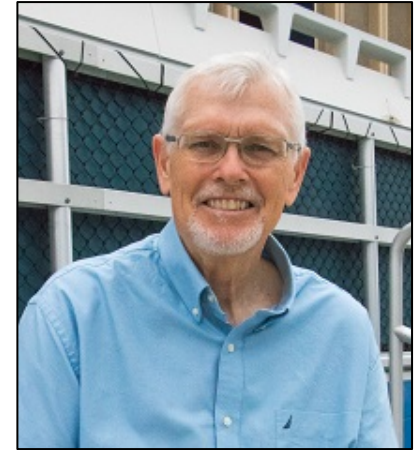




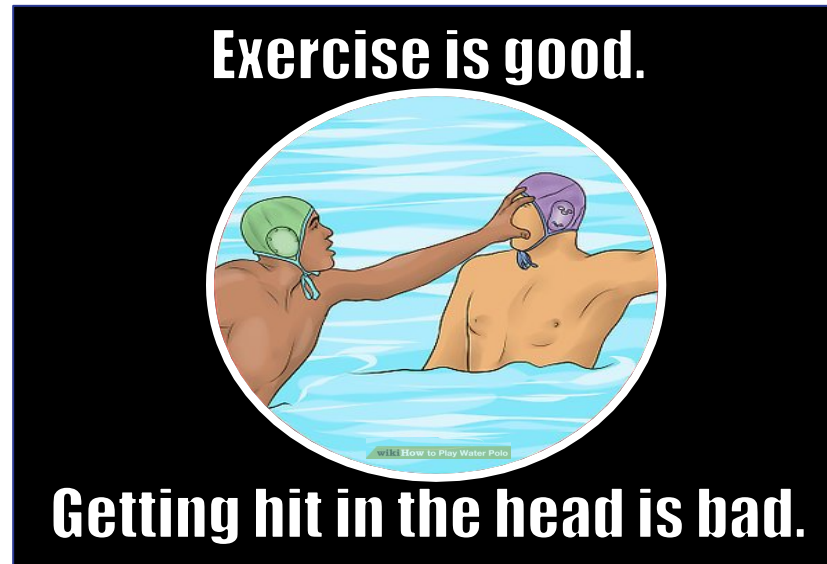
Steven L. Small, MD, PhD



James W. Hicks, PhD

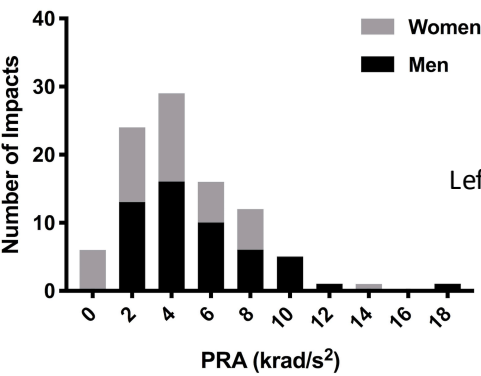
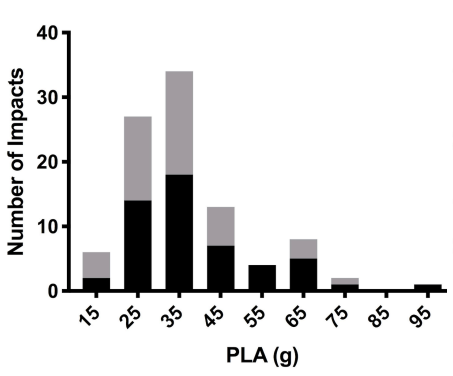


Derek C. Monroe, PhD
dcmunroe@uci.edu

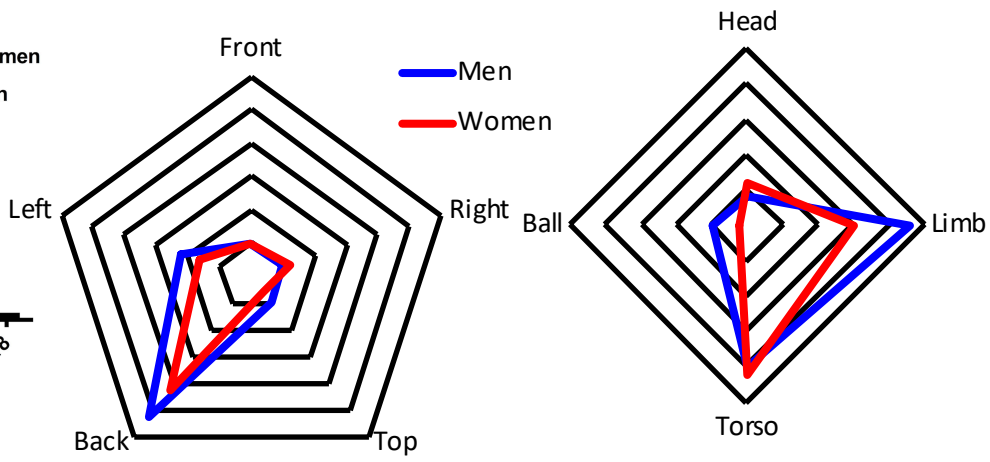


Nicholas Cecchi

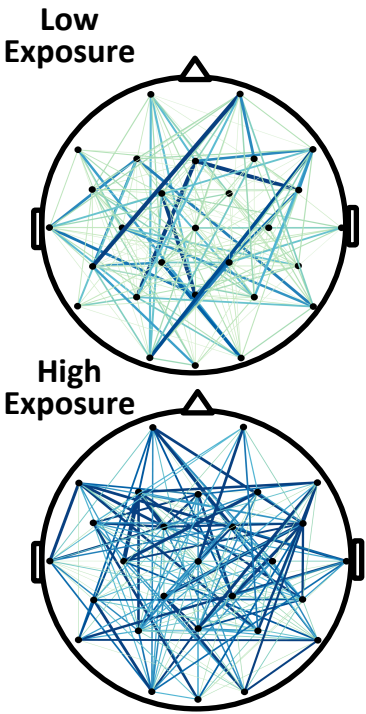
What are the patterns of risk in water polo?



Cecchi, Monroe, et al. Under Review

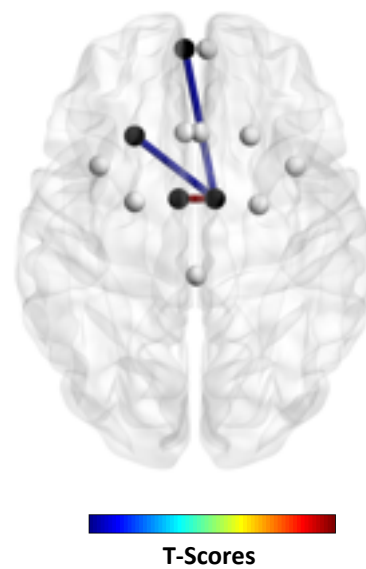


What effect do these impacts have on brain function?

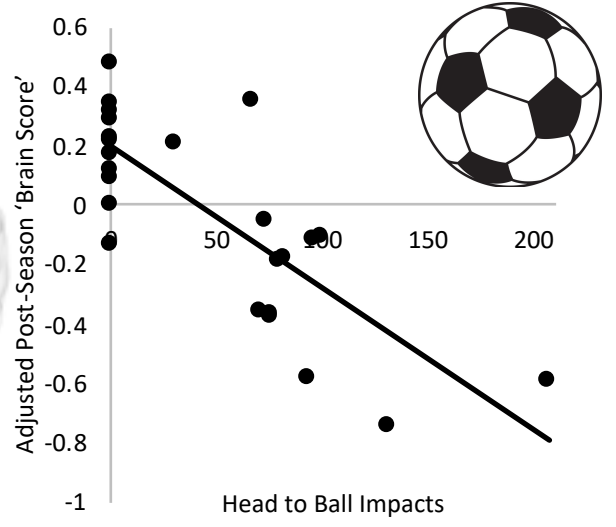


- ↑ Functional connectivity
- ↓ Betweenness centrality
- ↓ Neural Complexity
- ↓ Inhibitory Control

Monroe et al., Under Review



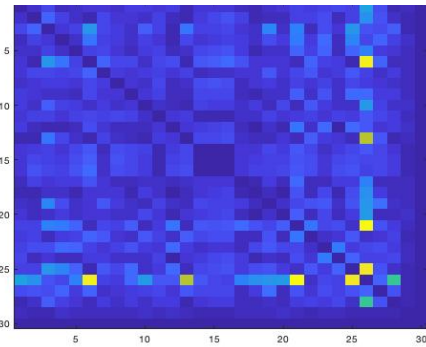
Monroe et al., Under Review



- ↓ FC w/ Right Hypothalamus
- ↓ 'Proactive' Cognitive control

Ongoing Collaborations & Future Directions

Associations Between CR Fitness and Brain-Heart Interactions



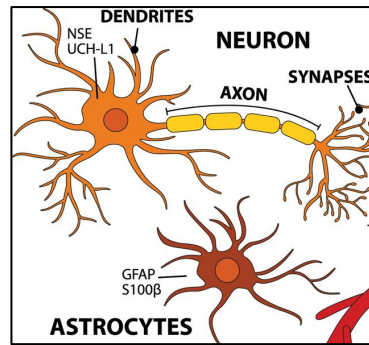
Low Fit



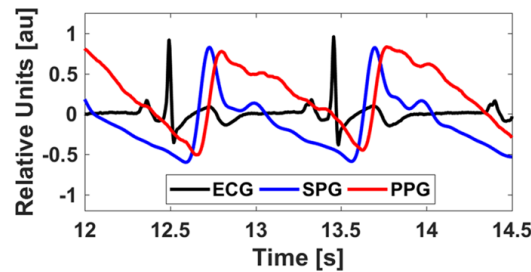
High Fit

Biomarkers of Brain Injury due to Repetitive Head Impacts

UCI Institute for Interdisciplinary Salivary Bioscience Research



UCI Beckman Laser Institute & Medical Clinic



Dunn, Monroe, et al., 2019

Re-constructing and Modeling Head Impacts in Rugby

UCI Samueli
School of Engineering
University of California, Irvine

