RESULTS: Exercise programs must address the challenges of co-occurring pain, mental illness, and other cardiopulmonary health conditions, which are common in this population. Further, large-scale clinical trials are needed to determine the preferred and effective types/modalities as well as the optimal dose (i.e., frequency, intensity, duration) of exercise therapy. In addition, studies should examine how to implement evidence-based exercise therapy across all SUD treatment settings. After the appropriate evidence is obtained, ACSM exercise testing and prescription recommendations should be adapted for people with SUD. Specialized training programs for exercise professionals working with this population should be developed that include addressing stigma associated with SUDs and co-occurring chronic pain and mental health disorders.
CONCLUSION: Additional rigorous studies are needed to examine the effectiveness and implementation of exercise therapy in persons with SUD. Raising awareness of the benefits of exercise in people with a SUD in addition to providing supplemental training to exercise supervisors and other support staff will be key towards enhancing treatment outcomes and overall quality of life in people with SUD.

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The Importance Of Diet, Sleep, And Exercise In Adults Seeking Treatment For Substance Use Disorder

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Substance use disorder (SUD) affects more than 40 million Americans. Multidisciplinary treatment models that encourage healthy diet, sleep, and exercise behaviors may improve rehabilitation outcomes.
PURPOSE: To evaluate the influence of diet adherence, sleep quantity, and exercise frequency on relapse rates and duration of sobriety.
METHODS: 25 adult males with SUD participated in a voluntary drug treatment program that emphasized engagement in resistance training and cardiovascular conditioning. Independent variables were exercise frequency, hours of nightly sleep, and participation in a structured diet. Dependent variables were current sobriety, longest duration of sobriety, relapse during treatment, and relapse after treatment. Independent-samples t-tests and chi-squared tests compared outcomes among sober and relapsing participants. Linear and logistic regression models tested the effect of sleep quantity on all other variables.
RESULTS: During the active treatment period, 8% of participants relapsed, 36% relapsed after the program, and 84% were sober at the time of drug testing. Following program enrollment, the longest duration of sobriety was 275.3 ± 110.5 days. Nightly sleep during treatment was 6.8 ± 1.7 hr, weekly exercise duration was 4.0 ± 1.9 hr, and 60% of participants followed a disciplined diet. Participants who exercised regularly had a higher rate of current sobriety (91%) than non-exercisers (50%; p=0.043). Regular exercisers also had a lower rate of relapse following treatment (29%) than non-exercisers (75%), but the difference did not reach significance (p=0.076). Post-treatment relapse was lower among participants who adhered to a structured diet (20%) than it was for non-dieters (60%; p=0.041). Diet adherers also exhibited a trend for longer durations of sobriety (p=0.079; 95% CI of difference: -10.0 to 168.1 days). Sleep did not significantly influence outcomes, but it was associated with diet and exercise behaviors. Each additional hour of nightly sleep predicted an increase of 0.6 hr of weekly exercise (p=0.002; 95% CI of β: 0.3, 1.0) and increased the odds of diet adherence by 78% (p=0.045; 95% CI of OR: 1.013, 3.137).
CONCLUSION: Multidisciplinary therapeutic interventions for SUD that promote diet, sleep hygiene, and structured exercise may contribute to sobriety.

E-06 Cognition

1508

Chair: Matthew B. Pontifex. *Michigan State University, East Lansing, MI.*

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The Effects Of Tai Chi Training On Improving Cognitive Performance In Middle-aged Healthy Adults: A Randomized Controlled Trial

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BACKGROUND: Studies have demonstrated that Tai Chi and aerobic exercise can alter the brain through different pathways, resulting in dissimilar brain adaptations.
PURPOSE: To compare the effect of 12-week Tai Chi versus aerobic exercise on cognitive function among healthy middle-aged adults.
METHODS: This was an assessor-blinded, randomized, controlled trial. One hundred and two participants were randomly assigned into the control group (n=34), brisk walking group (n=34), and Tai Chi group (n=34). Participants in the brisk walking and Tai Chi groups received three 1-hour instructor-led sessions weekly, and they were instructed to perform two self-training sessions weekly for at least 15 minutes. The cognitive performance was measured by the Trail Making Test (executive function) and N-back Test (working memory) at baseline and after 12 weeks of the intervention.
RESULTS: Eighty-five participants completed the intervention and were included in the analysis (control: n=27; brisk walking: n=32, Tai Chi: n=26). Significant group-by-time effects were observed in the Trail Making Test (list A and B) and response time in the N-back test (0-back and 2-back). The Tai Chi group completed the Trail Making Test (list A) and N-back test (0-back and 2-back) significantly faster ($p<0.05$) than the CON group at post-intervention. The Trail Making Test (list B) response time tended to be faster in the Tai Chi group than in the CON ($p = 0.07$) and walking ($p = 0.09$) groups. In contrast, we found that three months of brisk walking did not positively affect cognitive performance.
CONCLUSIONS: Tai Chi exhibited greater improvements in cognitive performance than brisk walking exercise.