Current evidence and use of physical activity in the treatment of mental illness: A literature review

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Outline

• 1. Background
• 2. Methodology
• 3. Results
• 4. Mechanisms
• 5. Further Research
• 6. Current Use
Background

• RCT in 1979 by Greist et. al investigated running program on clinically diagnosed depression
• They found same therapeutic benefit as psychotherapy
• Since then a number of studies have been published, along with systematic and literature reviews
Methodology

• Search terms “physical exercise” & “mental health”

• Filtered for:
  • 2011 to 2016
  • RCTs, Reviews

• Treatment populations must have been clinically diagnosed with mental illness

• Primarily neurological degenerative disorders were excluded

• Ancient eastern traditions such as Tai chi, Yoga and Qigong were excluded
Results (Summary of Research for Mental Illness Clusters)

• **Depression**
  • Moura et al. (2015)
    • 70% of studies showed a significant improvement in depressive symptoms.
  • Cooney et al. (2013)
    • A significant reduction of depressive symptoms (SMD = -0.62, CI [-0.81, -0.42])

• **Schizophrenia**
  • Vera-Garcia et al. (2015)
    • ↓ in Positive and Negative Syndrome Scale (PANSS)
  • Firth et al. (2015)
    • Psychiatric symptoms were significantly reduced, (SMD = 0.72, 95% CI [-1.14, -0.29]). Improved functioning, co-morbid disorders and neurocognition.

*** p<.001; **p<.01; *p<.05.
Results (Summary of Research for Mental Illness Clusters)

• Anxiety
  • Rebar et al. (2015)
    • ↓ in anxiety, (SMD = -0.38, 95% CI [-0.66, -0.11])

• ADHD
  • Silva et al. (2015)
    • 30% improvement in concentration after intense physical activity.

• PTSD
  • Rosenbaum et al. (2015)
    • Improvement in PTSD*, 95% CI [-0.63, -0.07].
    • Improvement in depressive symptoms*, 95% CI [-0.69, -0.05].

*** p<.001; **p<.01; *p<.05.
Results (Summary of Research for Population Clusters)

• Pregnant Women
  • Guszkowska et al. (2015)
    • ↓ in levels of severe depression and somatic symptoms*.

• Elderly
  • Reijneveld et al. (2003)
    • Improvement in mental health and mental wellbeing*, 0.38 SD, 95% CI [0.03, 0.73]. No improvements in physical wellbeing and activity.

• Adolescence
  • Rees & Sabia (2010)
    • ↑ in frequency of moderate/physical exercise associated with enhanced psychological wellbeing in adolescents. Effect decreases substantially after controlling for heterogeneity.

*p<.05.
Biological Mechanisms

- Neurotrophic Factors
  - BDNF, GDNF, IGF-1
  - Serum Serotonin, beta-endorphin
- Transient Hypofrontality
  - Activity of prefrontal cortex is associated with:
    - PTSD, Anxiety, Phobias, Depression, OCD
  - Brain redirects its resources and energy from prefrontal cortex to motor areas
  - DLPFC - VMPFC imbalance
Psychological Mechanisms

• Mihayl Csikszentmihalyi and the theory of Flow
  • Difficulty of activity must match existing skill
• Self-Efficacy
• Social Interaction
Further Research

• 1) Evidence shows only moderate effects for specific exercise regimens for specific illnesses
  • Evidence to optimize exercise parameters
    • Duration
    • Frequency
    • Intensity
    • Aerobic vs Anaerobic vs Sport
    • Group vs Individual
• 2) Compliance
• 3) Adverse Effects of Exercise
• 4) Qualitative Evaluation of Current Practices
Current Use in Clinical Practice

- Mental Health Intensive Care unit (MHICU) at Prince of Wales hospital in Randwick
  - Clinical exercise program and employed exercise physiologists
- Mental Health Service in South Eastern Sydney
  - Employed Exercise Physiologists
- Bondi Centre
  - Psychosis program
- The Heart Foundation in New South Wales
  - Physical activity as treatment for depression
- UK NICE guidelines
  - Part of treatment regimen for psychosis, schizophrenia, depression and bipolar
- 2008 Physical Activity Guidelines for Americans
  - Strong evidence for physical activity in reducing symptoms of depression in Adults
- European Union Physical Activity Guidelines
  - Physical Activity as preventative factor for depression
Thank You
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