

Neuroimaging Challenges

Group Averages

1. People are like sushi,...



...similar in some regards, different in others.



2. Common group analyses are based on differences between group averages.



Group averages may discount individual variability for the aim to describe a typical process. By ignoring individual features, the group mean may not describe any one person's complex nature correctly and so may have limited value for individual predictions



3. Even within group of individuals with a common variable (e.g. patients/controls), no two subjects are exactly alike.



How could we potentially improve individual prediction or knowledge?

RDoC: transdiagnostic approach describing shared and distinct facets of individuals across all



Collaborations:



Collaborative efforts for increasing the number of datapoints and thus power in comparison to single site studies

Repeated measures assessments: studying variations within a single individual

Reprinted with permission from: Finkler & Behrmann (2019). Studying individual differences in human adolescent brain development. *Nature neuroscience*, 12(10), 1714-1722. doi:10.1038/s41593-019-0507-4. Gordon, Lammann, Gilman, Newbold, Green, Berg, ... & Dombashi (2017). Precision functional mapping of individual human brains. *Neuron*, 95(4), 791-807.