

BRAIN & DIABETES

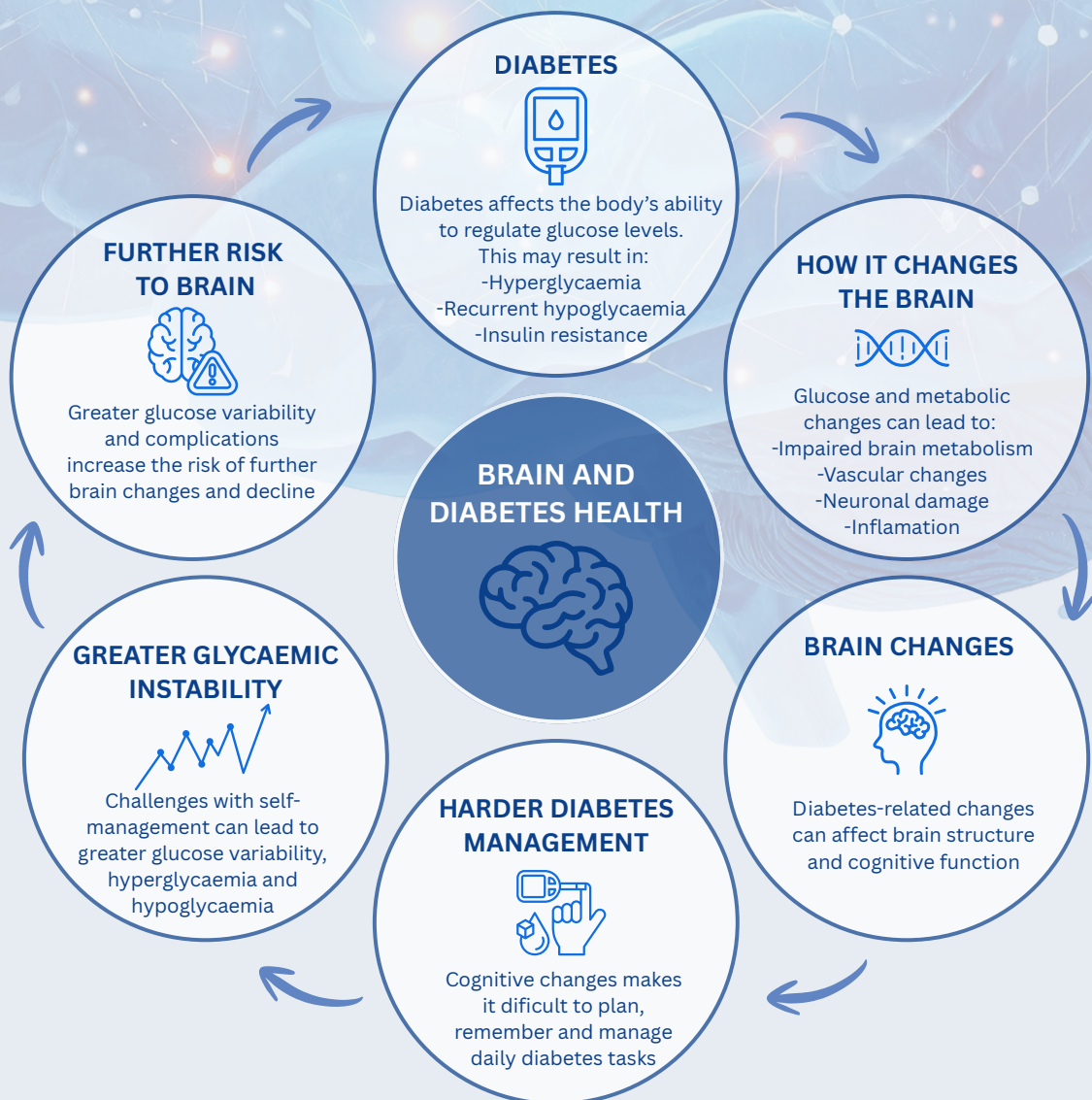
The **brain** is one of the body's **most energy-demanding organs** and relies predominantly on **glucose to function**. Diabetes can affect **brain health** through multiple pathways, including hyperglycaemia, hypoglycaemia or insulin resistance.

Diabetes is associated with **changes in brain structure and function**, affecting **memory, attention** and **executive function**, **accelerating brain ageing** and increasing the risk of cognitive impairment and dementia.



Even a single episode of moderate or severe diabetic ketoacidosis (DKA) in **young children** with type 1 diabetes (T1D) has been associated with **altered brain development** and **poorer memory, attention** and **cognitive performance**.

THE DIABETES BRAIN CIRCLE



AS PEOPLE LIVE LONGER, DEMENTIA IS EMERGING AS AN INCREASINGLY IMPORTANT CAUSE OF DEATH AMONG PEOPLE LIVING WITH DIABETES.

Blood glucose levels can affect brain function
Both high and low blood glucose levels
(hyperglycaemia and hypoglycaemia) can negatively
affect cognitive function, including areas such as
attention, memory, learning and executive function

People living with T2D have a
People living with T1D have a

60% **50%**

higher risk of developing all-cause dementia
than people without diabetes.

65% higher risk of
Alzheimer's disease

In a longitudinal cohort study followed up to 9 years, the risk of developing Alzheimer's disease was higher in people with diabetes than in people without diabetes — a link so strong that Alzheimer's is sometimes called "type 3 diabetes."

2x risk of early
cognitive decline
— executive
function hit first

People with type 2 diabetes are twice as likely to experience early cognitive decline, affecting everyday functions such as memory, concentration, attention and the speed at which the brain processes information.

T2D-associated grey-matter atrophy has been estimated to occur
26% faster
than standard age-related brain ageing.

LIVING LONGER MUST ALSO MEAN LIVING WELL



Early
diagnosis



Effective
diabetes and
cardiovascular
risk management



Early recognition
of cognitive
changes



Can help
support healthy
ageing and
preserve quality
of life for PwD

Maintaining **cognitive health** is essential for **quality of life**, independence and the ability to manage diabetes effectively throughout later life.

Sources:

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4. PMC – Type 2 diabetes mellitus and Alzheimer's disease; Diabetes and Alzheimer's Disease: Might Mitochondrial Dysfunction Help Deciphering the Common Path?; Cortical Gyrification and Cognitive Decline in the Human Brain With Type 2 Diabetes Mellitus. <https://pmc.ncbi.nlm.nih.gov/>
5. PubMed (2005) – Hypoglycaemia and cognitive function. <https://pubmed.ncbi.nlm.nih.gov/16050942/>



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