food & mood

the unrecognized benefits of diet

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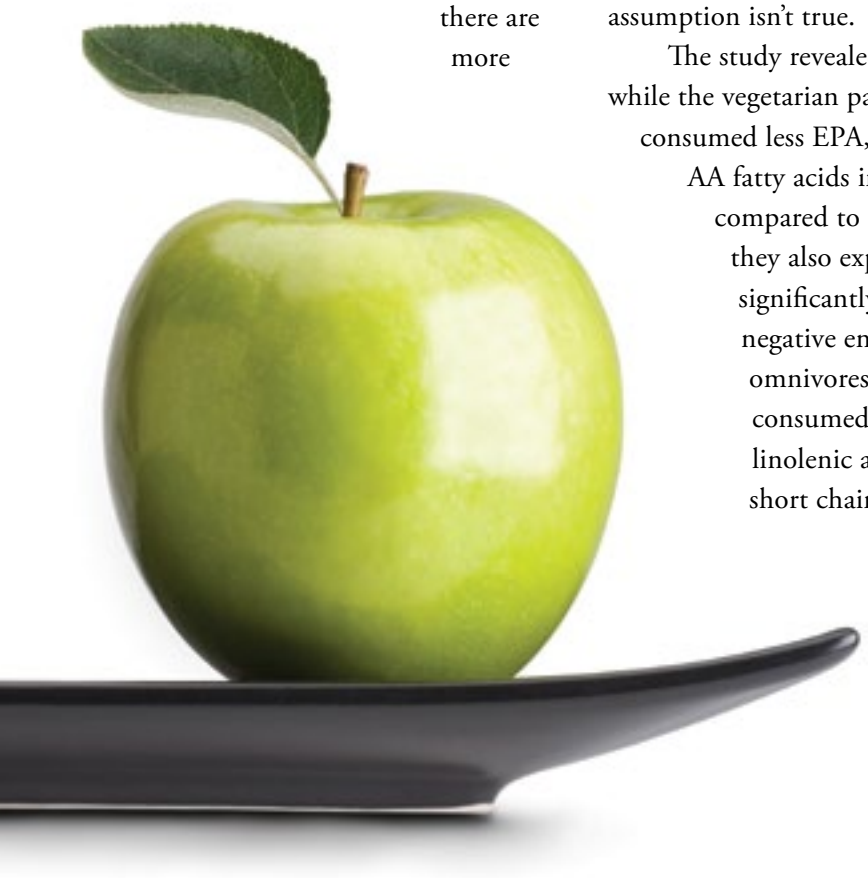
ALIVE!

FOOD makes us happy. And some food makes us happier. At least that is what recent research is suggesting.

Researchers polled 138 healthy Seventh-day Adventist men and women from Phoenix and Santa Barbara. Approximately half of the volunteers were vegetarian, half were omnivores (meat eaters). The objective was to determine how diet, specifically fatty acid intake, impacted mood.

Omega-3 fatty acids are associated with good mental health. Long chain omega-3s have been found to be beneficial for depression and a range of psychiatric disorders. Long chain simply means that there are more carbon atoms than a short chain omega-3 fatty acid. EPA and DHA are long chain omega-3 fatty acids that "favorably impact neural function by displacing the long-chain omega-6 fatty acids in brain cell membranes, particularly arachidonic acid (AA)."[1] AA is an unsaturated fatty acid found in chicken, red meat, eggs, dairy, and some fish. A balance tipped too heavily with AA in the diet can contribute to neuro inflammation, which is not good for mental health. Since fish are a source of these long chain omega-3s, it has been thought that vegetarians who do not eat fish would be in the low end of happy on the mood scale. Well, it just so happens this assumption isn't true.



The study revealed that while the vegetarian participants consumed less EPA, DHA, and AA fatty acids in their diet compared to omnivores, they also experienced significantly less negative emotions than omnivores. Vegetarians consumed more alpha-linolenic acid (ALA), a short chain omega-3 fat and linoleic acid (LA), an omega-6 fatty acid. These short chain omega-3 fatty acids are found in notable amounts in green vegetables, soy, hemp, flax, chia seeds, and walnuts. While these short chain omega-3s haven't been found to be as potent in terms of mental health, the body converts some of these short chain omega-3 fats into the longer chain–DHA and EPA. Scores from questionnaires as well as stress, anxiety, and mood tests have revealed that the vegetarians in the study experienced better moods.

"These results challenge what is known about the link between dietary fats and brain function and suggest an unrecognized benefit of vegetarian diets which are naturally low in the long-chain omega-3 fats. . . . While dietary intake of EPA and DHA has an important role in brain function, we found no evidence that the absence of direct intake of these fatty acids in vegetarians adversely affects mood state. Features of the vegetarian diet profile such as higher intake of total polyunsaturated fat and negligible arachidonic acid intake may help explain the favorable mood profile we observed with vegetarian diets."[2] Additionally, the higher antioxidant levels from eating a diet high in fruits and

vegetables reduce oxidative stress, which has been associated with psychological distress.

After this initial study the same researcher recruited 39 omnivores to assess if diet change would impact mood. Since happiness and mood are subjective states, the true focus of the study was masked from the participants. The volunteers were divided into three groups. The first group ate meat, fish, and poultry daily. The second group avoided meat and poultry, but consumed fish 3-4 times a week. The third group became temporary vegetarians. After only two weeks (slightly longer than the prophet Daniel's 10 day experimental diet (Daniel 1)), a change was observed. As a result of the altered diet, the vegetarian group had reduced their intake of EPA, DHA, and AA fatty acids, while the group consuming fish increased their EPA and DHA intake. Mood scores, however, did not change for the fish or omnivore group. Amazingly, mood scores improved significantly for the vegetarian participants. That's right. Improved mood states were reported after only two weeks on a vegetarian diet.[3]

"THESE RESULTS CHALLENGE WHAT IS KNOWN ABOUT THE LINK BETWEEN DIETARY FATS AND BRAIN FUNCTION AND SUGGEST AN UNRECOGNIZED BENEFIT OF VEGETARIAN DIETS"

So why would a carnivorous diet potentially have an adverse affect on mood? High levels of AA, found mainly in meat, have been linked to clinical symptoms of depression. In one study, it was observed in moderately to severely depressed patients that the higher the levels of AA, in comparison to EPA, the greater the severity of depression. Researchers saw a significant correlation between the ratio of these two fatty acids and mental health. They clarified that they had not determined whether the observed ratio was the result of depression or whether it was present before depressive symptoms occurred. In other words, it could not be "simply explained by differences in dietary intake of EPA."[4] They did conclude that their investigation provided a "basis for studying the effect of the nutritional supplementation of depressed subjects, aimed at reducing the AA/EPA ratio in tissues and severity of depression."[5]

Omega-3 fatty acids are good for us. Apparently though, the ratio of fats we are consuming is even more relative to our overall mental and physical health. The overemphasis on foods high in omega-6 fats in the modern omnivorous diet seems to have produced an imbalance that appears to be less dramatic in a plant-based vegetarian diet.

In the beginning the Creator surrounded man and woman with that which would make them happy: employment, love, relationships, His companionship, Sabbath rest, beauty, and good food. I suspect that the same ingredients to happiness will work this side of Eden as well.

[1] Bonnie L. Beezhold, Carol S. Johnston, Deanne R. Daigle, "Vegetarian diets are associated with healthy mood states: a cross-sectional study in Seventh Day Adventist adults," *Nutrition Journal* 2010, 9:26, http://www.nutritionj.com/content/9/1/26.

[2] Ibid.

[3] Bonnie L Beezhold, Carol S Johnston, "Restriction of meat, fish, and poultry in omnivores improves mood: A pilot randomized control trial," *Nutritional Journal* 2012, 11:9, http://www.nutritionj.com/content/11/1/9.

[4] Peter B Adams, Sheryl Lawson, . . . , "Arachidonic acid to eicosapentaenoic acid ratio in blood correlates positively with clinical symptoms of depression," *Lipids*, March 1996, vol. 31, issue 1, pp. S157-S161, http://link.springer.com/article/10.1007%2FBF02637069.

[5] Ibid.

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