Tyramine Intolerance Fact Sheet for Health Providers

by Christie Hartman, PhD

Never heard of tyramine intolerance? You aren't alone. This type of food sensitivity isn't well known but does exist. Here is a quick fact sheet:

What is Tyramine Intolerance?

Tyramine intolerance is a type of food sensitivity that occurs when the body doesn't break down tyramine efficiently, resulting in symptoms that range from unpleasant to dangerous.

What is Tyramine?

Tyramine is a naturally occurring compound found in many foods, derived from the amino acid tyrosine. Tyramine causes the release of norepinephrine, a neurotransmitter that causes vasoconstriction, increasing blood pressure (sometimes to dangerous levels) and heart rate. This also affects the blood vessels in the brain, leading to headaches and migraine.

What Causes Tyramine Intolerance?

Tyramine gets metabolized primarily by the enzyme monoamine oxidase (MAO). Without enough MAO, tyramine builds up in the body and patients will get symptoms. Patients who take monoamine oxidase inhibitors (MAOIs) will need to avoid high-tyramine foods because the medication blocks the MAO enzyme, which is needed to break down tyramine. However, some people who don't take MAOIs lack adequate MAO enzyme, for reasons still not understood.

Symptoms of Tyramine Intolerance

These symptoms result from the sharp increase in norepinephrine in the body after consuming high-tyramine foods.

- Migraine or headache
- Rapid heart rate/heart palpitations
- Chest pain
- Increased blood pressure (including hypertensive crisis)
- Anxiety/panic attacks
- Nausea
- Flushing
- Sweating
- Shortness of breath
- Visual abnormalities
- Confusion/brain fog
- In children, bursts of uncharacteristic anger, tantrums, or hyperactivity

How Long Do Episodes Last?

Symptoms often appear soon after consuming high-tyramine foods, and episodes can last for up to 12 hours. In some, headaches can last for 1-2 days. However, some patients may get delayed symptoms, after consuming high-tyramine foods 2-3 days in a row. Normal people can break down the tyramine quickly, but the tyramine intolerant cannot, so tyramine builds up in the body. This delayed reaction can make identifying the cause of their symptoms extremely difficult.

How to Diagnose Tyramine Intolerance

Patients must do an elimination diet, where all high-tyramine foods are avoided for 2-4 weeks, then reintroduced. If the patient feels better during elimination, and symptoms resume at reintroduction, they likely have tyramine intolerance.

Treatment

Avoidance of high-tyramine foods is the only known (and evidence-based) treatment for tyramine intolerance at this time.

Foods High in Tyramine

These foods should be avoided by those with tyramine intolerance. This list is also useful for conducting an elimination diet. A more detailed list can be found on Christie's website (see below).

- Aged cheeses such as cheddar, swiss, parmesan, bleu, stilton, and camembert
- Processed, aged, or cured meats such as aged beef, sausage, bacon, hot dogs, bologna, salami, pastrami, and pepperoni
- Fermented foods such as sauerkraut, kimchi, soy sauce, miso, tempeh, and yogurt
- Most alcohol, especially wine, beer, and cider
- Avocado, banana, and raspberries, especially if ripe
- Chocolate
- Leftovers (they will form tyramine as amino acids break down)
- Slow-cooked foods (form tyramine during cooking)

Need More Information?

Christie Hartman, PhD, wrote *The Tyramine Intolerance Handbook*, which offers more detailed information about tyramine intolerance, including tips, resources, and low-tyramine meal ideas and recipes. Her website, The Rogue Scientist, also offers more resources and articles on tyramine intolerance.

References

The scientific literature examining tyramine intolerance is limited and mostly focused on migraine/headache. Studies examining the link between tyramine and headache have had mixed results. The review articles below offer a summary of these studies:

Kohlenberg, 1982
Martin & Brinder, 2016