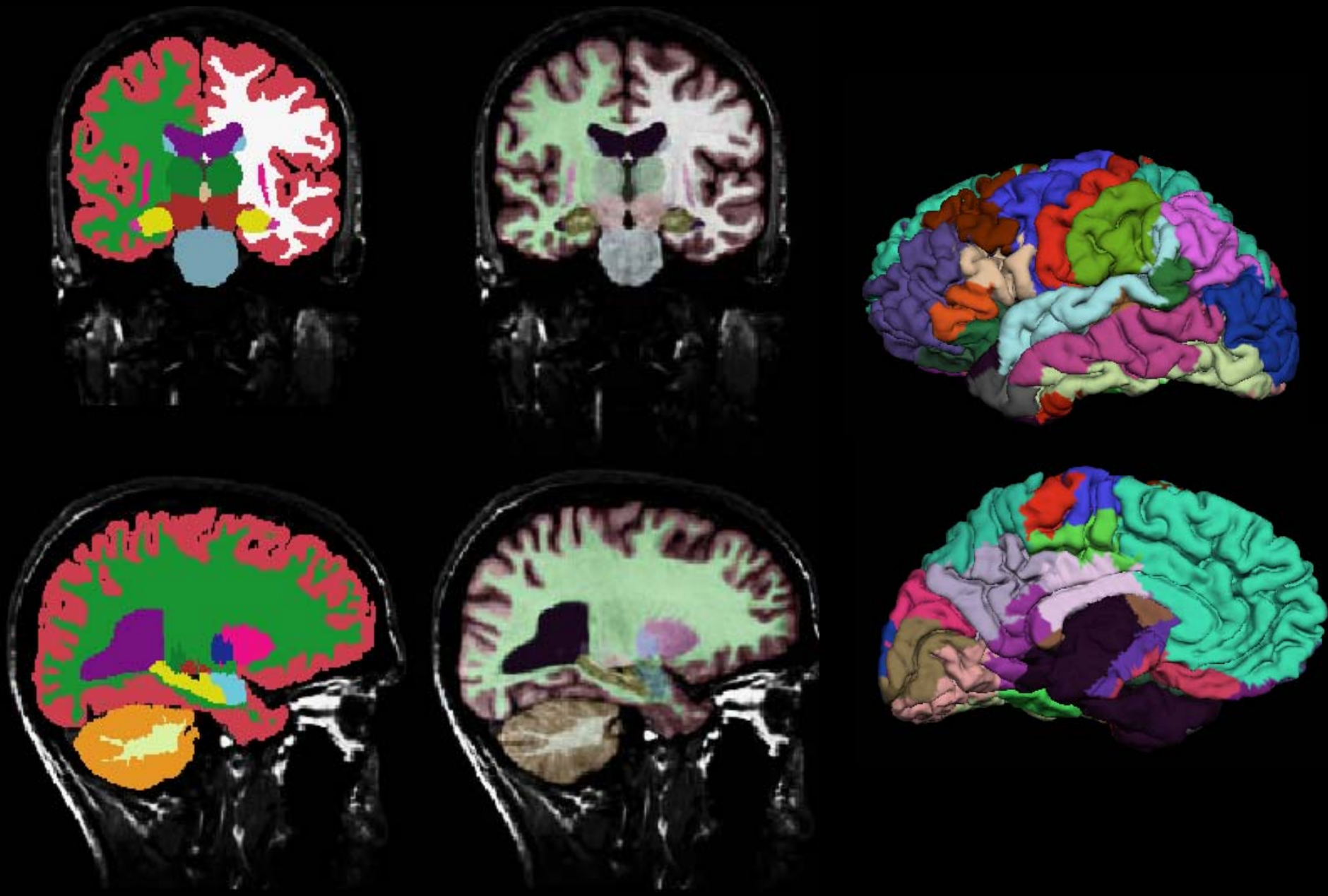


Anatomy in Parkinson's: What can we see with MRI?

Volume & Thickness



Substantia Nigra: Inversion Recovery

- SN notoriously difficult to visualize on conventional T1-weighted images
- Techniques employed (with varying success)
 - Pulse sequences sensitive to iron deposition
 - Width of SNpc on T2-weighted images
 - Indirect measures of DA in striatum (PET & SPECT)
 - No ideal MRI-based method
- Inversion recovery (Hutchinson & Raff, 1999; 2000)
 - One pulse to suppress white matter another to suppress gray matter
 - Signal change seen in both images
 - Use ratio of images to increase sensitivity
 - ROI-based analyses → within Ss ratio of lateral:medial signal intensity
- May be useful for staging of disease or detecting presymptomatic cases

Area of SN in PD

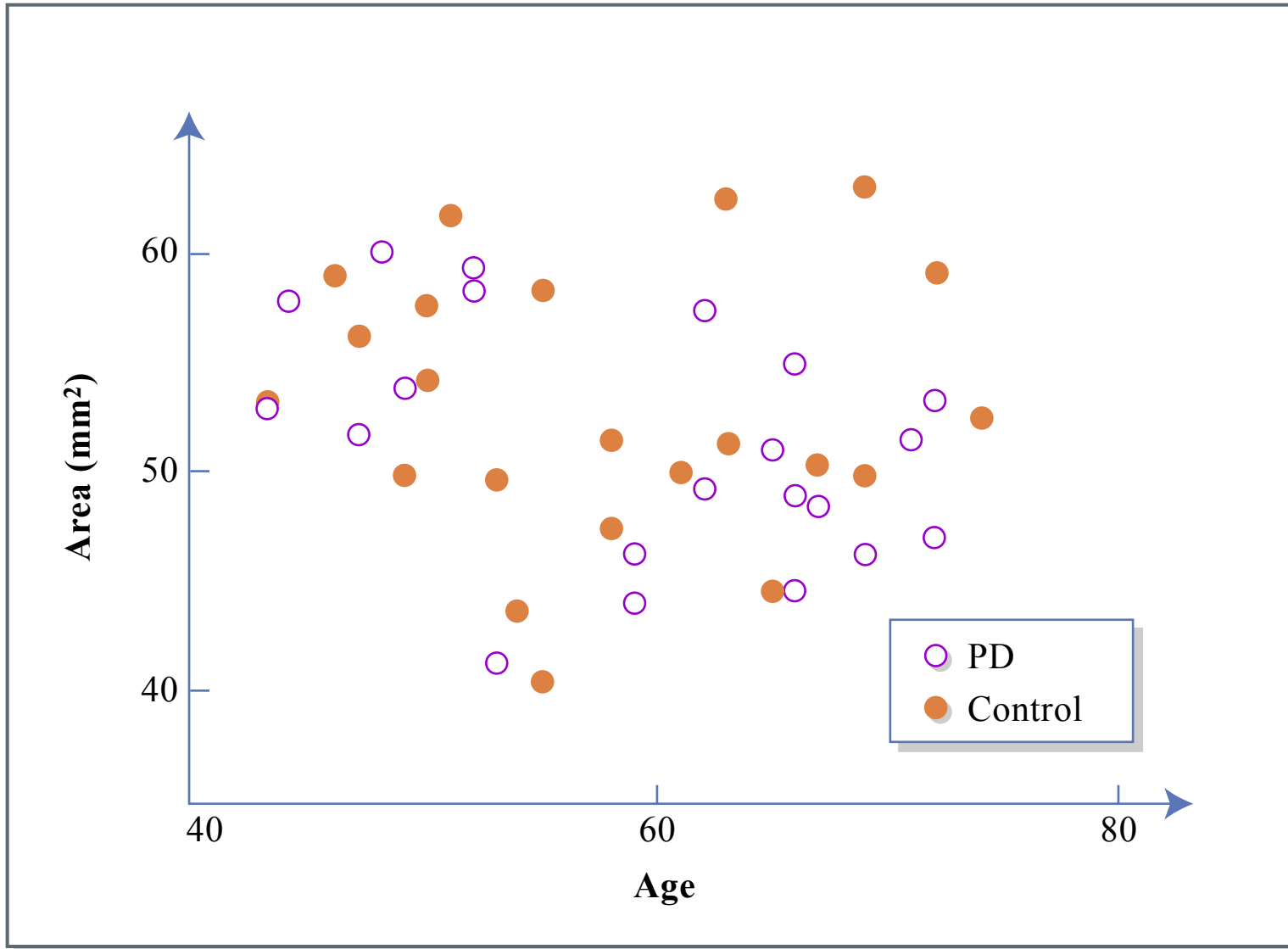


Figure by MIT OCW.

Oikawa et al (2002)

Substantia Inominata

- Region that includes nucleus basalis of Meynert (cholinergic)
- Visible on T2-W MRI
- Atrophic in Alzheimer's
- Thickness measured in PD
 - Controls, non-demented PD, & PD w/ mild dementia (MMSE < 23)

Correlations with SI Thickness

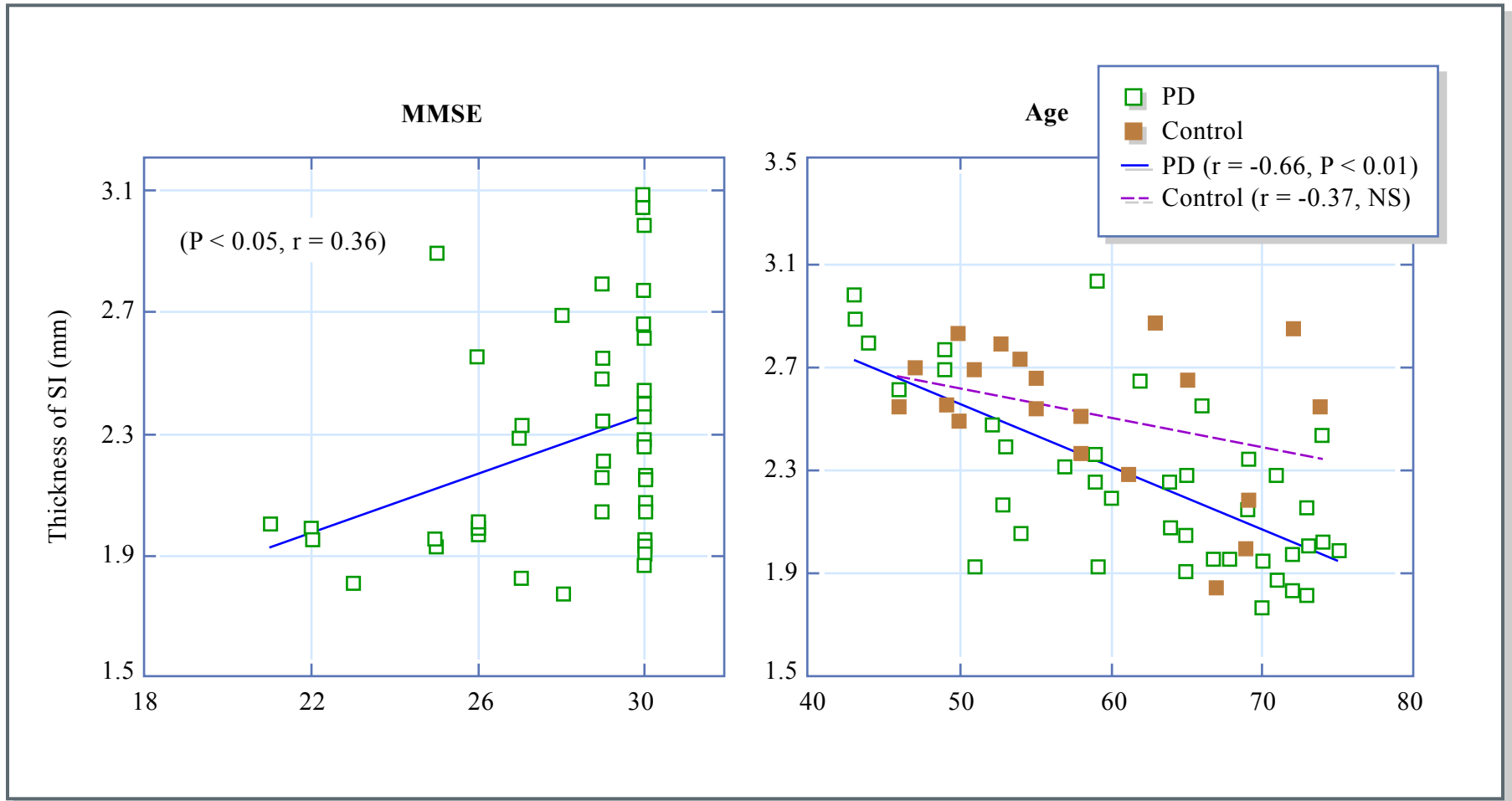


Figure by MIT OCW.