International Centre for Allied Health Evidence

Journal Club Details

Journal Club location	**SA Brain Injury Rehab Services**
JC Facilitator	**Alex Lekis/Judith Hocking**
JC Discipline	**Physiotherapist**

Question

Provided three most common lower-limb co-ordination tests on the unit (FORMAL: heel-to-shin, foot tapping; INFORMAL: Description of client's ability to perform a discrete functional task relevant to their level of ability) to assess for reliability and validity. The best tools to use to assess coordination in adults with an acquired brain injury.

Review Question/PICO/PACO

P: N/A

I: N/A

C: N/A

O: N/A

Article/Paper

de Menezes KK, Scianni AA, Faria-Fortini I, Avelino PR, Faria CD, Teixeira-Salmela LF. Measurement properties of the lower extremity motor coordination test in individuals with stroke. Journal of rehabilitation medicine. 2015 Jun 5;47(6):502-7.

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Article Methodology:

Cohort Study

University of
South Australia

International Centre for
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A member of the Sansom Institute

The International Centre for Allied Health Evidence (*i*CAHE)
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Ques No.	Yes	Can't Tell	No	Comments
1	✓			**Did the study address a clearly focused issue?** To evaluate the construct validity, inter- and intra-rater reliabilities, best scoring method and testing methods (direct vs video observations), and to determine the smallest real difference (SRD) and standard error of the measurement (SEM) of the Lower Extremity Motor Coordination Test (LEMOCOT).
2	✓			**Did the authors use an appropriate method to answer their question?** The purposes of the study were: (i) to further investigate the construct validity of the LEMOCOT, using the known groups method, by verifying its ability of discriminate between individuals with and without stroke (predicted values for healthy subjects of similar ages and genders), between the paretic and non-paretic lower limbs, and individuals at chronic and sub-acute stages with various levels of motor recovery and functional performances; (ii) to verify its intra- and inter-rater reliabilities; (iii) to determine the best scoring methods (first trial vs the mean of the first 2 and last 2 trials, vs the mean of 3 trials) and the best testing methods (direct vs video observation); and (iv) to determine the smallest real differences (SRD) and the standard error of measurement (SEM) values. A cohort study is appropriate to assess the proposed purpose of the study. **Is it worth continuing?** YES
3	✓			**Was the cohort recruited in an acceptable way?** Community-dwelling people with stroke living in Belo Horizonte, Brazil, were recruited by means of advertisements and by screening out-patient clinics in university hospitals
4	✓			**Was the exposure accurately measured to minimize bias?** All participants performed the LEMOCOT 3 times, first with their non-paretic, followed by their paretic lower limbs. They sat on an adjustable chair with their feet resting flat on a thin rigid foam, heels on the proximal target, and with knees at 90° of flexion. Then, after a familiarization trial, they were instructed alternately to touch the proximal and distal targets placed 30 cm apart with their big toe, for 20 seconds. They were instructed not to sacrifice the accuracy of the touches nor the quality of the movement to increase speed, and the number of touched targets was counted and registered for analyses.
5	✓			**Was the outcome accurately measured to minimize bias?** Motor recovery of the lower limb was assessed by the Fugl-Meyer (FM) lower limb section scores; tonus of the knee extensor and ankle plantar flexor muscles, with the Modified Ashworth Scale; foot sensation, by the Semmes–Weinstein monofilament tactile sensation test; isometric strength of the hip flexor and knee flexor/extensor muscles, with the manual dynamometer; and comfortable walking speeds, by the 10-m walk test.

6	✓			**Have the authors identified all important confounding factors?**
				Confounding factors such as gait were considered. Those not considered include: the sample was not randomly selected and may not, therefore, be fully representative of the stroke population. Furthermore, in an attempt to obtain sample variability regarding various functional levels, the sample was stratified by their walking speeds. However, when the analyses included motor recovery levels, the groups were not evenly distributed across all levels.
				Have they taken account of the confounding factors in the design and/or analysis?
				Attempts were made to control for several confounding factors and those not controlled for were noted in the limitations
7	✓			**Was the follow up of subjects complete enough?**
				Follow-up of subject was complete enough for the requirements of this study being testing the construct validity
8				**What are the results of this study?**
				The LEMOCOT scores were able to discriminate between stroke individuals from those predicted for healthy subjects, between the paretic and non-paretic limbs for both the sub-acute and chronic groups and differentiated between individuals with different functional levels and degrees of motor recovery. For the intra- and inter-rater reliabilities, very high and significant coefficients were found for both the paretic and non-paretic lower limbs for both groups (intraclass correlation coefficients (ICC) > 0.97, p < 0.0001). Significant differences were found regarding all scoring methods (18.91 < F < 27.49, p < 0.0001), but they were not clinically important and all showed adequate test-retest reliability and acceptable SRD and SEM (< 15%) values. There was also agreement between the scores from the direct and video observations. The LEMOCOT demonstrated adequate measurement properties in stroke subjects and, therefore, could be an appropriate measure for research and clinical purposes
9				**How precise are the results?**
				95% Confidence intervals were reported.
10		Journal Club to discuss		**Do you believe the results?**

11		**Can the results be applied to the local population?** **CONTEXT ASSESSMENT (please refer to attached document)** – *Infrastructure* – *Available workforce (? Need for substitute workforce?)* – *Patient characteristics* – *Training and upskilling, accreditation, recognition* – *Ready access to information sources* – *Legislative, financial & systems support* – *Health service system, referral processes and decision-makers* – *Communication* – *Best ways of presenting information to different end-users* – *Availability of relevant equipment* – *Cultural acceptability of recommendations* – *Others*
12		**Were all important outcomes considered?**
13		**Are the benefits worth the harms and costs?**
14		**What do the study findings mean to practice (i.e. clinical practice, systems or processes)?**
15		**What are your next steps?** ***ADOPT, CONTEXTUALISE, ADAPT*** **And then (e.g. evaluate clinical practice against evidence-based recommendations; organise the next four journal club meetings around this topic to build the evidence base; organize training for staff, etc.)**
16		**What is required to implement these next steps?**

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