

## Changes in Body Composition and Aerobic Fitness Levels in College Students' First Semester

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### ABSTRACT

**BACKGROUND:** College students have been shown to increase in weight at a higher rate than young adults who do not attend college (Mihalopoulos et al, 2008). The greatest increases have been found to occur in the first semester of freshman year with the majority of increased mass believed to be fat mass (Hootman et al, 2007). Conversely, engagement in physical activity and thus aerobic fitness declines throughout the college years (De Bourdeaudhuij et al, 2002). **PURPOSE:** This study examined changes in body composition (i.e., fat and lean mass) and cardiorespiratory fitness levels in college students in their first semester of college. **METHODS:** 28 first-semester students (20F/8M, 18±1yr) underwent dual energy X-ray absorptiometry for body composition measurement and an Astrand-Rhyming bicycle ergometer protocol for  $VO_{2max}$  estimation. Questionnaires were administered to examine the role of peer stress, quality of life, and dietary efficacy. All measures were collected at the beginning of the semester and again at the end, with at least 8 weeks between data collection visits. **RESULTS:** BMI, total mass, fat mass, and lean mass all increased significantly ( $p<0.05$ ).  $VO_{2max}$  declined, but not significantly. Subjective self-reported perceptions of emotional well-being, role limitations due to emotional well-being, and energy significantly declined. Stress significantly correlated with many quality of life factors. **CONCLUSION:** Body mass significantly increased due to an increase in both fat mass and lean mass. Secondary factors such as stress and diet, did not significantly correlate to any body composition or cardiorespiratory factor measured. Utilizing these data to understand trends in body composition and aerobic fitness changes as well as any interplay from the secondary measures may assist in the creation of future intervention strategies designed to promote healthy lifestyle behavior changes in college students.