



The Edinburgh Visual Gait Score and the Prosthetic Observational Gait Score as Outcome Measures in Orthotics and Prosthetics

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INTRODUCTION

Visual diagnosis of a patient's gait in real time is subjective, lacks accuracy and relies on the clinician's training and experience (Toro, 2003). Observation of a moving activity is difficult, because of the limited ability of the eye to discern rapid motion (the flicker fusion rate of the eye is about 16Hz for most people, making it physically impossible to see events lasting less than 60 ms or so) and the complexity of many body segments moving simultaneously. (Kirtley) Gait assessment assists in determining the degree and cause of abnormality and it can be used as an outcome measure to evaluate the effectiveness of interventions (Kawamura, 2007).

A recent article in *Gait and Posture* systematically reviewed observational gait assessment tools in pediatrics. The review found the Edinburgh Visual Gait Score (EVGS) to have better reliability and validity than the other tools. The Prosthetic Observational Gait Score (POGS) was adjusted from the POGS for unilateral lower limb prosthetic users.

This review will summarize the research that has been done on the EVGS and POGS.

METHOD

A comprehensive computerized bibliographic databases search was performed in the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL; 1982 to current), Clinical Pharmacology, Cochrane Library, Excerpta Medica Database (EMBACE; 1980 to current), Journal Citation Reports, NUcat, Ovid MEDLINE, PubMed (1966 to current), PsycINFO (1806- current), Scopus, Web of Science, and The Journal of Prosthetics and Orthotics Online Library (1989- current). The following search terms were used: (Observational gait assessment) AND (Observation Or Video) AND (Gait OR Walk) AND (Analyze OR Assess).

Only observational and video gait analysis tools that assess gait were included. Studies on Instrumented Gait Analysis (IGA) data alone were excluded. Dissertations, conference abstracts and other sources of unpublished that were studied by a reputable institution were included.

In addition, the citations and bibliography were scanned and examined for inclusion.

RESULTS

Several observable gait assessment tools have been developed over the past two decades for use in Prosthetics and Orthotics. Each tool was reviewed for consistency and reliability. The most reliable tool in the literature was found to be the Edinburgh Visual Gait Score. Ong et al investigated the reliability and

validity of EVGS for inexperienced observers and found that inexperienced observers were reasonably reliable and ranked scores similarly but less accurately than their experienced counterparts (Ong, 2008).

The Prosthetic Observational Gait Score was developed based on the Edinburgh Visual Gait Score for unilateral lower limb amputation. The score established good intra-observer repeatability; however, at best moderate inter-observer repeatability was reported initially.

The University of Strathclyde and the National Health System in Wales have been studying the effects of using observational gait scores with video analysis tools to increase the reliability. The studies involving video analysis suggest that video increases the inter-rater and intra-rater reliability of the EVGS and POGS Gait Scores.

DISCUSSION

While Instrumented Gait Analysis (IGA) is the accepted gold standard, each session can take approximately three to six hours for assessment and interpretation (Narayanan, 2007). IGA is needed to prove the validity of observational gait assessment tools, but it is not a practical outcome measure for clinicians. Clinicians require simple and cost-effective outcome measures to analyze the kinematic parameters of gait in their day-to-day practice (Rathinam, 2014).

CONCLUSION

Observational gait tools are often and widely used as an essential tool for an assessment of gait problems. (Rathinam, 2014). The research done on the EVGS and POGS suggest that these are the best observational gait assessment tools available to clinicians in Prosthetics and Orthotics. The EVGS and POGS provide a systematic, repeatable, and methodical approach to observational gait analysis.

CLINICAL APPLICATIONS

The EVGS [and the POGS] are extensive tools to identify gait deviations and are sensitive enough to pick up changes following intervention (Gupta, 2012). Observational and video observational gait assessments provide a simple and easy to use tool for clinicians to integrate into practice.

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