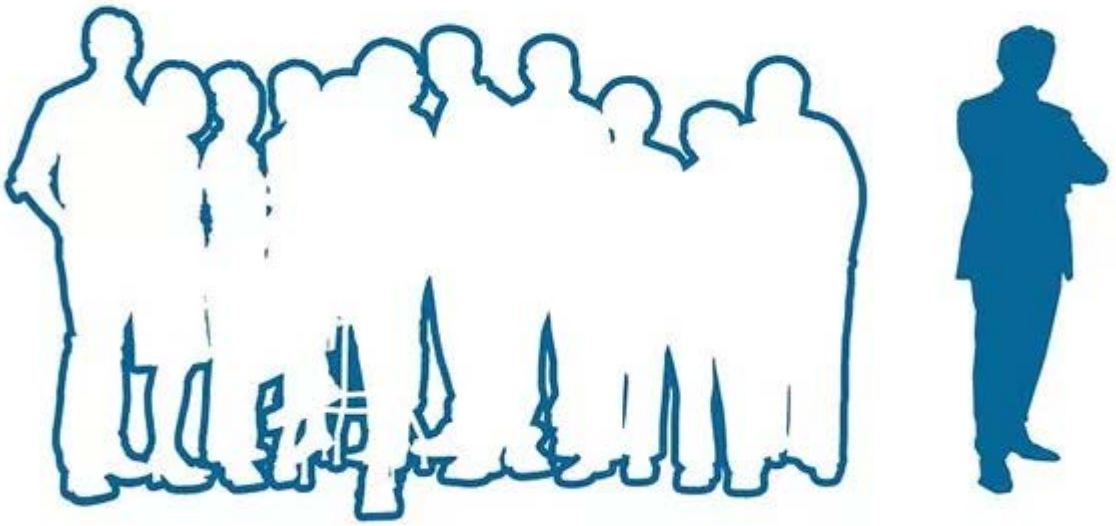


Neural connectivity and social interaction

Ralf Schmälzle, Matthew Brook O'Donnell, Javier O. Garcia, Christopher N. Cascio, Joseph Bayer, Danielle S. Bassett, Jean M. Vettel, and Emily B. Falk

Findings

- Differences in social networks modulate brain connectivity during social exclusion
- Social pain, mentalization
- Increased connectivity in mentalizing regions for users with sparser friend networks

Play Cyberball

fMRI their brains

Determine connectivity

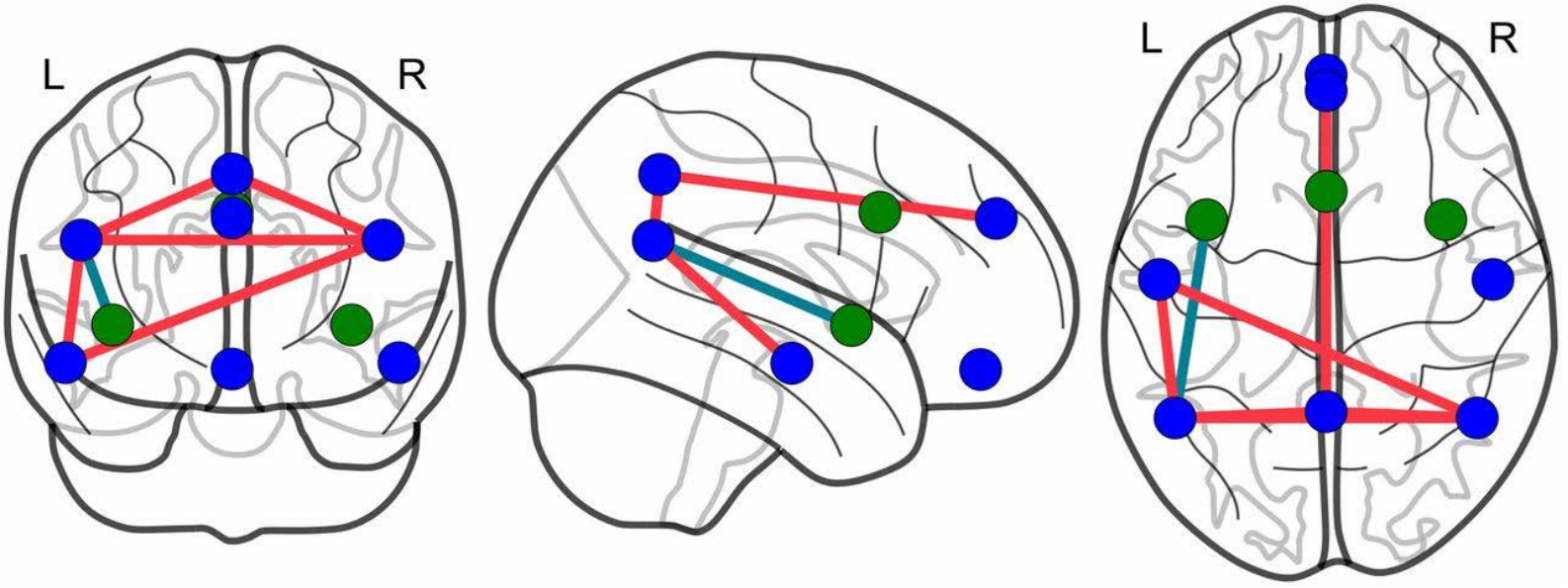
Look at connectivity and social networks

Data

- 80 adolescent males age 16-17 with Facebook accounts
- Ego network (your friends that are friends with each other), from Facebook

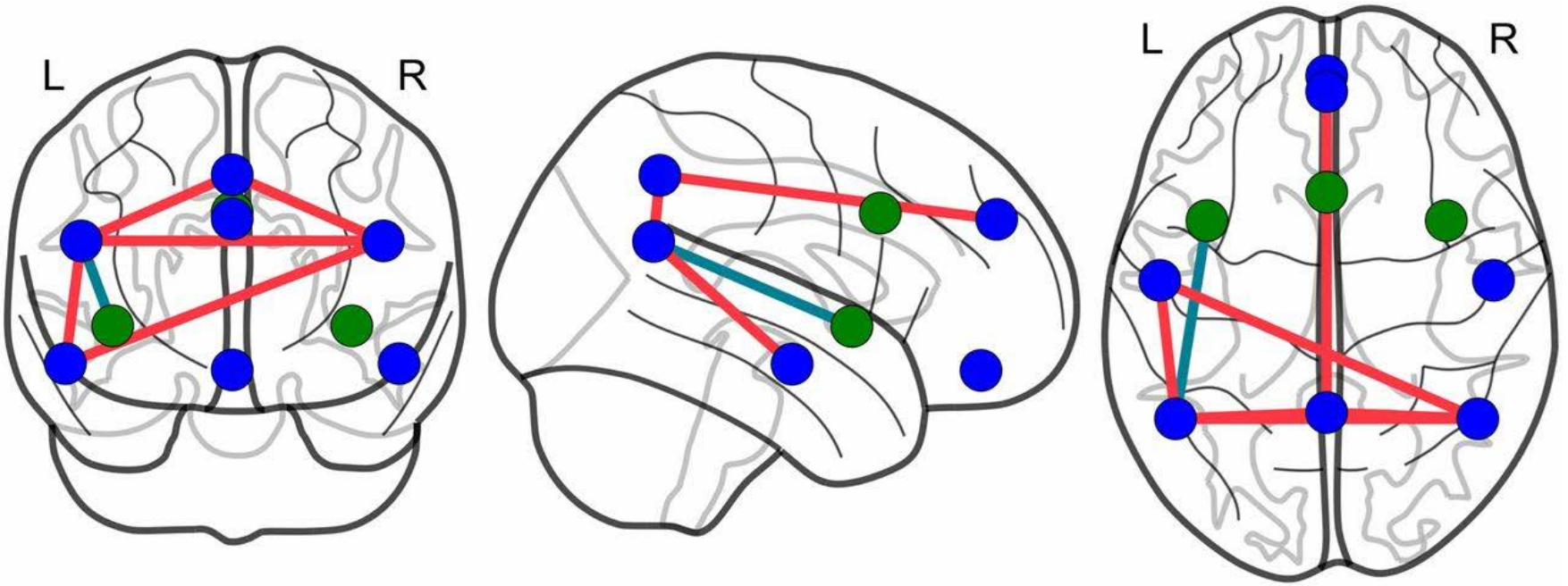
Data

- Meta-analysis of Neurosynth to derive regions associated with “social pain” and “mentalizing”
  - Mentalizing: Representing the mental states of others
- fMRI scans of their brain while they played Cyberball



Cyberball

- Boring name
- Boring game



BLUE NODES: Mentalizing GREEN NODES: Social pain

- Connectivity as correlation in time series data

Results

- Sparse ego network → Greater mentalization connectivity
- Relationship is likely bidirectional
- This may mean people in sparser networks are forced to use mentalize differently

Extensions

- Analysis of the whole brain
- Analysis of the connectivity over time

Concerns

- Participants were all pre-adult men?
- What does this say about social or neural networks?
- Still a neuroscientist and a microprocessor?

Thanks!