



Soyfoods and Cognitive Health

Key Points

- Cognitive function refers to our ability to process thoughts which involves elements such as thinking, reasoning, perceiving and remembering.
- As we get older the brain undergoes changes that may influence various aspects of cognitive function.
- It's been suggested that the hormone estrogen could be beneficial for supporting cognitive function in postmenopausal women.
- Studies indicate that to gain the best results, estrogen should be started at the beginning of the menopausal transition.
- Soyfoods are a rich source of isoflavones whose chemical structure has similarities to that of estrogen and as such may benefit cognitive function.
- Research into the effect of soyfoods and/or isoflavones on cognitive function has produced mixed results, however the North American Menopause Society suggests that there maybe some benefit for soy on cognitive function in women younger than 65
- Soyfoods fit in well with dietary guidelines that support cognitive health during the ageing process, since soyfoods are low in saturated fat, contain polyunsaturated fats and are a good source of high quality protein.

Introduction

Everyday tasks we take for granted such as thinking, remembering, reacting, paying attention, recognising people and our environment are collectively known as cognitive functions. As we get older some of these processes maybe effected as our brain undergoes natural structural and functional changes. However the extent of these changes will vary from one individual to another.

The term Dementia describes a group of cognitive symptoms that get worse over time including loss of memory, mood changes, and problems with communication and reasoning. While there are a number of different diseases and conditions that cause Dementia, Alzheimer's disease (AD) is the most common cause. In Europe approximately 9.9 million people suffer from Dementia, with Western Europe having the highest proportion of sufferers in the world.

Estrogen and Cognitive Function

It's been suggested that the hormone estrogen is beneficial for cognitive function and as a result maybe useful for postmenopausal women whose estrogen levels drop following the menopause. This has been supported by studies that found postmenopausal estrogen users were 29% less likely to develop Dementia. However, weaknesses in the design of these studies, as well as concerns over the risks of estrogen replacement therapy, called for further, large, well controlled studies to be conducted.

Such a study has now been carried out – the Women's Health Initiative Memory Study (WHIMS). One part of this trial involved over 4500 postmenopausal women, aged between 65 and 79 years old, who were free of Dementia at the beginning of the study. Approximately half of the women took a tablet containing the hormones estrogen and progestin, and the other half took a placebo (a 'dummy' tablet that had no active ingredients). After 4 years, surprisingly, more women in the hormone group went onto develop Dementia than in the placebo group.

The results from the WHIMS are contrary to findings from other studies which have shown a protective effect of estrogen on memory. One reason for this is thought to be due to the different ages of women used in these studies. The average age of women at the beginning of the WHIMS was 73 years and these women had been postmenopausal for 21 years. However women in the studies that found a protective effective were much younger. For this reason it's been proposed there's a critical time where estrogen maybe beneficial for cognition, and to gain the best result, estrogen should be started at the beginning of the menopausal transition.



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Soyfoods, Isoflavones and Cognitive Function

Soyfoods are a rich source of isoflavones that have chemical similarities to that of estrogen. This likeness has prompted an interest investigating the impact of soyfoods on cognitive function.

To examine these effects, both population studies and clinical studies have been conducted. Results from population studies are mixed. However there are limitations in the design of a number of these studies and so results need to be interpreted with caution.

Clinical trials investigating the impact of isoflavone supplements, soydrink or soy protein on various cognitive functions in postmenopausal women have also produced variable results. In these studies a range of tests were used to measure different aspects of cognitive function such as attention, memory and executive function (associated with decision making and planning). Two trials of British women who took 60mg of soy isoflavone supplements a day for 3 months showed better results in executive function tasks than women who took a placebo. In an Italian study, women who took 60mg of isoflavones a day for 6 months had improvements in memory compared to when they took a placebo. A Brazilian study also concluded that isoflavones could potentially help in reducing the impact of memory loss. One US study found that after 6 months of taking 110mg of isoflavones a day it was the younger postmenopausal women who appeared to have greater benefit on various aspects of cognitive function than the older women. However another US study and a Dutch study found no effect of soy protein on cognitive function compared to milk protein. This has also been shown in the largest and longest US study, which found that overall cognitive function did not differ between women who consumed 25g soy protein a day (providing 91 mg isoflavones) for 3 years compared to women who received milk protein.



While results from these clinical studies are mixed, in general they appear to be more positive than findings from population studies. As such, a recent report by the North American Menopause Society suggested there maybe some benefit for soy on cognitive function in women younger than 65, but little benefit for women over this age.

Although further well designed clinical trials are required to clarify soy's impact on cognitive function, general dietary recommendations to support cognitive health include eating a well balanced diet that is low in fat, especially saturated fat (the 'bad fat'), high in fibre, watching the amount of salt and eating plenty of fruit and vegetables. Soyfoods fit in well with these guidelines as soyfoods are naturally low in saturated fat, contain polyunsaturated fats and are a good source of high quality protein.



Conclusions

- Soyfoods are a rich source of isoflavones that have chemical similarities to the hormone estrogen.
- This similarity has resulted in interest investigating the effects of soyfoods and/ or isoflavones on cognitive function.
- The evidence supporting the beneficial role of soy on cognitive function is currently limited, however the interesting results deserve further research in this area. In the mean time, the North American Menopause Society has suggested there maybe some benefit for soy on cognitive function in women younger than 65.
- Soyfoods should therefore be considered as part of a healthy, balanced diet and lifestyle to support cognitive function during the ageing process.

Interested? Have a look on www.ensa-eu.org for more details and references or contact us via secretariat@ensa-eu.org

