A story on the links between diet and dementia in the September 1 edition of New Scientist magazine has prompted fresh media interest in the relationships between diet, diabetes and dementia risk. A newspaper feature based on the New Scientist story in the Guardian (UK) was syndicated by several Australian papers, and has generated further media attention leading up to Dementia Awareness Week in September, 2012.

**Key Message:** There are strong links between diet, diabetes, and dementia. Unhealthy diet and diabetes are both known risk factors for dementia (as are smoking, hypertension and dangerous alcohol use, among other things) and anyone concerned about reducing their risk of developing dementia should make an effort to prevent or manage diabetes and maintain a healthy diet high in fruit, vegetables, fish, nuts, legumes, and low in meat, saturated fats and sugar.

Diabetes does not necessarily cause dementia, and most people with dementia don’t have diabetes. However, new research is suggesting that insulin resistance in the brain (what some researchers have controversially termed ‘type 3 diabetes’) could disrupt a range of other processes that regulate brain function, and could be one of the ways in which brain cells become damaged, leading eventually to dementia.

**Diet and Dementia**

**Key Message:** There is good evidence that a healthy diet (particularly during mid-life) may reduce the risk of dementia. But there is not enough evidence to make recommendations one way or the other about any particular types of foods or dietary supplements.

Several studies have shown that healthy diet (such as a Mediterranean diet) characterised by higher consumption of fruits, vegetables, fish, nuts and legumes and lower consumption of meat, high-fat dairy products and sugar is associated with lower risk of dementia. Longitudinal studies have also found that healthy diet at mid-life is associated with significantly reduced risk of dementia in later life. One study, for example, found that a healthy diet in middle-aged was associated with an 88% lower risk of developing any dementia, and a 92% lower risk of developing Alzheimer’s disease compared to those with an unhealthy diet.

However, evidence linking specific foods, vitamins (including Vitamin B and E), dietary fats (Omega 3, coconut oil) or other nutritional components (antioxidants) to...
dementia risk remains inconclusive. It is also unclear if dietary changes in later life might reduce dementia risk. Further targeted research on a range of dietary factors and dementia risk are likely to result in significant contributions to strategies aimed at reducing the risk of dementia and other chronic diseases.

**DIABETES AND DEMENTIA**

**Key Message:** There is good evidence showing that people with diabetes may be at increased risk of dementia, and new studies suggesting that insulin resistance may play a role in the development of some forms of dementia.

Diabetes is a chronic disease characterised by deficiencies in insulin production and/or insulin resistance. Around 1.7 million Australians have diabetes (95% of these Type 2), and a further 1.5 million have pre-diabetes. Numbers are increasing rapidly, and by 2030 it is projected that 3.3 million Australians will have diabetes.

Numerous studies have shown that people with type 2 diabetes are at increased risk of dementia. A recent review for example found that diabetes was associated with a 47% increased risk of dementia (39% for Alzheimer’s disease and 138% for vascular dementia).

Diabetes does not necessarily cause dementia (many people with diabetes live and die without developing dementia). Nor is it the only pathway to dementia (most people with dementia don’t have diabetes). However, recent studies have begun to show that insulin resistance in the brain might interfere both with the ability of brain cells to absorb energy, and with a range of neurobiological process that regulate levels of the amyloid beta protein that, when clumped together abnormally, are the hallmark of Alzheimer’s disease. This has led some researchers to suggest a ‘type 3 diabetes’ characterised by insulin resistance and, potentially, the development of dementia in the brain.

The research has only been conducted in animals at this stage, and it is likely that the picture will be more complex in the human brain. However, these results do give reasons for concern, and weight to the importance of maintaining a healthy diet and weight to protect the body’s insulin regulation and reduce the risk of developing diabetes and, potentially, dementia later on.

**WHAT DOES THIS MEAN?**

Diabetes and dementia have been described by the Federal Minister for Mental Health and Ageing, the Hon Mark Butler, MP, as the two major emerging health epidemics facing Australia. If, as the research is suggesting, the associations
between diet, diabetes and dementia are closer than we have realised before, the consequences are serious. Overweight and obesity are increasing dramatically (60% of Australian adults are overweight, up from 45% just 15 years ago); diabetes prevalence has increased exponentially over the past 20 years, and dementia prevalence is projected to do so over the next 20. The projection of 1 million people with dementia by 2050 is based largely on the ageing of the population, not on dramatic increases in risk factors such as unhealthy diet and diabetes, meaning that the reality could be far more people living with dementia than we had imagined.

At the same time, there is cause for optimism. Preventive health messages to date have focussed primarily on single risk factors or diseases. Making the connections between conditions like dementia and diabetes will help people to realise that there are simple things they can do that will simultaneously reduce their risk of dementia and many other chronic diseases. 60% of diabetes cases are preventable, and it is likely that a proportion of cases of dementia may be as well. Improving population health, while at the same time investing in the research required to improve understanding and develop new methods of treatment, care or cure, are essential.

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1 Trivedi, B. Eat your way to dementia. *New Scientist*. 1 September, 2012.
13 AIHW 2012. Risk factor trends: age patterns in key health risk factors over time. Cat. no. PHE 166. Canberra: AIHW.