

# Dan Mungas, PhD

UC, Davis

# Areas of Investigation with Respect to Reserve and Resilience

- Population Studied: Diverse (race/ethnicity, education, cognitive function) older adults
- Methods: Cognition, MRI, Longitudinal
- I have worked on developing conceptual and analytic methods to operationalize reserve based on the mismatch between cognitive performance and performance expected on the basis of brain status and demographic characteristics

# Concepts Used In Research

- **Reserve** → The discrepancy between measured cognitive performance and the level of performance expected on the basis of brain and demographic variables
  - Reserve is operationalized as residual cognition not explained by brain and demographics
  - A critical criterion for construct validation of a reserve indicator is that higher putative reserve reduces the effect of brain injury on cognitive decline
- **Maintenance** → Maintenance (absence of loss) of normal brain structure
  - Operationalized using longitudinal brain volume change

# Example of Data that Address One Concept

- Concept: Reserve change in association with change in clinical status (diagnosis)
- Measure: Dynamic change in residual reserve index
- Operational definition: Reserve change is operationalized as residual cognitive change not explained by brain baseline and change and demographics
- Interpretation: Dynamic change in reserve tracks with declining clinical status

