

# Physical education department students: year-to-year physical progress tests and analysis

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## Abstract

**Objective of the study** was to reveal the dynamics in the physical fitness of the Physical Education Department students.

**Methods and structure of the study.** Subject to the study were the 4-year students (2017 through 2020) of Belgorod State National Research University (n=72, 36 young women and 30 young men). The researchers used analysis and summaries of the reference scientific literature, physical fitness tests and standard mathematical statistical data processing toolkit. The experiment was 4 years long. Physical fitness was ranked excellent, good, moderate and low according to the GTO gold, silver, bronze badge and lower standards, respectively.

**Results and conclusion.** The studies showed the Physical Education Department students' physical fitness level remaining virtually same throughout the academic period, moreover some progress was noted in some physical fitness components. Knowing that the practical Physical Education training hours in the curriculum tend to fall by the fourth year, we may assume that the main reason for the specific progress is the still high interest and commitment for Physical Education in the students.

**Keywords:** *physical fitness, GTO Complex, Physical Education Department students.*

**Background.** As reported by many researchers, health standards of the national school and university populations have been on decline for the last decades [1] despite the commonly recognized need for healthy university graduates committed for a healthy lifestyle as a basis for progress. This holds particularly true for graduates of the Physical Education specialist training system [2, 4], and it was the reason for us to test and analyze the year-to-year physical progress of the Belgorod State National Research University students using the standard GTO Complex test set.

**Objective of the study** was to test and analyze the year-to-year physical progress of the Physical Education Department students.

**Methods and structure of the study.** We sampled for the 4-year study (2017 through 2020) the 1-4-year students of Belgorod State National Research University (n=72, equal gender split), with

exclusion of the 3rd year due to the self-isolation period. We used analyses and summaries of the reference scientific literature, physical fitness tests from the standard GTO Complex test set and a standard mathematical statistical data processing toolkit. Physical fitness was ranked excellent, good, moderate and low according to the GTO gold, silver, bronze badge and lower standards, respectively.

**Results and discussion.** A comparative analysis of the averaged physical fitness test data found virtually no year-to-year physical progress in the sample on the whole, with some variations in specific tests in the male group. Thus the speed tests found some progress or no regress; strength tests showed some progress at the start with a regress later on; whilst flexibility was tested to sag by year 2 and then grow by year 4. In the standing long jump test, the male group showed some regress with age

**Table 1.** Year-to-year physical fitness test data: male group

Tests	year 1	year 2	year 4
60m sprint, s	t=1,5; p>0,05		
	8,2±0,10	8,0±0,09	8,0±0,08
	t=0,3; p>0,05		
3km race, s	t=0,1; p>0,05		
	818,7±46,6	825,8±27,96	828,5±32,58
	t=0,1; p>0,05		
Pull-ups, reps	t=1,4; p>0,05		
	12,3±2	16,3±2,23	14,3±1,85
	t=0,7; p>0,05		
Front leans on a bench, cm	t=0,1; p>0,05		
	15,4±1,46	15,1±2,08	14,9±1,69
	t=0,1; p>0,05		
Standing long jump, cm	t=1,0; p>0,05		
	246,3±4,24	255,3±8,09	249,5±4,16
	t=0,6; p>0,05		
1min sit-ups test, reps	t=0,7; p>0,05		
	52,3±2,62	54,6±2,16	49,6±2,54
	t=1,5; p>0,05		

**Table 2.** Year-to-year physical fitness test data: female group

Tests	year 1	year 2	year 4
60m sprint, s	t=0,5; p>0,05		
	9,9±0,26	9,7±0,26	9,7±0,2
	t=0,0; p>0,05		
2km race, s	t=0,3; p>0,05		
	650,7±22,28	659,6±24,3	612,2±21,38
	t=1,5; p>0,05		
Pull-ups, reps	t=1,1; p>0,05		
	16,4±2,07	21,4±4,06	19,0±2,8
	t=0,5; p>0,05		
Front leans on a bench, cm	t=0,1; p>0,05		
	16,5±1,33	16,2±2	18,8±1,87
	t=1,0; p>0,05		
Standing long jump, cm	t=0,0; p<0,05		
	198,9±4,8	199±4,46	195,6±4,20
	t=0,6; p>0,05		
1min sit-ups test, reps	t=1,3; p>0,05		
	46,7±1,87	51±2,73	48,9±2,4
	t=0,6; p>0,05		

– versus progress in the speed-strength rating 1 min sit-ups test.

In the female group, the physical fitness components were also tested to vary differently with age. Thus the speed tests showed no regress, whilst en-

durance rated by the 2 km race test showed a regress with age – in contrast to strength tested to grow significantly year-to-year. Flexibility was tested to grow by year 2 and stand virtually the same thereafter. The sit-ups test showed some regress to year

2 and a plateau thereafter. On the whole, the optional tests caused no problems in the female group, with every girl tested high.

It should be emphasized that the standard Physical Education service hours contract year-to-year in every discipline. Only 24 individuals in the sample reported committed for their sports careers and actively competing, whilst the rest reported commitment for self-reliant physical practices with different purposes.

**Conclusion.** The Physical Education Department students' year-to-year physical progress tests and analysis showed the physical fitness on the whole standing virtually the same for the academic period, despite some progresses in the speed, strength and speed-strength endurance tests. Knowing that the practical Physical Education training hours in the curriculum contract by year 4, we may assume such a progress being due to the still high interest and commitment for Physical Education prior to and upon graduation, with the young Physical Education specialists mostly having good physical progress agendas and healthy lifestyle and actively trained.

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*agenda and poly-subjectivity formation in future teachers"*

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