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The level of association between physical activity and self-report disability in obese and non-obese individuals with knee osteoarthritis

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Abstract

Purpose: The main objective of our pilot study was to investigate the effect of functional and physiological tests on the association between perceived levels of physical activity and self-reported disability in obese and non-obese individuals with knee osteoarthritis (OA).

Methods: Participants were a sample of 31 women and men between the ages of 50 and 80 years who were diagnosed with knee OA based upon radiographic examination evaluated by an orthopedic surgeon. Physical Activity (PA) was assessed using Metabolic Equivalents (METs) values of common physical activities classified as light, moderate, and vigorous intensity activity based on guidelines for exercise testing and prescription of the American College of Sports Medicine (ACSM). Disability was assessed using the Western Ontario McMaster University questionnaire (WOMAC). WOMAC scores were obtained before and after functional and physiological tests (e.g., the 6 Minute Walk Test, Timed Up and Go, stair climbing test, peak of oxygen consumption).

Results: Multiple Regression Analysis indicated that before (time 1) functional and physiological tests were performed, the coefficient of determination (R2) showed a weak level of association between PA and the WOMAC total score ($R2 = .35$; $p = .008$) and WOMAC pain ($R2 = .027$; $p = .034$), stiffness ($R2 = .23$; $p = .065$), and mobility ($R2 = .36$; $p = .007$) subscale scores. After (time 2) physiological tests were performed the coefficient of determination (R2) demonstrated moderate to strong levels of association between PA and the WOMAC total score ($R2 = .63$; $p < .0001$) and WOMAC pain ($R2 = .50$; $p = .001$), stiffness ($R2 = .40$; $p = .003$), and mobility ($R2 = .66$; $p < .0001$) subscale scores.

Conclusions: The WOMAC questionnaire is used to assess disability in individuals with OA; however, its use to predict disability in obese or morbid obese individuals seems to be enhanced when the questionnaire is applied right after functional tests had been performed. Moreover, the intensity level of daily PA seems to be a strong indicator of disability in obese individuals with knee OA. Therefore, our pilot study suggests that the WOMAC should be used after one or more of the recommended functional performance tests such as walking, going up and down stairs, or from sitting to standing in order to obtain a more realistic self-reported disability score. It is also suggested that progressively increasing the intensity of PA in obese individuals may decrease their disability.

Biography

Kamary Coriolano completed his PhD at Queen's University, Canada. He has a unique set of competencies to enable the achievement of present and future objectives. He was trained as a Physiotherapist in Brazil and obtained two Master's degrees in Canada that combine knowledge achieved through academic work in rehabilitation and health care management. His current and main focus is to establish proper conservative methods to improve quality of life and promote behavioural change particularly for obese individuals who require total knee replacement surgery.