

Title: Walk at least 10 minutes a day for adults with knee OA: Recommendation for minimal activity during the COVID-19 pandemic

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INTRODUCTION

The emergence of Coronavirus Disease 2019 (COVID-19) has resulted in unprecedented changes in how the world socially interacts. Limits on contact with others, whether by social distancing or shelter-at-home recommendations, have negatively impacted physical activity (PA), which is especially true for adults over the age of 60 who are at high risk of serious illness from COVID-19. One group of adults over the age of 60 that is particularly vulnerable is those with knee osteoarthritis (OA). Knee OA alone affects over one-third of the general population over 60 years of age (1) and is a leading cause of functional limitation (e.g. difficulty climbing stairs, getting up from a chair) (2). There is no cure for OA, rather treatment focuses on symptom management. Medical societies and clinical practice guidelines uniformly promote exercise as a first-line treatment approach for knee OA, with exercise shown to have greater improvements on pain and fewer adverse side effects when compared to nonsteroidal anti-inflammatory drugs (3). However, translating seemingly straightforward recommendations for exercise into practical messages remains problematic and a major problem during COVID-19 when physical activity is reduced. While previous work has reported that motivation for PA increases when adults with knee OA are provided a specific exercise prescription that factors in their condition, health professionals often struggle in making these specific exercise recommendations, resulting in a gap between treatment guidelines and actual practice.

Hence, we chose to make a minimal PA recommendation for adults with knee OA over 60. Our goal is to limit risk of inactivity-related poor health outcomes, such as lower body weakness and deconditioning by virtue of inactivity associated with COVID-19 in adults with knee OA. Hence, the purpose of this viewpoint is to suggest a succinct and clinically meaningful exercise recommendation for adults with knee OA in a time of limited social contact due to COVID-19.

THE FIRST STEP IS TO RECOMMEND WALKING FOR AT LEAST 10 MINUTES EACH DAY

We recommend health professionals consider encouraging adults with knee OA to walk for at least 10 minutes per day. We base this recommendation on the fact that adults use walking as a primary form of activity (4). As well, walking is the most common type of leisure-time PA older adults employ and is simple, cost-effective, and accessible even in the home. Supporting this recommendation are the 2018 Physical Activity

Guidelines for Americans (5), which recommend that adults should move more and sit less throughout the day, and that any amount of moderate-to-vigorous intensity PA (MVPA) results in some health benefits. Walking can take place indoors on a treadmill or down a corridor if limited to the home, or outdoors while staying at least 6 feet apart from others.

Two studies in adults with or at risk for knee OA established benefits to physical function and disability through PA at lower duration thresholds than are set in the current PA guidelines. Dunlop and colleagues found that 45 minutes per week of MVPA is needed to improve low function or maintain high function, which equates to just over six minutes each day (6). Dunlop's group also determined that 55-56 minutes of MVPA, or eight minutes each day, best predicted being free from disability related to activities of daily living or mobility (7). Furthermore, walking for 10 continuous minutes per day at a moderate intensity is likely a safe and tolerable dosage for people with severe knee OA. In a small cohort of adults with advanced structural knee OA, walking 70 minutes per week did not result in adverse knee pain during or after walking (8).

THE SECOND STEP IS TO RECOMMEND BRISK WALKING

The current PA guidelines recommend at least moderate intensity exercise to increase general health benefits. OA-specific benefits, such as substantial reductions in risk of developing functional limitation can be found at moderate intensities as well (9). By walking at a brisk pace of at least 100 steps per minute, roughly equivalent to exercising at a moderate to vigorous intensity, respectively, it is possible to achieve these benefits (10). Descriptively, brisk pace walking is characterized as building up a sweat, but still being able to carry on a conversation. The good news is that most adults with knee OA walk briskly (i.e. at least a moderate intensity) when at their usual pace (11), and health benefits still exist for light activity for those unable to walk at a brisk pace (12).

DON'T STOP AT 10 MINUTES

We believe walking 10 minutes per day at a moderate intensity is an appropriate type and dosage of exercise to prescribe to most adults over 60 because it provides an intensity and duration that affords important health benefits, and is a simple and attainable goal. While 10 minutes per day is an attainable starting point, it is important to encourage walking above this recommendation, given the dose-response health benefits of walking

and PA in general. White and colleagues established a dose-response relationship between daily walking and protection against functional limitation (13). Furthermore, relative to inactive adults with knee OA, those who increased their PA levels saw improvements in their Late Life Disability Index (LLDI) score, with those meeting current PA recommendations seeing the greatest improvement (14). As well, a dose-response relationship exists between PA and function in adults with knee OA, as those in the highest quartile of PA also had the fastest gait speed (15) – a strong indicator of overall health. Methods to increase activity include walking for an additional 5 minutes each day for one week, i.e., 15 minutes for week one, 20 minutes for week two, etc, or using a pedometer to count steps working towards a goal of walking 6,000 steps/day, which is a benchmark associated with protection from functional limitation(13).

MISCONCEPTIONS AND BENEFITS OF WALKING

Despite these health benefits, approximately 40% of men and 57% of women with knee OA are considered inactive (i.e. performing zero bouts of MVPA during the week) (16). Misconceptions over walking resulting in joint damage and pain as an indicator of further harm are common, yet unsupported (17). A recent review found no threats to safety in terms of increased pain, decreased function, structural progression, risk for total knee replacement, or increased adverse health events in older adults with knee pain who participated in long-term (up to 30 months) PA (18). A meta-analysis from the Ottawa Panel concluded that aerobic walking programs were beneficial for adults over the age of 40 with mild to moderate knee OA (19). The authors found the greatest improvements in pain, quality of life, and functional status, as well as a beneficial effect on stiffness, strength, mobility, and endurance (19).

It is imperative to view exercise, and specifically walking, as an effective and ‘real’ therapeutic option for adults with knee OA, especially during COVID-19. Recommending 10 minutes per day of walking is a simple and clear recommendation and is beneficial. Studies have consistently demonstrated the benefits of an aerobic walking program to improve pain and function in patients with OA (19). The evidence is clear – aerobic walking provides clinically meaningful benefits for adults with knee OA.

CONCLUSION

We recommend health professionals provide a simple message to adults with knee OA to strive to walk at least 10 minutes per day, either indoors or outdoors, in the current COVID-19 climate. This recommendation is based on the current evidence, and accounts for tolerable pain limits (70 minutes per week) for those with OA, intensity equivalents (brisk walking at 100 to 130 steps per minute is a moderate to vigorous intensity), and the dose-response benefits of PA. Walking for at least 10 minutes per day is important to mitigate inactivity-related impairments due to limited contact with others from COVID-19 in adults with knee OA.

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