

# Correlation Between Physical Activity and Hand Laterality in Elderly: A Cross-sectional Study

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## ABSTRACT

**Introduction:** Aging is associated with a decline in many body functions due to disuse related to aging, low physical activity/inactivity and degenerative diseases- With aging of the population, identifying approaches to preserve cognitive function is of critical importance to maintain quality of life and independence in later years. Motor imagery is a cognitive task commonly used in daily life in which, inner mental representations are activated even in the absence of sensory stimulation, which can be evaluated by means of hand laterality. The general purpose of this experiment is to study the influence of physical activity on mental simulation on upper limb movements through a simplified version of the hand laterality task.

**Methodology:** An institution based cross-sectional study was carried out to examine the correlation of physical activity with reaction time and accuracy of hand laterality. Around 110 individuals were assessed for the study, from which 90 participants (47 males and 43 females) who met the inclusion criteria with General Practitioner Assessment of Cognition (GPCOG) score more than 4 were selected in the study. Physical activity of participants was assessed according to Godin-Shephard Leisure-Time Physical Activity Questionnaire. The reaction time and accuracy of the hand laterality was obtained using the hand laterality task.

**Results:** Data was analysed using Pearson's correlation coefficient. Results of this study demonstrated that an inverse moderate correlation was seen between physical activity score and reaction time ( $r$  value = - 0.6659); whereas a moderate linear correlation exists between physical activity score and accuracy ( $r$  value = 0.5939); in elderly aged between 65-75 years.

**Conclusion:** The study concludes that as physical activity increases; there is decrease in reaction time and an increase in accuracy of hand laterality in elderly population.

**Keywords:** Physical activity, Hand laterality, Elderly

