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13A: PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR

In the UK Physical Activity Guidelines of 2011,[1] encouragement is given for every age group to *"minimize the amount of time spent being sedentary (sitting) for extended periods."*

What is the basis for this?

Adults and children increasingly spend time sitting: at a desk or laptop, driving, watching TV or DVD's, playing computer games or social networking. Occupations have changed, from being physical working to office working with ever increasing hours working at a computer.

Evidence shows that prolonged sitting and a lack of whole-body muscle movements are associated with obesity, metabolic syndrome, type 2 diabetes, cardiovascular disease, cancer and total mortality **which are usually independent of daily moderate to vigorous intensity physical activity (MVPA)**.[2 - 9] In particular, TV viewing time is implicated in obesity, with the concurrence of snacking on sweet or fatty foods, low levels of physical activity and inadequate sleep.[10-12]

It has also been observed that because TV-viewing is usually after dinner - or with dinner in front of the TV, this prolonged postprandial sitting may be particularly detrimental for glucose and lipid metabolism.[13] Food advertising on TV is also likely to affect eating behaviour.[14]

It has been thought that this sedentary time is likely to be **in addition** to the risks associated with insufficient MVPA. An Australian study estimated the extent to which TV viewing time reduced life expectancy. The research compared people who watched no TV with those who spend a lifetime average of 6 hrs viewing a day and found the latter were predicted to live 4.8 years less. The authors concluded that *'TV viewing time may be associated with a loss of life that is comparable to other major risk factors such as physical inactivity and obesity'*[15]

With the strong evidence of the link between sedentary time and poor cardiometabolic health, this may be a more important indicator of poor health than MVPA levels.[16] Thus it may be more effective in the prevention of type 2 diabetes to target reducing sedentary time rather than solely focusing on promoting MVPA.

Until recently, it has also been unclear whether sufficient levels of activity can modify by weakening or removing the damaging effect of prolonged sitting as described above.[17, 18] A large meta-analysis of data from more than 1 million individuals,[19] has explored the associations of sedentary behaviour and physical activity with all-cause mortality. Results suggest that across sitting time categories, all-cause mortality was considerably reduced with higher levels of physical activity and eliminated in those who were the most active (60-75 min or more per day of moderate activity).[19] This level of activity is beyond the basic level of the World Health Organization and Chief Medical Officers physical activity guidelines of 30 minutes a day (for five days a week) or 150 minutes a week of moderate intensity. For these individuals, there were smaller increases in mortality risk associated with sitting time seen compared with the least active group (about 5 mins/day), even though the risks were not completely eliminated.[19]

This study also found that, in comparison with other risk factors for health, the increased mortality risk (58%) in those who sit for more than 8 hours/day and are also the least active, is similar to that of smoking [20] and obesity.[21]

One would expect similar results when comparing physical activity and daily sitting times and TV-viewing times with all-cause mortality. However, studies have suggested a greater effect of TV-viewing on all-cause mortality,[19, 22] and although high level activity reduces considerably the risks associated from TV-viewing, it fails to entirely remove this increased risk.[19]

What can we do practically in the workplace and at home to change this behaviour?

One simple way is to introduce the concept of **NEAT (Non Exercise Activity Thermogenesis)**, a term that refers to daily physical activities that are not perceived as exercise or training. By promoting more standing, less sitting and more moving we now know that these activities, however small, are better than sitting; these small activities accumulate and count towards our daily energy expenditure as well as reduce the sedentary risk factors.

Examples:

- Promote and support standing meetings
- Get up from the desk to walk across the office to speak to a colleague rather than phone or email
- Use a standing desk to work from
- Read your ipad/tablet on top of the filing cabinet
- Stand whilst speaking on the phone
- Walk and talk if using a cordless phone
- Use manual buttons on televisions rather than a remote if available
- Get up and move during commercial breaks on the TV
- Park the car on the far side of a car park e.g. at the supermarket
- Using the stairs instead of the lift or escalator

Summary

As Health and Social Care Professionals, we may be able to do little to alter the social changes that have occurred over the past few decades. However, by understanding the health problems which have developed from this, we can do more by advising and guiding patients to think about their lifestyle and to address their health risks.

Changing patterns of behaviour is not easy, but if small changes are made and this is spread over large populations, then the effect will be significant. Increasing any physical activity is essential to mitigate the associated risks for inactivity.

We welcome feedback on these fact sheets or for further information contact:
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Version 4 – July 2019
Planned Review Date: December 2021

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Key message:

Physical activity is an essential part of prevention and management of sedentary behaviour. Changing behaviour is difficult.

Consider:

Auditing your sedentary patients to see if they have been offered any physical activity advice.

Benefits to health professionals:

Reduced appointments and pain relief prescriptions.

Signpost: The Chartered Society of Physiotherapy has a free pdf download for desk workers, of exercises to help at your desk or even use yourself!

Useful resource: A fun 4-minute cartoon video on You Tube entitled – 'Let's Make our Day Harder' may help shift sedentary behaviour and be motivational for some patients.

Extracted from the Wales HEIW CPD module on physical activity Motivate2Move. Now part of the RCGP Clinical Priority on physical activity and lifestyle

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