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# Editorial: Extending the evidence for if and how physical activity can support positive changes among substance users

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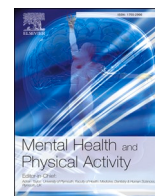
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# Mental Health and Physical Activity

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## Editorial

### Editorial: Extending the evidence for if and how physical activity can support positive changes among substance users



Interest in the effects of engaging in physical activity to prevent and manage addictions has been growing for over 20 years. For example, a Cochrane systematic review on the effects of exercise interventions on smoking cessation was first published in 2008 (Ussher et al., 2008), and twice updated (Ussher et al., 2019; Ussher et al., 2014) and included 13, 20 and 24 randomised trials, respectively. The focus of these reviews has remained on the effects of exercise alone or in augmenting smoking cessation interventions for smokers wishing to quit. The risk of bias in the evidence is generally high, with many underpowered studies included, sub-optimal outcome measurement and other methodological issues. Over this time period, interventions have become less focused on structured exercise and more encompassing of using physical activity for behavioural management on a daily basis, drawing on research with a scope far beyond the restraints of a randomised controlled trial. Piecing together research set in different contexts, with different aims and questions, is not an easy challenge, but an important one to help our audience to understand how best to design effective interventions to support the end users of our research.

Physical activity has also been used in various settings to support the prevention, harm reduction and treatment of alcohol and other substance use disorders; each generating different research questions and methods. Recent reviews (e.g., Thompson et al., 2020) have shown that rigorous evidence for the efficacy and effectiveness of physical activity interventions is limited but there is a growing understanding of how exercise may have benefits and how much is required to have acute and chronic effects on related measures (Horrell et al., 2020). In the review by Thompson et al. (2020) only 15 RCTs (with 10 in the context of treatment) were identified across 32 reviewed studies concerned with prevention (5 studies), reduction (8 studies) and treatment (19 studies). There is also growing understanding of how best to support individuals in becoming more physically active to help manage substance use but more is needed. A review by Horrell et al. (2020) identified 15 qualitative and 5 mixed-methods studies, of which 19 were embedded within the context of treatment. We were disappointed that we received no submissions for this Virtual Special Issue on the costs and cost-effectiveness of relevant physical activity and exercise interventions, but it wasn't surprising given the virtual absence on health economic studies on physical activity interventions in the prevention, and treatment of mental health conditions more broadly.

This Virtual Special Issue (VSI) has brought together current rigorous reviews of literature and new empirical studies (using rigorous quantitative and qualitative methods) which focus on the role of physical activity to support change in alcohol and other substance use (excluding smoking) to help inform policy and practice. A VSI allows an easier

process to bring collections of articles together with greater visibility and access compared with a Special Issue as a single printed issue of a journal. The VSI includes 9 articles previously published in MENPA since 2017 (Bichler et al., 2017; Blevins et al., 2017; Colledge et al., 2018; Horrell et al., 2020; Taylor et al., 2020; Thompson et al., 2020; Tull et al., 2018; Vancampfort et al., 2017; Zhao et al., 2020), and a further 5 articles published in Volume 21 (2021) (Abrantes et al., 2021; Ellingsen et al., 2021; Fegan et al., 2021; Rethorst et al., 2021; and; Chen et al., 2021).

The framework used in the review in this VSI by Thompson et al. (2020; see Figure 1) helps to prioritise what questions may be important to consider for intervention development, such as dose of exercise, mechanisms by which physical activity may favourably influence addictions, the dose of intervention or support provided by whom and how, and the behaviour change processes by which someone becomes more physically active. Changes in cognitions (e.g., self-identity and confidence) and shifts in information processing following physical activity may be critical in acutely and chronically managing cravings for example. Full analysis of mediation effects, particularly within trials is likely to help unlock our understanding of mechanisms by which physical activity influences alcohol and other substance misuse outcomes, but also the burgeoning literature on the psychological (e.g., changes in mood and affect) and biological (e.g., dopaminergic pathway) mediators of the effect of exercise in non-substance using samples may also help inform future directions in this area.

There is here a need for a greater focus on who benefits (i.e., moderator effects). In a unique paper (Rethorst et al., 2021 – this issue) six moderator variables seemed to influence exercise treatment effects. While reviewers raised concern about the ad hoc approach to identifying statistically significant moderators in the STRIDE trial, the paper provides a valuable starting point to develop a theory driven list of moderators. Other research recently published in MENPA on the genetics of physical activity and mental health more broadly (de Gues, 2021) may also help to stimulate interest in our understanding of moderator variables that differentiate between those who do and don't respond to physical activity interventions for those with addictions. There is also a need to identify key moderators of who responds to respective interventions designed to support increases in physical activity among substance mis-use to better guide our interventions.

We hope that this collection substantially extends the related literature as a valuable resource for researchers, practitioners, and policy makers, and encourages further related submissions to MENPA.

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