RESEARCH PRESENTATIONS

CLINICAL

Thomas Buckley
Roxana Burciu
Matthew Cohen
Jennifer Semrau
Concussion & Repetitive Head Impacts
Thomas Buckley, Assoc Prof, KAAP

- Concussion & Postural Control (NIH NINDS R03, NCAA/DoD CARE (Co-Site PI, Kaminski)
  - Subsequent musculoskeletal injury (Collaborators: Swanik, UK, Harvard/BCH)
  - Future: Rehabilitation & Injury Prevention Programs
- Repetitive Head Impacts (RHI) &
  - Neuroimaging (MRI, fMRI, DTI, MRS, MRE) with Curtis Johnson (ONR)
  - Clinical Neurological Screening & instrumented postural control
  - Future: Blood & Saliva Biomarkers (Hudson)
- Age of First Exposure to RHI (NCAA/DoD CARE)
  - Cognitive function, Clinical Neurological Screening, instrumented postural control
  - Future: Prospective, Longitudinal
- Desired Collaborators: Neuropsychology & Cognitive Assessment
Human motor control and its disruption in movement disorders

What?

- Understanding how movement-related brain circuits change in Parkinson’s disease to give rise to motor symptoms.
- Identifying neuroimaging signatures that can aid distinguishing clinical subtypes.
- Neural and behavioral markers of the prodromal stage.

How?

FUNCTIONAL & STRUCTURAL MRI

PARKINSON’S DISEASE

Substantia Nigra Dopaminergic Neurons

Upper Limb Force Measurement

Lower Limb Force Measurement
Clinical neuropsychologist
• Clinical psychologist who specializes in the behavioral assessment of cognition, emotion, and behavior, especially assessment of individuals with neurological conditions (AD, PD, stroke, TBI)

Work I lead
• Development and dissemination/implementation of patient-reported outcome measures for adults with cognitive/communication disorders, particularly for speech-language therapy applications
• Mixed-methods approaches to understanding the appraisal processes underlying perception of health and well-being

Work I support
• Psychometric/clinical evaluation of the NIH Toolbox – Cognitive Battery in neurological rehabilitation populations (PI: Tulsky, CHART)
• Assessment of cognitive variables that may mediate response to post-stroke gait rehabilitation (PI: Reisman, Dept. of PT)
• Assessment of cognitive response to lifestyle interventions (PI: Johnson, Dept. of BME)(PI: Martens, Dept. of KAAP)
• Community-based memory screening for Delaware seniors (collaboration with Christiana Care’s Swank Memory Disorders Clinic)
We care about...

- Sensorimotor impairment and learning after stroke
  - 1) Relationship of eye movements and proprioception of the limb
  - 2) Multi-modal learning after stroke (motor, proprioceptive, visual)
  - 3) Implementing assessment-based robotic rehabilitation