An Antidepressant Diet

THE CARLAT REPORT
PSYCHIATRY

The Carlat Psychiatry Report, Volume 17, Number 5, May 2019
https://www.thecarlatreport.com/newsletter-issue/tcprv17n5/

Felice Jacka, MD

Professor at Deakin University, Geelong, Victoria, Australia.
Director, Food and Mood Centre. Founder and President, International Society for Nutritional Psychiatry Research.

Dr. Jacka has disclosed that she has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

TCPR: A few years ago, your group conducted the first clinical trial of diet on depression. Where did you get the idea for that?

Dr. Jacka: We had a decade of observational evidence linking the quality of people's diets to their risk for depression. Those findings were pretty consistent across countries, cultures, and age groups: A healthy diet is associated with an approximately 30% reduction in the risk

for depression and a 40% improvement in cognition. That's after controlling for education, income, other health behaviors, and body weight. What we didn't know was whether diet could also work as an intervention for active depression, so we set out to test that in a controlled trial. Honestly, we didn't expect to see the kind of results we did.

TCPR: What did you find?

Dr. Jacka: The effect size for this diet was large: 1.2. *(Editor's note: The effect size for antidepressants ranges from 0.3 to 0.6.)* We randomly assigned people to either dietary counseling with a clinical dietitian or social support with what we call a befriending protocol, which we already know is helpful in depression. Both groups had the same face-to-face time in sessions, and after 3 months the depressive symptoms in the dietary group were significantly improved, more so than in the social support group (Jacka FN et al, *BMC Med* 2017;15(1):23). This was followed by a similar study that also found a large effect size for diet as a treatment for depression. This second study taught the diet in a group format and compared it to a social support group where people got together for activities like playing games and discussing books (Parletta N et al, *Nutr Neurosci* 2017:1–14; doi:10.1080/1028415X.2017.1411320). Now, this is only 2 studies, with a total of 219 subjects, and it will take more research to see if that large effect size holds up.

TCPR: Tell us about the diet.

Dr. Jacka: It's a modified version of the Mediterranean diet. No foods are prohibited, and there is no calorie counting. Patients were encouraged to eat more foods that we know are healthy for the brain: whole grains, beans, nuts and seeds, fish, extra virgin olive oil, and of course fruits and vegetables. At the same time, they reduced their intake of things that are particularly noxious to brain health: ultra-processed foods, fried or fast foods, sugary drinks and desserts, and refined flours like white bread. They were supported to make these changes in a way that was achievable, that was in line with their goals and wasn't too costly or time-consuming. In fact, the patients in the dietary group spent less on food even as they ate more healthy meals. Of course, you can spend a lot at Whole Foods, but a healthy diet can also be achieved with beans, canned fish, and seasonal or frozen fruits and vegetables.

Table: The MediMod Diet

A CARLAT PSYCHIATRY
REFERENCE TABLE

The MediMod Diet		
Food	**Recommended servings**	**One serving equivalent**
Vegetables	6 servings/day. Include green leafy vegetables or tomatoes in at least one of those servings. Mushrooms count, but minimize potatoes to one serving a day unless it's a sweet potato.	Leafy vegetables: ½ cup cooked or 1 cup raw; other vegetables: ½ cup raw or cooked.
Fruit	3 servings/day. Include berries in at least one of those servings.	½ cup fresh, frozen, canned, or cooked fruit; 1½ tablespoons dried fruit. Juice counts but should be limited to ½ cup per day because of the sugar content.
Nuts, seeds, olives	1 serving/day.	1 ounce/day of nuts, seeds (about ¼ cup), and/or 3 ounces of olives (about ½ cup).
100% whole grains	5–8 servings/day (eat closer to 8 if you're physically active).	1 slice bread; ½ cup cooked grains, like brown rice or whole wheat pasta; ¼ cup oats or muesli; ⅓ cup breakfast cereal; 2–3 crisp bread crackers.
Fish	At least 2 servings/week. At least one of those should be an oily fish like salmon.	3 ounces cooked.
Beans	3–4 servings/week.	½ cup beans, or ⅓ cup hummus or tofu.
Extra virgin olive oil	3 tablespoons/day.	
Red meat	3–4 servings/week.	3–4 ounces cooked. Use lean red meats.
Poultry	2–3 servings/week.	3 ounces cooked (= one breast or a leg + thigh).
Dairy	3 servings/day of milk, cheese, or yogurt.	1 metric cup milk or yogurt. For cheese: 1.5 ounces hard cheese or feta; 4–5 ounces soft cheese like ricotta or cream cheese.
Eggs	6 eggs/week.	
Eat less of...		
Fried, fast, sweet, and processed foods	Maximum of 3 servings per week. A serving is 120 calories of: Sweets, sodas, snacks, and white bread. Fast, processed, or fried foods. Beef jerky, bacon, and deli meats.	
Alcohol	Maximum 1.5 standard drinks/day. Red wine is preferred. 1.5 standard drinks = 6.8 ounces wine, 2 bottles beer (1 bottle if it's high gravity), 2 ounces spirits, or 5 ounces sherry or port.	

Source: Opie RS et al, Nutr Neurosci 2018;21(7):487–501

From the Expert Q&A
"An Antidepressant Diet"
With **Felice Jacka, MD**
The Carlat Psychiatry Report, Volume 17, Number 5, May 2019
www.thecarlatreport.com

(Click to view full-sized PDF.)

TCPR: How sure are we that the improvement was due to the food itself?
Dr. Jacka: That's a good question. We controlled for other changes that might explain these results, like weight loss, exercise, and sense of self-efficacy. We also measured how well people followed the diet. The more they improved their diet, the more their depression improved, which suggests a real effect of the food.

TCPR: What were some of the weaknesses in the study?
Dr. Jacka: We weren't able to blind people to the interventions, which is true of both studies. So it's possible that the subjects expected the diet to work, which may have

exaggerated their response to it. Both studies were also relatively small, but they were backed up by controlled trials of dietary interventions in non-psychiatric patients. These include studies in obesity, diabetes, and normal subjects who had subsyndromal depressive symptoms. This body of evidence is much larger—45,000 subjects across 15 trials—and it confirmed our finding that depressive symptoms improve with a change to a healthy diet (Firth J et al, *Psychosom Med* 2019;81(3):265–280).

TCPR: How long does the diet take to work?
Dr. Jacka: In the 2 depression studies, we measured outcomes at 3 months. It may work faster than that, but we don't know. In some of the non-psychiatric studies, they saw differences in the gut microbiome and markers of gut health as early as 2–3 weeks, which is likely to be of relevance to mental health.

TCPR: What do we know about the effects of diet on the brain?
Dr. Jacka: We don't know exactly how the diet works, but there are several possibilities. Healthy diets are anti-inflammatory, and inflammation is both a cause and consequence of depression. These foods are also rich in nutrients that are essential to brain function, like magnesium, folate, and B-vitamins. They also improve brain plasticity. For example, brain-derived neuroprotective factor (BDNF) levels rise with a healthy diet, an effect that we also see with antidepressants and aerobic exercise. Diet has well-documented effects on the hippocampus, which is involved in memory and depression. High-fat and high-sugar diets can impair hippocampal-dependent memory in as little as 5 days. The hippocampus shrinks with age, but according to our human study, as much as 60% of that atrophy may be related to the quality of one's diet (Jacka FN et al, *BMC Med* 2015;13:215).

TCPR: Are there risks with the Mediterranean diet?
Dr. Jacka: No. The Mediterranean diet is consistently associated with reduced risks of stroke, cardiovascular disease, diabetes, Alzheimer's disease, and all-cause mortality.

TCPR: How would you introduce this diet to a patient with depression?
Dr. Jacka: Start with simple questions. "What do you eat? What do you have for breakfast? For lunch? What are your snacks? What do you like? What do you not like?" And then you start to swap out. So if people eat processed cereal for breakfast, instead have oats, homemade muesli, or Greek yogurt with berries and nuts. Swap white bread for 100% - whole-grain bread. Instead of chips, try snacking on nuts, hummus and veggies, or home-cooked popcorn, which is a whole grain. Swap sodas for sparkling water or unsweetened tea. Aim for diversity, particularly with fruits and vegetables. The more diverse the plant foods, the more diverse your gut microbiome. And try not to peel the skin. The skin has lots of fiber, antioxidants, and healthy bacteria in it. Diversity is also important with beans, nuts, seeds, and whole grains. Next is oily fish, which includes salmon but also sardines, mussels, tuna, and mackerel. Swap oil and butter out for extra virgin olive oil.

TCPR: Why not regular olive oil?
Dr. Jacka: Extra virgin olive oil has a far higher antioxidant count. There's a myth that you can't cook with extra virgin olive oil, but the antioxidants counteract the detrimental effects of heat so it doesn't produce toxic compounds even at high temperatures.

TCPR: Your study recommended 100% whole-grain breads. How do you find those?
Dr. Jacka: Whole grains are the natural form of the grain before it is "refined" and stripped of its nutrients. Whole wheat is the most common, but variety is important, and there's also buckwheat, oat, barley, millet, freekeh, and rye. For rice, brown or black rice is the whole form. Couscous and quinoa also count. For pasta, look for 100% whole wheat on the label. For breads, look for the word "whole" on the ingredient panel or "100% whole grain" on the label. It's not enough to say "multigrain" or "made with whole grains"; that often just means the manufacturer sprinkled a few in. With commercially baked breads, look for options that don't have a lot of salt and sugar or chemical ingredients. Sourdough bread is also a good option.

TCPR: What is sourdough?
Dr. Jacka: Sourdough is made from a fermented starter, similar to yogurt. These breads are better for health and easier to digest.

TCPR: How do fermented foods improve health?
Dr. Jacka: Fermentation is how people preserved foods before they invented fridges. Fermented foods include good-quality, non-processed cheeses; quality yogurts like Greek and Icelandic without a lot of sugar or flavorings; kefir, kombucha, kimchi, tempeh, miso, soy sauce, and sauerkraut. Fermented foods have *prebiotics,* which is the food that the healthy bacteria like to eat. They have *probiotics,* which are the healthy bacteria that promote diversity of the gut. They also have biogenetics, which are metabolites that are produced by the bacteria. These include short-chain fatty acids, long-chain fatty acids, and neurotransmitters that affect physiological processes throughout the body.

TCPR: Why is red meat an important part of this diet?
Dr. Jacka: We recommended 3–4 servings of lean (grass-fed) red meat a week based on a study we did in 2012. We found that women who consumed lower or higher amounts of red meat had double the risk of depression and anxiety, and other research has backed that up. Grass-fed beef is important because it has a healthier lipid profile. It's also best to avoid processed meats like sausages, deli meats, hot dogs, and pepperoni—these are discouraged in the diet.

TCPR: What about nut butters: peanut butter and almond butter?
Dr. Jacka: Well, as long as they don't have huge amounts of added salt and sugar, they are wonderful.

TCPR: The diet discourages fried, fast, sugary, and ultraprocessed foods. How are they harmful to the brain?
Dr. Jacka: There are so many ways! Based on animal and human research, these types of foods seem to impair brain plasticity and cause weight gain and inflammation. Chronic inflammation raises cytokines that increase the risk of depression as well as a host of physical illnesses. Poor diet, obesity, low vitamin D, insufficient physical activity, smoking, insomnia, and stress are all pro-inflammatory, and they all contribute to depression.

TCPR: How can a patient identify processed foods in the grocery store?
Dr. Jacka: If it's got a long list of ingredients, especially one that contains a lot of chemical names you don't recognize, stay away. Likewise, avoid it if it comes in a package, unless it is a single-item thing like canned tomatoes or frozen vegetables. Shop from around the edge of the supermarket, not from the center.

TCPR: Are there other diets that are good for depression?
Dr. Jacka: We used the Mediterranean diet because that's where the weight of evidence is—both for physical and mental health. But there are other diets that seem to reduce the risk of depression, like Norwegian and Japanese diets. In one study of 90,000 Japanese adults, those following a healthy Japanese diet were half as likely to commit suicide over 10 years.

TCPR: What about a ketogenic diet?
Dr. Jacka: The ketogenic diet has good evidence in epilepsy and has been used since the 1920s for that indication. There is some emerging evidence that it might be helpful in Alzheimer's disease, and evidence suggests it may improve psychotic symptoms in animal models of schizophrenia. However, this diet is high in fats and animal products and low in dietary fiber, which is not as sound for overall health as the Mediterranean diet.

TCPR: And gluten-free diets?
Dr. Jacka: Gluten is a problem for a small number of people with celiac disease and possibly irritable bowel syndrome. In those populations, gluten consumption may raise depressive symptoms, but the effect is small and the studies sparse. People with celiac disease can still follow the Mediterranean diet. They'd just need to avoid grains with gluten in them, like wheat, rye, and barley.

TCPR: And what about dark chocolate?
Dr. Jacka: Yum. Dark chocolate has a lot of polyphenols, which are antioxidants that have brain-protective effects. We're also learning that polyphenols can protect against weight gain through interactions with the gut microbiome. Polyphenols are also found in berries, red wine, and green tea. So in small amounts, like 1–3 ounces a day, dark chocolate is really good for you.

TCPR: Thank you for your time, Dr. Jacka.

Editor's Note: *Click here for a* ***copy of the cookbook and patient handouts*** *used in the diet. For further reading, see Dr. Jacka's book:* Brain Changer: The Good Mental Health Diet *(Macmillan Australia, 2019).*