

GENERAL MOTIONAL PERFORMANCE OF REPRESENTATIVES IN DANCE SPORT

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Slovakia**ABSTRACT**

The aim of research was to objectify motion performance of national team members of the Slovak Republic in dance sport. The work is dealing with comparison of resulting parameters of selected motion tests in separate age categories. The test battery consisted of the following tests: jumping from the spot, sitting – lying within 30 seconds, shuffle running 10 x 50 metres and exercises from the Jacik's integral motor test. The research set consisted of members of the national team of the Slovak Republic in dance sport, competing in the age categories of junior I, junior II and youth. The results confirmed statistically significant differences between separate age categories.

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Keywords: dance sport, motor tests, team members, general motional performance

INTRODUCTION

Dance sport (Tanzsport, Sportivnyi tanec) belongs to "aesthetic sports" along with figure skating, rock and roll, synchronised swimming, sports and rhythmic gymnastics. In these sports, the matter is in precisely managing intricate motion structures with predominant focus on purity of presentation, aesthetics of exercising and overall artistic impression. Based on classification of sport performance, other authors include dance sport into technical-aesthetic-coordination outputs (Bedřich, 2006). With such a performance, it is important to show a challenging motion configuration in a precise and aesthetically perfect way. From the point of view of motor activity, it is regarded as a high number of motion skills, where a very complicated structure is coming into foreground – combination of movements in a configuration, as acquisition of motion skills with high standard of automation and creative coordination. From physiological point of view, dance sport is characterised by high elasticity of central nervous system, high energy consumption, regulation of motion activities towards quality, where circulation and breathing systems are burdened in a medium way. In slow dances, aerobic metabolism prevails, in quick ones anaerobic one. Dance sport puts high requirements upon static and dynamic balance, sensorimotor coordination in time and space, motion creativity as well as capability of expressivity (expression of idea by movement). Time of competition starting with warming up to the finals depends on the nature of the competition itself, while it can last as long as two days, which requires readiness and condition, to put it more exactly – ability to present high-quality performance or, to put it more simply - capability to dance and show high-quality output for a longer period of time (Kostic, 2001). Development of endurance is of high importance for dancers generally as well as especially with the aim to dance separate dances that are performed with submaximum intensity. With couples of higher performance classes of B, A, S, where intensity is considerably high and load is varying in the anaerobic band (Chren, 2005, Chren–Špánik, 2010), development of anaerobic endurance is also necessary. At the same time, dancers are required to reach high standard aerobic endurance (duration of load in training and competition is longer than 30 – 50 minutes, while it is carried out in various intensities), dance specific endurance as well as speed-specific endurance, which can be observed especially in the dances of jive, samba, tango, quickstep. The fact that performance of dancers is varying in a mixed anaerobic-aerobic band is also confirmed by research by Chren (2005) and Štrbová (2002) documenting values of heart frequency of dance couples in a competition and simulated competition during training of over 180 pulse.min⁻¹. Intensity of movement of dance couple in the course of competition is as high as possible, while it is not decreasing and, during a longer period of time at a competition, it has to be maintained. It is also demanding from the perspective of aerobic capacity of dancer's organism. That has to be systematically prepared to it in the course of sporting preparation. The level of aerobic endurance determines the bulk of training load in sporting preparation of dance couples as well as the quality of presentation of five Latin American or standard dances in challenging competition rounds lasting for several hours, where long-term endurance enters the performance. In the final round, where couples are dancing all five dances in a row with a one-minute break between separate dances, short-term endurance plays an important role. As competitive output in dance sport is currently characterised primarily by dynamics of motion with quick changes of direction in the course of competition dance (Štiavnický, 2004; Chren, 2005), the short-term endurance is represented strongest of all here also with regard to the duration of separate dances (1 minute 30 seconds up to 2 minutes).

Dance sport consists of two parts already in its name – dance considered as art and sport. Connecting link between these two areas consists particularly of motion and effort to achieve the best possible performance. Nevertheless, the aim cannot consist only in achieving high sporting outputs, but along with that also development of physical and mental capabilities of athlete – dancer. This harmonic formation of personality is achieved through sport training (Ivanič, 2002). According to Choutka and Dovalil (1991), sport training consists of two components – general preparation and special preparation. General preparation represents the part of athlete's preparation, though it is not directly related to his/her sport specialisation, but despite that it extends his/her preconditions for further improvement.

General motion preparation fulfils several functions in training. It is used to form, strengthen or complete habits and skills playing auxiliary function in sporting improvement, creating a basis of technical and tactical habits or, as the case may be, they are inevitable to rationally carry out exercises focused on development of motion capabilities. Further, general motion preparation as a vehicle to develop capabilities that are not developed by this particular kind of sport or, as the case may be, to develop overall performance standard or to maintain it. Last but not least, it acts as a factor of active relaxation helping regeneration processes and removing monotony of specialized, e.g. dancing training.

METHODS

In the process of our research, we used a measurement method to acquire data on the level of motion capabilities. When choosing separate motor tests, we issued from research results that were already carried out in dance sport (Chren, 2008), as well as from sports demanding in terms of coordination and from heterogeneous substance of the structure of sporting output in dance sport. We made use of previous knowledge and experience of available literature expert resources as well as from own competition and trainer practice. We also issued from technical and instrument options available to us. Three observational ensembles were created for needs of our investigation, which consisted of dancers in age categories of junior I, junior II and youth.

Junior I – couples where none of partners achieves the age of 14 in the year when the competition takes place and, at the same time, the older of partners has to achieve at least 12 years of age in the year when the competition takes place.

Junior II – couples where none of partners achieves the age of 16 in the year when the competition takes place and, at the same time, the older of partners has to achieve at least 14 years of age in the year when the competition takes place.

Youth – couples where none of partners achieves the age of 19 in the year when the competition takes place and, at the same time, the older of partners has to achieve at least 16 years of age in the year when the competition takes place.

The research was implemented from 22 to 24 June 2012 at a training camp of national team of the Slovak Association of Dance Sport on the premises of the dance club TK Uni-dance Bratislava.

The first observational ensemble (juniors I) consisted of 8 tested, i.e. 4 dance couples. The average age of four male dancers of this observational ensemble was 11.00 ± 1.41 years. Junior I dancers achieved average body mass of 39.38 ± 6.85 kg and BMI 17.78 ± 1.47 . The average age of four female dancers of the observational ensemble was 10.25 ± 1.70 years. Junior I female dancers achieved average body mass of 36.30 ± 10.37 kg and BMI 17.60 ± 3.29 .

The second observational ensemble (junior II) also consisted of 8 tested, i.e. 4 dance couples. The average age of four male dancers of this observational ensemble was 14.00 ± 0.81 years. Junior II dancers achieved average body mass of 57.85 ± 10.99 kg a BMI 19.53 ± 2.01 . The average age of four female dancers of the observational ensemble was $14.00 \pm 0,81$ years. Junior II female dancers achieved average body mass of $51,78 \pm 6,11$ kg and BMI $19,58 \pm 1,25$.

The average age of male dancers in the category of youth was 16.75 ± 0.95 years. Youth achieved average mass of 72.33 ± 10.60 kg and BMI 21.43 ± 1.90 . The average age of female dancers in the youth category was 15.25 ± 1.25 years. Female dancers had average body mass of 50.28 ± 4.77 kg and BMI 18.98 ± 1.52 . The research project, including setting up of observational ensembles, was carried out with strong support of the Slovak Association of Dance Sport as well as with help of the dance club TK Uni-dance Bratislava.

Non-parametric Mann-Whitney U test was used in processing and statistical evaluation of results to determine differences in observed parameters.

RESULTS

When evaluating test of long jump from the spot, which is oriented to explosiveness of lower extremities, we recorded mean values of all dancers in separate categories in Figure 1. In the youth category, we measured the highest value of 260.0 cm in the dancer M.F. In the same category among girls, the dancer O.F. achieved the highest value of 199.0 cm. In the youth category, we recorded the mean value of 192.0 cm with all dancers. In the junior II category among boys, the highest value of 235 was achieved by the dancer J.CH, which is an excellent value with regard to his age. The highest value among girls was achieved by the dancer N.T., particularly the value of 173.0 cm. In the junior II category, we recorded the resulting mean value of 179.0 cm with all dancers. In the lowest age category of junior I, the highest individual value of 179.0 cm in the test of long jump from the spot was achieved by the dancer M.V. The highest value of 167.0 cm among girls was achieved by the dancer T.V.Z. In the junior I category, we recorded the resulting mean value of 154.0 cm with all dancer in this age category. The results document differences in performance in the particular test in separate age categories. Even though, differences between separate age categories were not statistically significant.

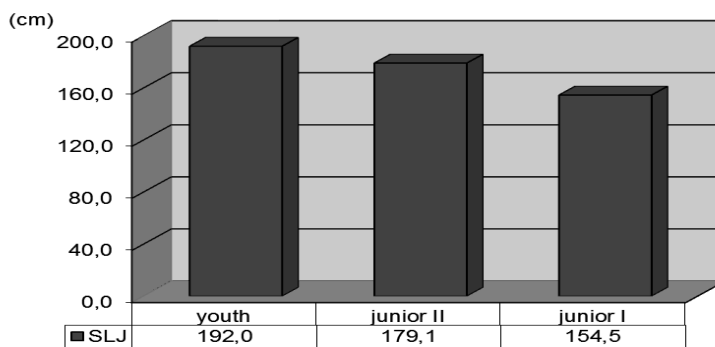


Figure 1
Mean values of dancers in the test of long jump from the spot

Evaluating the test of sitting – lying within 30 seconds, where dynamics and endurance in the force of abdominal and iliolumbal musculature are an important factor, we recorded mean values of all dancers in the categories of youth, junior II and junior I in Figure 2. In the youth category, we measured the highest value/number of 28 of correctly performed cycles (one cycle is transition from lying into sitting and back to lying) within 30 seconds in the dancer M.F. The dancer M.F. also achieved the best value in the first test of long jumping from the spot. This fact documents his good general-motional performance. In the youth category among girls, the highest number of 25 was achieved by the dancer N.D. The lowest number of 17 correctly performed cycles was achieved by the dancer P.M. In the youth category, the resulting mean value with all dancers was 22.75. In the junior II category among boys, the highest number of repetitions of 32 was achieved by two dancers J.CH. and L.S. The highest value of 22 among girls was achieved by the dancer K.R. In the junior II category, we recorded the resulting mean value of 24.25 with all dancers. In the lowest age category of junior I, the highest number of 27 of correctly performed cycles was achieved by the dancer F.K. The highest value of 22 among girls was achieved by the junior N.F. In the junior I category, we recorded the resulting mean value of 22.38 with all dancers in this age category. Again, the results document to us performance differences in the particular test in separate age categories. Differences between separate categories were not statistically significant. Juniors II achieved a better resulting value in the sitting-lying test than youth. Youth and juniors I achieved approximately equal resulting mean values.

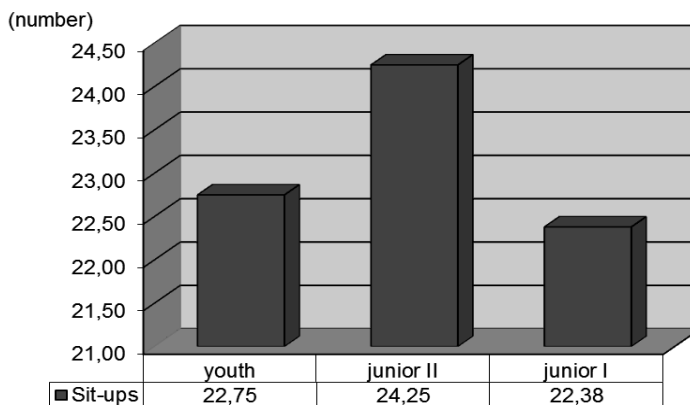


Figure 2
Mean values of dancers in the test of sitting-lying within 30 seconds

Evaluating shuffle run 10 x 5 (Figure 3) that is oriented to runner acceleration speed and it is partially saturated with coordination capabilities upon changing direction, we recorded statistically significant changes on ($p < 0.10$) the level of significance between the categories of youth and junior I as well as between the categories of junior I and junior II. In the youth category, we recorded the lowest (the best) value of 37.68 seconds/time needed to surpass ten 5-metre sections measured with exactness of a tenth second in the dancer T.B. In the youth category, the lowest value of 40.15 was achieved among girls by the dancer N.D. who also achieved the best result in the sitting-lying test within 30 seconds. In the youth category, we recorded the resulting mean value of 41.82 second with all dancers. In the junior II category among boys, the lowest values were achieved by the dancers who had the lowest body mass as well as the lowest BMI index in their categories. The best result of 39.34 among female juniors in the test of 10 x 5 metres was achieved by the dancer K.V. In the junior II category, we recorded the resulting mean value of 40.91 with all dancers. Male juniors II achieved a lower value and an overall better result than the youth. In the lowest age category of junior I, the best output of 39.91 seconds was achieved by the dancer F.K. who also achieved the best result in the sitting-lying test. The lowest value of 47.77 among girls was achieved by the dancer T.V.Z. This dancer also showed the best performance in long jump from the spot. In the junior I category, we recorded the resulting mean value of 48.18 seconds with all dancers. Male juniors I were in this test statistically distinctly weaker, therefore we recommend to include exercises for acceleration speed in this category, as the dance couples in competition configurations are passing from one figure to another one by a quick motion, especially in Latin American dances.

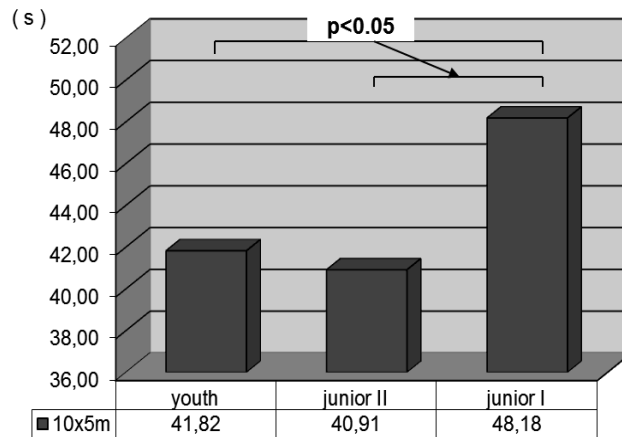


Figure 3
Mean values of dancers in the test of running 10 x 5 metres

In the integral Jacík's motor test, we recorded statistically significant differences on ($p < 0.10$) the level of significance between the categories of youth and junior I (Figure 4). In the youth category, we recorded among boys the highest value of 79 in the number of cycles with the dancer M.F. The highest number of 78 in cycles in the youth category among girls was achieved by the dancer N.D. The female dancer N.D. achieved a better value than some male dancers. The resulting mean value with all dancers in the youth category in the integral motor test was 73.38 cycles. In the junior II category among boys, the highest value of 96 cycles was achieved by the dancer G.S. This value recorded was simultaneously highest from among all dancers in the particular test. The best result of 79 cycles among female juniors II in the integral motor test was achieved by the dancer Z.Š. In the junior I category, we recorded the resulting mean value of 76.38 cycles with all dancers. Male juniors II achieved a better resulting value and an overall better result than youth. The best result of 80.00 cycles in the integral motor test was surprisingly recorded in the lowest age category of junior I. The best output of 94 cycles was achieved by the dancer M.V. The highest value of 82 cycles among girls was achieved by two dancers T.V.Z. and S.P.

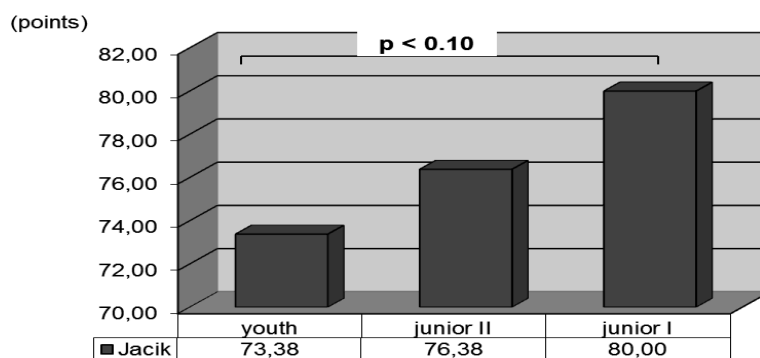


Figure 4
Mean values of dancers in integral motor test „Jacík's test”

DISCUSSION

Observations in the area of motion performance are rather exceptional in the dance sport, while there are just several scientific studies documenting specific results (Dařena-Odstrčil, 2006; Ivanič, 2002, Chren,2008) related to testing of general motion performance of dancers and its objectification. With regard to strenuousness of obtaining empiric data from national team members in dance sport and small sample of respondents resulting from it, we realize that research measurements and results cannot be generalised. Anyway, they appear to be significant for trainer practice. We were interested in dance couples observed, what results they would achieve in separate tests and, at the same time, we were interested in differences between individual age categories.

In the test of long jump from the spot, which is oriented to explosiveness of lower extremities, we recorded the average value of 192.0 cm with all dancers in the youth category. This value was highest from among mean values in the categories junior II and junior I. Even despite that, these values are lower than those recorded in my research (Chren, 2008) that was oriented to changes in performance in Latin American dances. Experimental ensemble was set up just of couples of the performance class B – A – S. Experimental ensemble consisted of 10 dancers or 5 Latin American couples from the clubs Uni dance Bratislava and Inter klub Madit Bratislava. The average decimal age of the experimental ensemble was 20.81 years. In the test of long jump from the spot, the mean values of 204.7 cm in the first measurement, 210.1 cm in the second and 211.4 in the third one were recorded with all dancers.

In the youth category, the resulting value with all dancers in the test of sitting-lying within 30 seconds was 22.75. Dancers of the junior II category surprisingly achieved a better value than those in the youth category. In the category junior II, we recorded the resulting mean value of 24.25 with all dancers. In the junior I category, we recorded the resulting mean value of 22.28 with all dancers in this age category. The results achieved in our observational ensemble in this test are lower in comparison to the results of experimental group of Chren (2008). In three measurements, there were achieved the values of 28.7 repetitions, 29.2 and 31.1 repetitions

Evaluating the shuffle running 10 x 5, we recorded the resulting mean value of 41.82 seconds with all dancers in the youth category. In the junior II category, we recorded again a better resulting mean value of 40.91 seconds than in all dancers of the youth category. In the junior I category, we recorded the resulting mean value of 48.18 seconds. With dancers of the experimental ensemble from the Chren's research (2008), incomparably better values were recorded than in our research. The average value of 10 dancers from the clubs Uni dance Bratislava and Inter klub Madit Bratislava was 18.89 seconds. We guess such good results were achieved in respect of a higher decimal age of the particular ensemble and overall general motion and dance performance.

In the integral Jacík's motor test, we recorded statistically significant differences between the categories of youth and junior I. The resulting mean value with all dancers in the youth category in the integral motor test was 73.38 cycles. The best value of 80.00 cycles in the integral motor test was surprisingly recorded in the lowest age category of junior I. This result achieved is comparable with results of Chren's research (2008), where in three measurements the value of 79.6 cycles in the first measurement, 90.6 cycles in the second one and 93.8 cycles in the third one were recorded. The highest value of 93.8 of the number of cycles within 2 minutes was measured after three-month conditioning preparation. These values are better than those measured with dancers of the Czech national team. We agree with the opinion of Dařena and Odstrčil (2006) that this test comprehends the effect of load upon loss of coordination and behaviour of organism upon transition from anaerobe to aerobic mode, which is an inevitable precondition to present optimum outputs by dancers in several competition rounds. At the same time, it comprehends the ability to connect motions, which is characteristic for movement in Latin American dances.

CONCLUSION

We realize the obtained results are not possible to be generalised. There may be several limiting factors. Primarily, the matter was in one-off measurement that did not need to be maximally precise.

Based on the acquired knowledge, we identify with the opinion of the authors Šimonek – Zrubák (2003), Strešková (2003) who present that motion programmes focused on improving aerobic as well as anaerobe endurance should be used, which consist of means of track and field, gymnastics or games, while their development should not be restricted just through dancing motion contents as it is established in sporting preparation of dancers. We recommend to put more emphasis on conditioning preparation of dancers, because marks are also given for technical value and artistic impression upon evaluating a sporting output, which express ease of presentation, gracefulness and aesthetics of movement. Breathlessness cannot be noticeable on them, neither blushing face nor visible fatigue. At the same time, fatigue is subsequently manifested in technique and precision of movement. In this sense, a simulated contest – competition practice is a good means. Reducing breaks between dances, we can introduce training in anaerobe band as it is the case in natural conditions of a competition. We also agree with the opinion of Ivanič (2002) who recommends extending testing of general motion performance to several dance clubs in Slovakia.

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