



Neurometabolic Screening

Brain-health baseline & the drivers of cognitive ageing

In plain terms. This screening builds a precise, personal picture of your brain today — its size and structure measured against healthy people your age — together with the blood-vessel and metabolic factors that shape how your brain ages. The aim is an individual baseline to track over time and to spotlight modifiable risks while there is time to act.

WHAT THIS SCREENING INCLUDES

- **MRI brain with quantitative volumetrics** — measures whole-brain and memory-centre (hippocampal) volume against age norms, and small-vessel 'wear-and-tear' (white-matter) changes (no radiation).
- **TOF MR angiography** — screens the brain's arteries for aneurysms or narrowing, done in the same MRI.
- **Carotid Doppler ultrasound** — neck-artery health, a risk indicator for possible stroke (no radiation).
- **Liver elastography & DEXA** — the metabolic factors (fatty liver, visceral fat) - drivers of vascular brain ageing.

WHAT IT IS FOR & WHAT IT CAN FIND

Population 'normal ranges' for brain volume are very wide, so meaningful individual loss can hide within them. A personal baseline lets future scans detect change against *you*, not an average.

Around 45% of dementia is potentially preventable by acting on modifiable factors across life (2024 Lancet Commission). This screening quantifies several of those - blood pressure, cholesterol, blood sugar, small-vessel disease etc. — so they can be targeted.

BENEFITS

- ✓ MRI uses no ionising radiation.
- ✓ Quantitative, reproducible brain-volume baseline for longitudinal tracking.
- ✓ Can detect silent aneurysms or small-vessel disease that change management.
- ✓ Turns 'brain health' into concrete, modifiable numbers that motivate action.

LIMITATIONS & THINGS TO CONSIDER

- ! MRI often finds harmless incidental abnormalities that can cause anxiety and lead to more tests.
- ! Volumetric 'normal' ranges depend on the reference database used, and vary between scanners.
- ! Imaging cannot diagnose Alzheimer's disease on its own, nor predict dementia with certainty.
- ! Evidence for reducing dementia comes mainly from modifying established risk factors
- ! (MRI is contraindicated with some implants and can be difficult with claustrophobia).

WHO SHOULD CONSIDER IT

- Family history of dementia or stroke.
- APOE4 carriers or those with a metabolic risk profile.
- People focused on cognitive longevity who want a trackable baseline.
- Baseline before planned interval (repeat) volumetric surveillance.

Radiation & safety. This screening is radiation-free for the brain and neck components (MRI and ultrasound). DEXA, if included, is about 0.001 mSv.

REFERENCES

Independently sourced and verified (September 2026). Links open the original publications.



1. Livingston G, Huntley J, Liu KY, et al. Dementia prevention, intervention, and care: 2024 report of the Lancet standing Commission. Lancet. 2024;404(10452):572–628. [https://doi.org/10.1016/S0140-6736\(24\)01296-0](https://doi.org/10.1016/S0140-6736(24)01296-0)
2. Kivipelto M, Ngandu T, Laatikainen T, et al. Risk score for the prediction of dementia risk in 20 years among middle aged people (CAIDE). Lancet Neurol. 2006;5(9):735–741. [https://doi.org/10.1016/S1474-4422\(06\)70537-3](https://doi.org/10.1016/S1474-4422(06)70537-3)
3. Anstey KJ, Cherbuin N, Herath PM, et al. A self-report risk index to predict occurrence of dementia in three independent cohorts of older adults: the ANU-ADRI. PLoS One. 2014;9(1):e86141. <https://doi.org/10.1371/journal.pone.0086141>
4. Ngandu T, Lehtisalo J, Solomon A, et al. A 2-year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline (FINGER): a randomised controlled trial. Lancet. 2015;385(9984):2255–2263. [https://doi.org/10.1016/S0140-6736\(15\)60461-5](https://doi.org/10.1016/S0140-6736(15)60461-5)
5. Wardlaw JM, Smith EE, Biessels GJ, et al. Neuroimaging standards for research into small vessel disease and its contribution to ageing and neurodegeneration (STRIVE). Lancet Neurol. 2013;12(8):822–838. [https://doi.org/10.1016/S1474-4422\(13\)70124-8](https://doi.org/10.1016/S1474-4422(13)70124-8)

This information sheet is for education and to help you choose appropriate screening. It is not a diagnosis or medical advice. Screening tests have benefits and harms; discuss your personal situation with your doctor. All studies are performed and interpreted by specialist or subspecialist radiologists (HPCSA-compliant; radiation kept As Low As Reasonably Achievable).