The Effects of Neurofeedback Training on the Resting State Brain Networks

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Introduction

Studies have shown effects on brain plasticity and behavior in response to the neurofeedback training[1]. In the network analysis using graph theory methods, modularity relies on the concept that regions of the brain do not work isolated from one to another and regions that are not anatomically connected are often highly functionally connected[2]. It has been shown that modularity – the balance between network segregation and integration - changes with aging and in pathological conditions[3]. How does neurofeedback training affect brain modularity and translate it into behavior?

Methods

- The data under analysis here has been previously published[1].
- Forty healthy participants, randomly assigned to form the NFB or sham group.
- Behavioral and motor assessments.
- Motor imagery-neurofeedback training, with resting-state fMRI performed immediately before and after.
- Graph analysis focused on network segregation.

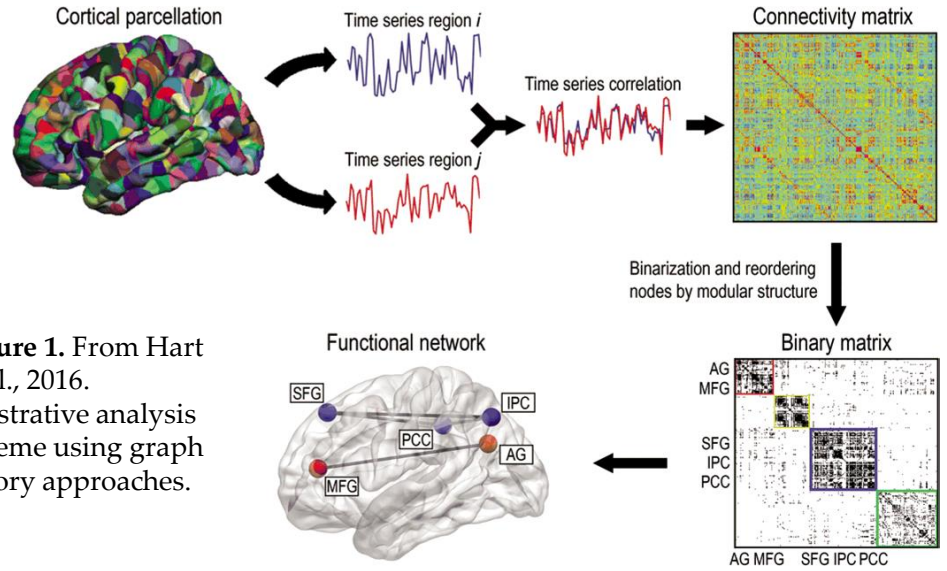

Figure 1. From Hart et al., 2016. Illustrative analysis scheme using graph theory approaches.

Expected Results

This is an ongoing study, in which we hypothesize that neurofeedback training promotes greater intrinsic integration in the motor network and its greater segregation, resulting in better motor performance.

References
1. Marins et al. Neuroimage. 2019.
2. Song et al. Brain Connectivity. 2014.
3. Cassady et al. Neuroimage. 2019.