

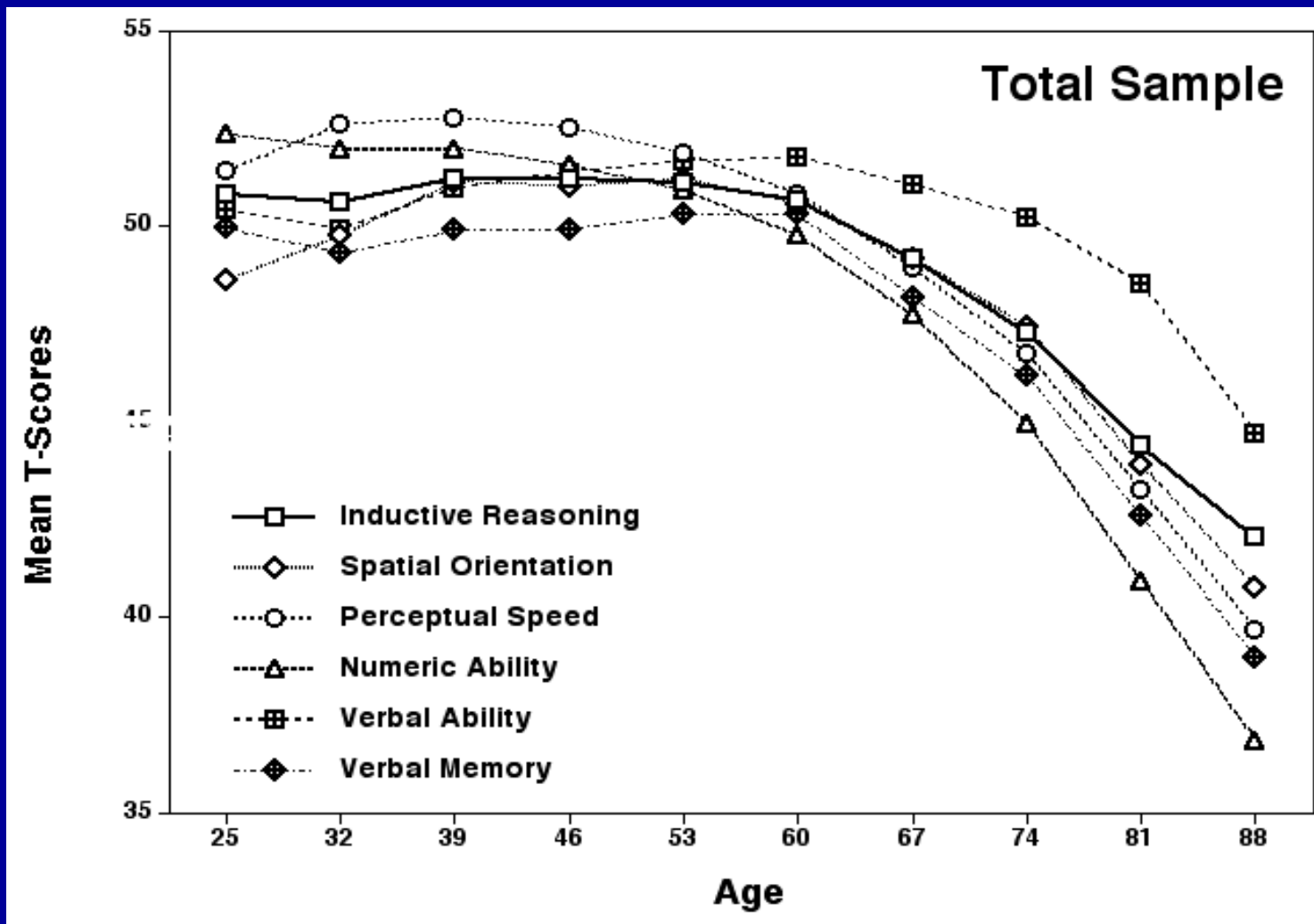
# Variability in Midlife Cognition: Outcomes in Old Age

Sherry L. Willis

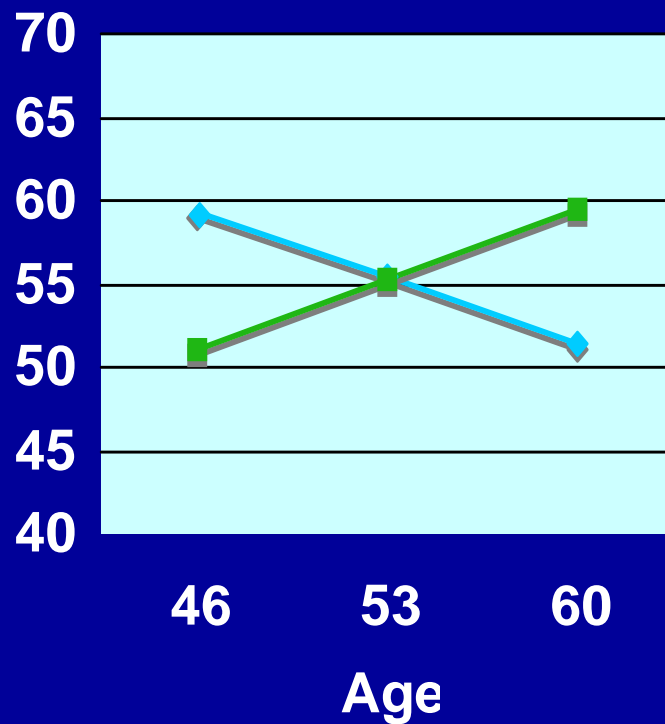
The Pennsylvania State University

Research Support National Institute on Aging (AG 08055)

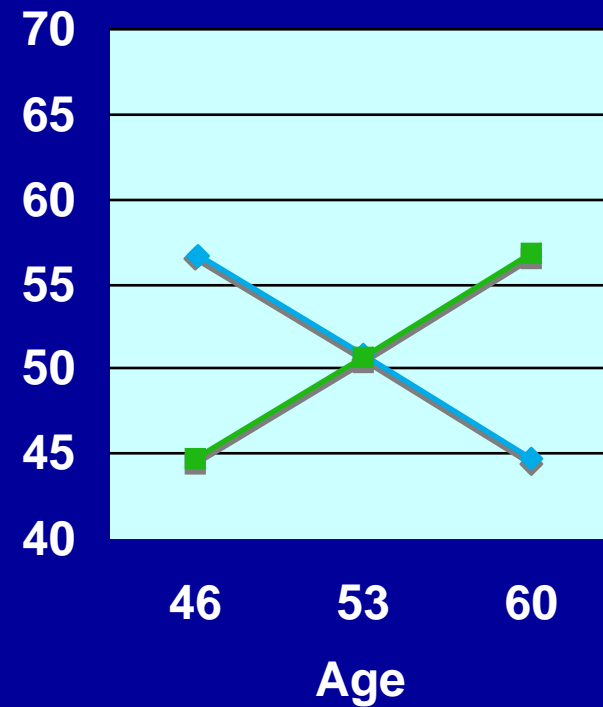
# Longitudinal Cognitive Change



# Variability in Cognitive Functioning in Midlife: Executive Ability & Immediate Recall



◆ Decliners: Exe  
■ Gainers: Exe

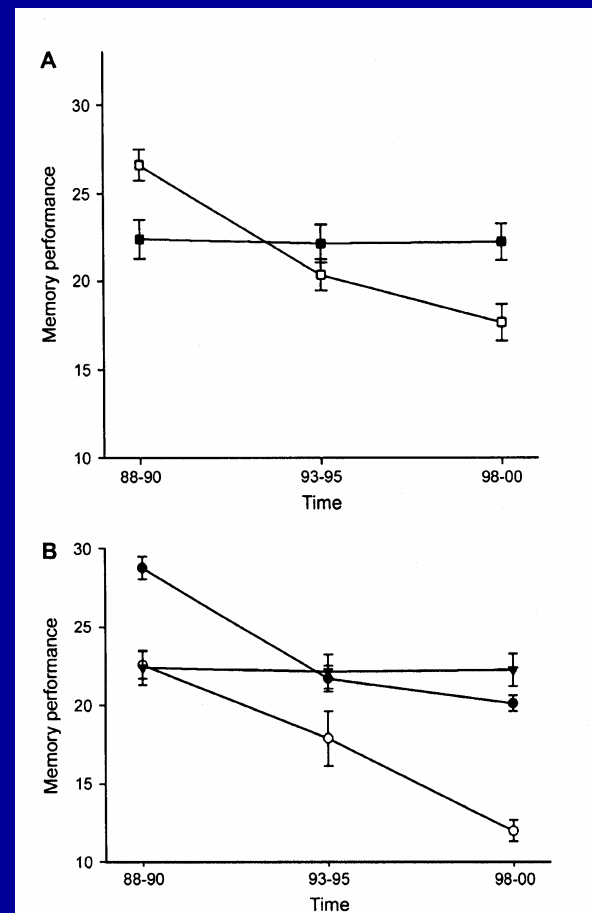


◆ Decliners ■ Gainers

- Swedish Research on Differential Memory Trajectories in Midlife

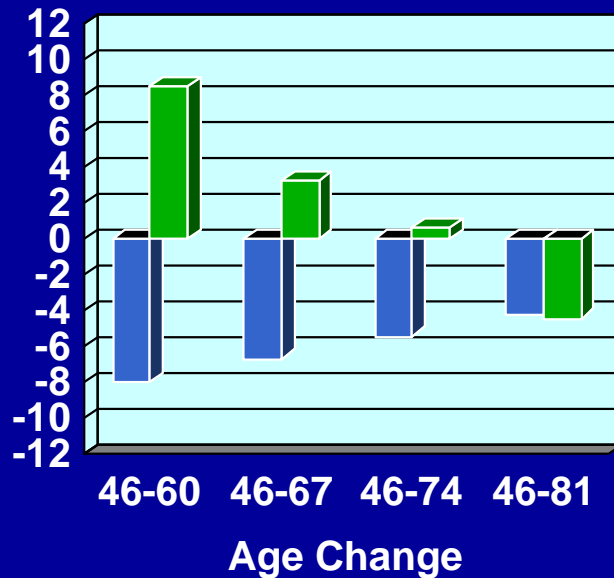
- Decline group:
  - Decline from high to moderate level of performance
  - Decline from moderate to low level of performance

(Pearson et al., 2005)

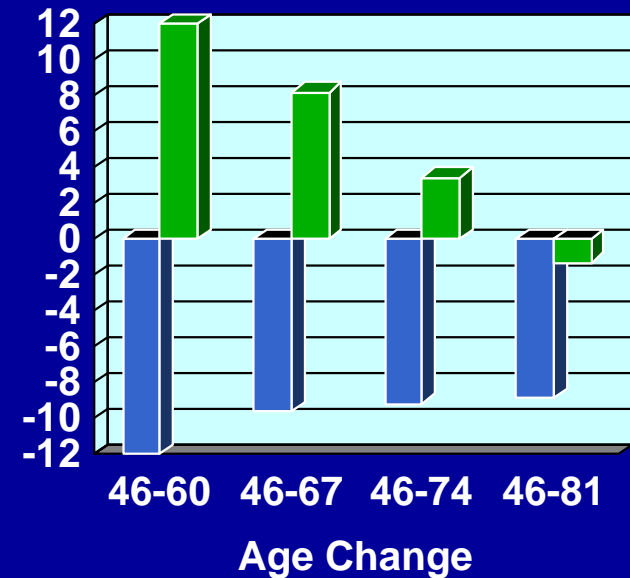


**Figure 1.** Memory performance over time (assessed by the sum of three episodic memory tests). Groups were divided into individuals showing either stable memory performance over time or declining memory performance over time (A). The declining group was further subdivided into individuals declining from a high to a moderate level of performance, and individuals declining from a moderate to low level of performance (B). Error bars show SEM.

# Executive Ability & Immediate Recall: Magnitude of Age-Related Change in Midlife & Old age

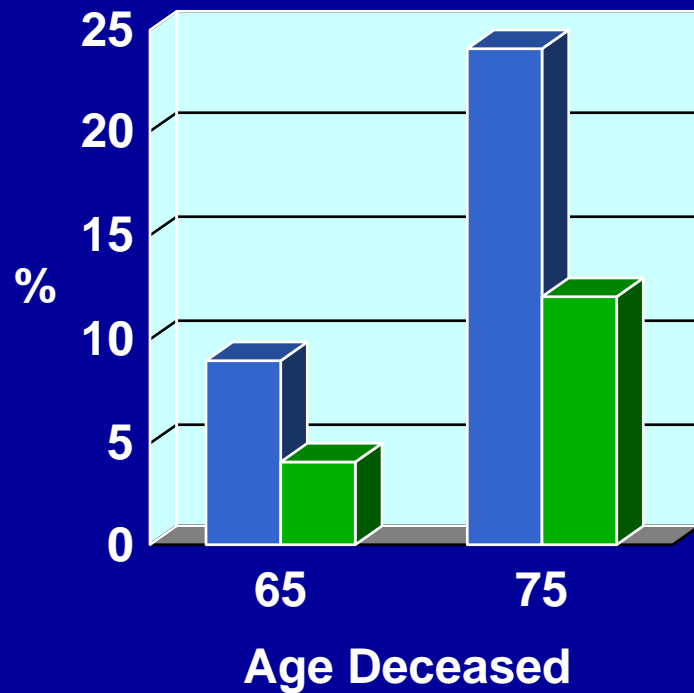


■ Decliners: Exec ■ Gainers: Exec

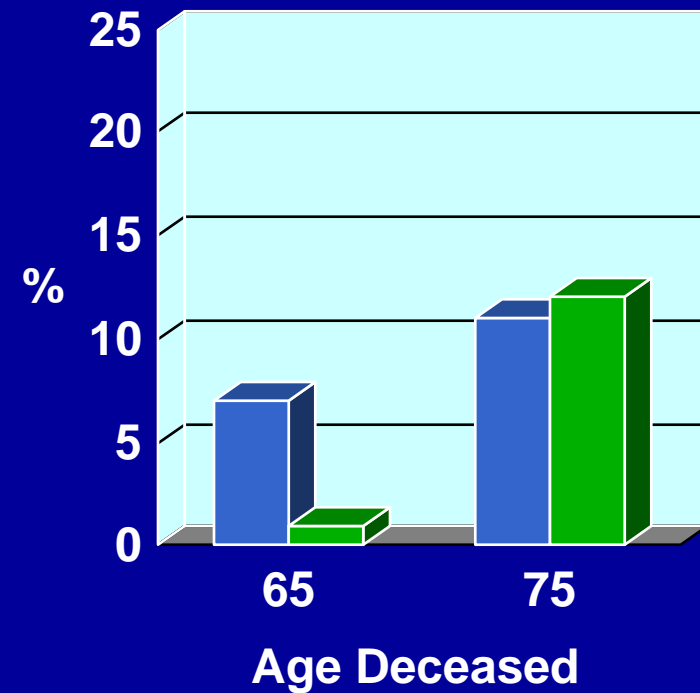


■ Decliners: Recall ■ Gainers: Recall

# Age at Death by Change Status in Midlife

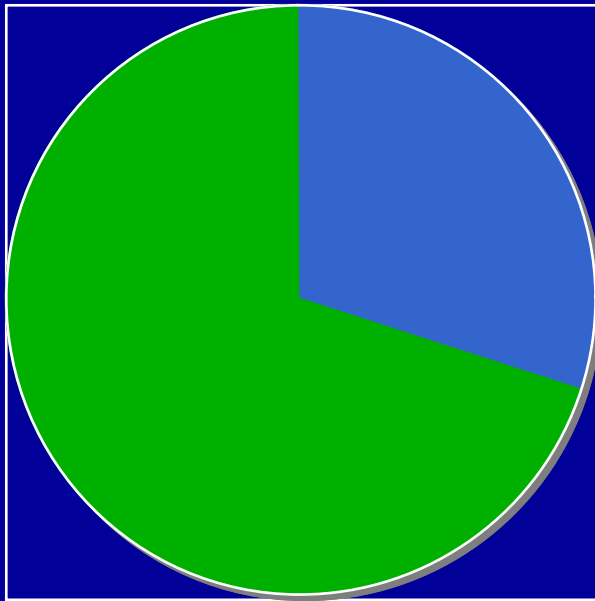


■ Decline:Exec ■ Gain:Exec

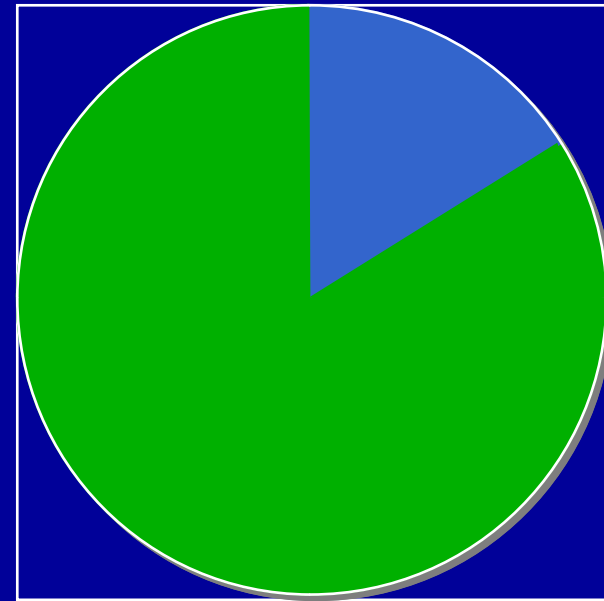


■ Decline:Recall ■ Gain:Recall

# Midlife Change in Multiple Abilities



■ Dec Ex & Recall  
■ Dec Only Recall



■ Gain Ex & Recall  
■ Gain Only Recall

# Midlife Change Status in Memory: Brain Volume in Old age

- Midlife Decliners on Memory:
  - Larger Hippocampal CSF to Hippocampal volume ratio
  - Larger Entorhinal CSF to Entorhinal volume ratio
  - Smaller whole brain to intracranial volume ratio
  - Smaller whole brain white matter to whole brain volume ratio