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Ten-meter Walk Test with Motor and Cognitive Dual-task Activities in Overweight Individuals: An Observational Study

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ABSTRACT

Introduction: A certain amount of body fat is essential for functions like energy storage, heat insulation, and shock absorption. However, an excessive or abnormal accumulation of body fat, which can negatively affect health, is categorised as overweight or obesity. In daily life, individuals often engage in tasks that require simultaneous processing of both motor (balance) and cognitive functions, commonly referred to as "dual task situations." A dual task involves performing two tasks; one motor and one cognitive at the same time, which typically leads to a decline in performance in at least one of the tasks.

Aim: To determine the short term effects of motor and cognitive dual tasks on the walking speed of overweight individuals.

Materials and Methods: In this observational study, total of 100 participants were enrolled. They performed dual task activities along a 10-meter path. The subjects walked at their usual pace while the time was measured with a stopwatch, and three readings were recorded. Afterward, they repeated the task while performing a cognitive dual task (counting backwards) and then a motor dual task (walking while carrying a tray with a bottle). Three readings were taken for each condition to calculate the mean for further analysis.

Results: The Kolmogorov-Smirnov test was applied to check for normality in the data. Since the data was not normally distributed, the Mann-Whitney test, a non-parametric test, was used to analyse the data and calculate the p-value for the demographic variables. For the outcome measures, the mean, median, range, and p-values were computed using the Friedman test, which showed significant results with a p-value of <0.001.

Conclusion: The study provided valuable insights into the short-term effects of motor and cognitive dual tasks on the walking speed of overweight individuals. It concluded that cognitive dual tasks had a greater impact on speed compared to motor dual tasks, as compared to walking at a normal pace.

Keywords: Motor dual task, Obseity, Walking speed