The Annals of the "Ştefan cel Mare" University of Suceava.
Physical Education and Sport Section. The Science and Art of Movement
eISSN 2601 - 341X, ISSN 1844-9131

PHYSICAL FITNESS DEVELOPMENT LEVEL FOR EDUCATIONAL SCIENCE FACULTY STUDENTS

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Keywords: physical fitness, health, development, students, exercise

Abstract

This study aims to highlight the Educational Science Faculty Students physical fitness development level. The level of PF tends to track low to moderately from adolescence into adulthood and tends to degenerate gradually after adolescence. Results demonstrate that for two tests that assess coordination and flexibility students did good, for a single test that assess balance students did sufficient and for the other two test that assess cardiovascular endurance and abdominal strength students did very poor and poor. These findings highlight a low PF development.

Introduction

The purpose of the research is to analyze physical fitness (PF) development level for Educational Science Faculty students.

PF is considered to be a state of health and well-being and, more specifically, the ability to perform aspects of sports, occupation and daily activities [1]. PF is being achieved through proper nutrition [2], moderate-vigorous physical exercise [3] and enough rest along with formal recovery plan [4]. In [5] is revealed the PF components, as follow: body composition, cardiovascular fitness, flexibility, muscular endurance and strength.

A comprehensive fitness program usually focuses on one or more specific skills [6] on age [7] and on health-related needs [8]. PF can prevent or treat many chronic health condition brought on by unhealthy lifestyle or aging [9]. Workout can also improve sleeping, alleviate some mood disorders [10], reduce the risk of developing various inflammatory diseases [11], controll blood pressure, boost the immune system, control weight [1].

There is various exercise that can be performed in order to develop PF such as:

- ***aerobic exercise***: jogging, working on elliptical trainer, walking, treadmill training, swimming, cycling, jumping rope [12].
- ***anaerobic exercise***: weight training, isometric exercise, sprinting, interval training [13].

- ***training***: century ride, middle distance running, marathon, hill sprints, plyometric and isometric exercise, sand running, aquajogging [14].

- ***High Intensity Interval Training*** (HIIT) – consist of repeated, short bursts of exercise, completed at high level of intensity. These sets of intense activity are followed by a predetermined time of rest or low-intensity activity [15].

PF has been demonstrated to have well-established associations with health markers during adolescence and health outcomes later in life [16]. The level of PF tends to track low to moderately from adolescence into adulthood and tends to degenerate gradually after adolescence [17].

Material-method

Second year students from Stefan cel Mare University of Suceava, Educational Science Faculty were invited to take part to a study regarding theier PF development level. Study included 40 students aged between 19-21 years, all girls. All students delivered a signed consent form and agreed for the data to be published. A total of 5 tests were conducted as follows: Touch Test Disc (TTD), Ruffier SquatTest (RST), Sit-up Test (ST), Sit and Rich Test (SRT) and Flamingo Test (FT).

TTD evaluates motor coordination, especially hand-eye coordination and is performed on a rectangular wooden plank with 120 cm wide by 60 cm wide. In the center of the board, it contains a rectangle of 10 cm high by 20 wide and a circle of 20 cm in diameter on each side with a distance of 5 cm between the figures (Figure 1). The individual has to keep the non-dominant hand in the central rectangle, and touch with the dominant hand in the circle on the opposite side, crossing his arm over the other, and come back to complete one cycle. Each attempt comprises 25 correct cycles, and the smallest time for completion out of three attempts is considered [18].

RST is a simple cardiovascular endurance test which involves measuring heart rate before and after performing 30 squats in 45 seconds. Subject sit or lie down, and after at least a few minutes, measure resting heart rate (HR1) by counting the pulse over 15 seconds. Set the metronome to a rate of 40 per minute. When ready, the subject performs 30 squats in time to the metronome (it should take 45 seconds). On completion of the 45 seconds, the subject immediately sits down, and the post-exercise heart rate is taken over the first 15 seconds (HR2), then again one minute after the test (HR3) from 1 minute to 1 minute 15 seconds' post-exercise (Figure 2) [19].

The aim of ST (Figure 3) is to perform as many sit-ups as you can in 30 seconds. Lie on the mat with the knees bent at right angles, with the feet flat on the floor and held down by a partner. The fingers are to be interlocked behind the head. On the command 'Go', raise the chest so that the upper body is vertical, then return

to the floor. Continue for 30 seconds. For each sit up the back must return to touch the floor [20].

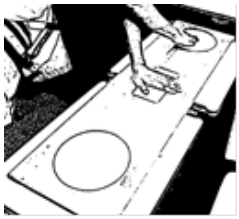

Fig. 1. Touch Test disc

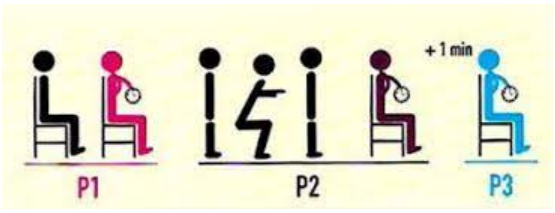

Fig. 2. Ruffier Squat Test

Fig. 3. Sit-up Test

Fig. 4. Sit and Rich Test

Fig. 5. Flamingo Test

For SRT (Figure 4) subject will place one hand on the top of the other, slowly lean forward at the hips by keeping the knee straight and he will try to reach across the top of the ruler as far as possible and hold the stretch for 2 seconds.

For FT subject stands on the beam with shoes removed and will keep balance (Figure 5). While balancing on the preferred leg, the free leg is flexed at the knee and the foot of this leg held close to the buttocks. Stop the stopwatch each time the person loses balance (either by falling off the beam or letting go of the foot being held). Start over, again timing until they lose balance. Count the number of falls in 60 seconds of balancing.

Results

In Table 1 are presented the descriptive statistics data of the study.

Table 1. Descriptive statistics data of the study

	Results
Age	20.9 ±1.2
Physical fitness	
TTD (seconds)	10.8 ± 0.8
RST (score)	15.4 ± 0.6
ST (rep.)	12.6 ± 1.5
SRT (cm)	13.25 ± 3.2
FT (no. of mistakes)	5.4 ± 0.5

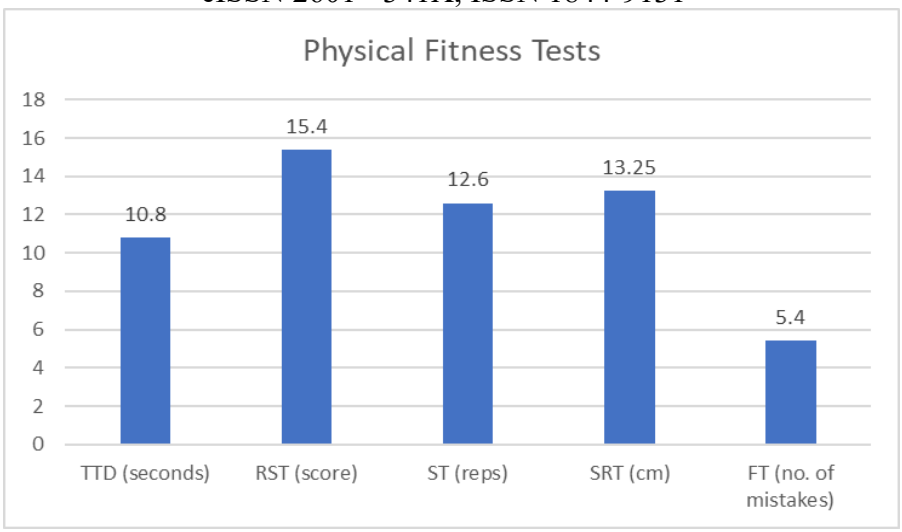

Fig. 6. Graphical representation of subject's results

For TTD that assess hand-eye coordination, subjects average result was 10.8 seconds wich is a good result comparing to tests general rating. On the second test, Ruffier Squat Test, students average score was 15.4. Comparing to the tests general rating students result is situated on very poor value. This indicate that student's cardiovascular endurance and exercise tolerance is werry low. The students ST has an average result of 12.6 reps wich situate them on the poor value comparing to the test general rating. For SRT students obtained an average result of 13.25cm. Comparing the students result with the general rating it can be observed that students have a good trunk flexibility. The last applied test FT, students average result was 5.4 mistakes, that situates them on the sufficient value if comparing with test general rating.

Conclusions

Students' performance for the 5 test was not so good. Results demonstrate that for two tests (TTD and SRT) students did good. The two tests assess coordination and flexibility. For a single test that assess balance students did sufficient and for the other two test (RST and ST) students did very poor and poor. The last two test assess student's cardiovascular endurance and exercise tolerance and abdominal strength.

These findings highlight a low PF development. The study also had a few limitations. It is required an anthropometric and body composition analisys for a better understanding of students' performance. Educational Science Faculty students have only 1 class of physical education and sport per week in the fist semester of second year study.

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