Proportional Recovery: Maxim or Myth – DEBATE

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Expert Panel:
Tied into the list of preferred topics, this would be a proposal to form a panel of experts to discuss one of the topics being showcased. The proposal would need to contain a proposed method of discussion, and the names of potential panelists. The objective would be to explore the topic thoroughly and interactively, from the experience and perspectives of the expert panelists.

Educational Objectives:
1: On completion of this symposium participants will have a better understanding of spontaneous recovery and how the proportional recovery rule was created.
2: On completion of this symposium participants will understand that recent analyses may suggest that proportional recovery effect sizes may be inflated and biased because of the properties (including mathematical coupling and ceiling effects) used to derive the proportional recovery rule.
3: On completion of this symposium participants will understand there is an underlying anatomical and physiological mechanism to explain proportional recovery and how the math and anatomical considerations may yet agree.

Synopsis: Spontaneous biological recovery takes place in the initial days and weeks after stroke and is the most powerful form of post-stroke recovery ever described. Remarkably, this results in most patients recovering about 70% of the available improvement in motor impairment. This "proportional recovery" rule asserts that most stroke survivors recover a fixed proportion of lost function. To the extent that this is true, recovery from stroke can be predicted accurately from baseline measures of acute post-stroke impairment alone. However, recent analyses suggest that these effect sizes may be inflated and biased because of the properties (including mathematical coupling and ceiling effects) used to derive the proportional recovery rule. The implication is that recovery after stroke may not be as proportional as recent studies suggest. Nevertheless, a decade of data continues to empirically support proportional recovery; further, there is an underlying anatomical and physiological mechanism to explain proportional recovery. In this debate, Gert Kwakkel, one of the most prolific publishers on the topic of proportional recovery, will define and defend its use. Rachel Hawe and Thomas Hope will use their recent data to question the mathematical and clinical utility of this model. Finally, John Krakauer, the investigator who originally described proportional recovery, will describe proportional recovery's mechanism and defend proportional recovery's utility.

Presenters: Gert Kwakkel. (alternate Cathy Stinear) VU University Medical Centre in Amsterdam in The Netherlands. email: g.kwakkel@vumc.nl Rachel L. Hawe (alternate Sean P. Dukelow) email: rachel.hawe@ucalgary.ca Thomas Hope (alternate Howard Bowman) email: t.hope@ucl.ac.uk John Krakauer (alternate Prabakharan). Johns Hopkins. email: jkrakau1@jhmi.edu

D**iversity:** Three of the presenters are from outside of the USA (Kwakkel, Hawe, Hope). One of the presenters is a woman (Hawe). One of the presenters is early career (Hope). This presentation is a novel discussion and will involve intersections of math, radiology, and clinical predictions. this debate is based upon recent publications calling into question the utility of the proportional recovery model. A rebuttal has also recently been submitted in response to the Hope and Hawe papers.

Schedule: 00min - 15min: Title #1: PRO Proportional Recovery – clinical description and utility Speaker #1 Gert Kwakkel 15min - 30min: Title #2: ANTI Proportional Recovery – mathematical coupling Speaker #2 Rachel L. Hawe 30min - 45min Title #3: ANTI Proportional Recovery - Ceiling effects Speaker #3 Thomas M. Hope 45 min - 60 min Title #4: PRO Proportional Recovery Speaker #4 John Krakauer 60 - 90 min AUDIENCE DEBATE.