

PREVENTING DEPRESSION THROUGH FOOD



The MooDFOOD project evaluated the scientific evidence on the role of food in preventing depression using the following criteria:

- **Strong level of evidence:** When the food related factor shows a consistent causal impact on depression or depressive symptoms based on evidence from meta-analysis of RCTs.
- **Limited level of evidence:** When the food related factor shows a consistent association with depression or depressive symptoms based on evidence from meta-analysis of prospective cohort studies.
- **Ambiguous:** when there was a high level of heterogeneity or conflicting results.
- **Too few studies:** there were too few studies to draw inferences on the relationship.

MooDFOOD OVERVIEW

The MooDFOOD project harnessed a multi-centre European consortium with expertise in nutrition, psychology, psychiatry and food-related consumer behaviour to evaluate and test the potential for the prevention and treatment of depression through nutritional strategies. The MooDFOOD project includes:

- Integration and evaluation of available scientific evidence on the impact of food in depression to form evidence based conclusions.
- The first randomised controlled trial (RCT) to examine the potential of multi-nutrient supplementation and/ or a food-related behavioural activation therapy on the prevention of Major Depressive Disorder (MDD). The trial followed 1025 overweight adult participants with elevated depressive symptoms over a period of one year. Participants were recruited from the UK, Spain, Netherlands and Germany.
- Consumer based intervention studies examining the relationship between food-related behaviours such as mindful eating and risk of depression.
- Meta-analysis of cohort data from 6 observational cohort studies examining the association between dietary patterns and depressive symptoms.
- Over 30 new scientific publications.
- Translation of MooDFOOD's findings into tools for policy makers, doctors, dietitians, mental health care providers and the public.

RESEARCH INTEGRATION METHODS

The MooDFOOD project employed the criteria for evidence evaluation established by the Health Council of the Netherlands to develop the Dietary Guidelines (see blue box above). These criteria were used to integrate results of MooDFOOD, and wider research on the role of food, nutrients, dietary patterns, nutritional supplements and food-related behaviours in the prevention and treatment of depression. The outcomes of the integration process were translated into the conclusions and nutritional strategies detailed in this summary.

SUMMARY OF CONCLUSIONS

PREVENTION OF DEPRESSION

- Limited level of evidence from meta-analysis of prospective cohort studies shows that following a healthy dietary pattern may reduce depressive symptoms in the general population.
- Evidence does not support taking nutritional supplements for the prevention of depression.
- For people with obesity, there is a strong level of evidence that weight loss can reduce depressive symptoms.

TREATMENT OF DEPRESSION (MDD)

- Two small trials show that in patients with MDD a healthy dietary pattern may reduce depressive symptoms.
- There is a strong level of evidence that omega-3 supplements (specifically $\geq 1\text{g/day}$ EPA and DHA) can have a small beneficial effect on depressive symptoms in patients with MDD using antidepressants.

FOR THE PREVENTION OF DEPRESSION

Diet

- A limited level of evidence from meta-analyses of prospective cohort studies shows that eating a healthy dietary pattern may help to reduce depressive symptoms in the general population.
- The MooDFOOD prevention trial is the first trial to directly test the impact of a food-related behavioural activation therapy on the prevention of depression. The trial found no evidence in primary analysis that food-related behavioural activation therapy reduced depressive symptoms, or the incidence of MDD.
- There is a limited level of evidence that regular intake of fish, fruits and vegetables may help to reduce depressive symptoms.
- A limited level of evidence shows that unhealthy dietary patterns seem not associated with the development of MDD.
- Although there are some indications that sugar and refined grains, as well as junk/fast food, may have an impact on the onset of depression, currently the results of available studies are ambiguous.

Supplements

- The MooDFOOD prevention trial is the first trial to directly test the impact of a multi-nutrient supplement containing omega-3, selenium, folate, and vitamin D plus calcium on the prevention of depression. The supplement did not reduce depressive symptoms, or the incidence of MDD.
- There is a strong level of evidence that vitamin D, vitamin B12 in combination with folate, and multi-nutrient supplements are not effective in reducing depressive symptoms in the general population.
- There are too few studies to conclude whether individual supplements of magnesium, calcium, selenium, folate, vitamin B6, vitamin B12, omega-3 and zinc are effective in reducing depressive symptoms in the general population.
- There are too few studies to conclude whether reversal of vitamin deficiencies with nutrient supplementation is effective in reducing depressive symptoms in the general population.

Obesity

- Evidence from weight loss trials as well as bariatric surgery trials provides a strong level of evidence that weight loss reduces depressive symptoms in people with obesity.

FOR THE TREATMENT OF DEPRESSION (MDD)

Diet

- Two trials, HELFIMED and SMILES, have investigated the potential effect of diet on depressive symptoms in patients with MDD. Both have found a reduction in depressive symptoms as a result of the healthier dietary pattern.

Supplements

- There is a strong level of evidence that omega-3 supplements (specifically $\geq 1\text{g/day}$ EPA and DHA) can have a small beneficial effect on depressive symptoms in patients with MDD using antidepressants.
- There is a strong level of evidence that vitamin B12 and folate supplements are not effective in reducing depressive symptoms in patients with MDD.
- There are too few studies to conclude whether vitamin D, magnesium, selenium, zinc, calcium, vitamin B6 and multi-nutrient supplements are effective in reducing depressive symptoms in patients with MDD.
- There are too few studies to conclude whether reversal of vitamin deficiencies with supplementation is effective in reducing depressive symptoms in patients with MDD.

Obesity

- There are too few studies to determine whether weight loss can help reduce depressive symptoms in patients with MDD and obesity.

OTHER INFLUENCES

Food-related Behaviour

- There is a complex interplay between food-related behaviours, psychological eating styles, mindful eating and depression. Food behaviour and resulting dietary intake needs to be regarded as an interconnected system. Though there is currently insufficient evidence to draw firm conclusions, there are promising indications that food-related behavioural strategies, such as mindful eating, may help reduce depressive symptoms in the general public.

Environmental Sustainability

- Existing research shows a healthy dietary pattern with lower intakes of red and processed meat is compatible with sustainability goals. Fish intake recommendations need to take sustainability issues into account.

CONCLUSIONS

The MooDFOOD project has identified a limited level of evidence that following a healthy dietary pattern may be an effective nutritional strategy for reducing depressive symptoms in the general population. For people with obesity there is a strong level of evidence that weight loss helps to reduce depressive symptoms. Following a healthy dietary pattern (in line with national dietary guidelines) may be away to support weight loss as well as reduce depressive symptoms. Current evidence does not support taking nutritional supplements to reduce depressive symptoms or prevent depression in the general population.

For patients with MDD, there is a limited level of evidence from two small trials that following a healthy dietary pattern can help to reduce depressive symptoms. Omega-3 supplements can have a small beneficial effect on depressive symptoms in patients with MDD using antidepressants.

IMPORTANT: Nutritional strategies are intended as an addition, not as a replacement, to current care guidelines for the prevention and treatment of depression.

REFERENCES

For a full list of MooDFOOD studies, and the studies supporting these conclusions see the 'References for MooDFOOD Conclusions' document.

www.moodfood-vu.eu

FIND OUT MORE

For more information on the MooDFOOD project visit the MooDFOOD website
www.moodfood-vu.eu

MooDFOOD was delivered by a consortium of multidisciplinary partners in the EU