This is the accepted version of a paper presented at Sixth International Symposium on Gait and Balance in Multiple Sclerosis, Portland, OR, US, September 9-10, 2016.

Citation for the original published paper:

In: Sixth International Symposium on Gait and Balance in Multiple Sclerosis

N.B. When citing this work, cite the original published paper.

Permanent link to this version:
http://urn.kb.se/resolve?urn=urn:nbn:se:oru:diva-55917
“Berg Balance Scale” and “Timed Up and Go” discriminates between fallers and non-fallers, in people with MS.

Carling Anna¹,², Forsberg Anette², Nilsagård Ylva³.

¹University Health Care Research Center, Faculty of Medicine and Health, Örebro University, SE 701 83 Örebro Sweden.
²Department of physiotherapy, Örebro University Hospital, Örebro Sweden.

Background and purpose
Berg Balance Scale (BBS) and Timed Up and Go (TUG) target dynamic balance. BBS contains 14 items with a maximum score of 56. In TUG time is taken from when the person stands up from a chair, walks three meters, rounds a cone, walks back and sits down again. Different cut-offs have been used for BBS. With a cut-off at >44; high specificity (90%) but low sensitivity (40%) were found¹. Using ≤55 as cut-off yielded high sensitivity (94%) but low specificity (32%)². TUG has not shown discriminant ability¹,³. The aim was to examine discriminant validity for BBS and TUG; fallers vs. non-fallers and predictive properties using previously suggested cut-offs.

Methods
Data from three samples of PwMS (n=220) with imbalance was used. Testing was conducted by experienced research physiotherapists. Falls were prospectively self-reported daily. Participants were classified as fallers (≥1 fall during 3-months) or non-fallers. Mann-Whitney U test and ROC were used.

Results
Discriminant validity was established. BBS median for fallers was 45 points (n=108; Q₁37 – Q₃51) and for non-fallers 50 points (n=99; Q₁40 – Q₃54) (p=0.003). TUG median was 17.5 seconds (n=108; Q₁12.8 – Q₃27.4) for fallers and 13.2 seconds (n=99; Q₁10.1 – Q₃20.3) for non-fallers (p 0.003).

BBB: Using >44 points¹ as cut-off correctly identified 51% of the fallers and 37% of the non-fallers. Using ≤55² correctly identified 96% fallers and 15% non-fallers.

TUG: A cut-off (19.34 seconds) was chosen by maximizing the sum of sensitivity and specificity resulting in sensitivity at 70% and specificity at 43%.
Discussion
BBS and TUG showed discriminative validity for fallers vs. non-fallers. However, a cut-off yielding both high sensitivity and specificity was not found. A BBS cut-off at ≤55 points is recommended in order to identify as many fallers as possible.