

Leafy greens reduce aggressive behaviour in adolescents

1 December 2014, by Louisa Frew



A low intake of magnesium-rich foods, such as leafy vegetables, legumes, nuts, seeds and whole grains, has been linked to attention problems and aggression in teenagers. Credit: Carmen

High magnesium intake has been associated with reduced aggressive behaviour in WA adolescents, highlighting the importance of a magnesium-rich diet in emotional and behavioural health.

While previous research has linked low dietary zinc and [magnesium](#) to increased anxiety and depressive behaviours in adults, Senior Research Officer at the Telethon Kids Institute, Dr Lucinda Black, says less is known about its effect on the mental health of children.

"Unfortunately, [mental health problems](#) are very common in Australia and worldwide, and many of these problems develop during adolescence," says Dr Black.

"We wanted to capture the broad spectrum of mental health difficulties that may affect adolescents, and those include internalising behaviours such as being withdrawn, depressed and anxious, as well externalising behaviours such

as attention problems and aggression."

Dr Black's team used data collected at the 14- and 17-year follow-up of the Western Australian Pregnancy Cohort (Raine) Study, one of the world's largest prospective pregnancy cohort studies which continues to add to a collection of over 85,000 measures of health and disease for each participant.

At each follow-up, the teenagers completed a 118-point questionnaire to measure emotional and behavioural problems, and a 212-item food frequency questionnaire, with daily estimates of zinc and magnesium intake calculated by the CSIRO using the Australian Nutrient Database and international micronutrient guides.

Adjusting for potential confounding variables including physical activity, BMI, family-functioning and household income, zinc and magnesium intakes were statistically analysed to determine the presence or absence of an independent relationship with internalising and externalising behaviour scores.

More nuts and greens, please

The results revealed a significant inverse association between magnesium and externalising behaviours in the adolescents: eating more magnesium reduced the incidence of attention problems and aggression.

However, the trend towards reduced externalising behaviour and increased zinc intake did not reach statistical significance, and there were no significant associations between internalising behaviours and zinc or magnesium.

Dr Black says previous research suggests magnesium supplements may be beneficial in treating attention deficit hyperactivity disorder (ADHD), with magnesium acting as a potent

antagonist (blocker) of a receptor complex involved in aggression, agitation and irritability.

"It's certainly important to include magnesium-rich foods in the diet, such as green leafy vegetables, legumes, nuts, seeds and whole grains. These foods are often lacking in the diet of adolescents and the wider community.

"The link between nutrition and [mental health](#) is often overlooked, and we hope that this study will highlight the importance of a healthy diet in the emotional and behavioural health of adolescents."

The study was published in *Public Health and Nutrition*.

More information: "Low dietary intake of magnesium is associated with increased externalising behaviours in adolescents." *Public Health Nutr.* 2014 Nov 6:1-7. [Epub ahead of print] www.ncbi.nlm.nih.gov/pubmed/25373528

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