

# Cognitive Functioning of Adults with Lower Limb Amputation in Rehabilitation: A Comprehensive Neuropsychological Assessment Approach

**Authors:** Lombard-Vance, R., O'Keeffe, F., Desmond, D., Coen, R., Ryall, N., & Gallagher, P.

**Journal:** Archives of Physical Medicine and Rehabilitation. In press, 2018.

## Abstract

**Objective:** To establish a comprehensive profile of cognitive functioning in people engaged in lower limb amputation (LLA) rehabilitation.

**Design:** Cross-sectional study as part of a longitudinal prospective cohort.

**Setting:** A national, tertiary, rehabilitation hospital.

**Participants:** Adult volunteer participants (N=87) referred for comprehensive rehabilitation for major LLA were sampled from 207 consecutive admissions. Participants with both vascular (n=69) and non-vascular (n=18) LLA aetiologies were included.

**Interventions:** Not applicable

**Main Outcome Measure(s):** Demographic and health information, and a battery of standardised neuropsychological assessments

**Results:** Compared to normative data, impairment was evident in overall cognitive functioning ( $p \leq .003$ ). Impairment was also evident in particular areas, including reasoning, psychomotor function, information processing, attention, memory, language/naming, visuospatial functions, and executive functions (all  $p \leq .003$  Holm-corrected). There were also higher frequencies of impaired functions across most aspects of functioning in this group, compared to expected frequencies in normative data ( $p \leq .003$  Holm-corrected). There were no significant differences in cognitive functioning between participants of vascular and non-vascular LLA aetiology.

**Conclusions:** Findings support the need for cognitive screening at rehabilitation admission regardless of aetiology. Administration of comprehensive neuropsychological assessment with a battery sensitive to vascular cognitive impairment is recommended in some cases, to generate an accurate and precise understanding of relative strengths and weaknesses in cognitive functioning. Cognitive functioning is a potential intervention point for improvement of rehabilitation outcomes for those with LLA and further research is warranted in this area.

**Key Words:** Amputation; cognition; lower extremity; neuropsychology; rehabilitation research