New Images of Memory and the Aging Brain:

Challenges and Prospects in Treatment and Research for Alzheimer's and Brain Injury

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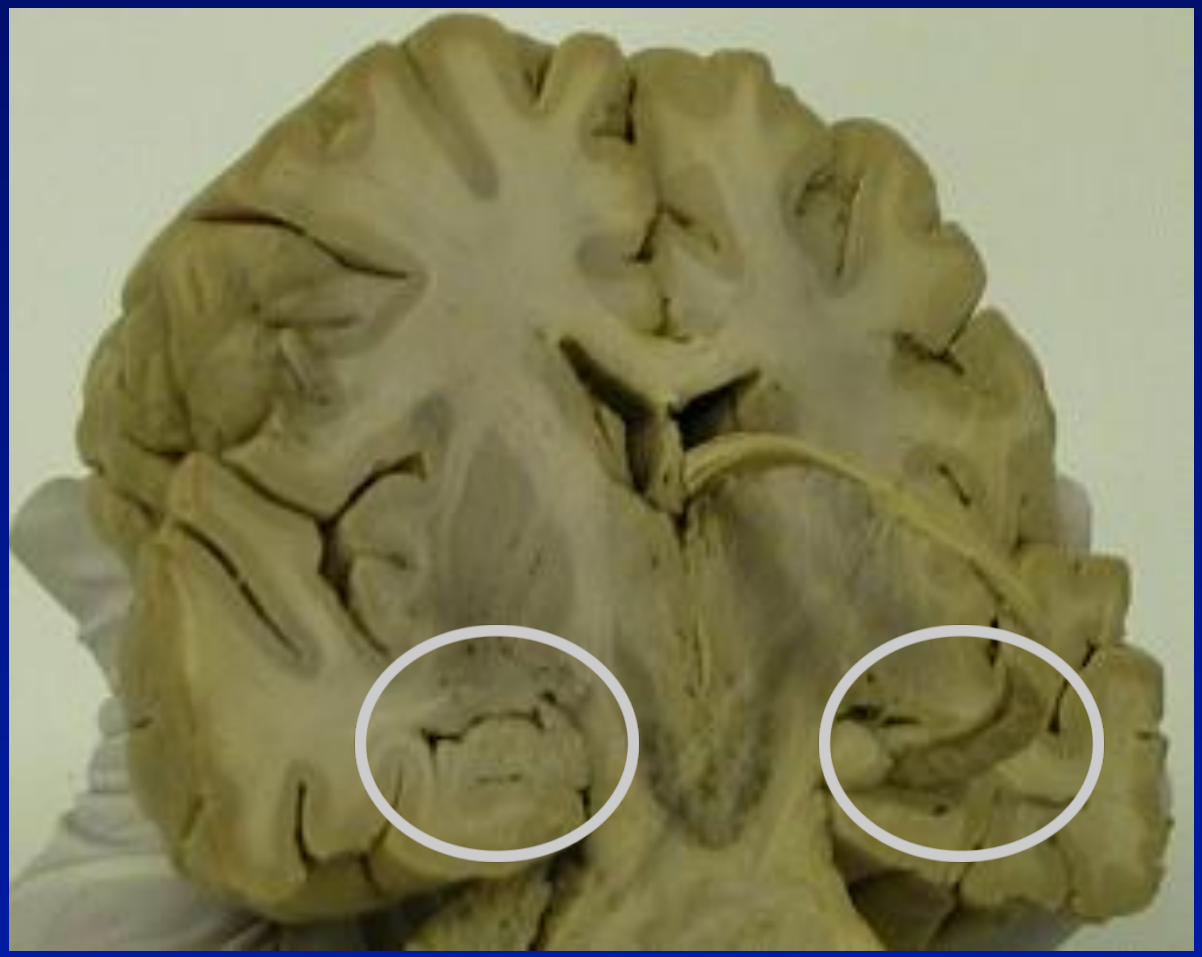
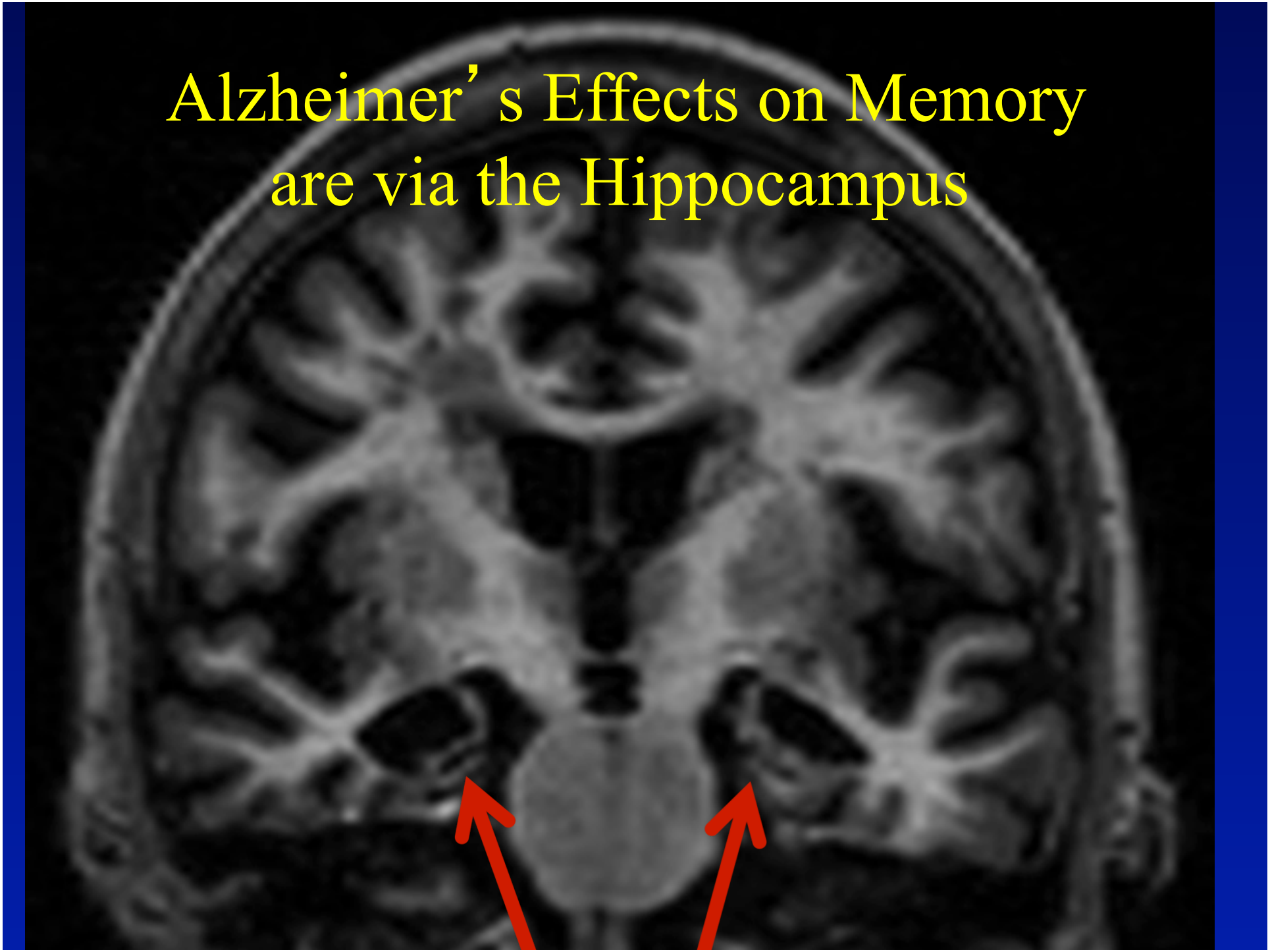
Memory and The Seahorse (Hippocampus)

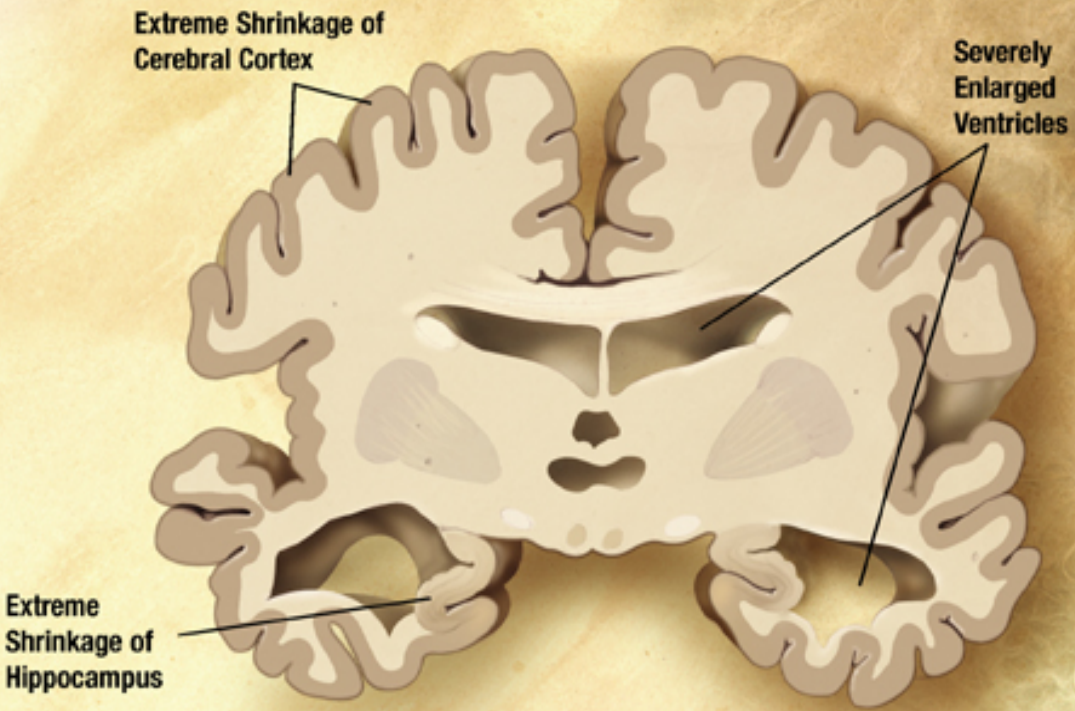


Hippocampus

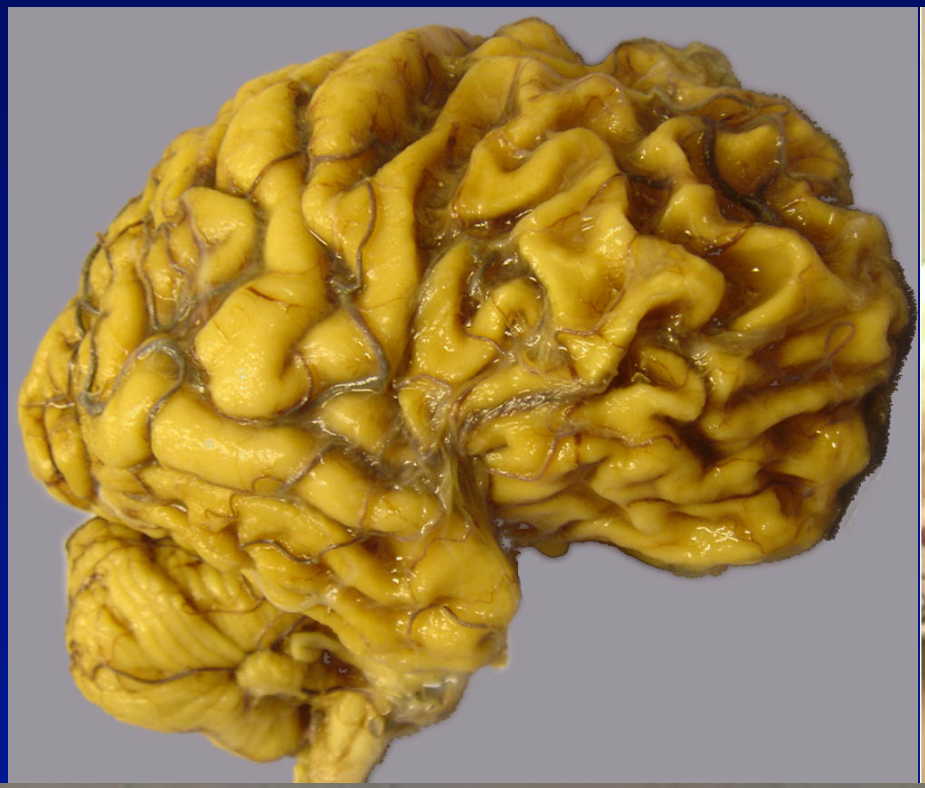
Hippocampus

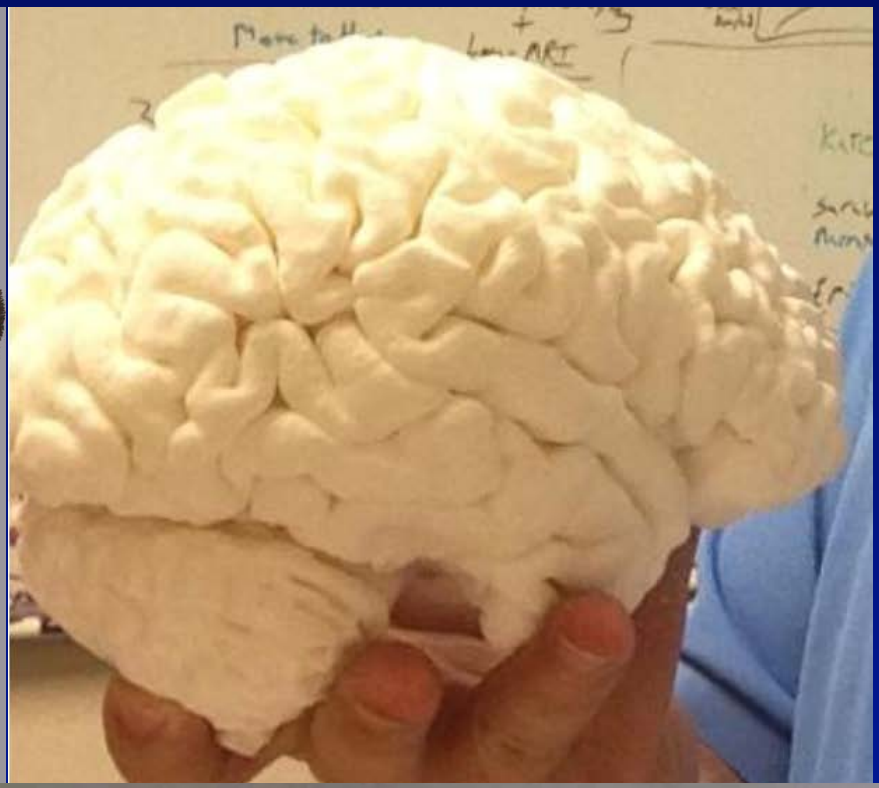
Alzheimer's Effects on Memory are via the Hippocampus

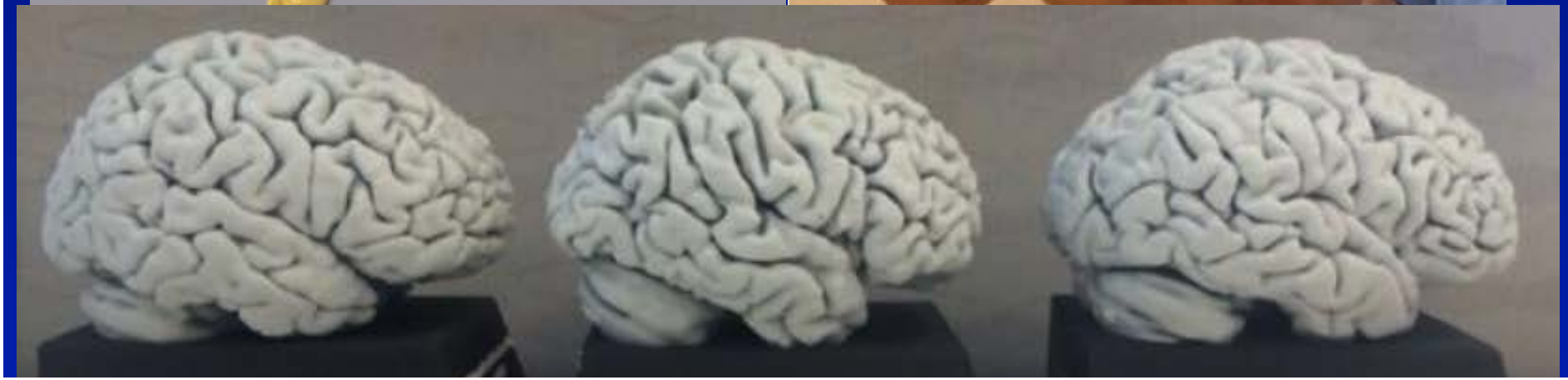



Extreme Shrinkage of
Cerebral Cortex
Severely
Enlarged
Ventricles
Extreme
Shrinkage of
Hippocampus

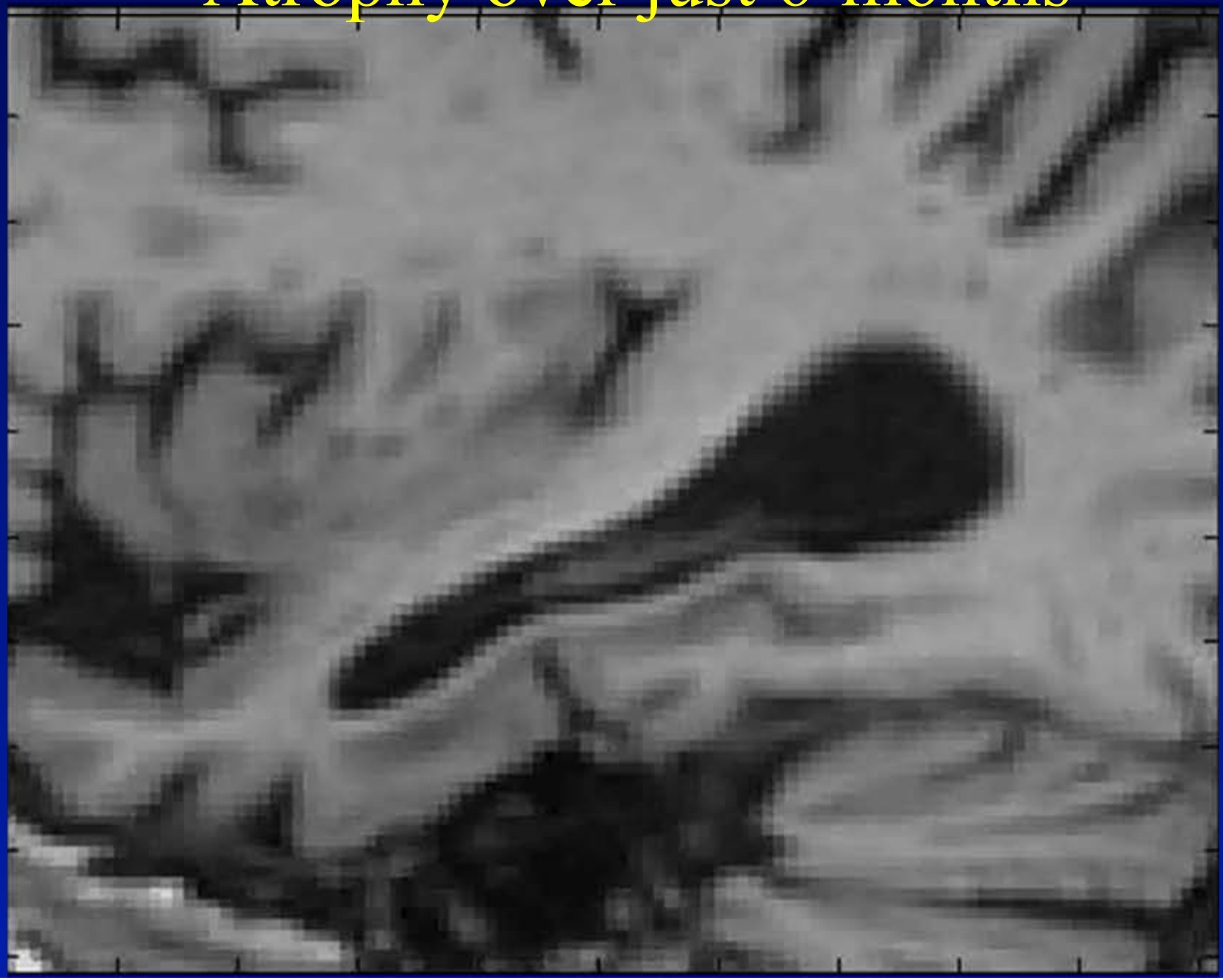
Brain Imaging can detect these changes







Atrophy over just 6-months



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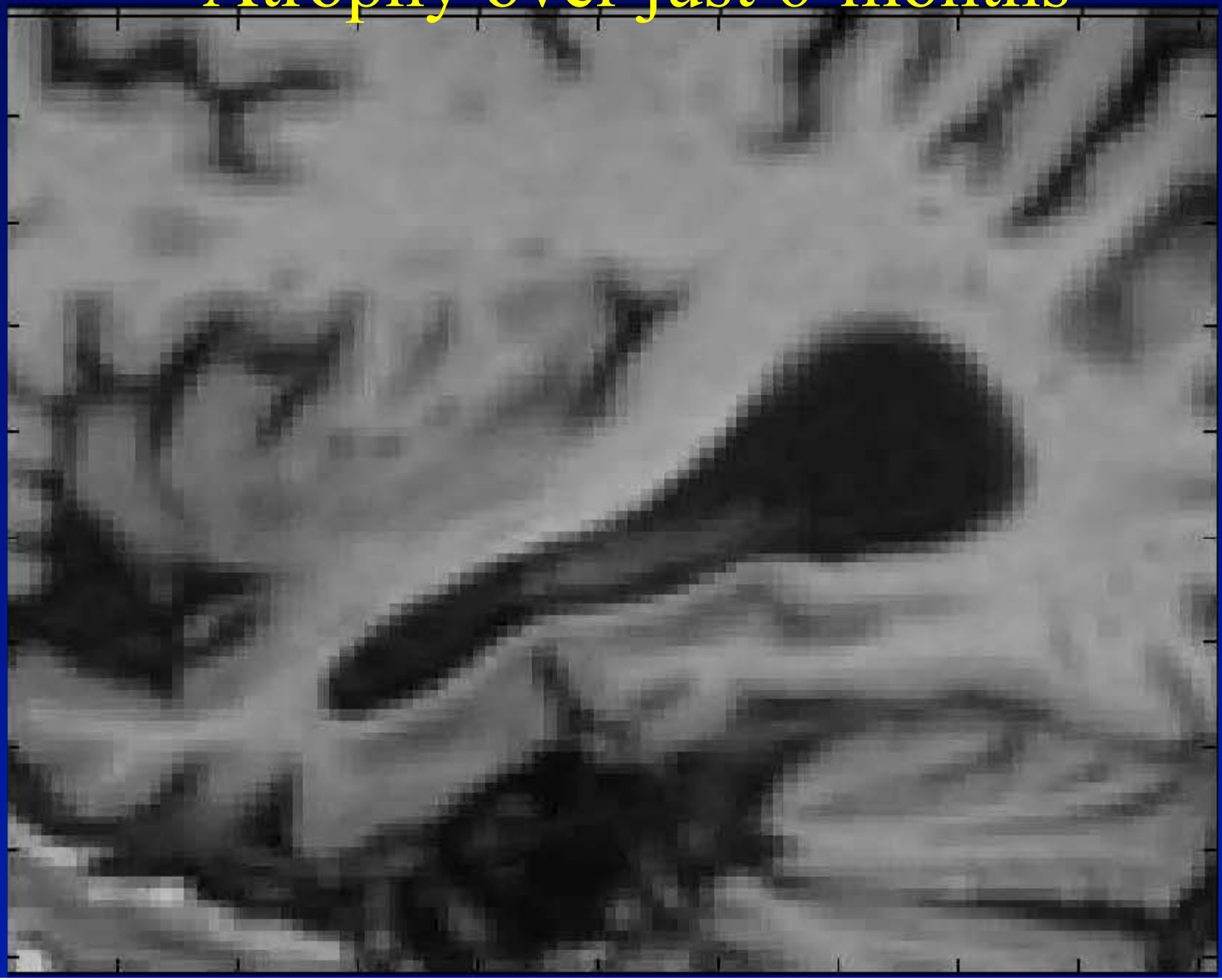
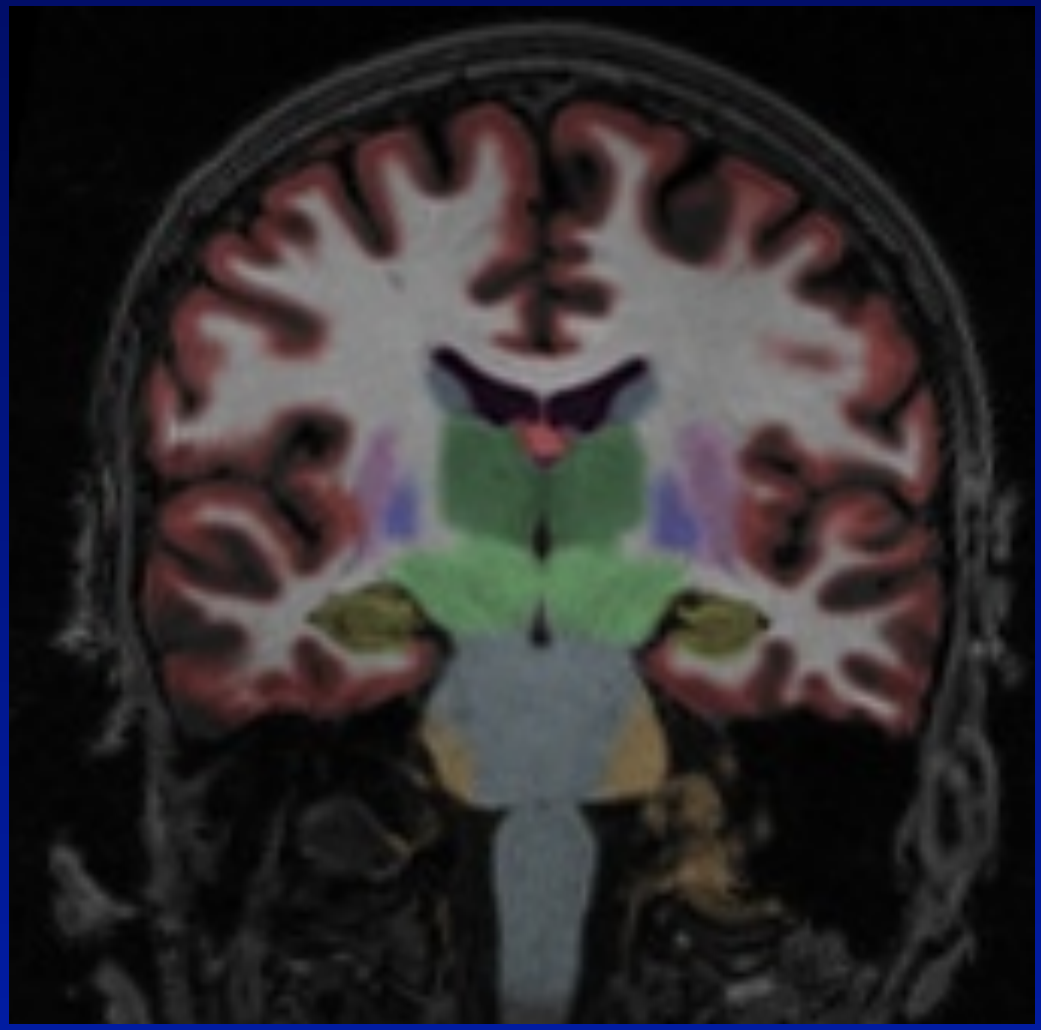
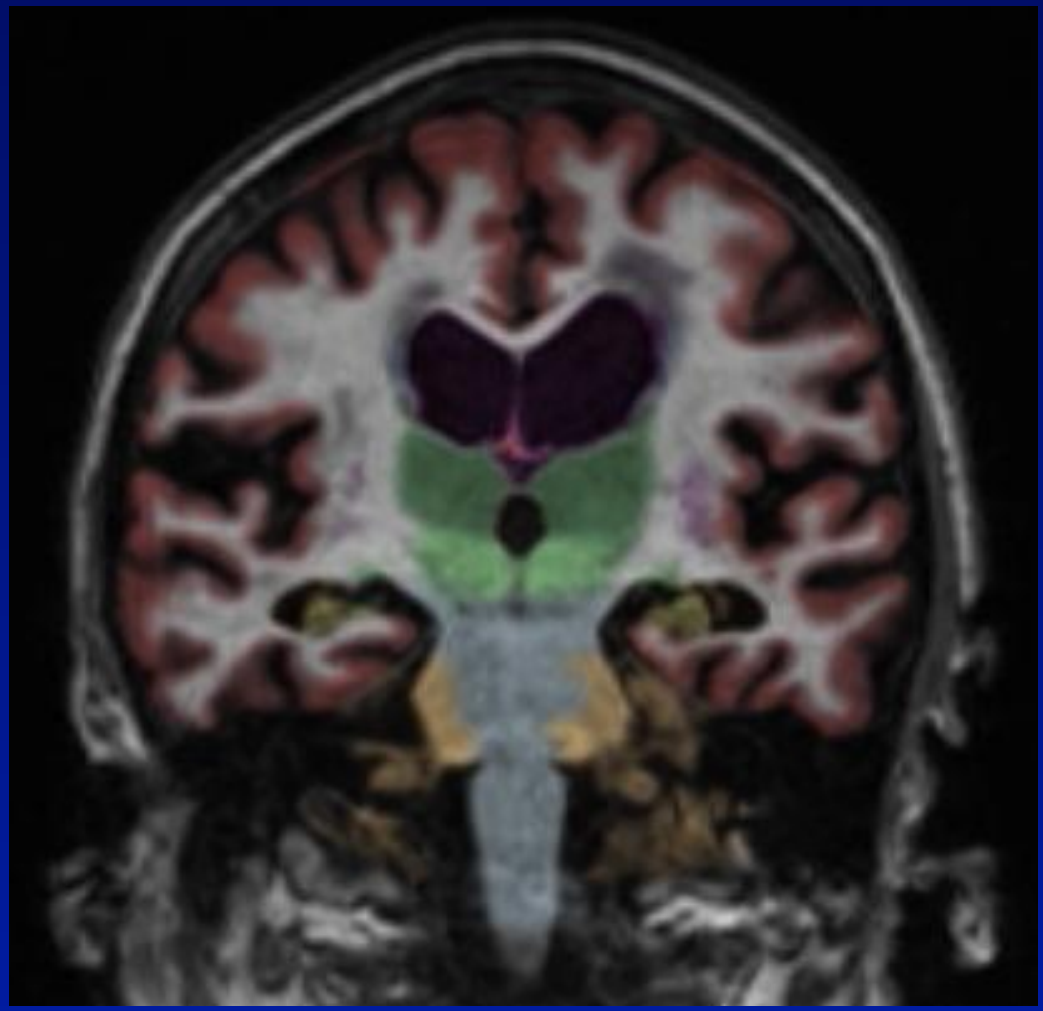


Fully-Automated Volumetric MRI



Healthy Brain

Fully-Automated Volumetric MRI



Alzheimer's Brain

Translating to Clinical Practice

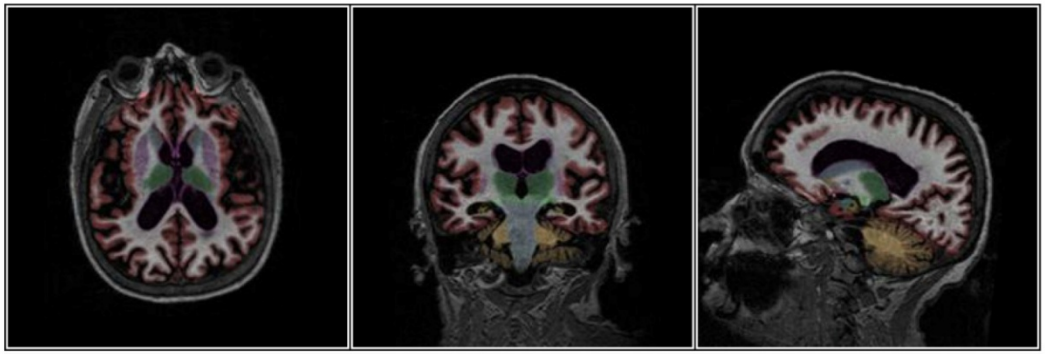
NeuroQuant®
Age Related Atrophy Report

UCSD Volumetric Imaging
Address line 1
Address line 2
Preferred contact info

PATIENT INFORMATION

Patient ID:	Patient Name:	Sex:	Age:
		F	88
Accession Number:	Referring Physician:	Exam Date:	
	.		

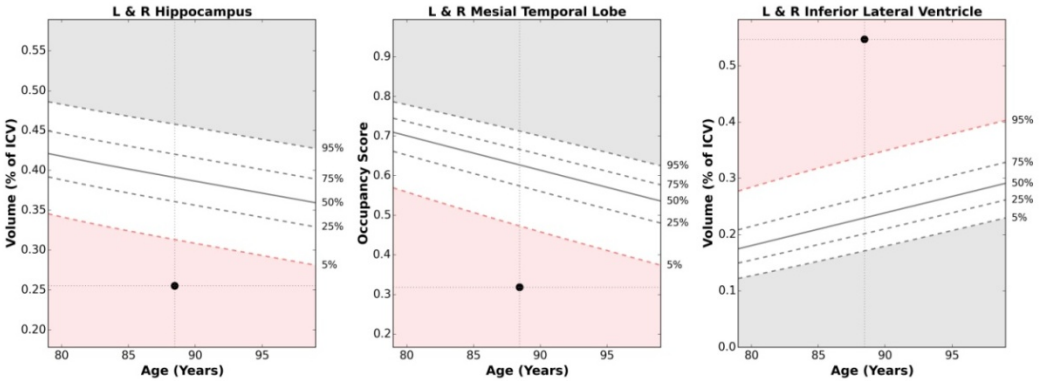
MORPHOMETRY RESULTS



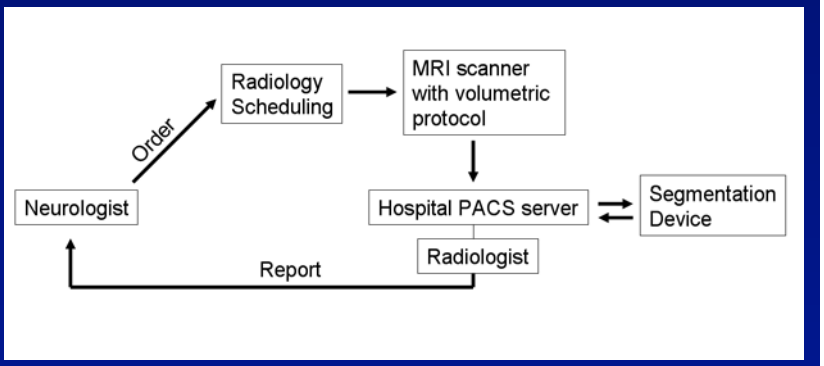
Hippocampal Occupancy Score (HOC)	0.32

Brain Structure	Volume (cm³)	% of ICV (5%-95% Normative Percentile*)	Normative Percentile*
Hippocampi	4.07	0.26 (0.31-0.46)	< 1
Lateral Ventricles	88.35	5.54 (2.18-5.48)	95
Inferior Lateral Ventricles	8.71	0.55 (0.17-0.34)	> 99

AGE-MATCHED REFERENCE CHARTS*

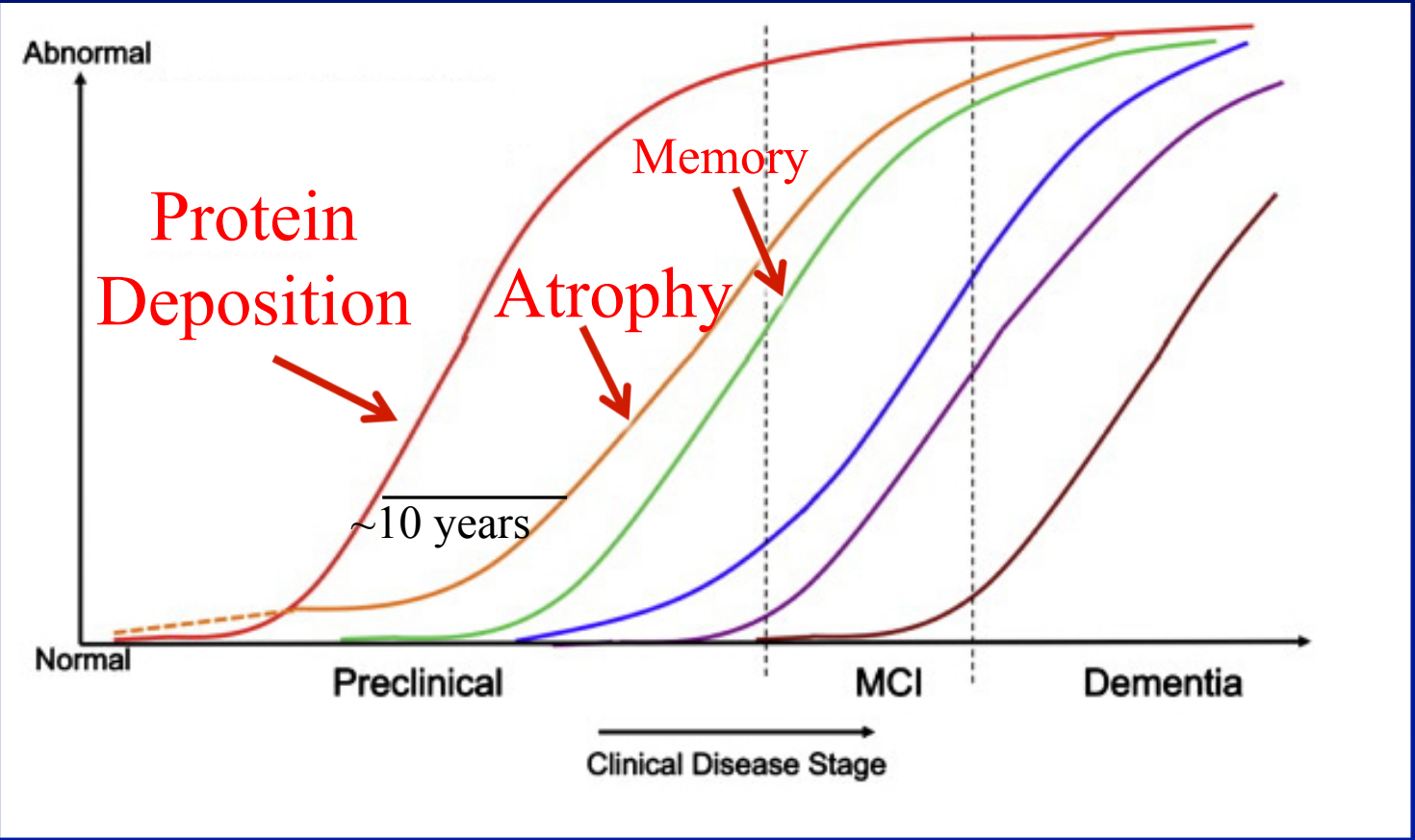


Integrating into clinical workflow

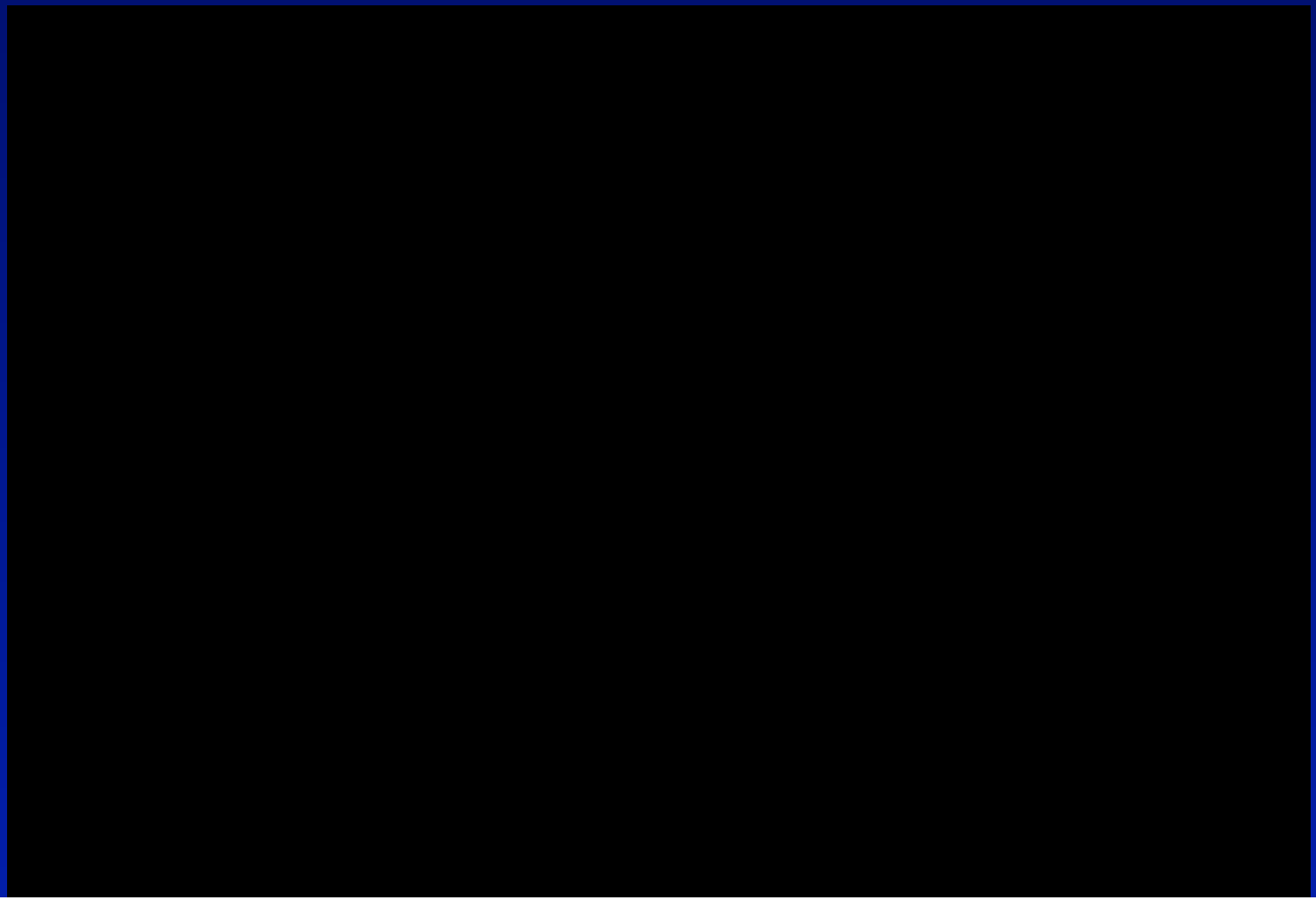


Brewer, *Behavioural Neurology, 2009.*

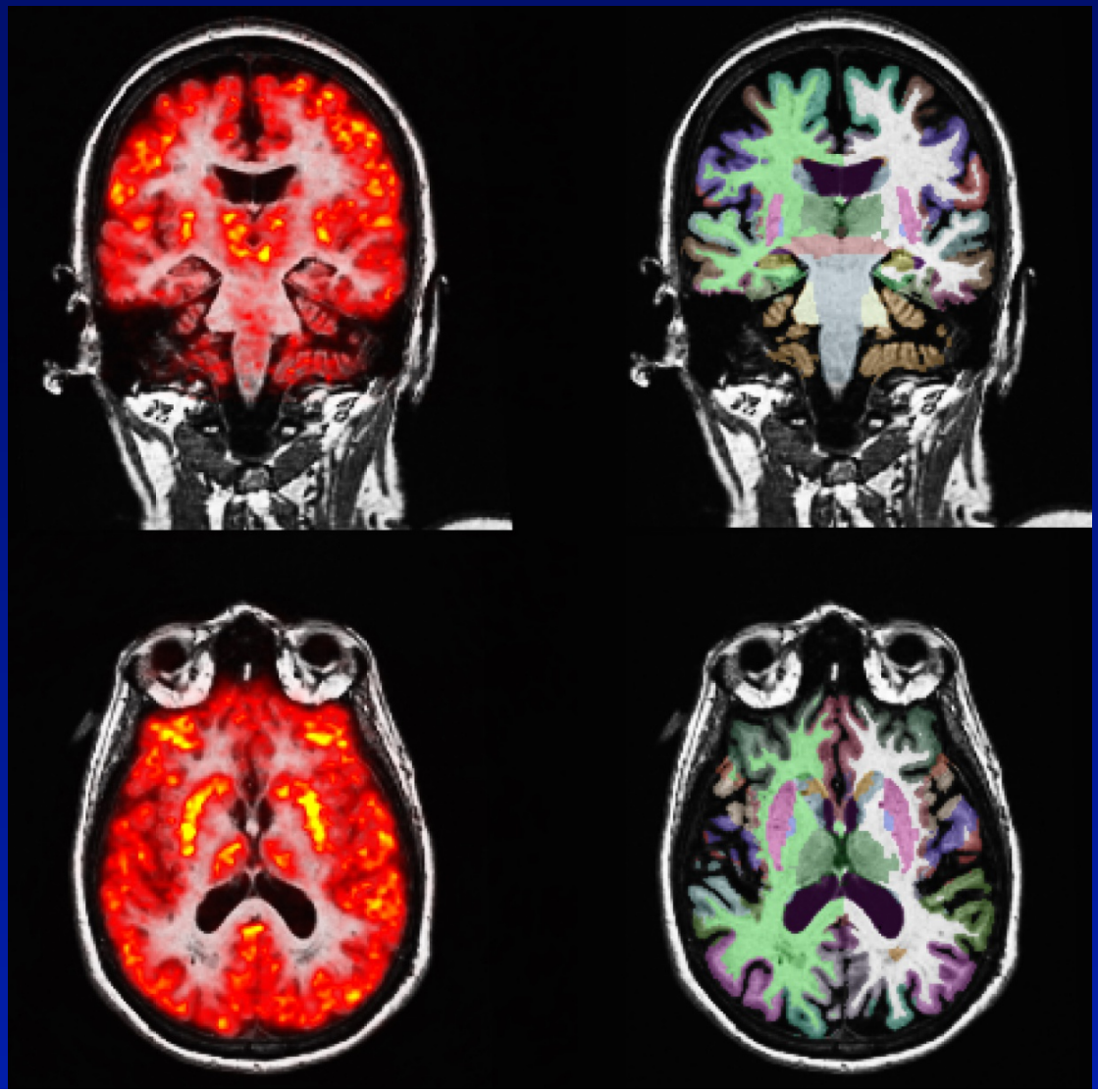
Disease Markers Reveal Earliest Phases of the Disease



UCSD PET imaging of AD Protein Abnormality in Down Syndrome



Fusion of PET with Segmented MRI



Better Phenotyping through Quantitative Radiology

- Quantitative assessment of underlying pathology
- Quantitative assessment of neurodegeneration
- Better understanding of disease processes
- More efficient assessment of therapies in the most highly characterized cohorts