

High tofu intake correlated with memory loss

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Chickens beware. Your meat, and that of other animals, may soon be in higher demand. The problem is that tofu, a soy product often used to replace meat, has once again been tied to negative health consequences – in this case, memory loss and dementia.



Researchers at Loughborough University in England recently published two studies – in the journal *Dementias* and in *Geriatric Cognitive Disorders* – which found that eating high levels of some soy products may raise the risk of memory loss.

The research team, led by Professor Ef Hogervorst, tracked soy intake and subsequent memory function in 719 elderly Indonesians living in urban and rural regions of the island of Java. They found high tofu consumption – at least once a day – was associated with worse memory, particularly among subjects over 68 years of age.

A variety of compounds are found in soy products, so naturally Hogervorst and other researchers are intent on discovering which specific compounds, or group of compounds found in soy might contribute to impaired health, such as memory loss among the elderly.

Hogervorst and team seem to be leaning towards the hypothesis that phytoestrogens – micronutrients found in soy that partially mimic the hormone oestrogen – may be to blame for the mental damage observed in their study subjects. According to Rebecca Wood of the Alzheimer's Research Trust (which funded the study), oestrogens tend to promote growth among cells. Could there be something about faster growing cells that could be detrimental to the elderly brain?

Without much evidence at hand to prove the above hypothesis correct, Hogervorst and team have also considered the possibility that high levels of oestrogens might allow cells to be damaged more frequently by free radicals, yet the mechanisms behind such a hypothesis also remain cloudy.

Finally, the researchers have hypothesized that the observed mental decline in the Indonesian subjects might not have been caused by the tofu, but by formaldehyde, which is sometimes used in Indonesia as a preservative. Yet the fact that previous research has also linked high tofu consumption to an increased risk of dementia in older Japanese American males, and American soy products do not contain formaldehyde, renders the hypothesis rather dubious as well.

So how would one explain this evidence? Hogervost and his research team seem to have their share of hypotheses, but here's another: the reason why soy is harmful for older adults is that the primary isoflavone found in soy, Genistein, is immunosuppressive. Dr. Marshall has shown that Genistein actually dysregulates the innate immune response by binding and inactivating the vitamin D receptor. Just like exogenous vitamin D (known as 25-D), chlorogenic acid (found especially in coffee), or other compounds that negatively affect VDR activity, high levels of Genistein are able to slow the innate immune response (which is controlled by the VDR). As innate immune system activity decreases, less of the chronic bacteria implicated in causing a plethora of physical and cognitive symptoms are killed. The result is a temporary decrease in the inflammation generated when the pathogens die and a feeling of temporary palliation.

Dr. Hogervost may not know it, but his data is consistent with that of [Dr. Martha Payne](#). In 2007, Payne and her team showed that vitamin D intake in older adults correlated with higher total volume of brain lesions. What's the common thread between these two studies? In both cases, the elderly subjects are consuming foods (or supplements in the case of vitamin D) that slow the VDR. The resulting immunosuppression allows numerous bacteria-driven chronic diseases, including Alzheimer's and dementia— to develop with greater ease -and within the time parameters defined by the study. Younger, and presumably healthier subjects, will likely suffer from the same detrimental effects if given a longer window of time.

Dr. Hogervost has stated that there is some evidence that soy may “protect” the brains of younger and middle-aged people from damage but its effects on the aging brain are less clear. The statement directly supports the hypothesis that soy is immunodulatory. The periods of “protection” Hogervost refers to are almost certainly periods of immunosuppression which ultimately allow enough bacterial spread in the brain so that elderly patients present as symptomatic.

Since the Th1 pathogens are picked up over the course of a lifetime, elderly people also generally have higher bacterial loads than their younger counterparts. Since many of the Th1 pathogens likely create ligands that also block the VDR, elderly patients are more susceptible to compounds like Genistein that contribute to VDR dysregulation. Because their VDRs have already been rendered largely inactive by the pathogens they harbor, smaller amounts of a compound like soy can more easily push the elderly “over the edge” into a state where they are strongly immunosuppressed.

Unfortunately the great majority of mainstream researchers remain unaware of Genistein's negative effects on the VDR. And because the same researchers also fail to factor chronic bacteria into the pathogenesis of mental disorders such as Alzheimer's and dementia, they are continually confused by other anomalies in their study data. For example, a different study recently found that eating tempe, a fermented soy product made from the whole soy bean, is associated with better memory. Huh?

Again, it is only when the new study is viewed through the lens of the Marshall Pathogenesis that the mental “improvements” observed in subjects can be better understood. Tempe is not only high in soy but also high in folic acid – a compound that bacteria use to their advantage. Upon consumption, folic acid is enzymatically converted into a form that the body can use to produce

the nucleic acids that make up our DNA. However, if a person consumes extra folic acid, the Th1 pathogens are able to use the substance to generate their own nucleic acids and replicate and create their own DNA.

The result is that the Th1 pathogens find it easier to survive in a folate-rich environment, so high levels of the substance again prevent the immune system from effectively killing the chronic pathogens implicated in causing memory loss and dementia. By temporarily keeping many these pathogens at bay, folic acid also prevents the rise in inflammation associated with their deaths, and mistakenly, at least in the short-term, gives the impression of “wellness.”

When will the difference between palliation and true wellness become commonly understood? We know enough now to realize that the feel good effects of food simply can't be taken at face value.

In the meantime, there's no need to be obsessive about avoiding soy or folic acid. Marshall recommends that soy product in the diet be kept to a minimum (particularly among those patients on the MP). And because it's excess folic acid that tends to most greatly benefit the bacteria we harbor, he recommends eating only those foods which naturally contain the substance. So products with extra folic acid, particularly white bread products, should be avoided.