'I'm active enough in my job.' Why is occupational physical activity not enough?

Rilind Shala

Physical activity (PA) is one of the most important factors to determine health outcomes. It is well established that for many musculoskeletal problems, PA and exercise are the way to better health. PA offers a wide range of physical and psychological benefits which may vary based on intensity, frequency and activity type.

Most of the international guidelines recommend that an adult takes part in at least 150 min/week of moderate-intensity PA.[1] PA as defined by the WHO is any bodily movement produced by skeletal muscles that requires energy expenditure. Leisure-time physical activity (LTPA) is a term used to describe the activity persons do in their free time. Occupational physical activity (OPA) is the type of activity that is associated with a job and is usually within the timeframe of how long a person works, such as an 8-hour work shift. One would think that if a person is active 8 hours a day at the job (ie, farming, cleaning, doing construction work, elderly care, etc), then that person should be in good condition health-wise. *But what does the evidence say?*

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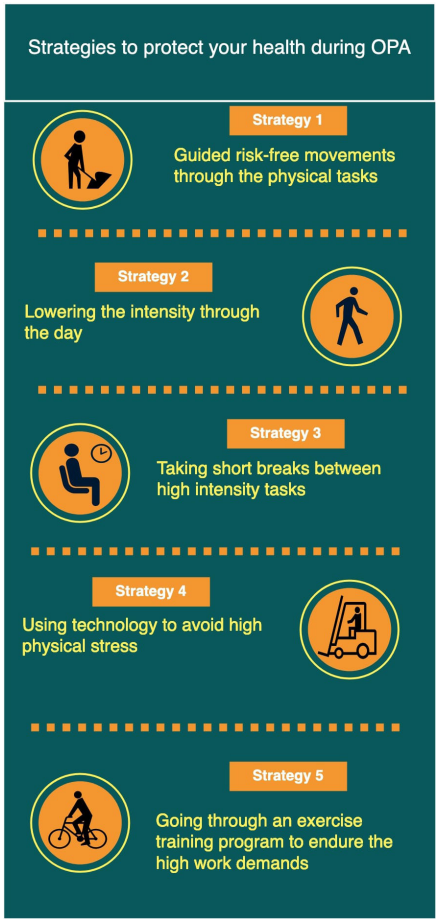

Figure 1 Strategies to protect your health during occupational physical activity (OPA).

HEALTH RISKS AND OPA

Many systematic reviews and randomised controlled trials report that OPA increases the risk for all-cause mortality, cardiovascular diseases (CVDs), overuse injuries and some carcinomas.[2–5]

Holtermann *et al* showed that high OPA increases the risk for all-cause mortality among male workers. Among the male labourers with the highest OPA, the risk of all-cause death almost doubled, indicating that OPA may have a considerable impact on the life span of male labourers.[2] OPA has also been identified as a risk factor for developing knee osteoarthritis, possibly due to overuse of the joint.[3] McWilliams *et al* showed that the risk of knee osteoarthritis greatly increases in persons with the most OPA.[3] Some studies also report fatigue and musculoskeletal symptoms following OPA. Sobti *et al* reported that the 1-month prevalence of hip pain or stiffness in men was 19.9%, and 50% of women reported knee pain or stiffness.[4] Thus, studies generally suggest OPA comes with some risks.

WHAT ARE THE POTENTIAL FACTORS THAT INFLUENCE THE RISKS OF OPA?

Occupational activities include heavy lifting and construction work. Heavy contractions of skeletal muscles increase blood pressure, and increased blood pressure is a risk for CVD.[5] Another factor that could be influential is the high intensity of OPA which could lead to overuse injuries. Mechanical load has been proposed as a key component to cause overuse occupational injuries. Heavy load, handling tools and repetitive movements all have an influence on the tendon and may lead to tendinopathies.[6] Thus, taking short breaks between tasks can be vital in reducing overuse injuries, as proposed in figure 1.

Differences in intensity between OPA and LTPA could also be explained by the demands at work that require a certain level of productivity and pace to meet the work goals. OPA can also include less heavy lifting and lower intensity work such as housekeeping and childcare.

The high work demands may be the reason many people are reluctant to participate in any kind of PA/sport. High work demands are not consistent with the recommendations from international guidelines for adequate intensity, frequency and volume to gain the positive changes in aerobic capacity, physical strength and flexibility.[1]

Lowering the work intensity through the day could have a positive impact on creating a balance between the high work demands a person experiences during the work shift, as proposed in figure 1.

Furthermore, during OPA, heart rate is elevated.[5] Elevated heart rate for a long period of time can be a risk factor for CVD.[7] OPA has also been found to show increased levels of inflammation, and sustained inflammation over a long period of time is a strong risk factor for CVD and atherosclerosis.[5] It has been reported that there is a transient increase in serum CRP after PA.[8] Exercise training may blunt this inflammatory response by reducing resting CRP levels through multiple mechanisms, including a decrease in cytokine production by adipose tissue, skeletal muscles, endothelial and blood mononuclear cells, improved endothelial function and insulin sensitivity, and possibly an antioxidant effect.[8]

WHAT CAN WE DO TO OVERCOME THE RISKS OF OPA?

Many workplaces require a lot of PA to finish the assignments of the day. This is also a reason many individuals assume they do not need to do additional LTPA since 'they are active enough in their jobs'. Figure 1 provides strategies to protect your health during OPA.

Definite solutions for many individuals exposed to the risks of OPA require further testing and research to inform our understanding of the risks of OPA.

A recent paper in *BJSM* by Staker *et al*[9] proposes that designing workplaces with the right amount and type of PA can correct these problems. Following this paper, a discussion published in the *BJSM* by Garcia *et al*[10] argues that people from lower socioeconomic backgrounds usually occupy jobs they have less control over, and the option for them to change their job conditions or the job completely is limited. Thus, solutions in the current workplace are needed since changing jobs or the job conditions can be a near-impossible option, and in individual's physical energy may be limited to achieve meaningful LTPA after a hard physical day at work.

Importantly, the risks that are being caused by OPA are also linked with the socioeconomic conditions of the population. It is likely the interplay of several factors such as poor socioeconomic status, mental health problems, family problems, geographical factors and social factors contribute to the health risks observed for OPA.

MOVING TOWARDS HEALTHIER OPA

While the benefits of exercise are well documented, they have not been consistently found from OPA alone.[1] Workplace modifications or designing a practical exercise training programme to complement OPA is needed to generate a positive impact healthwise.[5] Research should expand beyond LTPA to define and validate strategies to improve health outcomes integrated with OPA.

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Acknowledgements The author is grateful to Professor Jonathan A Drezner for his invaluable comments and suggestions.

Contributors I'm the sole author of this manuscript.

Funding The author has not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

To cite Shala R. *Br J Sports Med* 2022;**56**:897–898.

Accepted 7 March 2022
Published Online First 11 March 2022

Br J Sports Med 2022;**56**:897–898.

doi:10.1136/bjsports-2021-104957

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