

NEW MOTOR COORDINATION SKILLS TRAINING MODEL FOR BACHELOR STUDENTS OF PEDAGOGICAL UNIVERSITY

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Annotation

The article analyzes the issue of motor coordination of bachelor students of a pedagogical university. For the recent years, there has been a tendency towards a decrease in this component of physical fitness. The authors state that introduction of sports and subject-matter disciplines into the process of education of bachelor students of the Physical Education Department no longer contributes to the improvement of the results of coordination training. All this requires and justifies the need for the development of special elective courses focused primarily on coordination training. To solve this problem, the authors developed and introduced into the educational process the following elective courses: "Coordination abilities and their importance in sports"; "Modern youth movements in physical culture"; "Acrobatic training as a coordination training area".

Implementation of these courses by the method of stimulated development indicates a significant improvement of the results of coordination training of bachelor students.

Keywords: motor coordination training, motor coordination skills, test, elective course, bachelor students.

Background. Issues of motor coordination training service for the Physical Education specialty in the academic Pedagogical Education curriculum have been in more and more priority for the last few years [1–3]. Reasons for the growing interest may be classified into objective and subjective ones, although the researchers tend to rank the rapidly expanding physical inactivity of the young population on top of these reasons [4]. It should be mentioned that even the sporting youth communities nowadays are tested with poor sport-specific motor coordination skills. The national academic community reports rapid regresses in the numbers of students equally successful in every academic sport discipline. The ongoing regress in the students' motor coordination skills forces the universities to ease the graduates' professional physical fitness standards and requirements. Thus the academic Physical Education curricula no more require the students have Class I–III qualifications in the academic sports disciplines as it was before, and the only explanation for the revision is that the students fail to qualify and meet the former standards due to the regress in their physical qualities, motor skills and fitness. As was found by our prior studies [2], most challenging for the modern student population are the motor coordination skills tests – that rate most of the tested students low or moderate on the motor coordination skills test scales. All these

considerations make the motor coordination studies and progress systems so relevant for the bachelor training curricula.

Objective of the study was to analyze benefits of a new motor coordination skills training model with elective modules for the bachelor students majoring in Physical Education in the academic Pedagogical Education curriculum.

Methods and structure of the study. Benefits of the new training model for the 1–3–year bachelor students were tested by a model piloting experiment with the pre- and post-experimental tests to rate the sample progress in the motor coordination skills and qualities: see Table 1.

The motor coordination skills were rated by the following 12 standard tests that have been used for many years in the academic studies and research projects in the academic sports disciplines. The test set includes both the traditional and computerized motor skills diagnostic tools including NS Psychotest, Sports Psycho – physiologist probes etc. – that have been proved dependable and informative by the prior studies:

1. Schulte – Platonov Red – black Tables test;
2. RMO (reaction to a moving object) test;
3. Hand tapping test;
4. Foot tapping test;
5. Angular velocity rating test;
6. Jumping rhythm keeping test;

7. Point – to – point (1 – 12) sprint test;
8. Reverse all – fours movement test;
9. Hand – swing – assisted/ non – assisted jump test;
10. Maximal – twist jump test;
11. Maximal – repetition standing long jump test; and
12. Three 360° turns on a gymnastic beam test.

The 1 – year versus 3 – year group motor coordination progress tests found no progress for the 5 semesters, with both of the groups tested virtually even in the tests, save for only a few tests where the 3 – year group had a statistically insignificant edge ($p > 0,05$). The failure of the academic Physical Education service to secure progress in the motor coordination skills tests urged us to develop and test a new motor coordination skills training model including the following optional modules: (1) motor coordination skills training benefits for sports; (2) Modern trends in youth physical education and sports; and (3) motor coordination skills training actobatics. The new motor coordination skills training model was piloted in semesters 6 – 7 after the academic sports training were completed and, hence, benefits of the new optional sports training model could be tested on a relatively independent basis.

The 'motor coordination skills training benefits for sports' module was designed to give basics of the motor coordination skills theory and concepts to students with motor coordination classification; sports – specif –

ic benefits; motor coordination skills progress test systems; sports – specific motor coordination skills training methods and tools; and practically train the students to apply the modern motor coordination skills training and progress test toolkits.

The 'motor coordination skills training actobatics' module may be described as the practice – prioritizing course to help students master acrobatic elements with a special emphasis on the sport – specific motor coordination skills developing aspects. The module is designed to rather complement than duplicate the academic 'Gymnastics with the training methodology' discipline. The practices include special trampoline exercises, elementary jump acrobatics and an extensive course of group acrobatics (deuces, triples, fours and pyramids). It should be mentioned that the module trainings are highly intensive, emotional and encouraging the trainees' initiative and creativity.

And the 'Modern trends in youth physical education and sports' module was designed to meet the students' enthusiastic interest in a few modern street sports like park – our, freerun, acrostritis, workout, etc., closely familiarize them with them and help them safely test own gifts and skills in some of them on their discretion. Trainings in this module were assisted by special equipment and appliances to make the classes more interesting and entertaining.

Table 1. Pre-experimental 1- and 3-year student group motor coordination skills test data

Tests	1-year group $\bar{X} \pm \sigma$	3-year group $\bar{X} \pm \sigma$	p
Schulte – Platonov Red – black Tables	38,6 ± 7,13	37,8 ± 6,32	>0,05
Response to a moving object	0,218 ± 0,04	0,221 ± 0,05	>0,05
Hand tapping	406 ± 57,3	414 ± 62,5	>0,05
Foot tapping	357 ± 63,8	382 ± 57,6	>0,05
Angular velocity rating	4,1 ± 0,83	4,3 ± 0,75	>0,05
Jumping rhythm keeping	0,47 ± 0,11	0,44 ± 0,08	>0,05
Point – to – point (1 – 12) sprint	32,8 ± 7,42	30,5 ± 6,37	>0,05
Reverse all – fours movement	4,35 ± 0,76	4,67 ± 0,64	>0,05
Hand – swing – assisted/ non – assisted jump	8,4 ± 1,78	9,7 ± 1,52	>0,05
Maximal – twist jump	412 ± 63,2	435 ± 58,2	>0,05
Maximal – repetition standing long jump	5,6 ± 1,04	7,2 ± 0,86	>0,05
Three 360° turns	7,24 ± 1,42	7,35 ± 1,38	>0,05
Total motor coordination skills rate	67,8 ± 13,7	68,3 ± 15,2	>0,05

Table 2. Pre- versus post-experimental test rates of the sample in the new elective motor coordination skills training model piloting experiment

Tests	Pre-exp. $\bar{X} \pm \sigma$	Post-exp. $\bar{X} \pm \sigma$	p
Schulte – Platonov Red – black Tables	37,8 ± 6,32	35,4 ± 5,27	>0,05
Response to a moving object	0,221 ± 0,05	0,213 ± 0,04	>0,05
Hand tapping	414 ± 62,5	438 ± 53,8	>0,05
Foot tapping	382 ± 57,6	422 ± 42,8	<0,05
Angular velocity rating	4,3 ± 0,75	4,1 ± 0,57	>0,05
Jumping rhythm keeping	0,44 ± 0,08	0,35 ± 0,05	<0,05
Point – to – point (1 – 12) sprint	30,5 ± 6,37	24,7 ± 5,78	<0,05
Reverse all – fours movement	4,67 ± 0,64	4,23 ± 0,53	>0,05
Hand – swing – assisted vs. non – assisted jump	9,7 ± 1,52	12,4 ± 1,34	<0,05
Maximal – twist jump test	435 ± 58,2	528 ± 58,2	<0,05
Maximal – repetition standing long jump	7,2 ± 0,86	9,6 ± 0,67	>0,05
Three 360° turns	7,35 ± 1,38	5,18 ± 0,87	<0,05
Total motor coordination skills rate	68,3 ± 15,2	87,5 ± 11,4	<0,05

Every module of the new motor coordination skills training model took 72 hours (2 credits), with 2–3 training sessions a week for 1 semester of the experiment.

Results and discussion. The post-experimental tests showed benefits of the new motor coordination skills training model for the bachelor students as the sample showed progress in virtually every test versus the pre-experimental test rates, with particularly high progresses made in six motor skill tests. The computerized tests showed lower progress rates, with the statistically significant pre- versus post-experimental test differences. On the whole, most of the sample was tested with the highest progresses in the elementary and total motor coordination skills test rates falling within the moderate and high motor coordination fitness ranges: see Table 2.

Conclusion. The new motor coordination skills training model for the bachelor students piloted as complementary to the standard physical education service curriculum was found beneficial as verified by the pre- versus post-experimental motor coordination skills progress rating tests. The new motor coordination skills training model is rec-

ommended for application in the academic physical education service by pedagogical universities as a promising tool to facilitate the students' progress in the professional competences.

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