ESSENTIAL ARTICLES OF PM&R

RESEARCH

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Conducting systematic evidence reviews: Core concepts and lessons learned. Brown PA, Harniss MK, Schomer KG, Feinberg M, Cullen NK, Johnson KL. Archives of Physical Medicine and Rehabilitation 2012;93(8):S177-S184. Any physician, even those who may never enter the "research realm" after residency, should at least have a decent knowledge of trial designs and systematic reviews.


A power primer. Cohen J. Psychological Bulletin 1992;112(1):155-159. This is a short, excellent paper on estimating a-priori power written by one of the great minds of statistical analysis, Jacob Cohen, whose textbook - Statistical Power Analysis for the Social sciences – remains a must-read. The user friendly sample size/power tables are extremely handy.


The following section consists of 5 pairs of papers. Each pair is intended to be dyadic and complementary. The first paper (bolded) in each pair is an article discussing a specific statistical technique, methodology or research issue. The second article was selected to provide a pragmatic example of the statistical technique, methodology or research issue presented in the first article. For example, the paper by Haley and Fragala-Pinkham provides theory about measurement error and variability and recommendations for interpreting change scores and their clinical significance for providers, researchers and consumers. The study by Steffen and Seney aims to distinguish between clinically significant
change and change due to measurement error for various widely used standardized mobility and timed performance tests including the Berg Balance Scale, Romberg Test, six minute walk test and timed up and go test. We hope that presenting the lessons in this dyadic format will add to the enjoyment, relevance and benefit.

1. Interpreting change scores of tests and measures used in physical therapy. 

Test-retest reliability and minimally detectable change on balance and ambulation tests, the 36-Item Short Form Health Survey, and the unified Parkinson disease rating scale in people with parkinsonism.
Steffen T, Seney M. Physical Therapy 2008;88(6):733-746


Life satisfaction after traumatic brain injury.

3. How to assess the reliability of measurements in rehabilitation. 

How active are people with stroke? Use of accelerometers to assess physical activity.

4. The k statistic in rehabilitation research: An examination. 

The intra- and interrater reliability of the action research arm test: A practical test of upper extremity function in patients with stroke.
5. Developing, testing, and sustaining rehabilitation interventions via participatory action research.

TBI-QOL: Development and calibration of item banks to measure patient reported outcomes following traumatic brain injury.