



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 1st – 2nd, 2019
Conference Proceedings

International Journal of Exercise Science, Volume 9, Issue 8



Exercise and Caffeine Use in College Sleep and Mental Health

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College students partake in variable amounts of exercise and caffeine, which may influence their sleep quality and mental health. Poor habits may set them up for a lifetime of health problems. **PURPOSE:** We evaluated associations among exercise, caffeine consumption, sleep quality, and symptoms of anxiety and depression in college students. **METHODS:** Anonymous electronic surveys assessed many variables, including exercise dose (h/wk), caffeine consumption (beverages: mg), and scores for symptoms of poor sleep quality (PSQI: Pittsburgh Sleep Quality Index), anxiety (GAD-7: generalized anxiety disorders), and depression (PHQ-9: patient health questionnaire). Mann-Whitney U tests (MWU) compared caffeine users vs. nonusers and men vs. women for key outcomes; Spearman's rho and backwards stepwise regression assessed associations among variables of interest ($\alpha=0.05$). **RESULTS:** In the main sample, anxiety and depression scores were correlated ($n=412$, $\rho=+0.740$, $p=0.000$); 42.1% of women ($n=297$) and 28.7% of men ($n=115$) reported no exercise. Women had worse global mental health scores than men (sum GAD-7 + PHQ-9, MWU $p<0.001$). In women vs. men, mean ranks were higher for caffeine, anxiety, and depression, but lower for exercise (MWU $p<0.003$). Doses formed rough tertiles (caffeine mg/day: 0, 6-150, 150+; exercise h/wk: 0, 0.1 to 2.1, >2.1). Female sex, lower exercise tertiles and higher caffeine tertiles predicted greater anxiety ($p<0.02$) and depression scores ($p<0.04$). Caffeine users had lower weekly exercise doses than nonusers (min/day: users= 52.7, nonusers= 67.9, MWU $p=0.021$). In a PSQI sub-sample ($n=174$), female sex and worse sleep quality predicted higher anxiety scores (regression $p<0.003$); lower exercise tertiles and worse sleep quality predicted higher depression scores (regression $p<0.05$). In caffeine users ($n=116$), higher caffeine intake was associated with worse sleep quality ($\rho= +0.260$, $p=0.005$) and higher depression scores ($\rho= +0.191$, $p=0.040$). In a subsample of exercisers, with both caffeine users and nonusers ($n=114$), more exercise was linked with fewer symptoms of anxiety ($\rho= -0.199$, $p<0.05$), depression ($\rho= -0.286$, $p<0.05$), and poor sleep ($\rho= -0.203$, $p<0.05$). **CONCLUSION:** For college students, exercise promotion may be key to improving sleep quality and mental health.

Supported, in part, by grants to Binghamton University from the following: Howard Hughes Medical Institute (HHMI) through the Precollege and Undergraduate Science Education Program, New York State Regional Economic Development Council, and SUNY Investment & Performance program.