Functional Outcome Following Amputation

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Background: A significant difference in function is seen among older individuals who have had lower extremity amputation. Functional tests are limited in their ability to predict functional outcome in this population. Many functional tests examine only physical function, while others study cognitive or social function. It is the combination of these functions that will determine overall performance of an individual after lower-extremity amputation. Determining which individuals will perform well, and which poorly, is difficult.
Objectives: The goal of this article is to provide the reader with a thorough review of the literature as it relates to functional outcome considering physical, psychological, and social interaction in the geriatric individual who has had lower-extremity amputation.
Criteria for selecting studies for this review:
Types of studies: Prospective study, observational, and others not described.
Types of participants: Geriatric population (aged 50 and older) with lower limp amputation and vascular disease as the main cause of amputation.
Types of interventions and outcome measures:

- Predictors for the function of elderly patients with unilateral LEA: included age at amputation, standing balance on the unaffected limb, cognitive impairment (mainly memory), comorbidity, and the presence of mood disturbances.
- Amputee Mobility Predictor (AMP): functional activities, including transfers, sitting and standing balance, and various balance and gait skills, such as stepping over obstacles, turning, and the patients' ability to ascend and descend stairs.
- "Timed up and go" test (TUGT): this test assesses an individual's function in balance, transfers, walking, and turning while walking.
- Gronningen Activity Restriction Scale (GARS) and the "physical subscales" of the Sickness Impact Profile 68-item version (SIP68) for measuring physical mobility in elderly patients with LEA and walking ability with a prosthesis
- The Activities-Specific Balance Confidence (ABC) Scale is used among individuals who have undergone a lower limb amputation. It is a 16-item questionnaire that assesses an individual's confidence in performing various mobility tasks, including walking around the house, ascending and descending stairs, getting in and out of the car, and bending over to pick up a slipper from the floor
- Two-minute walk test (2MWT): measures the distance an individual is able to walk at his or her "usual pace" in 2 minutes.
- The Houghton Scale is a self-report scale of prosthetic mobility
- The Rivermead Mobility Index (RMI) is a measure of mobility disability comprising a
- series of 14 questions and one direct observation to measure mobility in individuals after LEA
- The Functional Independence Measure (FIMTM) is an 18-item task-specific tool designed to assess the degree of disability in adult patients while in a rehabilitation setting.
- The Functional Ambulation Profile (FAP) is a quantitative measure for assessing gait on the basis of specific temporal and spatial parameters

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- Factors related to prosthesis use: Relationship between prosthetic use and physical, social, and cognitive function.
- Balance confidence and fear of falling measured by mobility capability, mobility performance, and social activity level.
- Physical and mental characteristic measures were compared to 4 outcome measures: the SIP68, the GARS, the TUG test, and the report of prosthetic use.

Search strategy for identification of studies: NA

Conclusion: Individuals experience psychological and physical challenges after LEA. These challenges are compounded by multiple medical problems associated with the geriatric population. The multifaceted nature of function after amputation makes predicting outcome difficult and often subjective. Performance-based measures or functional tests are available to measure functional outcome in the geriatric population; however, few of these tools have been validated for older individuals with LEA and none are able to predict long-term functional performance. It is difficult to compare results of studies reported in the literature, as different tools are often used or the use of a prosthesis is the main functional outcome. Use of a prosthesis should not be the sole measure of function in this population, as individuals may be completely independent with the use of a wheelchair or assistive device, yet unable to walk with a prosthesis. Additionally, the psychological impact of limb amputation should not be overlooked. Healthcare providers cannot ignore the grief and fear experienced by an individual while limb salvaging is attempted or after amputation has occurred, as it will have an impact on functional ability. For these reasons, functional outcome after LEA must be viewed individually considering past and current medical history, past and current physical function, the patients' goals and objectives, as well as psychological, financial, and family support. The literature describes performance-based measures or functional tests; however, a single tool has not emerged as a gold standard for this population.