TACSM Abstract

Changes in Body Composition and Aerobic Fitness Levels in College Students' First Semester of Freshman Year

NICOLE VARONE

Department of Health and Human Performance; Texas A&M University-Commerce; Commerce, TX

Category: Masters

Advisor: Bernhardt, Vipa (vipa.bernhardt@tamuc.edu)

ABSTRACT

Research has shown that college students exhibit gains in fat mass up to 5.5 times greater than their peers of the same age that do not attend college (Mihalopoulos, Auinger & Klein, 2008).Because of concerns over increasing rates of obesity, college campuses nationwide are engaging in campaigns designed to target college youth and educate them about the benefits of healthy lifestyle behaviors. However, in order to implement effective intervention strategies, a clear picture of current student health must be acquired. It was hypothesized that body weight, specifically fat mass, would be increased in the first semester of college. It was also expected that there would be a decrease in cardiorespiratory fitness. **PURPOSE**: The purpose of this preliminary study was to collect objective measures of body composition and cardiorespiratory fitness levels within the first semester of current freshman students of a rural university. **METHODS**: 20 participants (17F/3M, 18yr±1, 167.5 ±72.0cm, 67.9±17.1kg, 41.6±11.8 ml/kg/min) underwent dual energy x-ray absorptiometry and performed the Astrand submaximal bicycle ergometer test with metabolic measurements (e.g., VO_2). Estimated maximal VO_2 was extrapolated. One assessment took place within the first month of the semester start and a second assessment took place 8 weeks later. **RESULTS**: Body weight increased significantly (p=0.02) by 1.68% (from 67.1±16.8 to 68.2±16.9kg), resulting in an increased BMI (p=0.018) by 1.8% (from 24.5±5.2 to 24.9±5.3 kg/m^2). Lean mass increased significantly (p=0.037) by 1.7% (42.5±9.6 to 43.2±9.6kg) and fat mass increased not significantly (p=0.068) by 2.5% (from 21.74±8.5 to 22.3±8.5kg), whereas body fat percentage decreased significantly (p=0.022) by 4.1% (32.9±6.9 to 31.6±6.7%). Absolute VO_2 decreased not significantly (p=0.18) by 5.1% (from 2.68±0.54 to 2.54±0.62 L/min). **CONCLUSION**: As expected, this preliminary assessment revealed that body weight and fat mass increased in students within the first semester of freshman year. This increase in body weight – and therefore BMI – was due to both lean and fat mass increases. In these 8 weeks, there was no change in cardiorespiratory fitness. Future analyses will be conducted on these participants 1 year after the first assessment to evaluate changes over the first full year of college.