Undergraduate Physiotherapy Research Project Collaboration: The Exploration of the Total Body Rotation Test (MTBRT) for use with Older People in the Community

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Background:

Undergraduate physiotherapy (UGP) research projects are a valuable means of exploring areas of interest.

Collaborative studies can act as initial pilot studies prior to full investigation on targeted populations. Ten Cardiff University (CU) UGP students investigated various aspects of the MTBRT (Stanziano, 2010), an outcome measure used in the USA with older adults in the community with the aim to explore the reliability and validity of the MTBRT.

Method: 3 Correlation studies were undertaken over 3 years; A total of 57 healthy CU staff and students aged between 20 – 59 years participated within the 3 reliability studies and 7 concurrent validity studies. Statistical analysis was undertaken using Interclass, Pearson's and Spearman's Correlation Coefficients.

2014
Matthew Virden, Kate Sloan and Alastair Jones.
Intra-rater reliability; Inter-rater reliability and
Concurrent Validity with Timed up and Go test (TUG).
20 participants; Age range 20-56 years (mean 27 years)

2015
Bethan Trigg, Cara Jameson and Joanna Goodhead.
Intra-rater reliability of Seated MTBRT (sMTBRT);
Concurrent Validity with sMTBRT and Four Square Step Test (4SST).
19 participants; Age range 30—59 years (mean 41.7 years).

2016
Ashley Fraser, Sarah Crowley, Lucy Mills and Laura Sullivan.
Concurrent Validity with Five times Sit-to-Stand test (5xSTS), Step Test (ST); Centre of Pressure total excursion (COPtotex) and Functional Reach Test (FRT).
18 participants; Age range 30-52 years (mean 36.3 years).

Results:
Intra-rater reliability was high for both MTBRT (ICC 0.903, p= 0.00) and sMTBRT (ICC 0.951, p= 0.00).
Inter-rater reliability was also high (ICC 1.00, p= 0.00) for MTBRT.
For concurrent validity, correlation was moderate with TUG
(r= -0.559, p= 0.01), 4SST (r= -0.692, p= 0.001) and sMTBRT
(r= 0.578, p= 0.009); but low with 5xSTS (r= -0.418, p= 0.084), ST
(r= 0,420, p= 0.082), COPtotex (r= - 0.408, p= 0.093) and FRT
(r= 0.424, p=0.08).
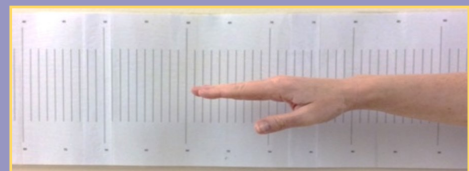
Conclusion:
Ten UGP research studies have provided pilot data exploring the reliability and validity of the MTBRT on a healthy population aged 20-59 years old. Results indicate that the measure is reliable in it standing and sitting forms. They show a moderate correlation with TUG, 4SST and sMTBRT, presently used with the older adult population and containing similar physical challenges as the MTBRT.
These could now be tested with an older age population to test the MTBRT's validity for that population.

Reference: Stanziano, D. et al. 2010. The Modified Total Body Rotation Test: A rapid, reliable assessment of physical function in older adults. Journal of the American Geriatrics Society 58(10), pp. 1965-1969.