Exercise and Post-Traumatic Stress Disorder

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Bondi fitness scheme turns the tide in treating mental illness
Australian 'Keeping the Body in Mind' programme improves fitness of UK mental health patients

Mark Gould
The Guardian, Tuesday 29 July 2014 23.59 AEST
Jump to comments (12)
Scandal of premature mortality

Fig. 2. Average age of death by year for the schizophrenia and general population over three decades with intentional self-harm excluded as cause of death.
South East Sydney Local Health District: Keeping the Body in Mind (KBIM) program
St John of God Hospital, Sydney
Inducing sedentary behaviour

**Figure 3.** Composite PHQ-9 scores over time for intervention group vs control group. Standard errors are included as the error bars. PHQ-9 = Patient Health Questionnaire-9.
Impact of physical inactivity

Replacing 30 mins sedentary behaviour:
• Light activity = 14% ↓ mortality risk
• MVPA = 50% ↓ mortality risk\(^1\)

Independently associated with ↓ cognitive performance in scz\(^2\)

↑ risk of anxiety\(^4\)

↑ CRP in people with psychosis\(^5\)

How Exercise Can Help Depression

By GRETCHEN REYNOLDS

November 16, 2016

Tom  Missouri  •  November 17, 2016
If I start exercising regularly, will Donald Trump go away? Because otherwise I think my depression will last for the next four years.

Leslie  Long Island  •  November 17, 2016
Often a hallmark of depression is to be unable to get up and go in the first place, so while exercise is a wonderful antidote, it is quite difficult to implement for many.

Independent Voter  Los Angeles  •  November 17, 2016
I've struggled with severe depression since my late teens and have been on various medications on and off for decades. I have found that the ONLY thing that consistently alleviates it is going to the gym and working out for an hour or two. It's quite amazing how the depression lifts. It may not go away entirely, but it certainly lessens and makes the day more bearable.
THE MIND-BODY PROBLEM

Get up.

No.
Physical health consequences of PTSD

Metabolic syndrome = 38.7% (RR=1.82)
Type 2 diabetes = 10% (RR=1.49)
Abdominal obesity 49.3%
Blood sugar level 36.1%
Triglycerides 45.9%
Low HDL cholesterol 46.4%
High blood pressure 76.9%

Higher rates of gastrointestinal, hepatic, cardiovascular, respiratory, and sleep disorders vs trauma exposed controls

Rosenbaum et al. 2015 Metabolism
Vancampfort et al. 2016 Psychosom Med
McLeay et al, 2017 MJA
Physical health consequences of PTSD

Fig. 1. The figure shows the results of the cross-lagged panel model. Primary and significant paths of interest are bolded. Correlations are represented via double-headed arrows and regressive paths via single-headed arrows. MetS, Metabolic syndrome; PTSD, post-traumatic stress disorder; Edu, educational attainment. *p < 0.05, **p < 0.01, ***p < 0.001.
Baseline PTSD symptom severity predicts ↑ in MetS severity

For every 10 PTSD symptoms endorsed, the odds of a subsequent MetS diagnosis increases by 56%
Editorial

Post-traumatic stress disorder is a systemic illness, not a mental disorder: is Cartesian dualism dead?

Alexander C McFarlane

Mind and body are intimately linked, in health and in disease

Descartes’ notion of dualism, which argues for the distinction between the mind and the body,1 has underpinned and subtly driven much of the confused thinking in medicine about psychiatric disorders. A substantial and still accumulating body of evidence about the extensive psychophysiological and somatic comorbidities of post-traumatic stress disorder (PTSD),2,3 however, now challenges this notion, suggesting the need to reconceptualise PTSD as a systemic disorder rather than one confined to the mind. The somatic pathologies range from metabolic syndrome and related cardiovascular conditions to autoimmune diseases, including rheumatoid arthritis.2,4 Such disorders have been associated with a range of quantifiable abnormalities, including inflammatory cascades, altered psychophysiological reactivity and neuroendocrine function, and shortened telomere lengths.5

significant degree by the somatic pathology, pain and disability that is driven by PTSD. The refining of the stressor criterion for PTSD in the fifth edition of the Diagnostic and statistical manual of...
Modifiable risk factors

Mental health symptoms

Talk-based
Medication

Mental health treatment

Fitness (VOL)

Lifestyle
- Sedentary behavior
- Diet
- Alcohol/substance use
- Sleep

Cardiovascular risk
- Obesity
- Diabetes
- Myocardial infarction
- Stroke

Weight
Breaking down the silos of treatment for post-traumatic stress disorder: integrating mind and body

Scalable interventions for PTSD that target mental health and comorbid cardiometabolic health are urgently required

There is increasing awareness of post-traumatic stress disorder (PTSD) among the general community, particularly in relation to the high incidence of the condition and its impact on high-risk populations, such as defence force veterans and emergency service first-responders. PTSD is a highly prevalent and costly condition associated with high rates of comorbid mental disorders, including anxiety and depression, and substance use.

There is growing interest in second-line or adjunctive treatments for PTSD. For example, a recently published randomised controlled trial established the efficacy of mindfulness-based stress reduction (an intervention that teaches individuals to attend to the present moment in a non-judgemental, accepting way) for treating PTSD among veterans.\(^1\) Participants were randomly assigned to receive either 8 weeks of mindfulness-based stress reduction therapy, delivered during weekly 2.5 hour group sessions, or an active control condition consisting...
Figure 3. Age-adjusted predicted physical activity trajectory over time by Trauma/PTSD group, before and after trauma/PTSD onset, among women reporting trauma or PTSD onset during follow-up.

Note: Includes women with trauma/PTSD onset during follow-up, between 1989 and 2009 (n=15,353). Physical activity is calculated in hours per week and standardized using z-score. Predicted values of physical activity are plotted. Zero marks the year of trauma/PTSD onset.

PTSD, posttraumatic stress disorder.
• N=4; yoga and structured exercise (n=200, mean age 34–52 years)
• PA significantly more effective compared to control conditions at decreasing PTSD and depressive symptoms (Hedge’s g -0.35, 95% CI: 0.63 to 0.07, p=0.02)
• Results suggest that PA may be a useful adjunct to usual care to improve the health of people with PTSD

Rosenbaum et al 2016 Psychiatry Research
Exercise augmentation vs. usual care

- N=81 inpatients randomised to either usual care, or exercise plus usual care
  - Individualized program based on ACSM guidelines + pedometer (10,000 steps)
  - One supervised and 2 unsupervised sessions/week for 12 weeks
- Blinded assessments at baseline and 12-weeks
- Intention-to-treat, linear regression
- Primary outcome measure: PCL-C
Flow of participants through the trial

Assessed for eligibility (n=314)
- Excluded (n=233)
  - Not meeting inclusion criteria (n=2)
  - Declined to participate (n=228)
  - Pregnant (n=3)

Randomised (n=81)
- Usual care (n=42)
  - Lost to follow-up (n=14)
  - Analysed (n=28)
- Exercise + usual care (n=39)
  - Lost to follow-up (n=9)
  - Analysed (n=30)
Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>Exercise augmentation (n=39)</th>
<th>Usual care (n=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years (SD)</td>
<td>47.07 (11.28)</td>
<td>52.0 (12.64)</td>
</tr>
<tr>
<td>Sex n(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>36 (92%)</td>
<td>32 (76)</td>
</tr>
<tr>
<td>Female</td>
<td>3 (8%)</td>
<td>10 (24%)</td>
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<tr>
<td>PCL-C (17-85)</td>
<td>64.5 (11.12)</td>
<td>64.7 (12.39)</td>
</tr>
<tr>
<td>DASS (0-126)</td>
<td>75.9 (30.75)</td>
<td>73.35 (32.93)</td>
</tr>
<tr>
<td>PSQIA</td>
<td>11.72 (4.54)</td>
<td>12.04 (4.90)</td>
</tr>
<tr>
<td>Six-minute walk distance (m)</td>
<td>542 (151)</td>
<td>549 (140)</td>
</tr>
<tr>
<td>Physical activity (mins)</td>
<td>530 (654)</td>
<td>576 (663)</td>
</tr>
</tbody>
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*At baseline, PTSD symptoms negatively associated with time spent walking (r = −0.39, p < 0.001), explained 13% of the variance in walking time*
Post Traumatic Stress Disorder - Checklist (PCL)

Range of scale = 17-85
Difference when exercise added to usual care= 5.39 points

Baseline (n=78)
3 month (n=58)

Depression Anxiety and Stress Scale (DASS)

Range = 0-126
Difference when exercise added to usual care = 17.44 points

Anthropometry

MD = 1.7kg, 95% CI -0.18 to 3.62, p=0.08

MD = 3.6cm, 95% CI 0.17 to 6.95, p=0.04
Physical activity

MD = 261 mins, 95% CI 111 to 412, p=0.001

MD = -209 mins, 95% CI -419 to 1.4, p=0.05
New South Wales Police Force
ESSA is a professional organisation committed to establishing, promoting and defending the career paths of tertiary trained exercise and sports science practitioners.

Comparable to ACSM - AEP (accredited exercise physiologist) = ACSM RCEP.
Accredited Exercise Physiologist (AEP)

- Accreditation only offered by ESSA
- Recognised allied health professionals from 2006
- Recognised by Medicare, Dept of Veterans’ Affairs (DVA), Workers Compensation Agencies, Private Health Insurers (PHI)
Accredited Exercise Physiologist (AEP)
Link in Australian Healthcare

• Chronic Disease Management Medicare Items
  – Rebates are available for patients with chronic and complex care needs
  – 5 funded session per year by an allied health professional

• Type 2 Diabetes Group Services
  – Rebates are available for patients with diagnosed T2D
  – 8 funded session per year by an Accredited Exercise Physiologist, Dietitian or Credentialed Diabetes Educator
Medicare Data

- Chronic disease manag’t
- Type 2 diabetes assessment
- Type 2 diabetes sessions
- ATSI
- Total

Year: 2006 to 2015
Medicare utilisation

- Nearly 85% of all Australians visit a GP each year and more than a 1/3 visit their GP >6 times a year

- **0.94%** of Australian with the prevalence of overweight-obesity were referred to an AEP session

- **0.77%** of Australian with prevalence of type 2 diabetes were referred to an AEP for an exercise assessment

- **0.08%** of ATSI were referred to an AEP session

Cheema et al. Sports Med, 44:869-877
Consensus statement on the role of Accredited Exercise Physiologists within the treatment of mental disorders: a guide for mental health professionals

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Changing culture and practice
Implementing evidence-based physical activity interventions for people with mental illness: an Australian perspective

Embedding exercise interventions as routine mental health care: implementation strategies in residential, inpatient and community settings
Implementation in action: how Australian Exercise Physiologists approach exercise prescription for people with mental illness

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Abstract

Background: Accredited Exercise Physiologists (AEPs) are trained to deliver exercise and physical activity interventions for people with chronic and complex health conditions including those with mental illness. However, their views on exercise for mental illness, their exercise prescription practices, and need for further training are unknown.

Aims: To examine the way in which Australian AEPs prescribe exercise for people with mental illness.

Methods: Eighty-one AEPs (33.3 ± 10.4 years) completed an online version of the Exercise in Mental Illness Questionnaire. Findings are reported using descriptive statistics.

Results: AEPs report a high level of knowledge and confidence in prescribing exercise for people with mental illness. AEPs rate exercise to be at least of equal value to many established treatments for mental illness, and frequently prescribe exercise based on current best-practice principles. A need for additional training was identified. The response rate was low (2.4%) making generalisations from the findings difficult.

Conclusions: Exercise prescription practices utilised by AEPs are consistent with current best-practice guidelines and there is frequent consultation with consumers to individualise exercise based on their preferences and available resources. Further training is deemed important.

Keywords

implementation, exercise, mental illness, physiologist, training

History

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JOINT POSITION STATEMENT

ADDRESSING THE PHYSICAL HEALTH OF PEOPLE WITH MENTAL ILLNESS

Mental health and physical health are fundamentally connected. A proportion of individuals experiencing mental illness will also experience poor physical health, and poor physical health can in turn be associated with poor mental health. Given the well-known relationship between physical and mental health, an increased focus on holistic multidisciplinary treatment can enhance quality of life, and improve the physical and mental health outcomes for individuals living with a mental health disorder.

The high rates of physical illness including diabetes, respiratory illness, cardiovascular disease and cancer among people with serious mental illness are well documented. For example, people with serious mental illness are two to three times more likely to suffer from diabetes and the rate of cardiovascular disease is almost four times that of the general population\[^1\, ^2\]. Depression is considered an independent risk factor for coronary heart disease, but can also affect the recovery of people with coronary heart disease and increase their risk of further heart problems\[^3\]. Thus, people with chronic health conditions are themselves more likely to experience a mental illness\[^4\].

The high level of comorbidity with chronic disease contributes to poor quality of life and is acknowledged as one of the major reasons for the high mortality and morbidity rates among people with serious mental illness. For example, the relative risk of death is estimated to be 2.2 times higher in people with mental disorders compared to the general population\[^5\], and this is primarily due to chronic physical rather than mental illness\[^6\].

The poor physical health of many people living with mental illness is due, in part, to the side effects of medication, a range of lifestyle factors, and inadequate management of chronic disease. Importantly, lifestyle factors such as poor diet, low levels of physical activity, smoking, and substance misuse are modifiable and offer a way for health professionals to assist people living with mental illness. The provision of multi-disciplinary care to address modifiable lifestyle factors is therefore an important component of holistic care for many people with mental illness and can improve both their physical and mental health outcomes.

POSITION STATEMENT

International Position Statement: The Role Of Physical Activity In Closing The Life Expectancy Gap of People With Mental Illness

The below organisations are committed to working towards a global strategy to achieve a 50% reduction in the life expectancy gap of people experiencing mental illness by 2032.
Integrating exercise as a routine component of care

Closing the gap

Knowledge

Infrastructure

Culture
Future? Exercise (and diet therapy) as a routine part of mental health treatment
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