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Effect of Motor Abilities on Performing the Hvar Folk Dance Cicilion in 11-Year-Old Girls

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A B S T R A C T

A battery of 21 motor tests as predictor variables and evaluation of motor performance of cicilion, a Croatian folk dance from the island of Hvar as a criterion variable, were used in a sample of 101 female fifth-grade students aged 11 years. Regression analysis showed the changed group of motor variables to be a good predictor of success in performing the cicilion folk dance with multiple correlation of 0.63. The flexibility variable of astride trunk bending forwards and frequency variable of hand tapping had greatest impact on the criterion. A considerable favorable impact was also recorded for the variables for assessment of rhythmic coordination, balance, agility on ground, and repetitive strength of the trunk.

Introduction

The island of Hvar is known for numerous folk dances. In the past, there were more than seventy folk dances in the relatively small area[1]. As the original, own roots have been investigated in the light of survival in various European and world communities or unions, scientists are expected to provide new guidelines, the more so as the family has lost its role of the basic link in the transfer and preservation of the spiritual legacy and folklore riches bequeathed to us by our ancestors. Another focus of the research is the effect of dance structures on the anthropologic status of the children and adults. Dance in general is known to favor socialization[2], thus contributing to national upbringing and traditional culture fostering[3,4], because learning about one's own culture and due appreciation of it helps in developing perception of and tolerance for other cultures. Intensive dance movements influence the development of functional abilities[5,6]. Also, dance has a favorable effect on body weight regulation[7]. For all these reasons, the introduction of dance in school *curricula* is aimed at improving the children's national, social, esthetic and health education[8]. Motor abilities are an important fac-

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tor of success in dance performance[9,10]. Kinesiologists are especially interested in the use of dance structures as kinesiologic operators in the transformation of relevant anthropologic dimensions of the anthropologic status of children and adolescents, which also served as a stimulus for the present study.

Material and Methods

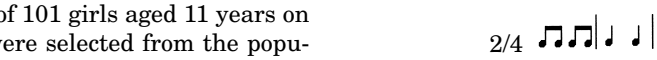
Sample

A sample of 101 girls aged 11 years on an average were selected from the population of fifth-grade female students from the Split elementary schools. Study subjects attended an experimental dance program composed of various folk and social dances twice weekly for 9 months[8].

Variables

A battery of 21 motor tests representing predictor variables and one criterion variable evaluating motor knowledge of the cicilion folk dance were used in the study subjects. Motor variables were chosen as to provide best assessment of the basic motor abilities[11–13] considered relevant for success in dance performance[14]. The following variables were used for assessment: polygon backwards, agility on ground, and steps aside for coordination; nonrhythmic thumping, thumping against surface, and foot and hand thumping for rhythmic structure realization; one leg bench balance with open eyes, one leg bench balance with closed eyes, and two leg bench balance with closed eyes for balance; arch, ground straddle, and astride trunk bending forwards for flexibility; hand tapping, foot tapping, and foot tapping against wall for movement frequency; throwing medicine ball while lying on the ground, throwing basket-ball from the chest while sitting on a chair, and long jump from the spot for explosive strength; and horizontal bar hang with elbows bent, leg lifts while lying on back, and trunk lifts for repetitive strength. Evaluation of performance of the cicilion folk dance from the island of Hvar (Adriatic ethnographic zone) was used as a criterion variable[8]. Cicilion is a pair dance performed in a closed circle as in classic dances. The first part is *spitz-polka* that is performed to the following rhythm:

and the other part is gallop aside to the following rhythm:



An expert evaluation system was used for evaluation of the motor knowledge of the cicilion folk dance[15]. Five independent evaluators allocated numerical marks 1 to 5 for dance performance by each individual study subject. Correlations between the predicting variables for motor ability assessment and the dependent criterion variable for assessment of motor knowledge of the cicilion dance were determined by classical regression analysis.

Results and Discussion

Regression analysis of the data obtained revealed the group of predictor variables to play a major role in predicting the success of cicilion performance in study girls (Table 1). Determination coefficient for the cicilion variable, based on 21 motor variables was 0.40 and multiple correlation was 0.63. The coefficient was significant at a preset level of p 0.01.

Foot tapping against wall among movement frequency tests, and foot and hand thumping among rhythmic structure realization tests showed highest correlation with the criterion, which is quite logical because both the cicilion folk dance and these tests require quick, successive and coordinated movements with a predominant footwork. The correlation recorded for the flexibility test of astride

TABLE 1
DESCRIPTIVE STATISTICS AND REGRESSION ANALYSIS OF THE CICILION VARIABLE IN THE MANIFEST MOTOR AREA (N=101)

Variable	X	SD	C	Beta	P	F (Beta)
Polygon backwards	14.54	3.07	–0.12	0.10	–1.22	–0.20
Agility on ground	32.43	6.55	–0.17	–0.17	2.91	–0.28
Steps aside	12.02	1.21	–0.07	0.02	–0.16	–0.11
Nonrhythmic thumping	9.15	2.36	0.28**	0.17	4.72	0.45
Thumping against surface	21.06	4.21	0.29**	0.03	0.93	0.47
Foot and hand thumping	5.98	2.50	0.32***	0.19	6.18	0.51
Balance one leg, opened eyes	5.30	4.24	0.20*	0.14	2.24	0.32
Balance one leg, closed eyes	2.26	0.73	0.07	–0.02	–0.14	0.10
Balance two legs, closed eyes	2.20	0.69	0.19*	0.19	3.52	0.29
Flexibility of shoulder	64.26	11.67	–0.13	–0.15	1.86	–0.20
Flexibility of legs	109.01	14.68	0.07	–0.07	–0.47	0.11
Flexibility of trunk	62.44	8.02	0.28**	0.23*	6.33	0.44
Hand tapping	23.77	1.84	0.21*	0.25*	5.19	0.34
Foot tapping	19.76	1.77	0.18	0.02	0.36	0.28
Foot tapping against wall	17.62	2.50	0.35***	0.16	5.66	0.56
Explosive strength (throw)	4.95	1.01	0.12	–0.09	–1.12	0.19
Explosive strength (throw)	4.29	0.60	0.11	0.06	0.70	0.17
Explosive strength (jump)	140.72	23.75	0.14	–0.11	1.57	0.23
Repetitive strength (»chins«)	0.78	1.62	–0.07	–0.16	1.12	0.11
Repetitive strength (sit ups)	17.60	10.16	0.20*	0.09	1.90	0.32
Repetitive strength (»leg lift«)	28.78	8.01	0.05	0.05	0.27	0.09
Delta=0.40; RO=0.63**						

*p<0.05; **p<0.01; ***p<0.001

C = correlation; Beta = regression coefficient; P = percentage of explained criterion variance; F (Beta) = latent structure of criteria in the area of manifest variables; Delta = coefficient of determination; RO = multiple correlation

trunk bending forwards is also logical because performance of the cicilion folk dance requires proper regulation of the musculature tonus, and of the trunk in particular. This is reflected in the correlation of the trunk repetitive strength and leg lifts while lying on back with the criterion, ensuring adequate force for the leg movements to realize. Balance is, of course, of utmost importance for successful dance performance.

The variable of hand tapping yielded the highest coefficient of partial regression (0.25), accounting for >5% of the criterion variance. This variable showed a significant positive correlation with the criterion and had greatest impact on successful cicilion folk dance performance. The flexibility variable of astride trunk bending forwards had a significant regression coefficient of 0.23 and accounted for >6% of the criterion variance. Thus, success in the cicilion folk dance performance could be almost equally predicted by use of the movement frequency test (hand tapping) and flexibility test (astride trunk bending forwards). Although the tests of rhythmic structure realization

and to a lesser extent balance tests also had a role in explaining the criterion, their effect was below the level of significance.

Examination of the F (Beta) coefficient showed the variables of rhythmic structure realization and of movement frequency assessment to contribute most to the explanation of the latent structure of the cicilion folk dance, whereas the contribution of the variables for flexibility and balance assessment was significantly lower.

Regression analysis results pointed to the motor complexity of the cicilion folk dance, in which successful performance depends on the integrated action of multiple motor abilities, especially those of movement frequency and rhythmic structure realization (frequently called rhythm coordination). These two basic motor abilities are superimposed by a general factor of swiftness that depends on the subcortical regulatory mechanisms primarily ensuring fast impulse flow through the central control subsystems. On the other hand, realization of the high frequency rhythmic movements also depends on the tonus and synergy regulatory mechanisms, whereby regulation of the abdominal musculature tonus provides the impulse needed in the performance of dance structures.

Conclusion

Successful dance performance is limited by the above-average psychomotor rate. As this motor ability is mostly a congenital feature, there are relatively few individuals who can become good dancers. These dancers fill the audience with admiration for the ease of performing high-frequency movements, especially their footwork, in perfect coordination with the dance rhythm and music, and with very dignified carriage. Results of the study should prove useful in the selection of candidate girls for this type of folk dance, suggesting that the subjects with a higher level of motor potential, and especially those standing out for their movement frequency, flexibility, rhythm coordination, balance, agility on ground, and repetitive strength of the trunk should be more successful.

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UTJECAJ MOTORIČKIH SPOSOBNOSTI NA IZVOĐENJE HVARSKOG PLESA CICILIONA KOD 11-GODIŠNJIH DJEVOJČICA

S A Ž E T A K

Na uzorku od 101 učenice petih razreda osnovnih škola, starosne dobi od 11 godina, primijenjena je baterija od 21 motoričkog testa kao varijabli prediktora i ocjena iz motoričkog znanja hrvatskog narodnog plesa ciciliona s otoka Hvara kao varijable kriterija. Regresijskom analizom utvrđeno je da je primijenjeni motorički skup varijabli dobar prediktor uspjeha u plesu ciciliona uz multiplu korelaciju od 0.63. Najveći utjecaj na kriterij pokazale su: varijabla fleksibilnosti predklon raznožno te varijable za procjenu frekvencije pokreta: taping rukom i taping nogama o zid. Zamjetan pozitivan utjecaj ostvaruju i varijable za procjenu koordinacije u ritmu, ravnoteže, agilnosti na tlu te repetitivne snage trupa. Rezultati istraživanja stoga ukazuju da kod odabira djece za ples, posebnu pažnju treba posvetiti upravo ovim motoričkim sposobnostima.