
How to Measure Brain Health

How do we know when all of these strategies are actually helping us be healthier?

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Neurologic illness is a leading cause of chronic disability (stroke, dementia, movement disorders).

Brain Health is defined as optimal brain function (mentally and cognitively) at any given age to protect against the effects of aging and neurologic disease.



6 Healthy Brain Habits

1



Be Social

Keep in touch with friends and family don't let yourself get self-isolated.

2



Engage Your Brain

Find ways to stimulate your thinking and explore new interests and hobbies.

3



Manage Stress

Practice relaxation, and maintain a daily schedule.

4



Ongoing Exercise

Move throughout the day aim to reach 2 and a half hours of moderate physical activity a week.

5



Restorative Sleep

Get 7 to 8 hours of restful sleep every day.

6



Eat Right

Choose a nutritious heart healthy diet including fish veggies fruits.

For information on resources in your area, contact your local Area Agency on Aging or the Alzheimer's Association.



To find your Area Agency on Aging, call 1-800-552-3402
Alzheimer's Association 24/7 Helpline: 1-800-272-3900

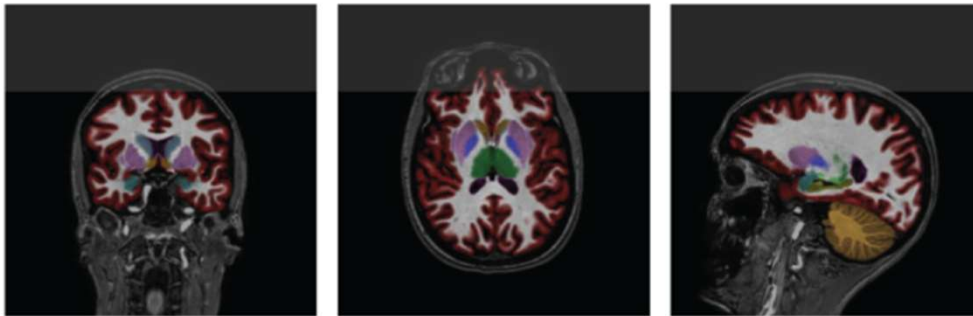


The information on this tipsheet is taken from *Virginia Dementia Road Map: A Guide for People Impacted by Dementia*.
Download your copy of the Road Map by scanning the QR code or visit: vda.virginia.gov/DementiaCapableVA.htm



HealthyBrainVA.com

Brain Structure Visualization

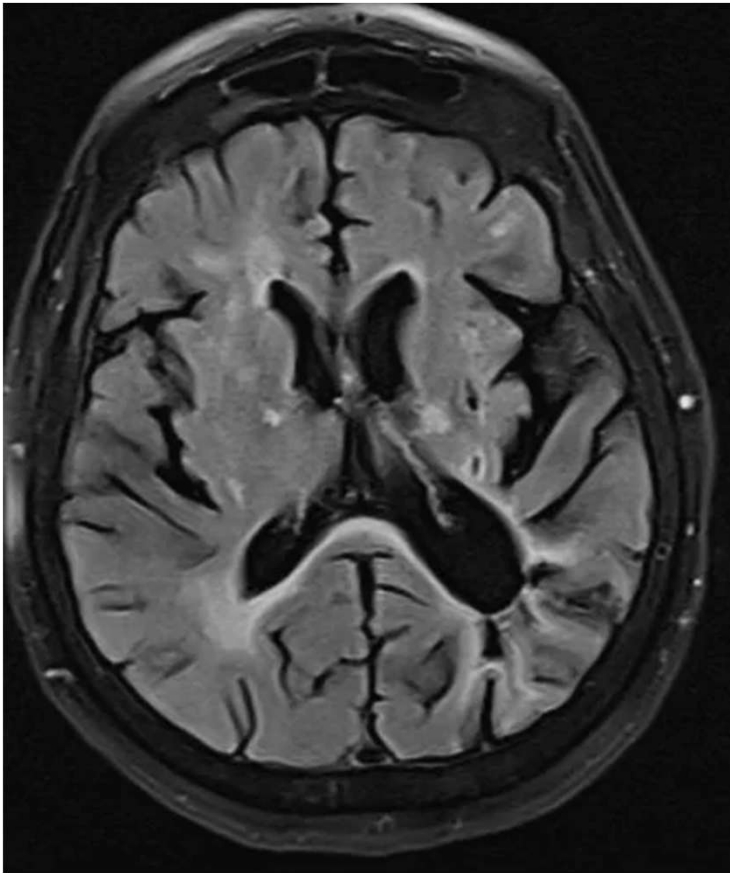


Brain Structure Volumes

Brain Structure	Volume (cm ³)	% of ICV (5%-95% Normative Percentile)	Normative Percentile
Whole Brain	1199	77.3 (73.5 – 79.9)	52
Frontal Cortex	195	12.6 (11.3 – 13.5)	58
Superior Lateral Ventricles	13.8	0.89 (0.27 – 1.49)	69
Nuclei Accumbens	1.65	0.11 (0.09 – 0.12)	69
Amygdalae	4.22	0.27 (0.24 – 0.32)	37
Cerebellum	150	9.66 (7.97 – 9.78)	91
Hippocampi	6.28	0.4 (0.45 – 0.57)	1
Putamina	12.7	0.82 (0.79 – 1.02)	11
Caudates	6.9	0.44 (0.37 – 0.52)	52

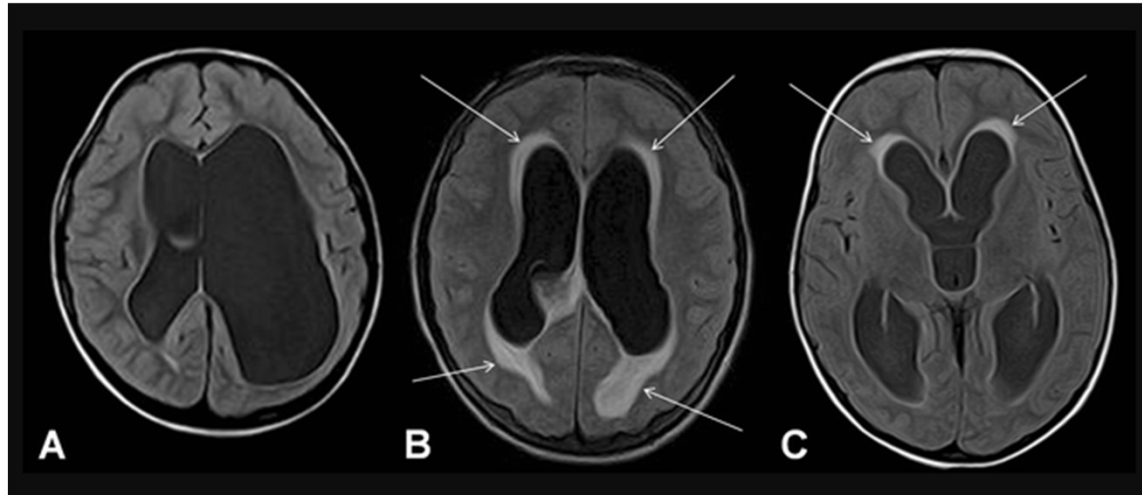
MRI of the brain is usually one of the first steps in assessing the structural integrity of the brain.

Vascular Disease
Tumors or Structural Lesions
Atrophy or Shrinkage
Ventricles and Fluid Status
Inflammation or Infection
Trauma or Head Injury
Congenital Abnormalities



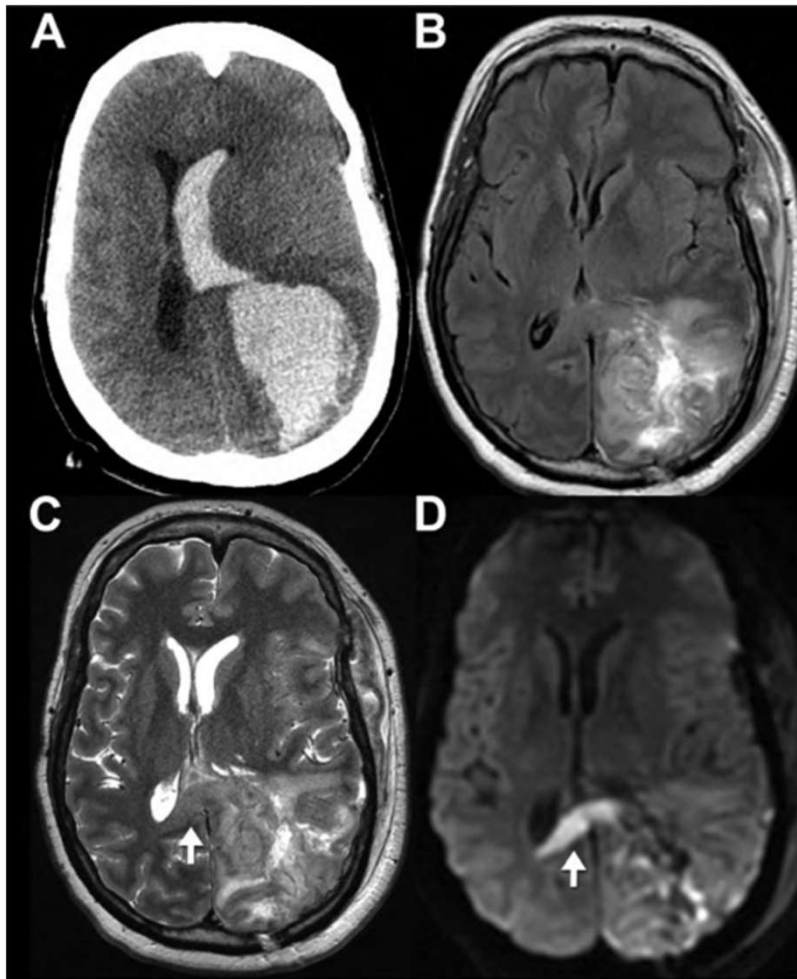
Cerebrovascular Disease encompasses stroke, intracranial stenosis, microangiopathy, and small vessel disease.

Think of blood flow to the brain as a tree. When a large branch of the tree is obstructed, that is a stroke. When the smaller twigs of blood flow are impaired, that builds up over time to influence your brain health.

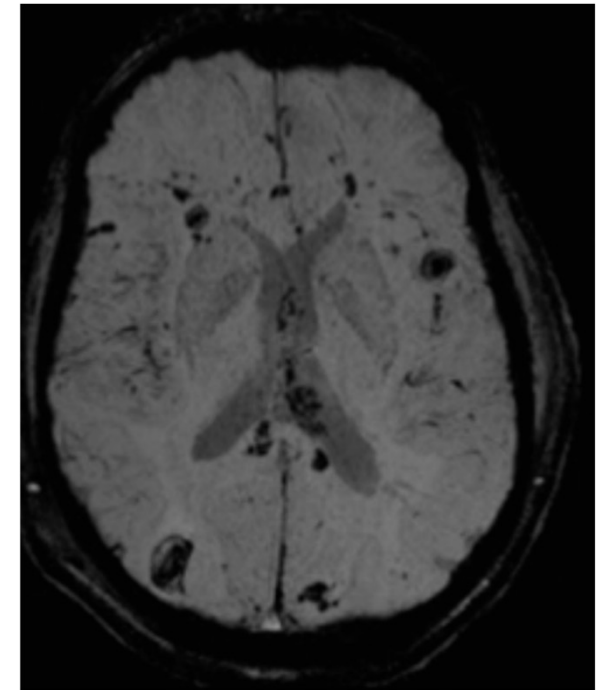


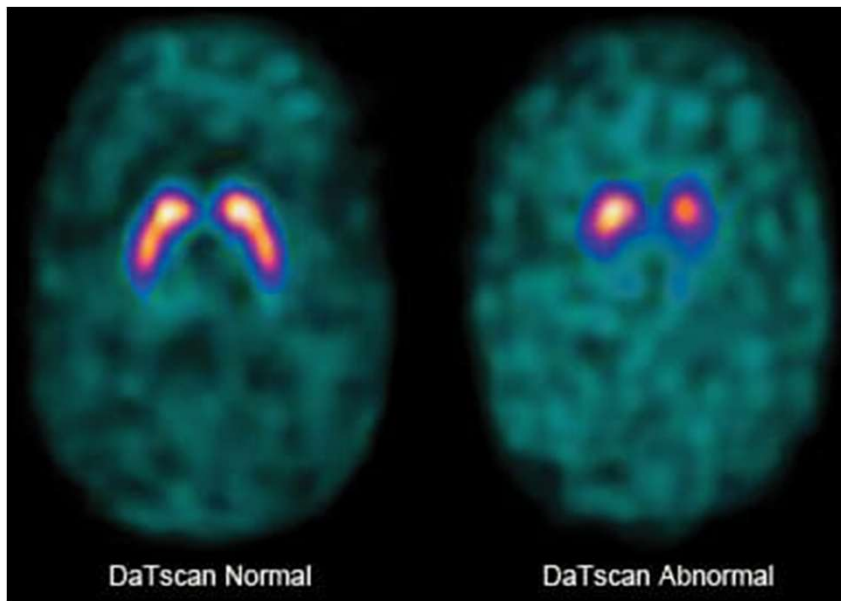
Hydrocephalus, and other cerebrospinal fluid disorders (some can be congenital) can push up against the basal ganglia and bladder control centers of the brain. This can lead to various dementias and movement disorders. Most times this is not clearly seen on a physical exam.

Imaging



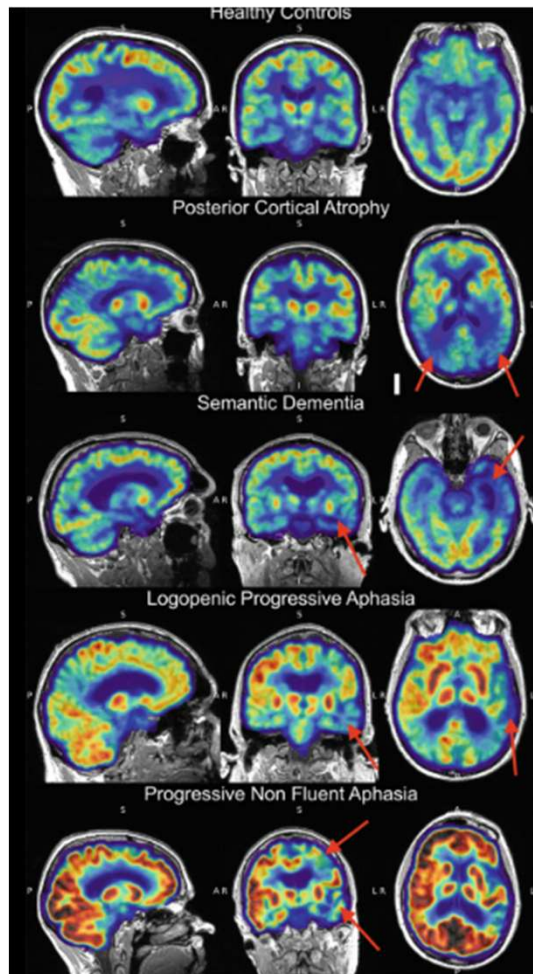
Traumatic brain injuries can cause bony fractures, hematoma (blood), swelling (edema), and disruption of brain function. Sometimes these changes are smaller, and caused by nerves getting stretched.



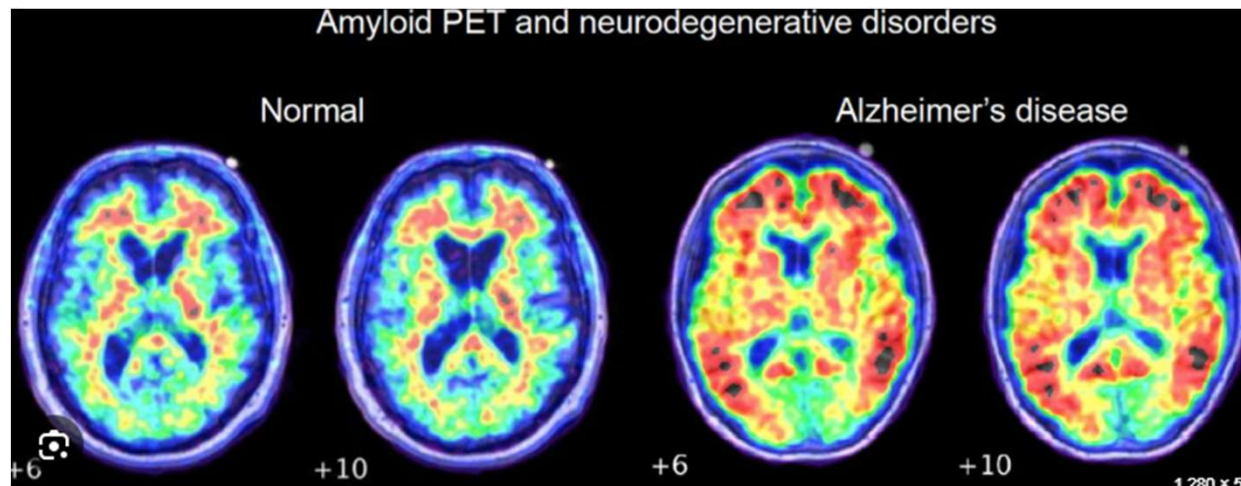


There are also more advanced imaging techniques that involve radioactive tracers to measure specific plaque build-up.

The DATSCAN measures activity at the dopamine transporter site. It is usually abnormal in Parkinson's Disease and sometimes is abnormal in Lewy Body Disease.

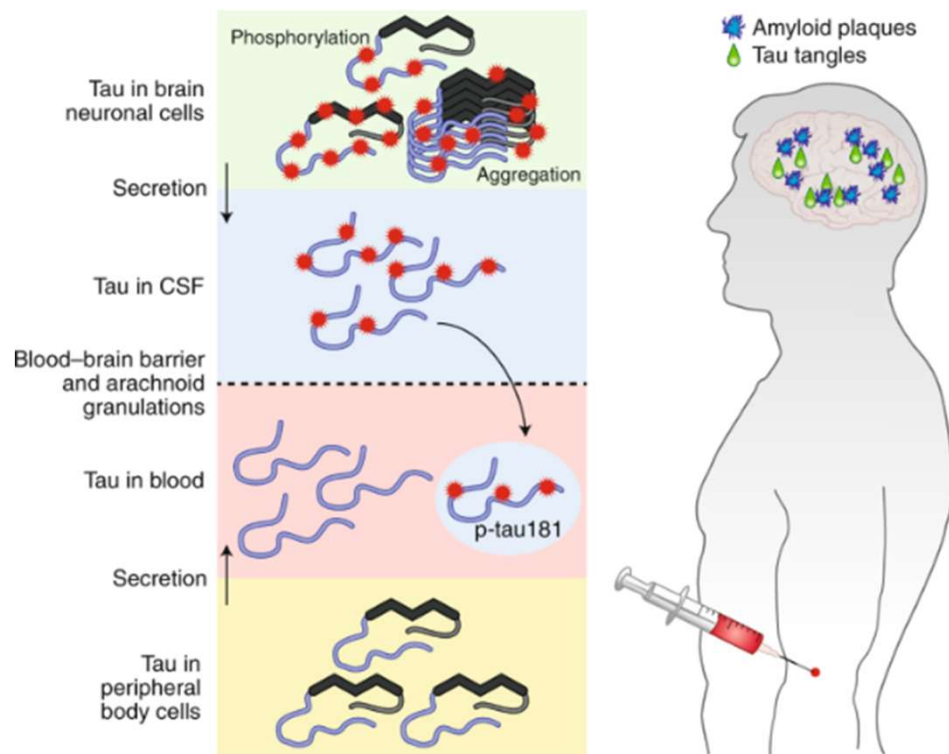


The FDG-PET Brain scan measures metabolic (energy) activity throughout the brain. It is used in many different situations to find "hot" or high energy spots in the brain, and can be abnormal in seizure disorder and tumors. In the neurodegenerative world, we use it to look for "cold" or low energy spots in the brain. Can show patterns of Lewy Body Disease, Alzheimer's Disease and Frontotemporal Disease—but can be nonspecific.



PET Amyloid Brain measures amyloid activity and can be helpful in the diagnosis of Alzheimer's Disease. It is more accurate than many of the serum blood tests that measure amyloid tau (like amyloid 42/40, p-tau217, etc).

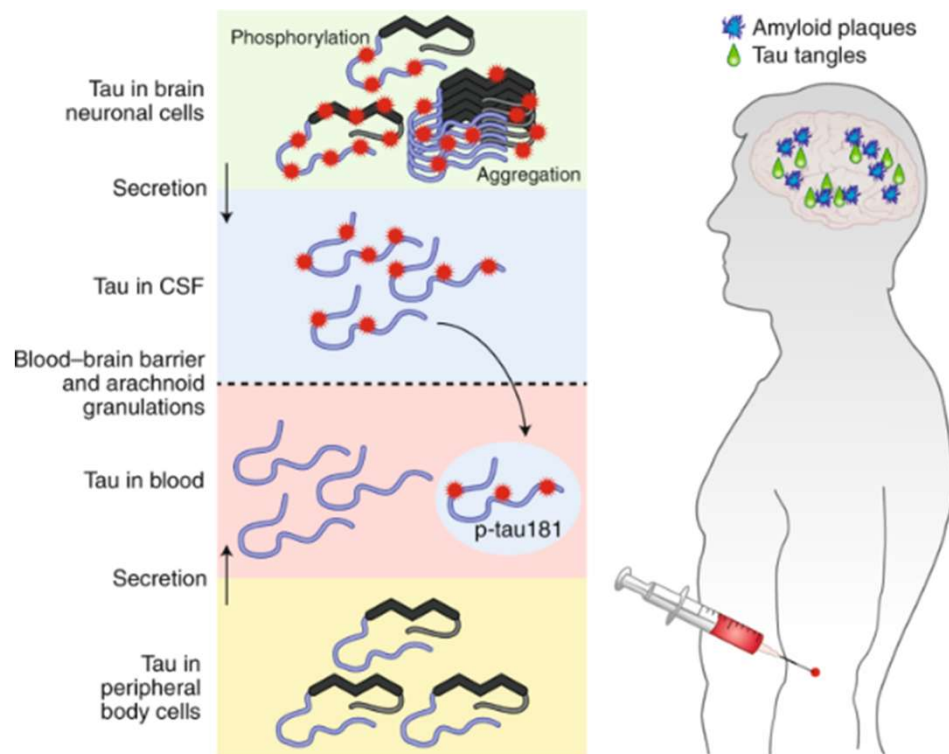
Bloodwork



There are blood biomarkers that measure inflammation, amyloid, tau, and sometimes stress responses. These can be non-specific, and are usually not diagnostic.

Inflammatory markers and plaque markers can be abnormally elevated without clinical correlate. These often change based on what we have eaten, or how we have slept. They fluctuate, so may not carry relevance in diagnostics.

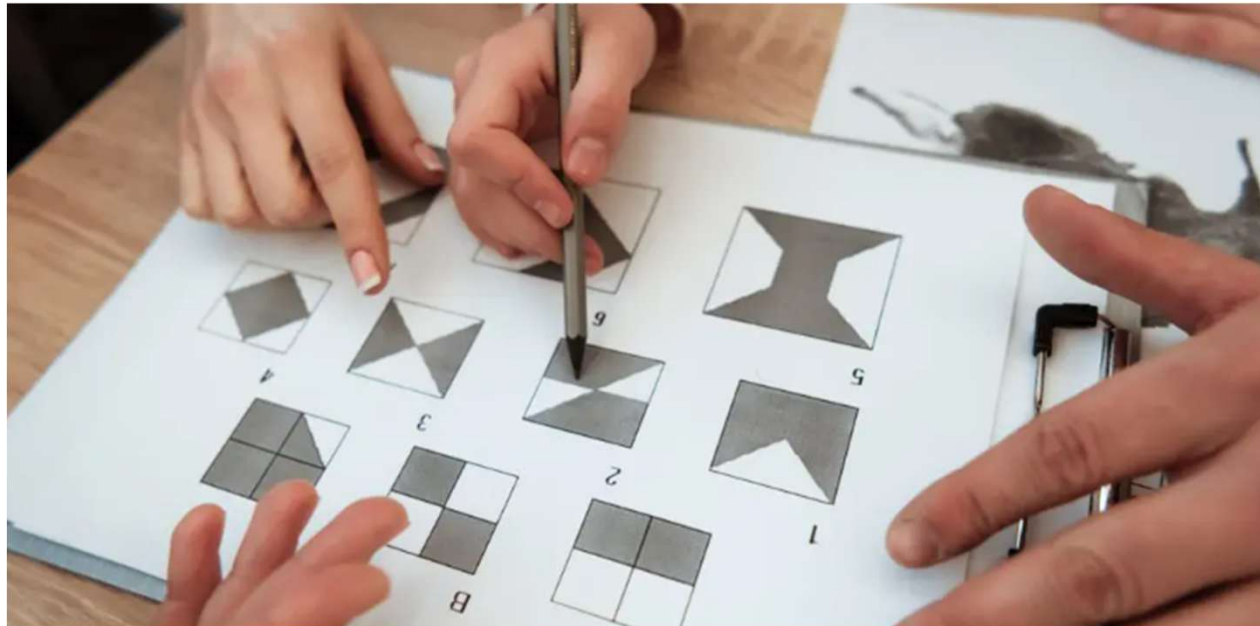
Bloodwork



Genetic testing can be more defining of risk factors. There are genes that look at your risks for Parkinson's Disease, Alzheimer's Disease, and Frontotemporal Disease. Genetic testing may have more long term implications on mental health and insurance coverage.

**APOE, presenilin 1, presenilin 2
PARK1, 2, APP**

Cognitive Testing



There are many direct to consumer cognitive tests and screening assessments that can help assess risk and keep your brain active. The standard method of measuring cognitive achievement is with neuropsychological testing.



Measuring brain health is hard and it usually takes multiple of these tools. Don't forget to consider your specific situation to measure your success:

- sleep study
- mental health check-in
- medical labs, like A1C, lipids



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