

METHODS: Thirty-five young adults (21.4±2.3y; 19M; 16F) with Penn State Worry Questionnaire scores ≥45 (60±8) completed 30-min treadmill running at ~71.2±0.04 percent heart rate reserve and 30-min seated quiet rest in counterbalanced order. Outcomes included worry, worry engagement, absence of worry, state anxiety, and feelings of energy and fatigue. RM-ANOVA examined differences across condition and time. Sex-related differences were explored with RM-ANOVA and paired samples *t*-tests stratified by sex. Hedges' *d* effect sizes were calculated to quantify and compare magnitude of change in the full sample, men, and women.

RESULTS: There were no significant baseline differences between sexes. Compared to quiet rest, exercise significantly improved state anxiety ($p<0.04$; $d=0.27$) and feelings of energy ($p<0.001$; $d=1.09$). Small improvements were found for worry ($d=0.22$), worry engagement ($d=0.18$), and feelings of fatigue ($d=0.21$). Although RM-ANOVA did not support significant differences between sexes, exercise effects on worry, worry engagement, absence of worry, and feelings of energy were stronger among females. Moderate-to-large improvements in worry ($d=0.53$), absence of worry ($d=0.38$), and feelings of energy ($d=1.35$) were found among women. Among men, moderate-to-large improvements in state anxiety ($d=0.37$) and feelings of energy ($d=0.92$) and fatigue ($d=0.40$) were found.

CONCLUSION: Findings support initial reports of positive effects of acute aerobic exercise on worry, state anxiety, and feelings of energy and fatigue among young women with subclinical GAD. Findings also provide initial support for these positive effects among young men with subclinical GAD.

1079 Board #2 May 31 8:00 AM - 10:00 AM

Working It Out: Acute Exercise to Combat Anxiety and Depression in Individuals Living with PTSD

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(No relevant relationships reported)

Mental health problems are increasingly prevalent in today's society. Exercise interventions have been shown to significantly reduce symptoms of many mental health problems, but often overlooked is the potential for exercise to reduce symptoms of Post-Traumatic Stress Disorder (PTSD) and comorbid psychological conditions (e.g., anxiety & depression).

PURPOSE: Examine the acute effects of a bout of moderate intensity continuous aerobic exercise (MICE) and a bout of high-intensity interval exercise (HIIE), relative to a no-exercise inactive control (SED), in participants with subsyndromal PTSD.

METHODS: Participants [$N=24$, 9 males; age ($M \pm SD$); 25.9 ± 9.2 yrs; Estimated VO_{2peak} ($M \pm SD$); 34.6 ± 10.2 ml·kg⁻¹·min⁻¹] completed three randomly ordered 35-min conditions (HIIE, MICE, SED) following a within subjects design. All participants met the criteria for subsyndromal PTSD (i.e., having at least one symptom in each of the major DSM-5 clusters), with an average PCL-5 score of 47.64 which exceeded the cut point for probable PTSD of 33. State Anxiety, and Depression were assessed before (Pre), immediate after (Post0), 20-minutes after (Post20), and 40-minutes after (Post40) each condition.

RESULTS: Anxiety and Depression were significantly reduced following all conditions. Anxiety Post40 was significantly less than Pre for HIIE [Cohen's $d = 1.05$], MICE [Cohen's $d = 0.78$], and SED [Cohen's $d = 0.53$]. Depression Post40 was significantly less than Pre for HIIE [Cohen's $d = 0.76$], MICE [Cohen's $d = 0.84$], and SED [Cohen's $d = 0.32$].

CONCLUSION: Exercise significantly reduced Anxiety and Depression to a greater extent than SED. This study provides evidence for exercise-induced short-term improvements in comorbid psychological conditions associated with PTSD. Future studies need to apply these benefits to a longitudinal program.

1080 Board #3 May 31 8:00 AM - 10:00 AM

The Interrelationship Between Depression and Hemoglobin: Men Are Affected More Than Women

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(No relevant relationships reported)

There are 16.1 million Americans with major depressive disorder (MDD) and 3.4 million Americans with anemia. Low hemoglobin (Hb) is known to predict depressive symptoms, but seldom is the inverse examined: how does MDD affect Hb? There may be a cyclic relationship in which depression reduces engagement in physical activity and reduced activity lowers Hb. This presents possible implications for young athletes owing to higher depression scores on average than age-matched controls.

PURPOSE: To investigate MDD as a predictor of serum Hb levels.

METHODS: We analyzed 2,206 patients who were treated at a major hospital. All patients had Glasgow Coma Scale scores ≥14, received a complete blood count with differential, and were screened for MDD. Differences in Hb between depressed and non-depressed groups were assessed with independent samples *t*-tests; multiple linear regression measured the effect of MDD on Hb, controlling for confounding variables.

RESULTS: Among depressed patients, Hb was 12.16 ± 1.86 g/dL; among non-depressed patients, Hb was 13.52 ± 1.93 g/dL ($p<0.001$). This difference was more pronounced among men (14.24 vs. 12.36; $p=0.001$) than women (12.62 vs. 12.02; $p=0.165$). Across the total sample, holding constant age, sex, oximetry, blood pressure, use of dialysis, and diagnoses of diabetes, bleeding disorder, cirrhosis, cancer, and respiratory disease, depression associated with a 5.7% reduction in Hb ($p=0.035$; 95% CI: -1.38 to -0.50 g/dL). The overall model was significant ($r^2=0.299$; $p<0.001$). Among men, the model retained significance ($r^2=0.226$; $p<0.001$) and a diagnosis of depression associated with a reduction in Hb of 1.56 g/dL ($p=0.002$; 95% CI: -2.56 to -0.56 g/dL).

CONCLUSIONS: The relationship between Hb and depression may be cyclic. In our population, depression had a greater effect on Hb than diabetes and respiratory diseases, and it had the same effect as bleeding disorders. Depression, via endocrine changes and reductions in physical activity, may lower oxygen-carrying capacity of the blood, and in turn affect endurance performance. Exercise-induced oxidative stress promotes Hb synthesis. For the anemic patient, exercise may enhance mood; for the moody, exercise may enhance oxygen-carrying capacity. For the athlete and the sport psychologist, there may be further implications.

1081 Board #4 May 31 8:00 AM - 10:00 AM

Prevalence of Depression and Low Self-Esteem among Collegiate Female Track and Field Athletes Samantha

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relationships reported)

Track and field athletes are under extreme amounts of pressure to be successful as student-athletes. Their academics and demands for their events may predispose them to having low self-esteem (LSE) and mental health disorders like depression (DEP).

PURPOSE: To examine the prevalence of LSE and DEP in collegiate, NCAA Division I track and field athletes; and to investigate differences between academic status (i.e., freshman, senior, etc.) and event type (e.g., sprinter, distance, lean events etc.).

METHODS: Collegiate female track and field athletes ($n=387$) were recruited from 25 NCAA Division I Institutions to participate in an online study. Demographic information, Center for Epidemiologic Studies Depression Scale (CESD) to estimate the risk for DEP and the Rosenberg Self-Esteem Scale for LSE were completed.

RESULTS: The prevalence of DEP risk was estimated to be 65.1% ($n=252$). No significant differences were found between academic status; however the highest DEP risk was freshman (19.4%) then sophomores (17.3%). Significant differences were found between event type and DEP within sprinters, middle distance runners, and distance runners (11.4% - 19.6%, $p = \leq 0.01$). Overall, LSE was 10.9% ($n=42$), with LSE found highest among sophomores (4.1%) then freshman (3.9%). No significant differences were found for event type and LSE; however, distance runners were at the highest risk for LSE with 4.4%.

CONCLUSIONS: Female track and field athletes demonstrated a high risk of DEP and a lower risk for LSE. Freshman and sophomores demonstrated the highest risk for DEP and LSE, potentially due to the new academic and collegiate sport demands placed upon them. Overall, it is perceived the more acclimated (upper classman) a student-athlete is, the lower risk they have for DEP and LSE. Additionally, distance runners were found to have a higher risk of DEP and LSE; therefore, further examination is needed to draw conclusions to what additional pressures they may have. With a risk of DEP and LSE being most prevalent among younger collegiate athletes, universities need to focus on establishing a support system or mentoring program for incoming student-athletes.