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### Exercise Dose in Relationship to Sleep and Overall Health in University Students

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Fewer than 50% of college students meet physical activity guidelines which recommend at least 150 min/week of aerobic exercise and/or two d/week of resistance exercise. Although it is widely known that physical activity has positive effects on sleep and physical health, it remains unclear how the dose of aerobic and resistance exercise relates to each. **PURPOSE:** To determine how dose of aerobic exercise, with or without meeting resistance exercise guidelines, relates to sleep and overall health in university students. **METHODS:** Participants (N=1773, 70% female) completed a survey that included questions about their physical activity (amount/frequency of aerobic and resistance exercise), overall health, sleep latency, sleep duration, height and weight. Participants were stratified into six groups based on aerobic (Low: <150min/week, Mod: 150-300 min/week, High: >300 min/week) and resistance (Low: <2d/week or High: ≥2d/week) exercise. ANOVAs and ordinal regressions compared groups. **RESULTS:** There were no group or sex differences in BMI ( $p=0.29$ ). Although groups did not differ in self-reported sleep latency, there was a main effect of sex ( $p<0.001$ ) such that females took longer to fall asleep once they closed their eyes compared to males. There was a significant main effect of group on weeknight sleep duration ( $p=0.03$ ). Post-hoc comparisons between groups revealed that High/Low participants reported less sleep compared to Low/High ( $p=0.01$ ), Moderate/Low ( $p=0.07$ ) and Moderate/High ( $p=0.01$ ) participants. High/High participants also reported shorter weeknight durations compared to Moderate/High participants ( $p=0.02$ ). For students in the Low/Low group, the odds of describing overall health as worse was 2.36 (1.76-3.18,  $p<0.001$ ) times that of students in the High/High group. For students in the Mod/Low group, the odds of describing overall health as worse was 2.21 (1.52-3.22,  $p<0.001$ ) times that of students in the High/High group. For students in the High/Low group, the odds of describing overall health as worse was 1.74 (1.21-2.49,  $p=0.003$ ) times that of students in the High/High group. **CONCLUSION:** Those who engaged in a high level of aerobic and resistance exercise self-reported their overall health as better compared to those who exercised less. Surprisingly, more exercise, particularly aerobic, was associated with less weeknight sleep. This may be due to these two health behaviors competing for time. Additional work is warranted to understand how exercise dose interacts with physical and mental health to optimize well-being in young adults. **SIGNIFICANCE/NOVELTY:** These data highlight that while engaging in high levels of aerobic and resistance exercise benefits overall health, engaging in too much aerobic exercise may reduce sleep duration. Further, 2 d/week or more of resistance exercise is adequate for benefiting overall health and sleep at lower amounts of aerobic exercise.