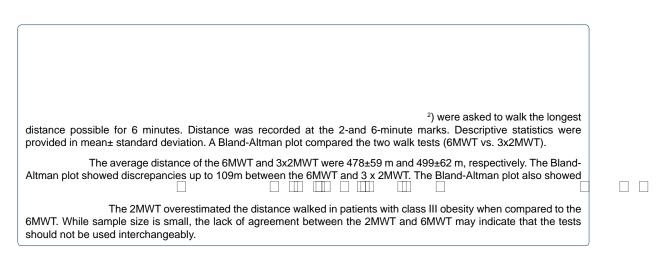
# The 2-Minute Walk Test cannot be used as an Alternative to the 6-Minute Walk Test in Individuals with Class III Obesity



## In rod c ion

Of those with obesity, those with a BMI 40 kg/m2 (classi ed class III obesity) have the highest risk of comorbidity and Type 2 diabetes [1]. Additionally, a reduction in mobility is o en seen in those living with obesity, due to excessive adiposity [2,3]. erefore, exhaustive exercise tasks, like the VO2 max test, are o en impractical. Instead, walking tasks are a feasible measure that re ect day to day activities, and can be used to demonstrate overall quality of life [4].

Within a clinical setting, the six-minute walk test (6MWT) has been used to assess the severity of obesity and risk of obesity related co-morbidities [5-7]. As well, the 6MWT has been shown to be a valid indicator of functional ability [8, 9]. In the clinical setting, the 6MWT is advantageous because the test is practical to setup with no equipment or training required for the participant, relative to VO2 max testing [4, 6]. e 6MWT is o en well tolerated and more closely related to daily living than other walk tests [10]. In addition, the 6MWT provides insight on the pulmonary and cardiovascular system, systematic circulation, peripheral circulation, blood, neuromuscular units and muscle metabolism at a whole body level during exercise [6].

For those living with class III obesity and other diseases which limit physical capacity, the 6MWT can be lengthy and dicult for some individuals. us, in certain cases, a 2-minute walk test (2MWT) may be more appropriate. For instance, Leung, Chan [11] found that the 2MWT was well tolerated for patients with severe COPD and reported a strong intraclass correlation coeccient between repeated 2MWT scores (r=0.99). Yuksel, Kalkan [12] found both a strong test-retest reliability and intraclass correlation coeccient (r=0.97) within the 2MWT for patients with total knee arthroplasty. Although studies have found stroothe 6MWT in individuals with class III obesity.

## Me hod

#### Par icipan

Participants (67% female) with class III obesity (body mass index [BMI] > 40kg/m2) were recruited from the bariatric surgery clinic of the McGill University Health Centres. Participants were excluded if they had diseases or conditions that would a ect protein metabolism or muscle function. ey were also excluded if they were unable to walk or needed an aid to walk. e study was approved by the Comité Central Děthique de la Recherche du Ministre de la Santé et des Services Sociaux and the Research Ethics Board of the MUHC. All participants provided written informed consent.

## 2 and 6 min et alk e

Walk tests were conducted according to the standards set by the American oracic Society [6] without providing the time remaining in the test. Pylons were placed at 0 m and 30 m in a at hallway, making a 60m lap. Participants were asked to cover as much distance as possible without running between the pylons for 6 minutes. Distance was recorded at the 2-minute and 6-minute marks discretely. Participants were informed to stop at any time if they felt discomfort. To ensure consistency, each participant was given the same evaluator.

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us, the distances were marked consistently between the 2 and 6 minute tests. It is possible that if the tests were conducted separately, gait speed could be a ected with gait speed being slightly faster in the 2 than 6 MWT [19]. ough we did not measure gait speed, we observed a greater distance covered in the initial 2 minutes of the test compared to over the entire 6 minute period, re ective of a faster gait speed during 2 minutes. Conducting separate 2 and 6 MWT could have exacerbated our observed di erences and thus, would unlikely have changed our conclusions that the 2 and 6 MWT are not comparable in our population.

# Concl ion

When compared to the 6MWT, the 2MWT overestimates the distance walked in individuals with class III obesity. Although a strong correlation was seen between the 2MWT and 6MWT, di erent physiological systems and populations with varying capability could a ect the outcomes. ese ndings indicate that these two tests should not be used interchangeablyin class III obesity. Future studies are necessary to determine the interchangeability between the 2MWT and 6MWT in di erent clinical settings.

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