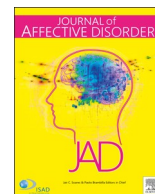




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Short communication

Standing up for health – improving mental wellbeing during COVID-19 isolation by reducing sedentary behaviour

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ARTICLE INFO

Keywords:

Lockdown
Low mood
Depression
Physical activity

ABSTRACT

The global COVID-19 outbreak and its management are disrupting ways of life and increasing the risk of poor mental and physical health for many. The restrictions on movement have made some forms of physical activity harder to achieve and increased the chances of more sedentary behaviour. Independent of exercise taken, sedentary behaviour can have a negative impact upon mental health, especially by lowering mood. We suggest evidence-based ways of reducing sedentary behaviour with commentary on how they may be adapted for life at home. These include: ways to use external cues, moving more frequently, maximising movement whilst waiting, reallocating time, workstation alternatives, restructuring the physical environment and recruiting help from others. At a time in which our mental and physical health needs are more critical than ever, the relationship between sedentary behaviour and low mood is of particular importance. The current situation represents a good opportunity for us all to change habits to implement a less sedentary lifestyle, for now and the future. This can start with changes we can make at home during lockdown.

The global COVID-19 outbreak is necessitating enormous changes to the lifestyles of people across the world. Strategies to manage the pandemic spread of the virus have imposed restrictions on movement, social interaction and work. Together with anxiety about catching the virus, financial concerns and the loss of family members, friends or colleagues, this unprecedented situation is likely to have a dramatic effect on the mental wellbeing of millions, including those with and without pre-existing mental health problems.

A further consequence of “lockdown” is the limitations to physical activity. An increasing number of resources are being made available online for taking exercise of different kinds (see Public Health England: Active at home (<https://www.barnsley.gov.uk/media/14501/physical-active-at-home-booklet-21-may-electronic.pdf>), We are Undefeatable: ways to move (<https://weareundefeatable.co.uk/ways-to-move/>) and MIND: Staying active at home (<https://www.mind.org.uk/about-us/our-policy-work/sport-physical-activity-and-mental-health/get-active-feel-good/staying-active-at-home/>)). The benefits of exercise to mental (and physical) wellbeing are well-known (Ashdown-Franks et al., 2020; McNally, 2015; Schuch et al., 2018; Stubbs et al., 2017). However, what is less well understood is the impact of sedentary behaviour.

Sedentary behaviour (SB) is broadly defined as any waking behaviour characterised by an energy expenditure of ≤ 1.5 metabolic equivalents while in a sitting, lying or reclining posture, though there is

agreement that the effects of sedentary behaviour may be dependant on more subtle processes such as bouts of SB and breaks from it (Tremblay et al., 2017). Time spent in SB has been associated with a range of adverse physical health outcomes including obesity, cardiovascular disease, cancer and type II diabetes, independently of time achieved being physically active (Biswas et al., 2015; Wilmore et al., 2012). There is also emerging evidence for the relationship between sedentary behaviour and worse mental health.

The majority of studies on the association between sedentary behaviour and mental health are observational, highlighting an association between depression and sedentary behaviour (Zhai et al., 2015) and evidence suggests that this is bidirectional (Smith et al., 2018). In one of the few experimental studies, enforcing sedentary behaviour led to mood disturbance, independent of exercise taken (Endrighi et al., 2016). In fact, a randomized controlled trial demonstrated that imposing sedentary behaviour can negatively impact upon mood and increase depressive symptoms in as few as 7 days (Edwards and Loprinzi, 2016).

Research is emerging indicating that the type of sedentary behaviour being performed is also relevant, with mentally passive activities, for example watching television, being associated more strongly with low mood than mentally active activities such as working on a computer or doing a crossword puzzle (Hallgren et al., 2018).

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Received 20 April 2020; Received in revised form 27 July 2020; Accepted 29 July 2020

Available online 12 August 2020

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Sedentary behaviour is therefore a significant potential factor in mental health deterioration, especially with regards to mood. Through Covid-19 lockdown we are experiencing a time in which sedentary behaviour is likely to increase through not travelling to work, having facilities (for example the kitchen) closer to hand than usual, and leisure activities becoming more sedentary (Tison et al., 2020). Furthermore, we are anticipating the emergence of mental health problems or exacerbation of pre-existing conditions due to the pandemic itself (Holmes et al., 2020; Pfefferbaum and North, 2020; Varatharaj et al., 2020; Yao et al., 2020). The existence of either of these changes would be of concern enough, but their relationship may be synergistic, since increased sedentary behaviour is likely to exaggerate mood problems, establishing a vicious cycle of declining mental health.

In order to combat this we present evidence-based suggestions for how everyone can reduce sedentary time during this period of social distancing and isolation which may be beneficial not only for the lockdown, but also for our future wellbeing.

1. External cuing

Prolonged sedentary behaviour should be interrupted regularly. This can be prompted by external cues (Greenwood-Hickman et al., 2016), such as advert breaks when watching TV or the use of alarms. Various apps exist which purport to maximise time efficiency by setting out periods for work with breaks in between (for example the Pomodoro technique, <https://francescocirillo.com/pages/pomodoro-technique>) in which movement can occur. Many wearable devices (for example Fitbit activity trackers, Apple smart watches) now include a reminder to move when the wearer has been inactive for a long period of time. Additionally, time limits can be set on the use of technology devices as a stimulus to get away from the screen and move. Mobile and wearable technology devices have been found to be effective in reducing sedentary behaviour (Stephenson et al., 2017).

2. Moving more often

Encouragement should be given to conduct work and leisure activities whilst moving wherever possible. For example, listening to an audiobook could be achieved whilst moving around the room or cleaning the house and work phone calls could be conducted whilst moving gently. ‘Walk and talk’ meetings and standing meetings have been found to reduce sedentary behaviour in people with traditional office-based jobs, and increase productivity, creativity and wellbeing of participants (Parry et al., 2013).

3. Moving during routine times of waiting

Routine tasks at home can often involve an element of waiting, for example waiting for the kettle to boil, food to cook or while washing our hands for those 20 seconds recommended by public health entities. These frequent events throughout the day could act as useful reminders to move, creating more active waiting. For example, gentle movement such as stretches could be performed or more demanding activity such as squat or calf raise exercises. Having frequent routine events associated with movement will make habit formation easier to achieve (Greenwood-Hickman et al., 2016).

4. Reallocating time

Previous literature has demonstrated the importance of both increased PA and decreased SB and therefore it could be a beneficial strategy to consider how we might reallocate our time (Prince et al., 2014). Identifying specific times during the day that are more sedentary and replacing even 10 minutes of that time with light physical activity could have a significant impact. Any movement is better than nothing, and research has shown that even small bursts of up to 10 minutes of PA

can impart important health benefits (Loprinzi and Cardinal, 2013). Even if movement is not increased, replacing periods of mentally passive sedentary behaviours with more mentally active ones is also likely to have a beneficial effect on mood (Hallgren et al., 2019).

5. Workstation alternatives

There has been emerging evidence in recent years into workstation alternatives for increasing energy expenditure (Thorp et al., 2016). Sit-stand workstation set-ups and continuous standing desks have been shown to increase overall energy expenditure, and heart rate (Gibbs et al., 2017). If at all possible people should therefore explore any opportunities they may have at home to create standing workstations and aim to spend at least 4 hours of their workday in the standing position (Thorp et al., 2016).

6. Restructuring the physical environment

Restructuring the physical environment is a commonly used socio-ecological approach to promote behaviour change (Coffeng et al., 2014). Changing the surrounding environment at home during this time of isolation using exercise equipment ‘stations’ in areas where one is normally sedentary, could potentially provide visual cues and lead to activity breaks during periods of SB.

7. Recruiting help

Changing habits can be more interesting and fun if other people in the household are also making the change. Sharing times of movement with others in the household or by connecting virtually with other people can provide reminders to move and also provide motivation to do so. Social support has been shown to be beneficial for reducing SB (Tam-Seto et al., 2016), and will independently help to promote good mental health.

Conclusion

Over two thousand years ago the philosopher Plato recognised that “lack of activity destroys the good condition of every human being while movement and methodical physical exercise save it and preserve it”. As lifestyles are being disrupted and people are experiencing more challenges to their mental health, increasing or maintaining movement is crucial to help prevent deterioration in mental health and to relieve existing symptoms. Sedentary behaviour is an often neglected, yet critically important part of addressing activity. These techniques for reducing sedentary behaviour can be adopted during lockdown for immediate impact but also to build new habits for beneficial effects in the future.

Contributors

Rowan Diamond conceived the article; Rowan Diamond and Erin Byrd drafted the text. Both authors were involved in text revisions and approved the final draft.

Role of the funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations of Competing Interest

None.

Acknowledgements

No acknowledgements.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.jad.2020.07.137](https://doi.org/10.1016/j.jad.2020.07.137).

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