Somatic and Motor Criteria of Selection to Ballet School

by

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On the basis of somatic and motor abilities diagnosis of 11 year old girls, students of ballet school and control group an attempt to determine selection criteria was made. With the use of U-Mann Whitney test battery, differentiating ballet and control groups in the highest degree, was extracted. It included following variables: body mass, sense of rhythm and balance. The dispersions of these variables registered in ballet school girls were the basis for the determination of general criteria of selection to ballet school.
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Introduction

One of the most important problems in sport sciences is the determination of proper selection criteria for different sport disciplines. The research conducted on 11-15 year old ballet girls (Mynarski and Kaminski 2004) allowed to determine the structure of somatic and motor abilities structure in comparison to control group of similar age. It allowed to extract the group of most prognostic variables creating the basis for future selection to ballet schools. It was established that body measures, coordination and difficult to define "sense of rhythm" are the most important and selective factors of successful learning and training ballet.

The main aim of this research was the determination of optimal level of described above variables on the basis of comparison of 11-year old students of ballet school and similar control group.

Material and methods

The research was conducted on 19, 11-year old students of ballet school and 21 girls randomly chosen to the control group. The full range of diagnosis included 22 variables determining body mass and height, as well as, 5 basic aspect of motor coordination. With the use of U-Man Whitney test 5 variables were extracted as statistically differentiating ballet girls and control pupils. They were treated as the basic factors prognosing future ballet predispositions. They included: body mass, 2 tests evaluating the sense of balance and two the sense of rhythm. It was assumed that the result of test achieved by 70% of the ballet school students is the criteria that eliminates future ballet dancers In case of worse result.

Results

The histogram of body mass of ballet and control groups is presented graphically in fig. 1. It shows, that 32 kg states the level which should not be exceeded by future ballet pupils (bold line determines the proper level of variable). Almost 95% of control group girls are characterized with higher body mass, while only 16% of ballet girls do not fulfill this condition.
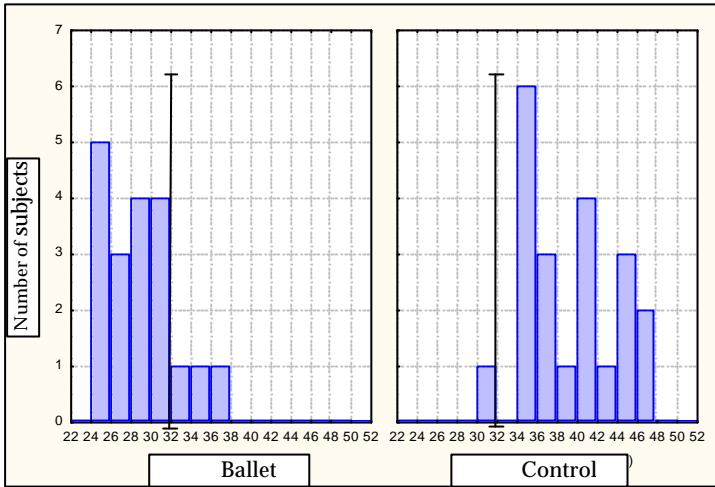
Fig. 1 The histogram of body mass of 11-year old girls from both groups

Fig. 2 shows, that 12 s is the limit of performance by the ballet girls in sense of dynamic balance test (4 turns on the gymnastic bench). Only 3 girls from ballet school (15%) acquired worse results from the control group.

The results of test diagnosing the level of dynamic balance (the amount of turns on the gymnastic bench performed in 20 s) showed that 6,5 turn (attained by 74% of ballet girls) were the limit. Only 15% of girls from the control group successfully performed this test.
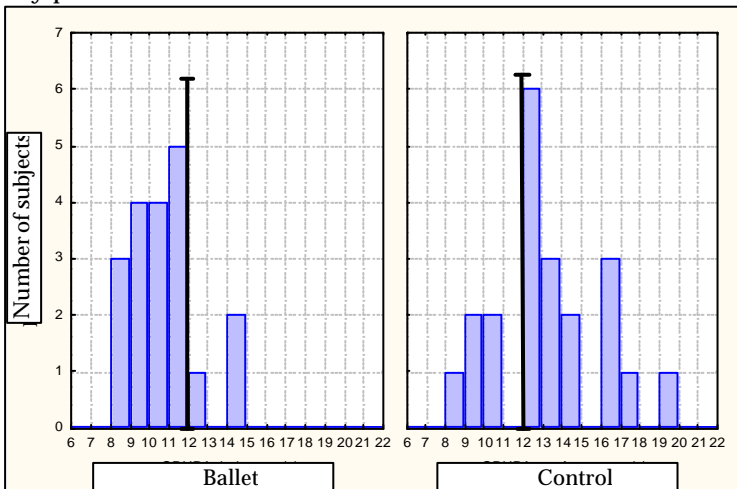

Fig. 2 The histogram of dynamic balance test (4 turns on gymnastic bench) results in 11-year old girls from both groups
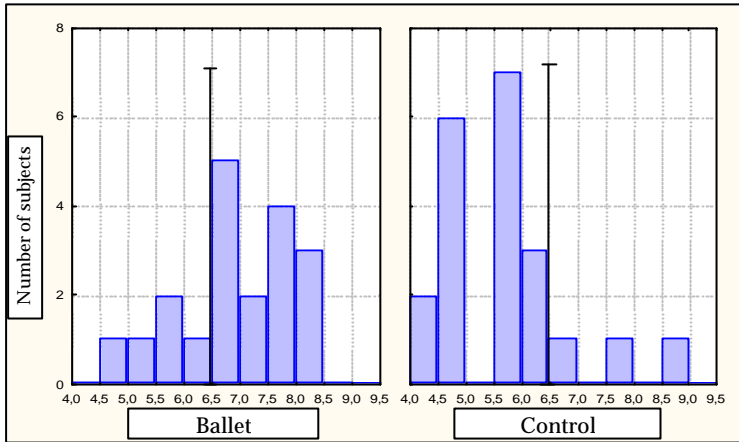
Fig. 3 The histogram of dynamic balance test (the amount of turns on gymnastic bench in 20 s) results in 11-year old girls from both groups

Next variables which may be included in factors determining the level of in-clusion to ballet school are related to rhythm. First one called "rhythmical movements of upper limbs" showed relatively higher dispersions than in for-mer tests (fig. 4). From graphical presentation appears that 8 properly per-formed cycles were the selection limit. As fig. 4 shows only 10% of control group representatives performed this test successfully, while all of the ballet girls fulfilled the conditions of the test.
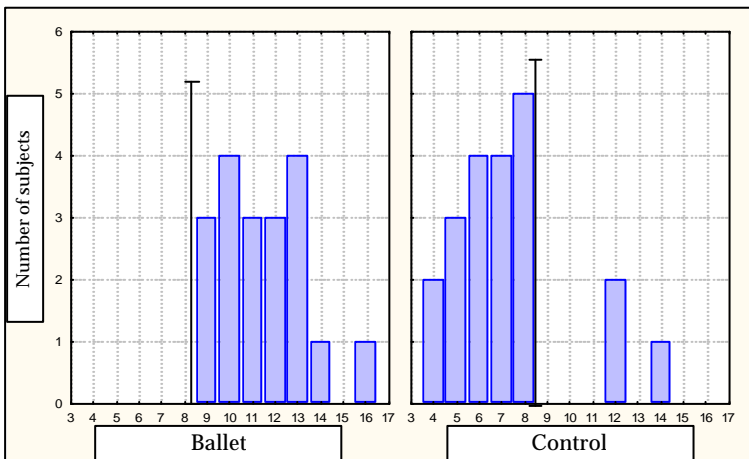

Fig. 4 The histogram of sense of rhythm test ("rhythmi cal movements of upper limbs") results in 11-year old girls from both groups

Similar results were recorded in next sense of rhythm test ("rhythmical movements of upper and lower limbs") which consists from proper rhythmical sequences performed with the use of upper and lower limbs. As it is shown in fig. 5, the limit of 5,5 cycles is absolutely out of the reach of the control group, while all ballet girls achieved the required level.
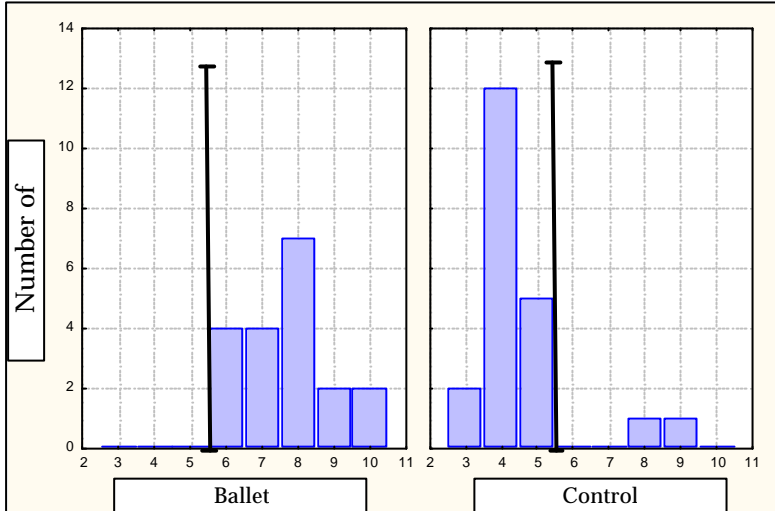

Fig. 5 The histogram of sense of rhythm test ("rhythmical movements of upper and lower limbs") results in 11-year old girls from both groups

Discussion

The variables that differentiate to the highest degree ballet dancers and students include: body mass, sense of rhythm and balance. This was confirmed by the results of experiment conducted on general and specific populations aged 11-15.

In order to acquire the applied effect of structure of motor and somatic diagnosis the attempt to determine optimal level of chosen variables was undertaken. It was assumed that the simplest criteria of testing could be best. On the basis of diagnosis performed earlier on broader population the analysis of dispersion of 5 tests was calculated. Authors decided that if 70% of ballet students reach the calculated level while none from the control group then it may be the lower limit of tested ability treated as predisposition to ballet training. This criterion includes the following values:

1. Body mass: 32 kg and leanness coefficient equal to 45 in 11-year old girls.
2. Performance of more than 6 turns in 20 s on a gymnastic bench.

3. At least 8 cycles in 20 s (sense of rhythm).

Other performed test are characterized by similar movement structure so the authors decided to use them optionally.

It was stated that sense of rhythm, as the element of coordination potential of researched subjects, differentiates to the diagnosed populations highest degree. It seems to be absolutely acceptable that girls from ballet school showed significantly better results because of specific training and musical experiences. It should be underlined that with the use of such a simple diagnostic test it possible to select young candidates to ballet school. The levels determined in this work may be used as selection criteria as well as the proposal for future research in this area.

Conclusions

1. The evaluation of body mass and sense of rhythm and dynamic balance may be used as optimal criteria of selection to ballet school.
2. The level of results acquired by at least 70% of ballet school students was proposed as criterion of selection of young girls to ballet school.

References

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