



This fact sheet aims to identify the main age-related changes and conditions affecting the brain and psychological well-being; it will also outline healthy eating and physical activity that may help prevent, or delay, onset of these changes/conditions.

Age-related changes and conditions

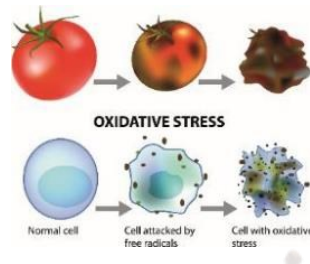
As we age, there is a natural decline in body composition, particularly in the brain, as brain cells cannot regenerate. Once brain cells are damaged, they are not replaced.

The brain and nervous system

With ageing, blood supply to the brain is reduced, neurons decline and become less elastic, which may affect hearing and speech, memory and cognitive function, or motor skills (balance and posture). Later, this can lead to dementia, Alzheimer's disease, or Parkinson's disease.

Oxidative stress

Oxidative stress is characterised by an imbalance between pro-oxidants ("free radicals") and anti-oxidants in the body. Free radicals accumulate in the body with ageing, which leads to tissue damage, potentially affecting many organs and systems, including the brain.



Alzheimer's and Parkinson's

Alzheimer's disease is characterised by cognitive decline: a gradual loss of memory, reasoning, ability to communicate, and physical capability. Parkinson's disease is characterised by motor decline: tremors, slowed movements, rigid muscles, impaired posture and balance, loss of automatic movement, speech and writing changes. Oxidative stress and inflammation are implicated in both conditions, and individuals with high blood pressure, diabetes, or obesity are at higher risk of developing these conditions.



Alzheimer's disease



Parkinson's disease

Psychological changes

Psychological changes take place with ageing; many are because of physiological changes. The main changes may include:

- ◆ Depression
- ◆ Reduced ability to complete simple tasks
- ◆ Reduced confidence and independence
- ◆ Loneliness
- ◆ Reduced motivation to cook (and eat)

Lifestyle changes

Lifestyle changes with ageing may occur due to physiological and/or psychological changes however, some will occur due to changing economic or social factors. The main changes may include:

- ◆ Lack of funds to live well and eat healthily (16% of older adults live in poverty)
- ◆ Reduction in physical activity
- ◆ Living alone
- ◆ Living in a nursing home or hospital

Key nutrients

Key nutrients to maintain a healthy brain and psychological well-being include:

- ◆ Carbohydrate
- ◆ Omega-3 PUFAs
- ◆ Water
- ◆ Vitamins B1, B3, B6, Folate, B12, C, D, E
- ◆ Magnesium
- ◆ Copper
- ◆ Iodine
- ◆ Selenium

Carbohydrates are broken down to form glucose, which is the preferred fuel for the brain.

Omega-3 PUFAs are a major component of neuronal membranes; they are important in brain development and function. Lower consumption of Omega-3 may increase the risk of neurological diseases such as Parkinson's and Alzheimer's.

Water is important as dehydration can impair cognitive function and cause confusion and/or disorientation.

The micronutrients, mentioned above, all contribute to brain and nerve function. Vitamins C, D, E and B3 affect overall neurological health; vitamins B1, B3, B6, B12 and C are involved in nerve function.

Magnesium contributes to nerve transmission, copper to brain development, iodine to mental development and selenium protects against oxidative damage.

Main factors increasing risk of brain related conditions

- ◆ **Smoking and excess alcohol**
- ◆ **Family history** - risk of Parkinson's, Alzheimer's and dementia may run in families.
- ◆ **Gender** - around 65% of those with dementia are female (hormone related).
- ◆ **Physical inactivity**
- ◆ **Mental inactivity** - there is evidence that learning new things can slow neurological decline.
- ◆ **Isolation** - staying socially connected with others contributes to mental health and well-being.
- ◆ **Age**
- ◆ **Medications** - some medications may adversely affect brain function - ask your GP.
- ◆ **Hormones** - hormones in the brain decline with age adversely affecting cognition.
- ◆ **Uncontrolled diabetes**
- ◆ **Poor diet**
- ◆ **Too much salt**
- ◆ **Stress**
- ◆ **Obesity**
- ◆ **High blood pressure**

Did you know? . .
the brain consumes about 120g
glucose (420 kcal) daily!

Foods to eat

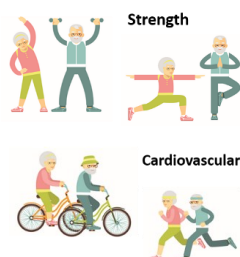
The brain is complex with many nutrients contributing to brain and mental health. Maintaining a healthy weight and eating a balanced diet, based on the "Eatwell Guide", will reduce risks of age-related brain conditions.

- ◆ Fruit and vegetables
- ◆ Wholegrains
- ◆ Oily fish
- ◆ Eggs
- ◆ Dairy products
- ◆ Nuts and seeds
- ◆ Lean red meat and poultry



Physical Activity

There are two types of physical activity: strength/resistance and cardiovascular. Both **strength** and **cardiovascular exercise** are essential to maintaining a healthy brain. Research has shown that those who have a physically active lifestyle have a reduced risk of declining cognitive skills and brain related conditions with ageing.



Tips . .

- ◆ **Over 50? Medical condition?** - consult a GP before starting an exercise programme.
- ◆ **Engage a personal trainer;** optimise YOUR needs, and YOUR health.
- ◆ **Warm up** before exercise and **cool down** after.
- ◆ **Do exercises correctly** to reduce risk of injury.

Micro nutrient	Food portion	approx. % DR
Vitamin D	Most comes from the sun; supplement of 10µg per day for adults over 65.	
Vitamin E	Sunflower seeds (30g)	52%
	Almonds (30g)	51%
	Avocado (1 medium)	28%
Vitamin B1	Pork chop (lean, 1 chop - 170g)	100%
	Peas (cooked 100g)	33%
	Brown rice (boiled 150g)	33%
Vitamin B3	Tuna (tinned 100g)	90%
	Liver (70g)	80%
	Chicken breast (cooked, 90g)	80%
Vitamin B6	Most foods have some Vitamin B6, so it is rare to consume less than the daily requirement.	
Folate	Green soya beans (edamame) (150g)	100%
	Spinach (100g)	50%
	Lentils (50g)	45%
Vitamin B12	Most meats (100g)	100%
	Sardines (tinned 100g)	100%
	Fortified foods (check serving size %)	100%
Vitamin C	Strawberries (15g)	100%
	Broccoli (100g)	100%
	Bell pepper (100g)	100%
Magnesium	Spinach (100g)	25%
	Pumpkin seeds (30g)	25%
	Cashew nuts (30g)	20%
Copper	Liver (50g)	100%
	Sesame seeds (50g)	100%
	Cashew nuts (30g)	50%
Iodine	Dried seaweed (10g)	100%
	Cod (90g)	70%
	Baked potato (medium cooked with skin)	50%
Selenium	Brazil nuts (30g)	100%
	Pork chop (lean, 1 chop - 170g)	100%
	Chicken breast (cooked 90g)	40%

This table provides a rough guide to foods containing key micronutrients with the approximate % of daily requirement (%DR); this is not a comprehensive list.

See related Fact Sheets for more information on [Macronutrients](#), [Micronutrients](#), [Water](#), [Age-related changes - body, mind and lifestyle](#), [Common age-related clinical conditions](#), [Tips for healthy eating](#), [Tips for a healthy lifestyle](#), and [Tips on physical activity for active ageing](#).

To see our detailed nutritional guide and example exercise programme, visit our [website](#)



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**FOOD
GAMING**
FOR ACTIVE AGEING