Protective Effects of Acute Exercise on Anxiety

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Background

Past literature demonstrates that exercise helps improve mental health, alleviate depression, and increase positive affect. 1, 2, 7, 8, 9. The positive qualities that are linked to exercise have lead researchers to investigate how exercise may affect health issues, such as anxiety. Studies have shown that exercise helps decrease anxiety in the general population and those with general anxiety disorder. 4, 6, 9, 13. Meditation and rest conditions in past studies have also proven to be an effective means in reducing anxiety. 1, 3, 5, 11. However, only one study has examined the protective effects of rest and exercise when emotional stimuli are presented after the state anxiety has been reduced. 12. This study further examines the finding that exercise has a more robust protective effect than rest on state anxiety.

Purpose

- To investigate if exercise has protective effects against state anxiety induced by unpleasant stimuli.
- Hypothesized that we would find similar results to the Smith (2013) study.

Research Question

- Compared to a rest condition, does an acute bout of exercise protect against state anxiety increasing due to unpleasant stimuli?

Results

**Demographics**

<table>
<thead>
<tr>
<th>Category</th>
<th>Unpleasant Stimuli</th>
<th>Neutral Stimuli</th>
</tr>
</thead>
<tbody>
<tr>
<td># of participants</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Gender</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Race</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td>20.7 (10.9)</td>
<td>24 (4.2)</td>
</tr>
<tr>
<td>7-day Physical</td>
<td>3.7 (3.4)</td>
<td>5.4 (3.6)</td>
</tr>
<tr>
<td>Activity</td>
<td>31.9 (41.1)</td>
<td>31.4 (21.2)</td>
</tr>
<tr>
<td>Trait Anxiety</td>
<td>34.7 (59)</td>
<td>39.4 (9.1)</td>
</tr>
</tbody>
</table>

**Anxiety Scores for Neutral Stimuli**

- Exercise: 35.5 ± 5.0
- Rest: 36.2 ± 3.3

**Anxiety Scores for Unpleasant Stimuli**

- Exercise: 34.3 ± 5.9
- Rest: 35.6 ± 5.5

- F(2,18)= 5.5, P=.013, n²=.381

Discussion/ Conclusion

- High internal validity for the unpleasant slideshows.
- Exercise did not have any protective effects against anxiety as compared to rest.
- Our findings were not similar to the (2013) study which maybe due to the smaller sample size & different stimuli.
- Findings are useful for the overall study & add to the literature of exercises protective effects against anxiety.

Limitations

- Small sample size.
- Participant knew condition beforehand.
- Anxiety measurement post exercise might show physiological discomfort.
- Participants had low anxiety scores.

Future Directions

- Continue collecting data.
- Take STAI longer after stimuli presentation.
- Measure EEG while viewing pictures.
- Sample pool of highly anxious individuals.

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References