

Edinburgh visual gait score

Three methods of evaluation of gait

Kinovea Software, Edinburgh Scale and IMU inertial sensors.

An inertial measurement unit (IMU) is an electronic device that measures and reports a body's specific force, angular rate, and sometimes the magnetic field surroundings the body, using a combination of accelerometers and gyroscopes, sometimes also magnetometers.

```
<html><iframe width="560" height="315" src="https://www.youtube.com/embed/XUyis2PhJR0"
frameborder="0" allow="autoplay; encrypted-media" allowfullscreen></iframe></html>
```

Complex [gait test](#) analysis systems are not generally available worldwide, and no simple system of assessing [gait](#) by observation has been validated specifically for use in patients with [cerebral palsy](#).

Read et al., developed a visual gait analysis score for use in cerebral palsy. Videotaped sequences of patients were recorded before and after surgery as part of a three-dimensional gait study using a Vicon (Oxford, U.K.) gait analysis system. The score demonstrated good intraobserver and interobserver reliability. The numeric values of the score elements correlated well with the measurements obtained from instrumented gait analysis for the same patients, and the score was able to detect postoperative change ¹⁾.

EVGS can be a supportive tool that adds quantitative data instead of only qualitative assessment to a video only gait evaluation ²⁾.

Robinson et al., propose an MCID value of 2.4 for the EVGS; representing the improvement in gait score after surgery that is likely to reflect a clinical improvement in function. This MCID is closely related to other studies defining post-operative improvements in kinematic data (GPS) and may offer guidance to post-surgical changes that might reasonably be expected to either improve or prevent deteriorating function ³⁾.

36 [children](#) (age 4-13 y) with [spastic diplegia](#) (gross motor classification system level I (n=14), II (n=15) and III (n=7) were included retrospectively from the database of the VU University Medical Center [Amsterdam](#). Children underwent [Selective dorsal rhizotomy for spastic diplegia](#) (SDR) between January 1999 and May 2011. Patients were included if they received clinical [gait](#) analysis before and five years post-SDR, age >4 years at time of SDR and if brain MRI-scan was available.

Overall gait quality was assessed with [Edinburgh visual gait score](#) (EVGS), before and five years after SDR. In addition, knee and ankle angles at initial contact and midstance were evaluated. To identify predictors for gait improvement, several factors were evaluated including: functional mobility level (GMFCS), presence of white matter abnormalities on brain-MRI, and selective motor control during gait (synergy analysis).

Overall gait quality improved after SDR, with a large variation between patients. [Multiple linear regression](#) analysis revealed that worse score on EVGS and better GMFCS were independently related to gait improvement. Gait improved more in children with GMFCS I & II compared to III. No differences were observed between children with or without white matter abnormalities on brain MRI. Selective motor control during gait was predictive for improvement of knee angle at initial contact and midstance, but not for EVGS.

Functional mobility level and baseline gait quality are both important factors to predict gait outcomes after SDR. If candidates are well selected, SDR can be a successful intervention to improve gait both in children with brain MRI abnormalities as well as other causes of spastic diplegia ⁴⁾.

¹⁾

Read HS, Hazlewood ME, Hillman SJ, Prescott RJ, Robb JE. Edinburgh visual gait score for use in cerebral palsy. J Pediatr Orthop. 2003 May-Jun;23(3):296-301. PubMed PMID: 12724590.

²⁾

Del Pilar Duque Orozco M, Abousamra O, Church C, Lennon N, Henley J, Rogers KJ, Sees JP, Connor J, Miller F. Reliability and validity of Edinburgh visual gait score as an evaluation tool for children with cerebral palsy. Gait Posture. 2016 Sep;49:14-18. doi: 10.1016/j.gaitpost.2016.06.017. Epub 2016 Jun 15. PubMed PMID: 27344448.

³⁾

Robinson LW, Clement ND, Herman J, Gaston MS. The Edinburgh visual gait score - The minimal clinically important difference. Gait Posture. 2017 Mar;53:25-28. doi: 10.1016/j.gaitpost.2016.12.030. Epub 2017 Jan 3. PubMed PMID: 28073083.

⁴⁾

Oudenhoven LM, van der Krogt MM, Romei M, van Schie PEM, van de Pol LA, van Ouwerkerk WJR, Harlaar Prof J, Buizer AI. Factors associated with long-term improvement of gait after selective dorsal rhizotomy. Arch Phys Med Rehabil. 2018 Jul 4. pii: S0003-9993(18)30442-8. doi: 10.1016/j.apmr.2018.06.016. [Epub ahead of print] PubMed PMID: 29981315.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=edinburgh_visual_gait_score

Last update: **2024/06/07 02:48**

