

# Traffic Light System-BasicADL (TLS-BasicADL) Development, reliability, validity, clinical utility and patient perspective

Akademisk avhandling

Som för avläggande av medicine doktorexamen vid Sahlgrenska akademien,  
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av Gillian Asplin

Fakultetsopponent:

Professor Karin Harms-Ringdahl

Inst. för neurobiologi, vårdvetenskap och samhälle, Karolinska Institutet, Huddinge

## Avhandlingen baseras på följande delarbeten

- I. **Asplin G**, Kjellby Wendt G, Fagevik Olsén M. TLS-BasicADL: development and reliability of a new assessment scale to measure basic mobility and self-care. *Int J Ther Rehabil* 2014;21(9):421-426.
- II. **Asplin G**, Kjellby Wendt G, Fagevik Olsén M. Concurrent Validity and Responsiveness of Traffic Light System-BasicADL (TLS-BasicADL). *Submitted*.
- III. **Asplin G**, Carlsson G, Zidén L, Kjellby Wendt G. Early coordinated rehabilitation in acute phase after hip fracture – a model for increased participation. *BMC Geriatric* 2017;17:240.
- IV. **Asplin G**, Carlsson G, Fagevik Olsén M, Zidén L. See me, teach me, guide me, but it's up to me! Patients' experiences of recovery during the acute phase after hip fracture. *In manuscript*.

**Traffic Light System-BasicADL (TLS-BasicADL)  
Development, reliability, validity, clinical utility and patient perspective**

Gillian Asplin

Institute of Neuroscience and Physiology, University of Gothenburg, Gothenburg, Sweden

**Abstract**

**Aim:** To describe the development of Traffic Light System-BasicADL (TLS-BasicADL), and procedures to establish properties of reliability, validity, clinical utility and patient perspective. TLS-BasicADL measures the patient's ability to perform basic activities of daily living.

**Methods:** Study I describes the development process and testing of inter- and intra-rater reliability in 30 patients (orthopaedic diagnoses). Study II investigates criterion validity in 50 patients (mixed diagnoses), and responsiveness in 106 patients following hip fracture surgery. Study III, evaluation of a coordinated rehabilitation programme with focus on patient participation, including use of TLS-BasicADL and enhanced occupational therapy and physiotherapy in 126 patients after hip fracture. Study IV, to gain a better understanding of patients' experiences of recovery following hip fracture, including use of TLS-BasicADL. Twenty patients were interviewed and the data was analysed using qualitative content analysis.

**Results:** Study I: High inter- and fair intra-rater reliability was reported. Study II: Strong to excellent correlations were found between TLS-BasicADL and modified Functional Independence Measure, and TLS-BasicADL and modified Barthel Index. Responsiveness: Significant differences were found between the assessment time points for each item of TLS-BasicADL, except upper hygiene, dressing and eating. Excellent correlation between TLS-BasicADL and modified Katz Index between pre-fracture – discharge, and moderate to strong from discharge - one month. Study III: The intervention group reported higher levels of participation and independence in lower body hygiene, and dressing. No statistically significant differences at discharge and one month post-discharge between groups in functional balance and confidence, performance measures or risk for falls. At one month post-discharge 40-80% of all patients remained at risk for falls. Study IV: Two categories were found: 'Being seen as a person' with subcategories; Interaction affects trust and security; Information is key to understanding; and Encouragement is essential to promote activity. And 'Striving for Independence', with subcategories; Accepting the situation whilst trying to remain positive; The greener the better, but it's up to me; Ask me, I have goals; and Uncertainties concerning future.

**Conclusions:** TLS-BADL provides a simple and practical team instrument for assessing basic ADL in older patients in the acute hospital setting, a visual aid to highlight level of independence and promotes communication between team members and patient. TLS-BasicADL has shown fair to high reliability, strong to excellent concurrent validity and moderate to strong responsiveness.

More intensive training and enhanced collaboration with patients following hip fracture leads to increased patient perceived participation and independence in ADL at discharge. At one month post-discharge, patients continue to experience low levels of balance confidence and remain at risk for future falls, highlighting the need for improved discharge planning and rehabilitation services post-discharge.

Following hip fracture patients experience a need to be taken seriously and seen as a person by the health care personnel. All patients described personal goals, but these were not always identified by the physiotherapists. TLS-BasicADL was described by patients as simple and easy to understand. Monitoring progress through the colour-coding changing was described satisfying and fun to see, as well as stimulating and promoting feelings of increased self-confidence.

**Keywords:** Outcome measures, Physiotherapy, ADL, reliability, validity, hip fracture, patient participation, functional balance, physical performance, patient experience, qualitative content analysis

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