Exercise Addiction: Exploring the Contribution of Exercise Dependence to Eating Disorder Symptoms

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Introduction

- Exercise dependence is the reliance on exercise, characterized by cognitive and behavioral symptoms parallel to addiction
- Exercise dependence may develop in response to negative emotions
- Drives associated cognitions and behaviors
- Exercise has been shown to be used in reaction to negative affect in individuals with high ED symptoms (DeYoung & Anderson, 2010)
- Exercise dependence overall is related to eating disorder (ED) symptoms

Procedure

- Participants filled out self-report questionnaires online at two time points, once at baseline (Time 1) and once one month later (Time 2)

Data Analyses

- Multiple regression was conducted in SPSS

Results

- Cross-sectional Model Results:
  - The model accounted for a significant amount of variance in ED symptoms, $F(7, 129) = 7.91, p < .001$; $R^2 = .31$
  - Withdrawal ($p = .043$), continuance ($p = .035$), tolerance ($p = .021$), and time spent exercising ($p = .023$), but not the other subscales (ps ≥ .107), were associated with ED symptoms (see Table 1)
  - Evidence of suppression for time spent exercising and withdrawal
  - The model remained significant when negative affect was added, $F(5, 129) = 31.51, p < .001$; $R^2 = .56$
  - Tolerance ($p = .007$) remained significant in the model with the addition of negative affect
  - Negative affect was significant ($p < .001$)

- Prospective Model Results:
  - Model accounted for a significant amount of variance in ED symptoms at Time 2, $F(9, 69) = 26.44, p < .001$; $R^2 = .80$
  - Withdrawal ($p < .001$) and continuance ($p = .003$), but not the other subscales (ps ≥ .338), predicted Time 2 ED symptoms, when controlling for baseline ED symptoms (see Table 1)
  - Evidence of suppression for continuance
  - The model did not change when negative affect was added, $F(9, 69) = 26.44, p < .001$; $R^2 = .80$
  - Negative affect was not a significant predictor ($p = .337$)

Participants

- One hundred sixty eight individuals diagnosed with an eating disorder recruited from an eating disorder treatment center
- Mostly female (n = 159, 94.6%), European American (n = 156, 92.9%), and diagnosed with AN (n = 120, 71.4%)
- Mean age of 28.27 (SD = 9.44; Range 14-59)
- Most receiving treatment (67.5%); mostly outpatient (58.2%)
- Median hours of treatment received each week is 1.75
- Most often endorsed CBT (49.4%), IPT (49.4%), and/or medication (73.4%)

Measures

The Eating Disorder Examination - Questionnaire (Fairburn & Beglin, 1988)
- Used global score as measure of eating disorder symptoms
- Good reliability and convergent validity (Berg et al., 2012)

The Exercise Dependence Scale (Hausenblas & Downs, 2002)
- Twenty-one item measure of seven cognitive and behavioral components of exercise dependence
- Good internal consistency and concurrent validity

The Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988)
- Used ten items as measure of negative affect
- Good divergent validity and internal consistency

Table 1. Zero-order correlations and multiple regression results for eating disorder symptoms at baseline and prospectively over six months; $p < .01 = **$; $p < .05 = *$

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<tr>
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<th>Baseline Multiple Regression Results</th>
<th>Prospective Multiple Regression Results</th>
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<td>Exercise Dependence Subscale</td>
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<td>Zero-order correlations</td>
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<td>Time 1 ED</td>
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<td>Time 2 ED</td>
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Notes. ED = Eating disorder symptoms; $p < .01 = **$; $p < .05 = *$; Cronbach’s alphas are on the diagonal

Discussion

- Cross-sectionally, we found that tolerance was associated with ED symptoms, above and beyond negative affect
- When negative affect is accounted for, needing to continually increase one’s exercise for the same effects is related to higher ED symptoms
- Tolerance to high amounts of exercise may indicate that high amounts of exercise are being used as an ED behavior and indicate the use of other ED symptoms
- Over time, withdrawal predicts higher ED symptoms, whereas there was evidence of suppression for continuance
- When an individual experiences withdrawal symptoms from exercise (such as experiencing tension and stress from not exercising), not being able to exercise when experiencing physical or psychological problems may increase ED symptoms (perhaps by using ED symptoms as alternative coping mechanism)
- Continuance and withdrawal from exercise may want to be considered in treatment for ED symptoms
- Slowly decreasing an individual’s level of exercise rather than abruptly halting exercise altogether may prevent an increase in other ED behaviors