

Relationship of Physical Fitness and Academic Performance in College Students

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Purpose:

Recent evidence from studies conducted on animals and elderly humans has indicated that increased physical activity results in improved cognitive function. It has been suggested that physical activity and fitness are related to cognitive performance and achievement. Investigations into the relationship between academic achievement and physical fitness have produced mixed results. This study was to investigate the relationship between school academic performance (grade point average or GPA) and physical fitness in college students.

Methods:

The study sample included 145 undergraduate students (mean age 21.9 ± 3.8 yrs), majoring in physical education and exercise sciences. After first signing the informed consent, subjects were administered a physical fitness battery during the spring semester of 2008; the current and cumulative GPA scores were collected for the 2007 fall and 2008 spring semesters. Only those students ($n=137$) with complete sets of scores for both variables were included in the statistic analysis. The relationship between physical fitness (as measured by 1.5-mile-run, Sit-and-Reach, BMI, Grip test, Push-ups, and Curl-ups) and academic performance (as determined by GPA) was examined using Pearson product-moment correlation coefficient. SPSS for Windows was used for statistical analysis and a p -value ≤ 0.05 was considered significant.

Analysis/Results:

There was a positive correlation between cardiorespiratory fitness and current GPA for fall 2007 ($r=0.27$, $p=0.002$), cumulative GPA for fall 2007 ($r=0.28$, $p=0.001$), and cumulative GPA spring 2008 ($r=0.23$, $p=0.007$). The push-ups performance was positively associated with current GPA for fall 2007 ($r=0.28$, $p=0.001$), cumulative GPA for fall 2007 ($r=0.17$, $p=0.044$). A positive correlation was found between curl-ups performance and current GPA for fall 2007 ($r=0.21$, $p=0.013$), current GPA for spring 2008 ($r=0.22$, $p=0.010$), and cumulative GPA spring 2008 ($r=0.21$, $p=0.012$). There was also a positive association between sit-and-reach performance and current GPA for spring 2008 ($r=0.21$, $p=0.012$) and between BMI and current GPA for fall 2007 ($r=0.19$, $p=0.027$).

Conclusions:

The results of this study suggested a high level of some components of physical fitness associating with a high level of GPA. A better performance in cardiorespiratory fitness and upper-body muscular fitness may have the influence on a better course performance (GPA), especially for "Current GPA" that is produced before and/or close to the time that physical fitness is assessed.