

## UPDATE SHEET 11

June 2011

# What You Eat and Drink and Your Brain

Diet is one factor researchers are investigating for its role in reducing the risk of dementia, and for the assistance a healthy diet may provide to people who have dementia.

This Update Sheet outlines the part that diet can play in promoting a healthy brain.

Related information is also available in the following resources:

*Update Sheet 9 Physical Exercise and Dementia*

*Update Sheet 10 Mental Exercise and Dementia*

*Mind your Mind How to keep your brain healthy and reduce your risk of dementia*

*Paper 13 Dementia Risk Reduction: The Evidence*

Some research has linked aspects of diet with the risk of developing Alzheimer's disease and other dementias. Little research currently exists on whether diet can affect the progress of dementia. However, it is clear that a healthy balanced diet is important for everyone, to help prevent other health problems and ensure sufficient intake of essential nutrients.

### Dietary factors that may affect dementia risk

A number of dietary factors have been associated with a reduced risk of developing dementia. These include:

- Lower intake of saturated and trans fats
- Higher intake of monounsaturated and polyunsaturated fats
- Higher intake of omega-3 fats
- Higher intake of some antioxidants and vitamins
- Higher intake of vegetables and fruits
- Including alcohol (with caution – too much alcohol poses a significant health risk)

Diet also affects the risk of developing heart disease and stroke, which are in turn risk factors for dementia. Too much saturated fat in the diet can contribute to high cholesterol levels, too much salt can result in high blood pressure (hypertension), and too much sugar raises the risk of type 2 diabetes. These conditions are also associated with increased risk of dementia.

### Dietary fats

While a low fat diet is recommended for good health, there are 'bad' fats that increase risk for cardiovascular disease and dementia, and there are 'good' fats that have been associated with protective effects for the heart and the brain.

#### 'Bad' fats

Studies have shown that people with high intakes of saturated and trans (which occur in hydrogenated vegetable oils) fats in their diet have a higher risk of

developing dementia, while people with a diet that favours unsaturated, unhydrogenated fats have a lower risk.

Saturated and trans fats increase levels of 'bad' LDL cholesterol and reduce levels of 'good' HDL cholesterol. This increases the risk of developing conditions such as heart disease and stroke, as well as increasing the risk of dementia.

High levels of LDL cholesterol may contribute to the risk of developing Alzheimer's disease by increasing the production of beta-amyloid protein, which is one of the chemicals that causes damage to the brain in Alzheimer's disease.

Foods high in saturated fat include butter, lard, meat, full-fat dairy products, coconut oil, palm oil and chocolate. Trans fats are used widely in some fast food, snack foods, fried foods and baked goods like cakes and biscuits. These processed foods can also be high in salt and/or sugar. Try to limit the intake of these foods and choose low fat varieties wherever possible.

### **'Good' fats**

A higher intake of monounsaturated and polyunsaturated fats has been associated with a lower risk of developing dementia. These fats may increase levels of HDL cholesterol, which may help protect brain cells. Foods high in protective unsaturated fats include:

- olive oil and olives
- some margarines and vegetable oils
- avocados
- nuts and seeds
- fish

### **Omega-3 fats**

Omega-3 is an essential fatty acid, which means it must be obtained from the diet because the body doesn't make it. Some research suggests that a higher consumption of omega-3 is associated with a reduced risk of developing dementia.

Omega-3 fats are thought to protect blood vessels and may reduce inflammation in the brain. They may also have a specific role in both brain development and maintaining healthy nerve cells. Research is continuing into the role of omega-3 fats in the brain.

Omega-3 is found in foods including:

- Fish (in particular oily fish such as salmon, sardines, mackerel and tuna)
- Other seafood
- Flaxseed (linseed) oil
- Nuts
- Eggs
- Meat and dairy products from grass-fed animals

The richest source of omega-3 is fish. Some research has found that eating fish as little as once or twice a week may reduce the risk of developing Alzheimer's disease. However, not all studies have found a protective effect from eating fish or taking omega-3 supplements, and more research is needed.

## Other foods to include for brain health

### **Antioxidants**

Antioxidants mop up destructive chemical molecules in the body known as free radicals, which result from our body's use of oxygen to generate energy. Free radicals may contribute to brain cell death in Alzheimer's disease and other dementias.

Some studies looking at whether antioxidants protect against Alzheimer's disease have shown that vitamins C and E and beta carotene might be protective. However, these findings are not conclusive and it appears there may not be very strong effects from any one particular nutrient.

Fruits and vegetables are good sources of antioxidants. The highest concentrations are found in the most deeply or brightly coloured fruits and vegetables. Research suggests that those who eat more fruits and vegetables have a lower risk of developing dementia. Antioxidants are also found in whole grains, tea (especially green tea), vegetable oils, chocolate and red wine (but for good health these last two should be limited).

### **B group vitamins**

B vitamins play important roles in cell metabolism. Deficiencies can cause a number of health problems including conditions associated with dementia such as cognitive deficits, memory loss and confusion. Some research suggests that low levels of vitamin B12 and folate (vitamin B9) in particular may be associated with increased risk of dementia.

Vitamin B12 is important for normal functioning of the brain and nervous system. Foods rich in vitamin B12 include meat, shellfish, dairy foods, tempeh and other fermented foods, and some fortified breakfast cereals.

Folate is important for the production and maintenance of new cells and is essential for brain function. Food sources of folate include leafy vegetables such as spinach, legumes, sunflower seeds, other fruits and vegetables such as oranges, bananas, rockmelons, strawberries, avocados, corn, pumpkin and parsnips, and some fortified breakfast cereals.

Deficiencies of vitamin B12 and folate are associated with elevated levels of homocysteine (an amino acid), which is associated with an increased risk of developing dementia, as well as heart disease. Adequate folate and vitamin B12 in the diet may reduce homocysteine levels and subsequent risks.

### **Alcohol**

Light to moderate consumption of alcohol has been linked to a lower risk of dementia. The benefits of alcohol may be due to its favourable effects on the cardiovascular system, although there may be other mechanisms. Reducing inflammation, increasing HDL cholesterol, increasing brain blood flow and antioxidant properties may be involved in alcohol's protective effect

There is insufficient evidence, however, to promote alcohol consumption to non-drinkers as a means of reducing dementia risk.

Excessive alcohol consumption and binge drinking pose a significant health hazard, and have been associated with increased risk of developing dementia. The National Health and Medical Research Council's *Australian Guidelines to*

*Reduce Health Risks from Drinking Alcohol* recommend limiting alcohol intake to no more than 2 standard drinks on any day to reduce the risk of long term harm.

### **Blueberries**

Blueberries are sometimes called 'brain food' and may have a protective effect through the action of antioxidants.

### **Legumes**

Beans and other legumes (which include peanuts, lentils and chickpeas) are rich in vitamins and minerals, folate, omega-3 fatty acids and antioxidants. They are low in fat but high in fibre and protein. Studies have shown that higher consumption of legumes is associated with increased survival.

### **Tomatoes**

Tomatoes contain a potent antioxidant called lycopene. Unlike many foods which lose nutrients in the cooking process, tomatoes provide more lycopene in their cooked form than when raw.

### **The Mediterranean diet**

Several studies have demonstrated benefits of the Mediterranean diet for good heart and brain health. People who adhere to this diet have been found to have a lower risk of developing dementia, and to have slower decline if they already have cognitive impairment or dementia. The Mediterranean diet includes plenty of fruits, legumes, vegetables, fish, olive oil and wine.

### **Vitamin supplements**

Studies vary on whether food sources of vitamins or vitamin supplements are more effective, but studies tend to be in favour of natural foods over supplements.

Sometimes, however, it may not be possible for people to get the full range of these foods. In such cases a health professional should be consulted about whether supplements should be taken.

### **Diet for people with dementia**

No special diet is required for people with dementia, unless they have another health condition requiring a modified diet. However, eating a well balanced, nutritious diet can be beneficial. It can help the body work more efficiently, give the person more energy, and help avoid other health problems. Special attention needs to be paid to avoid or deal with obesity or loss of weight, to ensure an adequate dietary intake of vitamins and other essential nutrients, and to avoid dehydration.

Eating or drinking too little or missing out on essential nutrients can increase confusion. Not eating enough fibre or drinking enough water can cause constipation. Helping the person with dementia to maintain a healthy diet and drink plenty of water each day can help avoid these problems.

### **Tips for a healthy diet**

- Enjoy your food
- Eat a variety of foods, with an emphasis on plant foods

- Eat the right amount to maintain a healthy weight
- Eat plenty of foods rich in fibre
- Eat plenty of fruits and vegetables (at least 5 servings a day)
- Limit fried foods and processed snacks
- Avoid foods high in saturated fat
- Limit sugary foods and drinks
- Avoid foods high in salt, and don't add salt in cooking or at the table
- Drink plenty of water
- Drink alcohol in moderation

The Dietary Guidelines for Australians recommend avoiding saturated fat and eating plenty of fruits and vegetables. This general healthy diet is likely to help reduce the risk of dementia, in addition to that of cardiovascular disease and other conditions. The guidelines are available online at [http://www.nhmrc.gov.au/\\_files\\_nhmrc/publications/attachments/n31.pdf](http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n31.pdf)

Read food labels and pay attention to how much fat, salt and sugar foods contain per 100 grams. Dietary guidelines recommend avoiding foods with more than 5 grams of saturated fat, 15 grams of sugars, or 600 milligrams of salt per 100 grams of food.

### More research is needed

More research is being done to better understand links between diet and dementia risk. In the meantime, a healthy, balanced diet is recommended to help keep the ageing brain healthy.

Research shows that there are factors in health and lifestyle that indicate greater risk of developing dementia. While you may reduce that risk with physical exercise, mental exercise and improved diet, these activities do not guarantee prevention of dementia.

### Further reading

The Mind your Diet section of the Alzheimer's Australia Mind your Mind website provides information on healthy eating and its relevance to dementia risk. Go to <http://mindyourmind.org.au/mind-your-mind/mind-your-diet>

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*This Update Sheet is provided for your information only, and does not represent an endorsement of any treatment, food or diet by Alzheimer's Australia.*

### Further Information

A range of books, DVDs, Help Sheets and Update Sheets are available through Alzheimer's Australia in your State or Territory by contacting the National Dementia Helpline on 1800 100 500.

Help Sheets and Update Sheets are also available online at [www.alzheimers.org.au](http://www.alzheimers.org.au)