping which is in addition to criterion variable particularly demanding in the coordination of arms and synchronicity of performing movements, revealed statistically significant impact on the criterion. The obtained data lead to a conclusion that students with more coordination in rhythm, the ability to perform non-rhythmic hand tapping will be more efficient in performing the technical element of wave with arms as a part of oriental dancing. Further on, these results can be used as a guideline in dispositional assessment of the content of dance in teaching process as well as in training process as a help to trainers when creating the curriculum and syllabus of the training process.

Key words: *efficiency, oriental dance, female students, abilities*

Introduction and aim

Dance is unavoidable as a part of kinesiological syllabus in physical education, training processes and recreation sports. To achieve certain aims we choose different means as assisting methods of result efficiency. Dance activities, which we can characterize as "trendy", frequently have a crucial role here, but their utilitarian features do not deviate from the set aims and tasks. In certain phases of training process (due to motivation and other reasons) elements of dance structures are frequently used. In a training process, dance is used: to increase motivation, to raise functional abilities on a higher level (introductory part of the lesson), as assisting means to improve situation-related motor abilities, to influence motor and morphological dimensions, as means of meditation. The choice of dance elements depends on utilities, i.e. on who performs it, when and where (at school, club...) and the population involved.

Applying dance structures in kinesiological treatments implies adjustment of dance contents in transformation and maintaining of anthropological status of the performers of these activities. Kinesiologists have to know the aims, and change means, but one of the means can certainly be dance. Scientific researches confirmed assumptions that dances are a significant kinesiological operator in the transformation of anthropological status (Srhoj, 1988; 2002, Srhoj *et al.* 2000, 2006, 2008, Miletić *et al.* 2004, Mihaljević *et al.* 2007, Oreb 1989, Uzunović *et al.* 2005, Vlašić 2006 and others). With regard to the fact oriental dances are more and more present in the media nowadays as a part of entertainment programmes and entertainment parts of programmes with serious subjects for adults, but even in children or youth programmes at the same time, we can justifiably refer to it as a trendy dance.

To use certain elements of oriental dances in kinesiological treatments as well as of other dances such as folk dances or others, we have to adjust dance parts to the aims of treatment in advance. (Friedman, 1997; Husain et al., 2002; Srhoj, 2007). Belly dance as we know it today is a social dance, a mixture of various styles of oriental dances, but with elements of ballet, flamenco and other dances. Oriental dance is increasingly becoming a stylized combination without the burden of traditional dance forms. Since dances are not considered to be cultural creativity, likewise in treatments we do not in advance take a dance as a whole, strictly adhering to all of its parts, but we want to achieve set aims by improvising elements (Rojko, 1982; Wallin et al., 2000). The choice of elements of oriental dance in certain parts of kinesiological treatment (physical education, training and so on) must follow desirable curve of burden intensity of the lesson parts, therefore, to end exercising, i.e. for the conclusion of a lesson when the burden intensity curve is dropping, we will use the elements of oriental dance which will inspire a calming movement. It is like meditation. We should focus on the rhythm of breathing and with the rhythm of music and moving in space with simple dance movements as well as moving arms in a way pleasant to us, feel the whole body relaxing.

The tension will decrease with every breath out. According to the laws of scene and composition, in scene dynamics there is a moment when lowering the pace of music and movement we increase the impression, the inner invisible impression. Thus, it is like meditation – the invisible and silent dance inside us which lasts and becomes a symphony of inner pleasure. Undoubtedly, dance surely deserves to be a part of kinesiological treatments either as an assisting method in achieving set goals or as an individual complete kinesiological activity in the transformation and maintaining the anthropological status of children, adolescents and the adults. The aim of this scientific paper is to determine the impact of basic motor abilities on the efficiency of performing technical elements of waving arm movements which are applied as a part of oriental dance. The data obtained through this research should lead to improved curriculum and syllabus of dance contents in physical education, dance training and the selection of children for a dance activity.

Methods

The population from which the sample of respondents was chosen has been defined as the population of Medical high school female students from Split, clinically healthy females, aged 15-16, fit for attending physical education. The sample of respondents for this research consisted of 80 respondents. According to the plan of experimental procedure, kinesiological treatment with syllabus contents of dance structures, mostly oriental dances, was realized at PE lessons over the whole school year. The choice of motor variables was done in a way to assess as well as possible basic motor abilities considered to be relevant for efficiency in dance. To assess motor status, the following variables have been applied: MKRPOL – polygon backwards and MAGKUS – sidesteps (to assess coordination), MKRBUB – non-rhythmic hand tapping and MKRBNR – hand and foot tapping (to assess coordination in rhythm), MFLPRR – touch-toe astride and MFLPRK – bench touch-toe (to assess flexibility), BAP2Z – bench standing - eyes closed for equilibrium and BAP2O – bench standing - eyes open for equilibrium (to assess balance), MFLSDM – long jump from a spot and MFL20V – 20-metres running (to assess explosive power), MBFTAP – hand tapping, MBFTAN – foot tapping (to assess movement frequency). We applied VALR variable – waves with arms to assess specific motor knowledges in oriental dance. By analyzing a video recording, three independent evaluators (kinesiology teachers) marked the performance of waves element on scale from 1 to 5.

Description of criterion variable:

VALR – waves with arms - Starting position: slightly astride. Start of performance: after a few bars of music, a respondent starts to rhythmically move arms – waves – synchronically moving from one arm to the other, at first from a spot and then while moving. Assessing: technique of performing wave movements in precise rhythm (the length of wave is limited by music); making a wave with one arm and then the other without disrupting or disturbing rhythm; making a wave with one arm outwards and at the same time a wave backwards – inwards (wave-outwards: shoulder-elbow-hand; wave-backwards: hand-elbow-shoulder); waving movements from a spot; waving movements while moving without disrupting or disturbing rhythm.

By determines descriptive procedures, we revealed characteristics of predictor and criterion variables. We determined arithmetic means (AS), standard deviations (SD), the lowest (MIN) and the highest (MAX) results, distribution curve and symmetry (SKEW, KURT).

To determine the relation of the set of motor variables and criterion variable to assess the waving movements of arms (VALR), we applied regression analysis, whereby the following parameters have been determined: coefficient of multiple correlation for every predictor factor variable with a criterion – R; standardized coefficient of partial regression, i.e. coordinates of vectors of a criterion projected into the space of predictor variables – β ; standard error of standardized regression coefficient- St.Err. β ; partial correlation, i.e. correlations of determined independent variable and dependent variable after partialization of influence of all other independent variables – P-R.

Furthermore, probability to encounter a beta-coefficient, if a real value of this coefficient is zero-p; coefficient of multiple correlation between predictor variables and criterion variables – R_0 ; coefficient of determination of criterion variable, i.e. a part of the criterion variance which may be explained by variance of predictor variable – DLT; standard error of predicting criterion variable based on the system of predictor variables – S-DLT; usual F-test to test statistical significance of multiple correlation coefficient - F, with a certain number of degrees of flexibility – df_1 and df_2 ; probability to obtain a certain size of F-test, if a real value of multiple correlation is zero – P. All the analysis in this research have been processed by STATISTICA programme package (version 5.0).

Results and discussion

Basic descriptive parameters (table 1) show that all prediction variables are normally distributed and there are no extreme data dispersion which is significant for the following statistical processing.

Compared to normative values of motor abilities in first-grade-high-school female students (Findak *et al.* (1996), there are no any significant differences, i.e. obtained results are consistent with average values of this population in the Republic of Croatia.

Table 1. Descriptive statistics

	AS	MIN	MAX	SD	SKEW	KURT	MAXD
MKRPOL	14,71	9,68	28,35	3,15	1,66	4,74	0,12
MAGKUS	14,23	10,87	19,34	1,60	0,95	1,49	0,14
MBFTAP	33,99	20,33	41,33	3,29	-1,12	3,12	0,11
MBFTAN	18,49	14,67	24,67	1,60	0,45	2,07	0,09
MKRBUB	11,71	2,67	17,33	3,13	-0,58	0,64	0,10
MKRBNR	9,67	2,67	19,00	2,77	0,38	1,56	0,08
MFLPRR	70,37	40,67	105,00	13,01	0,04	-0,22	0,03
MFLPRK	-5,82	-23,67	19,00	7,28	0,55	2,24	0,11
MBAP2Z	1,70	0,31	3,86	0,64	0,72	1,27	0,08
MBAP2O	3,05	0,79	12,18	1,95	2,04	6,11	0,13
MFEDM	171,08	118,33	252,00	21,74	1,03	3,37	0,12
MFE20V	3,92	3,20	4,85	0,37	-0,09	-0,35	0,06

TEST= 0,18

As required by this research, we determined correlations of all predictor variables (Table 2) of basic motor area. It is evident the frame within which the values of correlation coefficient range is substantially wide, i.e. it varies from low negative values (-0.46), to the high ones (0.59). These results have been expected considering the variables involved belong to different sets. Statistically significant are those correlations whose value exceeds $R=0.27$ on the certainty level of 95%, i.e. $R=0.37$ on the certainty level of 99%. Those correlations belonging to the same or a close measuring object are relatively high, while those belonging to a different measuring object are low.

Table 2. Regression analysis of VALR variable in the manifest motor-related area

R_0	DLT	S-DLT	df_1	df_2	F	P
0,46	0,21	0,90	12	67	1,52	0,02

	R	β	St.Err. β	P-R	F	p
MKRPOL*	-0.01	0.15	0.15	0.12	0.98	0.33
MAGKUS*	-0.18	-0.27	0.15	-0.22	-1.86	0.07
MBFTAP	0.07	-0.02	0.13	-0.02	-0.16	0.88
MBFTAN	-0.03	0.02	0.14	0.02	0.13	0.90
MKRBUB	0.27	0.26	0.13	0.24	2.02	0.05
MKRBNR	0.11	0.02	0.12	0.03	0.21	0.84
MFLPRR	0.14	-0.01	0.15	-0.01	-0.04	0.97
MFLPRK	-0.12	-0.20	0.15	-0.16	-1.32	0.19
MBAP2Z	-0.22	-0.18	0.14	-0.16	-1.32	0.19
MBAP2O	-0.11	-0.02	0.13	-0.02	-0.18	0.86
MFESDM	-0.12	-0.27	0.14	-0.23	-1.90	0.06
MFE20V*	0.01	-0.14	0.13	-0.13	-1.04	0.30

Analyzing table 2, it is evident that through the predictor set of manifest dimension of basic motor space, we can perform the prediction of criterion variable waves in oriental dance (VALR) since the obtained regression coefficient is statistically significant on significance level of 0.05.

Multiple correlation coefficient R_0 is 0.46 and determination coefficient DELTA is 0.21 which means that 21% of criterion can be predicted i.e. explained by predictor system of motor abilities in the manifest area. It is evident from the table that variable of un-rhythmical hand tapping has the largest coefficient of partial regression, thus explaining the largest percentage of correctly performed waves. The dominant participation of the non-rhythmic hand tapping test on the result efficiency of the wave movement realisation can be explained by the fact that the very structure of the movement performance of the wave must be synchronized and performed with both arms. Therefore we can assume that students with more developed sense for non-rhythmic hand tapping will perform the wave element better since the wave movements are done synchronically with both arms as in the MKRBUB test structure.

This test focuses on the coordination of arms and the variety of movements which are synchronically entwined which is in the basis of the performing the wave element.

Conclusion

The obtained data lead to a conclusion that students with a more stressed ability to coordinate in rhythm, especially coordinating arms – will be more efficient in performing the elements of wave movements with arms. Both structures require synchronized and coordinated performance of arm movements, therefore such results was expected. In addition to this, the results may serve us as a guideline in disposition assessment of dance content in a teaching process as well as in training process on the sample of female dancers of oriental dance and in the selection of younger groups of children who play this sport.

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UTJECAJ MOTORIČKIH SPOSOBNOSTI NA UČINKOVITOST IZVOĐENJA ORIJENTALNOG PLESA KOD 15-GODIŠNJIH UČENICA

Sažetak

Utjecaj motoričkih sposobnosti na uspješnost izvođenja elementa vala sproveden je na uzorku od 80 učenica 1. razreda Zdravstvene škole u Splitu. Cilj ovog istraživanja je bio da se utvrde relacije između nekih bazičnih motoričkih sposobnosti s uspješnošću u realizaciji elementa orijentalnog plesa - val. Procjena motoričkih sposobnosti izvršena je na temelju 12 mjernih instrumenata koji su pokrivali sljedeće sposobnosti: koordinaciju tijela, agilnost, ravnotežu, frekvenciju pokreta, koordinaciju u ritmu, eksplozivnu snagu i fleksibilnost. Za procjenu specifičnih motoričkih znanja iz orijentalnog plesa primijenjena je varijabla VALR – valovi rukama. Analizom video zapisa tri nezavisna ocjenjivača (profesori kineziologije) ocijenili su na skali od 1 do 5 izvođenje elementa - valovi rukama. Analizom osnovnih parametara funkcija distribucija motoričkih varijabli zapaženo je da varijable značajno ne odstupaju od normalne distribucije. Izvršena je regresijska analiza kojom je utvrđena veza između prediktorskih varijabli sa uspješnošću izvođenja elementa vala. Statistički značajan utjecaj na kriterij pokazao je test neritmičko bubnjanje koji je kao i kriterijska varijabla posebice zahtjevan u koordinaciji ruku i sinhroniziranosti izvođenja pokreta. Dobiveni podaci upućuju na zaključak da će učenice koje imaju bolju koordinaciju u ritmu i sposobnost neritmičkog bubnjanja biti uspješnije u izvođenju tehničkog elementa val rukama kao dijela orijentalnog plesa. Također nam ovi rezultati mogu poslužiti kao smjernica kod dispozicionog ocjenjivanja sadržaja plesa u nastavnom procesu te u trenažnom procesu kao pomoć trenerima pri planiranju i programiranju trenažnog procesa.

Ključne riječi: *uspjeh, orijentalni ples, učenice, sposobnosti.*

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