

Pomegranate juice may cut Alzheimer's risk

By Stephen Daniells

10/3/2006 - **A daily glass of antioxidant-rich pomegranate juice could halve the build-up of harmful proteins linked to Alzheimer's disease, says a new animal study from the USA.**

"This study is the first to show beneficial effects (both behavioral and neuropathological) of [pomegranate juice](#) in an animal model of AD," wrote lead researcher Richard Hartman from Loma Linda University in California.

Alzheimer's disease is the most common form of dementia and currently affects over 13 million people worldwide. The direct and indirect cost of Alzheimer care is over \$100bn (€ 81bn) in the US alone. The direct cost of Alzheimer care in the UK was estimated at £15bn (€ 22bn).

Although the mechanism of [Alzheimers](#) is not clear, more support is gathering for the build-up of plaque from beta-amyloid deposits. The deposits are associated with an increase in brain cell damage and death from oxidative stress.

It is against the oxidative stress that the [polyphenols](#) appear to offer protection.

Hartman and his co-workers supplemented the diets of transgenic mice (APPsw/Tg2576) with pomegranate juice. This strain of mice are engineered to express an amyloid precursor protein (APP) that leads to an early onset of neurological degeneration and subsequently Alzheimer's disease.

Between the ages of six and 12.5 months, the mice were divided into two groups and received either plain water or a pomegranate juice (PJ) made from concentrate (PomWonderful) diluted 1:160 or 1:80. *"Since the PJ concentrate is four times more concentrated than regular strength PJ sold commercially, the dilutions of concentrate are approximately equivalent to dilutions of 1:40 or 1:20 of non-concentrated PJ,"* explained Hartman.

Cognitive function was evaluated by subjecting the mice to a water maze task, which requires the animal to swim and find a submerged platform in a pool of water. As performance improves, the time decreases for the mouse to escape the maze and the distance swum.

The mice given the pomegranate juice drink were found to negotiate the maze significantly quicker (about 35 per cent) and swam a more direct path (on average 3750 cm less) than the non-supplemented group, reported the authors in the Elsevier journal *Neurobiology of Disease* (doi: 10.1016/j.nbd.2006.08.006).

When the researchers examined the quantity of beta-amyloid deposits in the brain cortex of the mice, it was found that the pomegranate juice-supplemented groups had 50 per cent less of the protein than the non-supplemented group.

Being the first study into the potential protective role of pomegranate concentrate and the antioxidant polyphenols contained within, significantly more study is needed.

The data is based on pomegranate concentrate and no attempt was made by the authors to discriminate the potentially 'active' biochemicals in the fruit that may offer protection independently or synergistically, although they said the evidence suggests a complimentary effect of the polyphenols.

"The vast number of compounds in PJ, along with the evidence that these compounds may act together in a synergistic fashion, suggests that isolated components of pomegranate may not be as effective as dietary supplementation with either the whole fruit or its juice," said the researchers.

"These results suggest that further studies to validate and determine the mechanism of these effects, as well as whether substances in PJ may be useful in Alzheimer's Disease, should be considered," they concluded.

The work follows a recent epidemiological study into the possible role of fruit and vegetable juices reducing the risk of Alzheimer's (*The American Journal of Medicine*, Vol. 119, pp. 751-759), a result that was also linked to the polyphenol, rather than the vitamin content of the fruit and vegetables.

The researchers from the Vanderbilt University Medical Center found that people drinking juices three or more times per week were 76 per cent less likely to develop signs of Alzheimer's disease than those who drank less than one serving per week. This was after taking into account dietary intake of vitamins E, C and beta-carotene.

