Tackling physical inactivity and a sedentary lifestyle: Two distinct approaches

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Being physically inactive and sedentary are two distinct issues that affect older adults. However, each problem necessitates a unique set of solutions; Professor Isabelle J. Dionne from the Université de Sherbrooke tells us more

Sedentary behavior and the inability to attain physical activity recommendations are two different concepts, largely confounded. In turn, there is a misconception of their respective impact on healthy aging and how they can be counteracted. As a result, physical activity and clinical guidelines may miss the target.

Am I sedentary or inactive? Maybe both!

After the early 20th-century manufacturing era, the world of work and leisure has unfortunately favored the adoption of sedentary behaviors, i.e., activities generating a low energy expenditure in a sitting or lying position. Unfortunately, older adults, because of the decline of physical capacity but also based on cultural conceptions of aging, are high adopters of sedentary behaviors, such as reading, using digital devices, car commuting, or seated leisure activities (television, board games, etc.).

A sedentary lifestyle is often confused with physical inactivity, that is, the failure to meet the WHO physical activity guidelines of 150 minutes weekly of moderate-to-vigorous intensity exercise. Thus, this means that a person considered active, i.e., who meets the physical activity guidelines, can concurrently be sedentary by accumulating an excess of sedentary behaviors each day. The best example is the older adult who participates in 45 minutes of physical activity daily (walking, group lessons) but then spends the rest of the day reading and chatting (in person or numerically) and watches television in the evening. To better understand the impacts of this behavior, research studies have to be selected carefully since sedentary behavior is arduous to measure objectively (quality tools are limited), and it has been widely confused in studies of physical inactivity.

The health impacts of sedentary behavior and physical inactivity

The adoption of prolonged sedentary behaviors leads to numerous harmful effects at the physiological level, such as insulin resistance, musculoskeletal alterations (decrease in mass and muscle strength as well as bone mineral density), a decrease in cardiorespiratory and vascular health, an increase in adipose tissue and blood lipid concentrations, as well as inflammation. The impact on an individual’s health puts them at increased risk of cardiovascular disease and several chronic diseases such as type 2

diabetes, dyslipidemia, and hypertension. These chronic conditions are highly prevalent in older adults, and it is difficult to discriminate between the effect of age and sedentary behaviors.

It is thus hardly surprising that increasing sedentary time is associated with a premature risk of mortality at any age. For example, a study has shown that from seven hours of daily sedentary time in adults, the risk of mortality increases by 2 to 5% per additional hour. Another study indicates that adults who are sedentary >8 hours per day are 27% more likely to die prematurely than those who accumulate <4 hours. In addition, they remain at risk despite practicing 60 minutes per day of physical activity at the recommended intensity. Hence, active or not, sitting for too long is no small thing!

The Economic impacts of physical inactivity and sedentary behaviors

The socioeconomic impact of physical inactivity is well documented; the WHO reported in 2013 that it generated direct healthcare costs of more than $40bn in addition to $10bn in lost productivity. However, studies on the economic impacts of a sedentary lifestyle are limited in number. A study carried out in the United Kingdom in 2016 estimated more than $1,000bn in healthcare costs associated with a sedentary lifestyle, where type 2 diabetes and cardiovascular diseases were responsible for more than 90% of these expenses. Hence, it is paramount to promote a behavior change to lessen this health and financial burden.

How to counteract sedentary behavior: the solution may not be what we think

Reducing sitting time positively influences muscle mass and function and markers of cardiometabolic health. One would be tempted to think that increasing the practice of moderate to vigorous intensity physical activity would have the effect of reducing sedentary time. However, increasing physical activity, which is highly recommended, does not automatically reduce sedentary time and may affect other activities, such as an increase in sleep time or a decrease in light activities. According to a literature review, behavior change strategies specifically targeting the reduction of sedentary behaviors (individually or in a support group) are the most promising. Still, they require many resources and cannot be applied to a population level.

Breaking long sedentary bouts is one of the most studied strategies for counteracting the functional and metabolic effects of sedentary behavior. Some studies observed that overweight adult ‘breakers’ displayed lower blood sugar and blood pressure compared to ‘non-breakers.’ A meta-analysis indicates that breaking sedentary behaviors with light-intensity physical activity improves glycemic control, which is highly relevant, for instance, in diabetic older adults. Even more, a well-controlled study showed that older adults benefited from breaking every half hour (three minutes of light walking) for cognition health.

Thus, aside from aiming to reduce the total time, breaking sedentary bouts would be of high value and may be more accessible for numerous older adults. At this point, more research is needed to determine the best intervention to efficiently promote sedentary breaks and their exact benefits on physical function in older adults. However, scientific evidence clearly supports the need for further investigation to reduce the harmful impact of sedentary behaviors on the health and physical function of the older population. But above all, breaking for three minutes every half hour is an easy message to promote, and it can only do good!

Physical inactivity and a sedentary lifestyle are two distinct concepts that require distinct interventions. On the one hand, we must maintain messages that promote regular physical activity, which must be paired with messages aimed at reducing or breaking daily sedentary behaviors. In a time where levels of physical activity remain insufficient, and with the addition of a new message, it is imperative to guide older adults towards a healthy lifestyle by providing relevant professional expertise.

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