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

^{2}) were asked to walk the longest distance possible for 6 minutes. Distance was recorded at the 2-and 6-minute marks. Descriptive statistics were provided in mean± standard deviation. A Bland-Altman plot compared the two walk tests (6MWT vs. 3x2MWT).

The average distance of the 6MWT and 3x2MWT were 478±59 m and 499±62 m, respectively. The Bland-Altman plot showed discrepancies up to 109m between the 6MWT and 3 x 2MWT. The Bland-Altman plot also showed

The 2MWT overestimated the distance walked in patients with class III obesity when compared to the 6MWT. While sample size is small, the lack of agreement between the 2MWT and 6MWT may indicate that the tests should not be used interchangeably.

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 lll obesity and other diseases which limit physical capacity, the 6MWT can be lengthy and di cult 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 coe cient between repeated 2MWT scores (r=0.99). Yuksel, Kalkan [12] found both a strong test-retest reliability and intraclass correlation coe cient (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 Déthique 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 e 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.

Sarah Feola, Department of Health, Kinesiology and Applied Physiology, Concordia University, Montréal, Québec, Canada, E-mail: sf1998@icloud.com

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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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