

Eat to Beat Stress



Abstract: *There is a tendency to accept anxiety as an inevitable part of living in a stressful modern world. However, simple dietary changes can help attenuate the stress response. While there are several approaches to treating anxiety, research by Peter Roy-Byrne in 2015 has shown that only 50% to 60% of people respond to medication and psychotherapy, and only a quarter of patients have complete resolution of their symptoms. According to statistics from the National Institute of Mental health, prior to the COVID-19 pandemic, anxiety disorders were the most common mental health disorder in the United States, about 3 times more common than depression (18.1% vs 6.7%). A recent Express Scripts survey showed the percent increase in the number of new prescriptions for antianxiety medications by the middle March 2020 for antianxiety medications was 37.7%, underscoring the likely rise in anxiety associated with the pandemic. While traditional medications and therapies are well needed, to beat stress during times of a pandemic, it is important to think more broadly about how we can best affect our mental well-being. One of those ways is through our nutrition and dietary habits, and research by Opie et al in 2015 demonstrates that our dietary choices are more crucial than ever. This column reviews foods and substances that are important to consider in managing anxiety.*

Keywords: cooking; nutrition; culinary medicine; lifestyle medicine; nutritional psychiatry; anxiety; stress management

Foods and Substances That May Contribute to Anxiety

It is important to know foods and substances that worsen symptoms so intake can be minimized or avoided. Three major categories include caffeine, alcohol, and artificial sweeteners.

typically activated when a predator is closing in on you.² To make things worse, caffeine also shuts down a brain region that typically helps regulate anxiety. How much caffeine is safe before it becomes problematic? Most studies show that less than 100 mg of caffeine has little or no effect on anxiety.³ For between 100 mg and 400 mg per day, the results are mixed; and above 400 mg a day, the majority of studies show a significant increase in anxiety. For those who enjoy caffeine, I generally advise limiting consumption to well under 400 mg per day. To put this

 Just as there are foods that amplify anxiety, there are also foods that help tamp it down . . . 

Caffeine

Caffeine can feel like a lifeline in a busy world, but it is important to realize that excess caffeine in your diet can precipitate or worsen anxiety. Caffeine overstimulates regions of the brain that process threat. In 2011, an experimental psychology research study gave 14 healthy male volunteers either 250 mg of caffeine or placebo capsules.¹ They then examined brain blood flow in different regions as subjects looked at threatening or neutral faces. They found that caffeine activated the midbrain periaqueductal gray matter, a brain region that is

in context, one Starbucks venti (20 ounces) puts you over the daily limit (475 mg) by itself, so it is important to adjust amount of intake based on concentration of caffeine in a given brand. On the other hand, one Nespresso capsule makes 1 ounce of coffee that packs only 50 to 80 mg of caffeine, so that would be a good choice for those who like to drink coffee throughout the day without overdosing on caffeine.⁴ For those who want to cut down on caffeine but still enjoy the taste of coffee, you keep in mind that even decaffeinated varieties contain small amounts of

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caffeine. A popular caffeine-free alternative to coffee is mushroom powder such as reishi, lion's mane, chaga, and cordyceps that can be mixed with hot liquid and enjoyed. For those who chose to cut back on caffeine intake, it may be important to wean slowly to avoid caffeine withdrawal.

Alcohol

I often encounter people in my practice who live stressful lives. The “work hard, play hard” mind-set often leads to heavy drinking on the weekends as a way to relieve stress. Regular alcohol intake can lead to significant disruption in sleep quality and this may be even more pronounced in people with anxiety.^{5,6} Add the fact that alcohol—and binge drinking—is one of the leading preventable causes of death in the United States, and it is fair to say that the “relaxation” alcohol provides comes with a significant price.⁷

For sufferers of social anxiety disorder, the cycle can be even more vicious. Those who get anxious in social situations tend to self-medicate with “liquid courage.” Social anxiety more than quadruples the risk of developing an alcohol use disorder.⁸ When I work with anxious patients who drink, I always ask them to consider the contexts in which they might be using alcohol in an unhealthy way—for instance, using drinking as a means of coping with something they are trying to avoid—and to consider moderating the amount they drink. Of course, for patients who show signs of alcoholism, it is important to recognize the heightened anxiety that can come from withdrawing from alcohol. Developing a plan to safely manage the symptoms of alcohol withdrawal is essential and should be done with the help of a psychiatrist or doctor. Other issues include the fact that people consume extra calories and sugar when drinking cocktails (simple syrup, which is sugar and added liqueurs and liquors). Perhaps a cleaner cocktail and less often is an option. Use a fresh squeeze of lemon, lime, or orange and skip store bought OJ with all the added sugars. Sugar can worsen anxiety.

Alcohol can worsen both anxiety and depression.

Artificial Sweeteners

Artificial sweeteners have no nutritional value and can increase “bad” gut bacteria and therefore negatively affect mood and anxiety. Sweeteners like aspartame have been more directly linked with anxiety and should be avoided, or at the very least used in moderation.⁹

Foods and Substances That May Decrease Anxiety

Just as there are foods that amplify anxiety, there are also foods that help tamp it down, so make sure to embrace these in your diet.

Dietary Fiber

Dietary fiber decreases inflammation throughout the body, including the brain. There is considerable evidence that brain (and body) inflammation is elevated in patients with anxiety¹⁰ and diets rich in dietary fiber may reduce the risk of depression, anxiety, and stress.¹¹

In 2016, Michopoulos et al¹² found that people with anxiety disorders have elevated levels of certain markers that denote inflammation. Inflammation in the brain has been shown to affect areas that are linked to anxiety (eg, the amygdala), and dietary fiber can help by decreasing the brain's and body's inflammatory responses. Rich dietary fiber can be found in vegetables, fruits, lentils, beans, nuts, seeds, and healthy whole grains. Fiber cannot be found in animal or seafood proteins; thus, a higher intake of vegetables can help the gut microbiota thrive.¹³

Omega-3 Fatty Acids

The effect of omega-3 (n-3) polyunsaturated fatty acids (PUFAs) on anxiety and inflammation has been studied in a number of randomized controlled trials. Kiecolt-Glaser et al¹⁴ tested the effects of n-3 PUFAs on 69 medical students, measuring their anxiety levels during lower stress periods and

again just before an examination. They found that subjects who were given a dose of 2.5 g per day of n-3 PUFAs as 2085 mg eicosapentaenoic acid (EPA) and 348 mg docosahexanoic acid (DHA) had 20% less anxiety compared with controls. What's more, the high-n-3 PUFA group had a 14% lower level of interleukin-6 (a potent inflammatory marker) compared with controls. N-3 PUFAs are composed of both EPA and DHA and studies have demonstrated that higher intake of EPA versus DHA is associated with less anxiety.¹⁵ In general, the reduction in anxiety caused by omega-3s is thought to occur via anti-inflammatory and neurochemical mechanisms that affect the brain.¹⁶

Simply adding more fish and seafoods rich in omega-3s can have an impact on reducing anxiety. Plant-based options include algae, sea vegetables, chia, and flax seeds.

Aged, Fermented, and Cultured Foods

Fermented foods, like plain yogurt with active cultures and kimchi, are a great source of live bacteria that can enhance healthy gut function and decrease anxiety.

Dairy or nondairy yogurts rich in probiotics can be a powerful part of your diet, but it is important to note that yogurt that undergoes heat treatment does not have the same benefits as probiotics do not survive high heat processing. One example is yogurt-covered raisins, as the heat-treated yogurt has no beneficial bacteria left. To derive benefit, yogurt should be consumed in its natural form, without added sugar. Cereal bars and other packaged foods that say “made with real yogurt” may contain only small amounts of yogurt powder and therefore are unlikely to be beneficial.

Sources of fermented foods include kefir, sauerkraut, kimchi, kombucha, miso, tempeh, and apple-cider vinegar. You can also ferment vegetables like carrots, cauliflower, green beans, radishes, and broccoli.

The golden spice turmeric has been shown to help lower anxiety.¹⁷ Add a pinch of black pepper as that makes the

turmeric more bioactive and therefore more available to your brain and body. If you do not cook with turmeric, add a teaspoon to a soup, smoothie, tea or even a chia pudding.

Many people are experiencing more anxiety at this time. Dietary choices can have an impact on one's response to the current stressors. The foods described are just some of the ways that can help you manage stress and lead a calmer, happier life.

Recipe

I selected this recipe for the fiber-rich cruciferous vegetable, cauliflower, rich in sulforaphanes; paired with a healthy macadamia nut pesto made with zucchini, which adds more plant-based fiber-rich food to this menu. Fiber feeds the gut microbes with nutrients that they need to best function. Turmeric should always be used with a pinch of black pepper, which enhances its bioavailability (piperine activates the curcumin in turmeric).

Dr Uma's Turmeric Roasted Cauliflower Steaks

Chef's Tips

- If you cannot cut cauliflower steaks, use the florets and prepare enough
- Roast all the steaks at one time and save the leftovers for lunch the next day
- Adjust the spices and oil as the recipe below is for 1 steak
- Same applies to 1 piece of salmon or a large family-size piece
- You can substitute hazelnuts for macadamia

Dr Uma's Turmeric Roasted Cauliflower Steaks With Zucchini Macadamia Pesto

1 large head of cauliflower
1 tablespoon of avocado oil
1 teaspoon salt
½ teaspoon garlic powder

½ to 1 teaspoon paprika
¼ teaspoon turmeric powder Pinch of black pepper
Juice of ½ lemon

Method

Measures above are for 1 steak
Set oven to 400 °F (roast setting)
Prepare a sheet pan with a sheet of parchment paper
Wash and cut the head of cauliflower in half
Cut 2 large steaks each one about ½ inch thickness
Use leftover bits and pieces of cauliflower for a salad, soup, or to make riced cauliflower
Brush the steak with avocado oil on both sides
Sprinkle on all the dry spices
Place in the oven for 25 to 30 minutes, turning over steak about half-way through

Dr Uma's Zucchini and Macadamia Pesto

1 small or medium zucchini cut into halves
1 cup packed fresh basil leaves
½ cup freshly grated parmesan
¼ cup light macadamia nuts
1 clove garlic
¼ cup extra-virgin olive oil
½ teaspoon finely grated lemon zest
Kosher salt and freshly ground black pepper to taste

Method

Combine the zucchini, basil, Parmesan, nuts, and garlic in the bowl of a food processor until coarsely chopped
With the motor running, slowly drizzle in the oil and process
If the pesto seems too thick use additional water to adjust consistency
Season with the lemon zest and some salt and pepper
Store extra pesto in glass Mason jar and store in fridge for up to a week
Add a pesto and serve with a side tossed green salad

Chef's Tip

For a vegan option, substitute nutritional yeast for parmesan cheese

Adapted from *This Is Your Brain on Food: An Indispensable Guide to the Surprising Foods that Fight Depression, Anxiety, PTSD, OCD, ADHD, and More* by Uma Naidoo, MD (Little, Brown Spark). Dr. Uma Naidoo is a Harvard Nutritional Psychiatrist who trained in nutrition and is a professional chef. She is the director of Nutritional and Lifestyle Psychiatry at Massachusetts General Hospital and serves on the faculty at Harvard Medical School. This is the first US clinic of its kind.

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Trial Registration

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