



Clinical Champion Update

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Subject: Lifestyle

This Is Your Brain on ...?

Numerous studies have shown associations between ingestion of ultra-processed foods and obesity, diabetes, hypertension, heart disease, several types of cancer, and all-cause mortality. Consumption of these products has now been linked to mental health issues as well.

Ultra-processed foods are products manufactured primarily from components of foods such as fats (including hydrogenated fats), starches, and sugars; in addition, they typically contain substances not used in home kitchens such as high-fructose corn syrup, artificial colors, flavors, and stabilizers as well as substantial amounts of sodium. As a group they are low in fiber, protein, vitamins, and minerals. Soft drinks, fast food, processed meats, packaged cookies and cakes, industrial bread and breakfast cereals, and salty / crunchy snacks are some examples.

Between 2007 and 2012 in the United States, almost 60 percent of calories consumed were from ultra-processed foods, according to a cross-sectional study based on NHANES (National Health and Nutrition Examination Survey) data. Consumption of ultra-processed foods was higher for non-Hispanic whites and non-Hispanic Blacks than for other race / ethnicity groups and lower for individuals with college education, older age, and higher income level. The number of calories ingested from ultra-processed foods also increased over time among all groups. A later NHANES survey of nearly 34,000 children and teens (ages 2 to 19) shows that most of the calories consumed from 1999 to 2018 were from ultra-processed foods, increasing from 61.4 percent at the beginning of the study to 67.0 percent at the end of the two-decade period. Non-Hispanic Blacks (10.3 percent) and Mexican Americans (7.6 percent) had larger increases in consumption of ultra-processed foods than non-Hispanic whites (5.2 percent). During the same interval, consumption of calories from healthier minimally processed or unprocessed foods decreased from 28.8 percent to 23.5 percent among all groups.

Another study involving more than 10,000 adults in the United States (from NHANES, 2007-2012) links consumption of ultra-processed foods to an increased risk of depression and anxiety. A number of prior investigations and meta-analyses in Europe have shown similar results, implicating diets high in added sugars and noting that individuals whose diets are high in vegetables, fruits, whole grains, beans, nuts, and fish and low in saturated fats have significantly lower rates of depression.

Another investigation that examined almost 11,000 Brazilian adults during a ten-year period noted a significant correlation between ultra-processed food consumption and a decline in cognitive function – a decrease of 28 percent more than expected decline in those who ate 20 percent or more of their calories in this form. However, the researchers determined that eating a healthy diet including leafy greens, berries, whole grains, legumes, fish, chicken, and olive oil reduced the risk of cognitive decline.

A number of mechanisms have been proposed for these effects, including chronic inflammation related to a high-sugar diet, the effects of chemical additives on gut flora, and decreased gut microbial diversity and fewer short-chain fatty acids resulting from a fiber-poor diet.

Uma Naidoo, MD, director of Nutritional & Metabolic Psychiatry at Massachusetts General Hospital and the author of *This Is Your Brain on Food*, has a number of dietary recommendations for patients experiencing depression and/or anxiety:

- ❖ Eat plants; the fiber in plants leads to decreased inflammation and thus less anxiety, stress, and depression
- ❖ Eat fermented foods, which contain probiotics that help to increase the diversity of good microbes in the gut
- ❖ Eat omega-3 fatty acids, found in certain seeds, nuts, fish, and other foods
- ❖ Eat spices (turmeric, oregano, rosemary, ginger, garlic) to increase antioxidant and anti-inflammatory properties that improve brain health
- ❖ Drink teas (green, chamomile, lavender, passionflower) for their calming and antidepressant effects
- ❖ Include vitamin D from the sun, fortified milks, and mushrooms to help decrease inflammation and improve mood

We have all talked with patients who have experienced adverse effects from SSRIs and other antidepressant or anti-anxiety medications. It may be worth asking patients with mood issues what they eat, as dietary improvement could well be helpful and is unlikely to cause unwanted side effects.

“Don't eat anything your great grandmother wouldn't recognize as food. When you pick up that box of portable yogurt tubes, or eat something with 15 ingredients you can't pronounce, ask yourself, ‘What are those things doing there?’” “Don't eat anything with more than five ingredients, or ingredients you can't pronounce.”

— Michael Pollan, *In Defense of Food: An Eater's Manifesto*

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