Enriched Environments – How animal data will drive virtual recovery space

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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.
PLEASE NOTE: This could also be turned into a debate. Can discuss on Program Committee call.

Educational Objectives:
1: On completion of this symposium participants will have a better understanding of the preclinical basis of enriched environments and the underlying molecular mechanisms.
2: On completion of this symposium participants will have an appreciation of how enriched environments might be translated to clinical practice.
3: On completion of this symposium participants will have a better understanding of how one might embed an enriched environment in an acute stroke unit as well as explore how one might create novel virtual environments.

Synopsis: Preclinical work has shown the importance of enriched environments on post-stroke recovery. Enriched environments are designed to enhance sensory, motor, and cognitive stimulation by providing equipment, stimulation, open spaces, and a desire to want to engage in rehabilitative interventions. In rodent experiments, enriched environments include toys, ramps, tubes, mirrors, ropes, and the ability to interact with other animals. Rodents exposed to enriched environments early (but not late) post-stroke showed improved motor performance even on tasks for which they did not receive specific training. The proposed mechanisms of action are plethoric and may relate to multiple molecular pathways. Translating an enriched environment to human patients may take several forms including access to iPads, books, puzzles, games, music, and interaction with other people. Additionally, one could imagine enrichment using virtual / augmented environments with video games and other technology that would not only increase dose and enjoyment. In this symposium, we will explore the preclinical basis of enriched environments and the underlying molecular mechanisms. We will then explore how enriched environments might be translated to clinical practice. Notably, we will explore how one might embed an enriched environment in an acute stroke unit as well as explore how one might create novel virtual environments. The preclinical and clinical data for each approach will be discussed.

Presenters: Symposium Moderator and Introducer: John Krakauer, Johns Hopkins email: jkrakau1@jhmi.edu Dale Corbett, University of Ottawa email: dcorbett@uottawa.ca Daphne Bavelier, University of Geneva email: daphne.bavelier@unige.ch Adam Gazzaley, UCSF email: Adam.Gazzaley@ucsf.edu

Diversity: Two of presenters are not from the USA (Corbett and Bavelier). One of the presenters is a woman. This area of research can apply to all neurological injury and not just stroke.

Schedule: 00min – 10min Introduction and why this is important Intro speaker: John Krakauer 10min – 25min Title #1: Synergistic Effects of Enriched Environment and Task-Specific Reach Training on Post-stroke Recovery – Preclinical data. Speaker #1 Dale Corbett 25min – 30min questions 30min – 50min Title #2: Action video game training for enhancement of motor performance Speaker #3 Daphne Bavelier 50min – 55min questions 55min – 75min Title #3: Virtual environments for post-stroke optimization Speaker #3 Adam Gazzaley 75min – 90min Questions