

## Mushrooms are good for the memory

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*A study reports that elderly individuals who regularly consume mushrooms halve their risk of developing mild cognitive impairments, such as loss of memory.*



### DECREASED PERFORMANCE

As with all other organs of the human body, the structure and activity of the brain gradually deteriorate with age. This aging process is completely normal and, in most cases, has no major effects on the quality of the person's life. In some cases, however, the decreased brain performance can become more significant and can lead to the development of "mild cognitive deficits", i.e. episodes in which cognitive functions are subtly altered and lead to unusual problems with memory, attention, language or visual-spatial activities (orientation, automobile driving etc.). With time, these deficits can progress towards more significant losses in cognitive function and lead, eventually, to the development of dementia. With the aging of the population, this deterioration in cognitive health risk has serious consequences: according to recent estimates by the World Health Organization (WHO), it is forecast that the number of people developing dementia could triple over the next 30 years, with disastrous consequences in quality of life for the affected patients and their families<sup>1</sup>.

### PREVENTING THE DECLINE

The WHO report emphasized the importance of preventing the development of dementias by adopting a healthy lifestyle, notably including regular physical activity, control of body weight and incorporating a healthy diet (e.g. the Mediterranean diet). It is also interesting to note that several studies have suggested that certain foods rich in antioxidant and anti-inflammatory polyphenols (olive oil, dark chocolate, curcumin and blueberries) appear to have a positive effect on brain activities, suggesting the interesting possibility that inclusion of these foods into regular dining habits could enhance the potential for neuroprotection provided by a healthy diet. Even if a proportion of dementias are of genetic origin and are thus inevitable, we must remain aware that it is at least possible to prevent some of them by modifying lifestyle.

### PROTECTIVE MUSHROOMS

Mushrooms comprise another category of foods which can contribute to the prevention of cognitive decline. For example, studies have found that regular consumption of mushrooms was associated with a better cognitive performance in Norwegians 70-74 years of age, as well as with a significant decrease (20%) in the risk of dementia for Japanese adults aged 65 and over.

This neuropreventive potential of mushrooms is also shown by the results of a study recently performed in Singapore on 663 adults aged 60 and over<sup>2</sup>. Compared to people who rarely ate mushrooms

(less than once per week), those who ate them regularly (2 or more portions weekly) had 56% less risk of exhibiting mild cognitive impairment such as memory loss.

As the authors emphasized, this protective effect of mushrooms is biologically understandable. For one thing, mushrooms contain several specific molecules (hericenones, erinacines, scabronines and dictyophorines) known to promote the synthesis of neuronal growth factor (NGF), a molecule involved in the survival of neurons. For another, mushrooms are a very important source of L-ergothioneine (ET), a molecule which possesses a very strong antioxidant activity and which can accumulate within the brain and protect neurons against oxidative stress. As well, a study has shown that ET levels are significantly diminished in people who exhibit mild cognitive impairment, which suggests that a lack of ET could represent a risk factor for neurodegeneration<sup>3</sup>. By increasing the levels of ET within the brain, the regular consumption of mushrooms could thus prevent or at least inhibit the processes involved in the deterioration of cognitive function linked to aging and its progress into neurodegenerative diseases such as dementias.

- (1) World Health Organisation. Adopt a healthy lifestyle to reduce the risk of dementia ([www.who.int](http://www.who.int)).
- (2) Feng et al. The association between mushroom consumption and mild cognitive impairment: a community-based cross-sectional study in Singapore. *J. Alzheimer's Disease*. 2019; 68: 197-203.
- (3) Cheah I et al. Ergothioneine levels in an elderly population decrease with age and incidence of cognitive decline; a risk factor for neurodegeneration? *Biochem. Biophys. Res. Commun.* 2016; 478: 162-167.

