

## ALI 526: Nutrition Strategies to ease Anxiety





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## NUTRITION

- Registered Dietitian with over 12 years experience with a Masters in Public Health
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  - Diabetes, Heart Disease
  - Family Nutrition and Weight loss
    - Recipe and menu development
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# Presentation Objectives

Understand what anxiety is and how it is different from depression

Causes of anxiety and who is most at risk

The role of our brain chemistry and our mood

What is the gut brain axis?

Common nutrition deficiencies with those who have anxiety

Which foods impact our brain chemistry and our mood

# What is Anxiety

**Anxiety** is your body's natural response to stress. It's a feeling of fear or apprehension about what's to come. The first day of school, going to a job interview, or giving a speech may cause most people to feel fearful and nervous.

In the case of an anxiety disorder, the feeling of fear may be with you all the time. It is intense and sometimes debilitating. If left untreated, the anxiety will keep getting worse.



# Anxiety Epidemic

**Anxiety** disorders are the most common mental illness in the U.S., affecting 40 million adults in the United States age 18 and older, or 18.1% of the population every year. **Anxiety** disorders are highly treatable, yet only 36.9% of those suffering receive treatment. <sup>1</sup>

Anxiety disorders are the most common mental health disorders. About one in 10 people is affected by them. They can affect children as well as adults. Symptoms of anxiety disorders often first appear in early adulthood.

# Who is at Risk for Anxiety ?

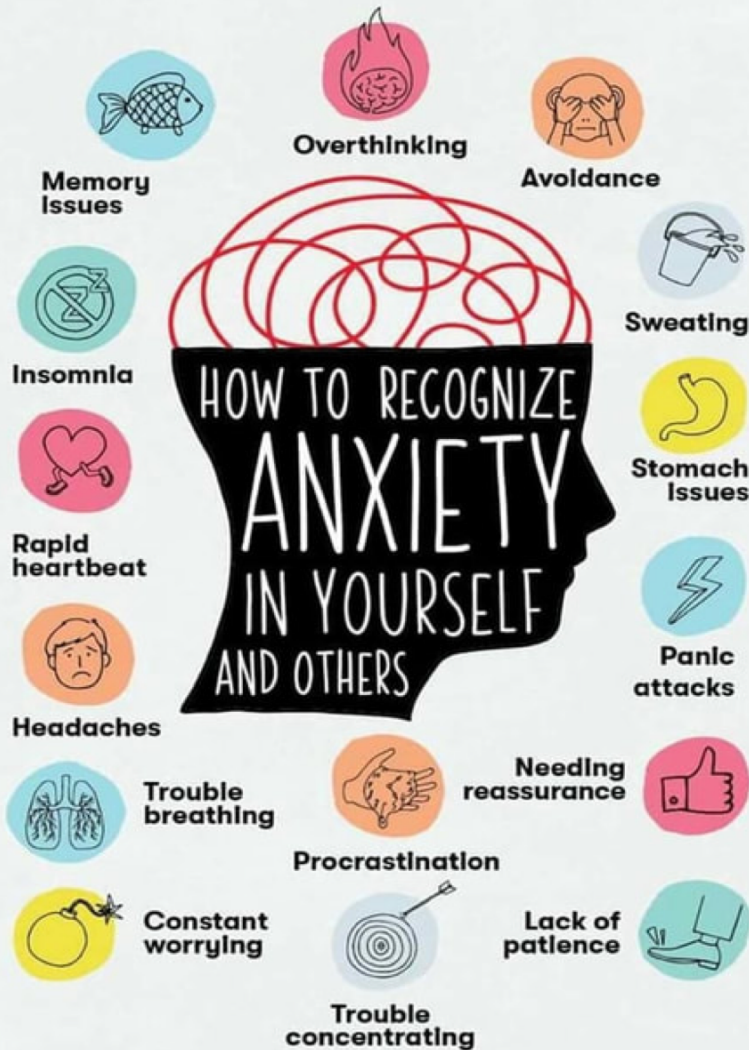
As with depression, women have higher rates of anxiety compared to men, 33% lifetime risk (risk for breast cancer for women is 12 %)

Difference can depend on brain chemistry, hormones, gender inequalities (less pay for equal work, more chores at home, more childcare), response to stress, and socioculture (women tend to feel responsible for the happiness of others).

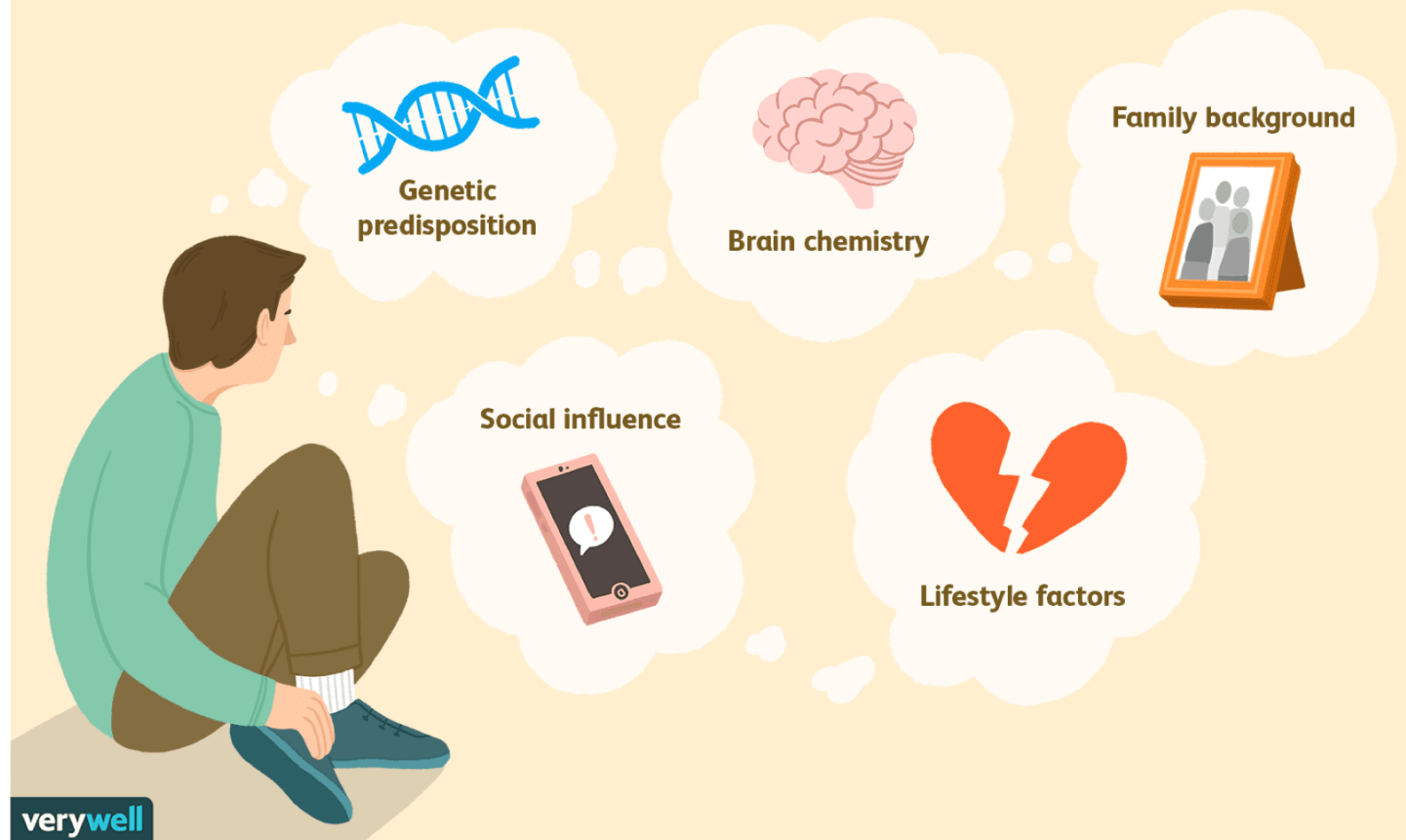
Life transition for women, pregnancy and menopause (low estrogen and low progesterone).

38% of teenage girls aged 13-17 and 26% of boys struggle with an anxiety disorder.

Few types of anxiety: GAD, panic disorder, social anxiety disorder, PTSD



# Risk Factors for Generalized Anxiety Disorder



# The Brain:

The brain is one of the largest and most complex organs in the human body.

It is made up of more than 100 billion nerves that communicate in trillions of connections called synapses.

The brain is 60% fat, it is the fattiest organ in the body. Most of the brain growth is complete by 5-6 years of age.

The brain works like a big computer. It processes information that it receives from the senses and body, and sends messages back to the body.

The brain controls your ability to think, talk, feel, see, hear, remember things, walk and much more. It even controls your breathing.

Together, the brain, spinal cord and nerves form the central nervous system.

# Brain Chemicals that Impact Mood

Neurons send signals through neurotransmitters, which are chemicals some release and others receive. These chemicals let the parts of the brain communicate with each other. The 3 most commonly studied neurotransmitters are:

1. **Dopamine** plays a role in pleasure, motivation, and learning “happy feeling”
2. **Serotonin** - associated with memory and learning stabilizes mood and happiness and is involved with sleep and appetite regulation
3. **GABA** is a neurotransmitter that calms nerve activity and lowers anxiety

Antidepressants work by tweaking the amounts of these certain brain chemicals which can help relieve symptoms of depression/anxiety.

# BDNF

## Brain-Derived Neurotrophic Factor

BDNF is a protein that strengthens your existing brain cells and creates new ones. BDNF is active primarily in the parts of your brain that mediate learning, complex thinking, and memory.

BDNF stimulates and controls growth of new neurons from neural stem cells (neurogenesis)

The levels of BDNF are decreased in many neurodegenerative diseases such as Parkinson's disease (PD) multiple sclerosis (MS) Huntington's disease and bipolar. <sup>3</sup>

BDNF is like fertilizer for the brain - upregulates in times of stress.

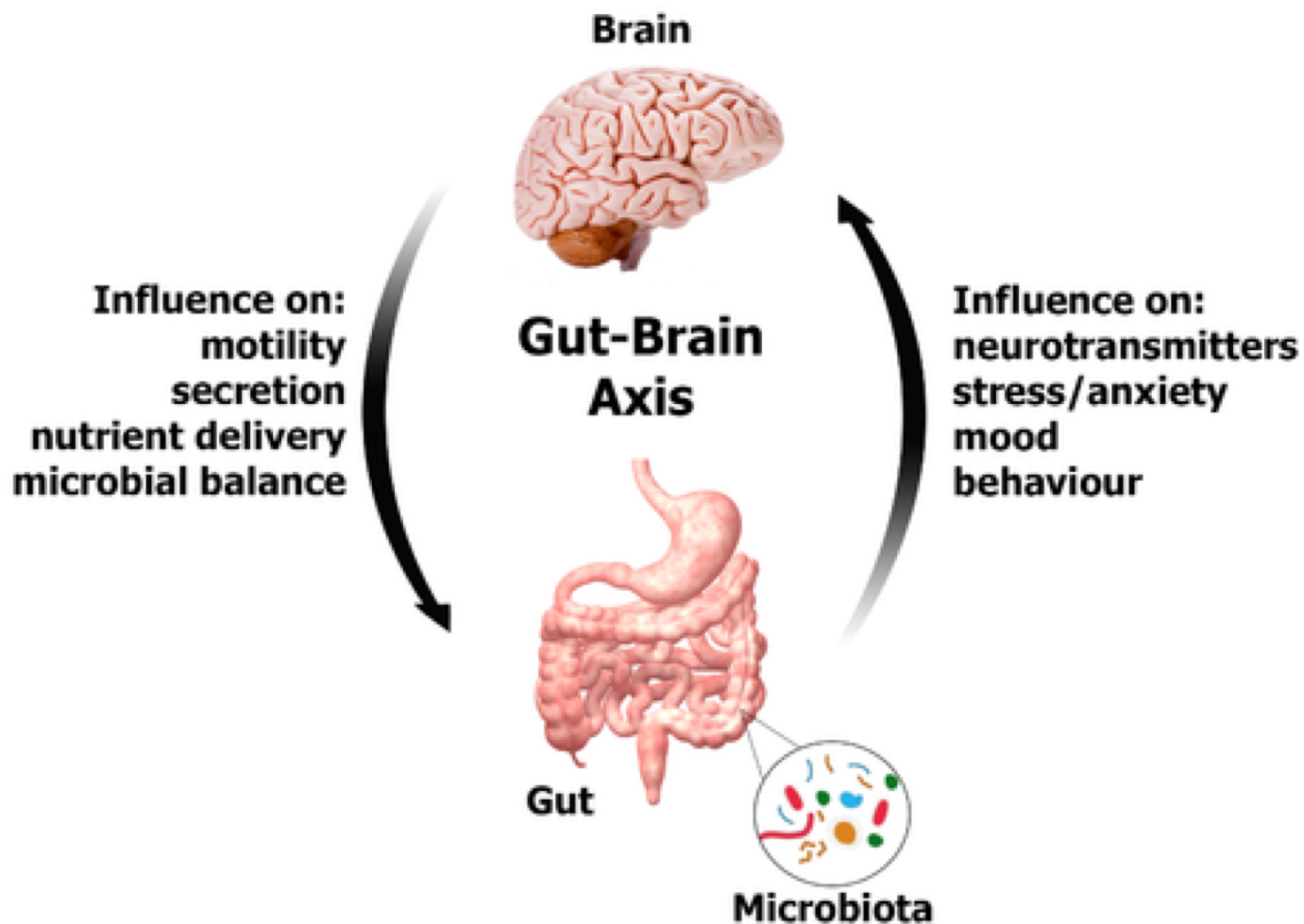
# Nutrition and Anxiety

The link between diet and mental health is growing as the field of Nutritional Psychiatry/Psychology expands. This field is becoming more impactful as epidemics continue to make headlines.

Vitamins in the body help the function of enzymes that enable reactions such as the synthesis of **serotonin**, which plays an essential role in our happiness.

If we supply our bodies with a healthy diet, we are giving our brains the fuel it needs to affect our cognitive processes and emotions. Similar to a high-end vehicle that uses premium gasoline, our brains function best when it receives premium fuel.





# The Gut Brain Axis

Our gut health is linked to our brain.

The gut is termed the 2nd Brain

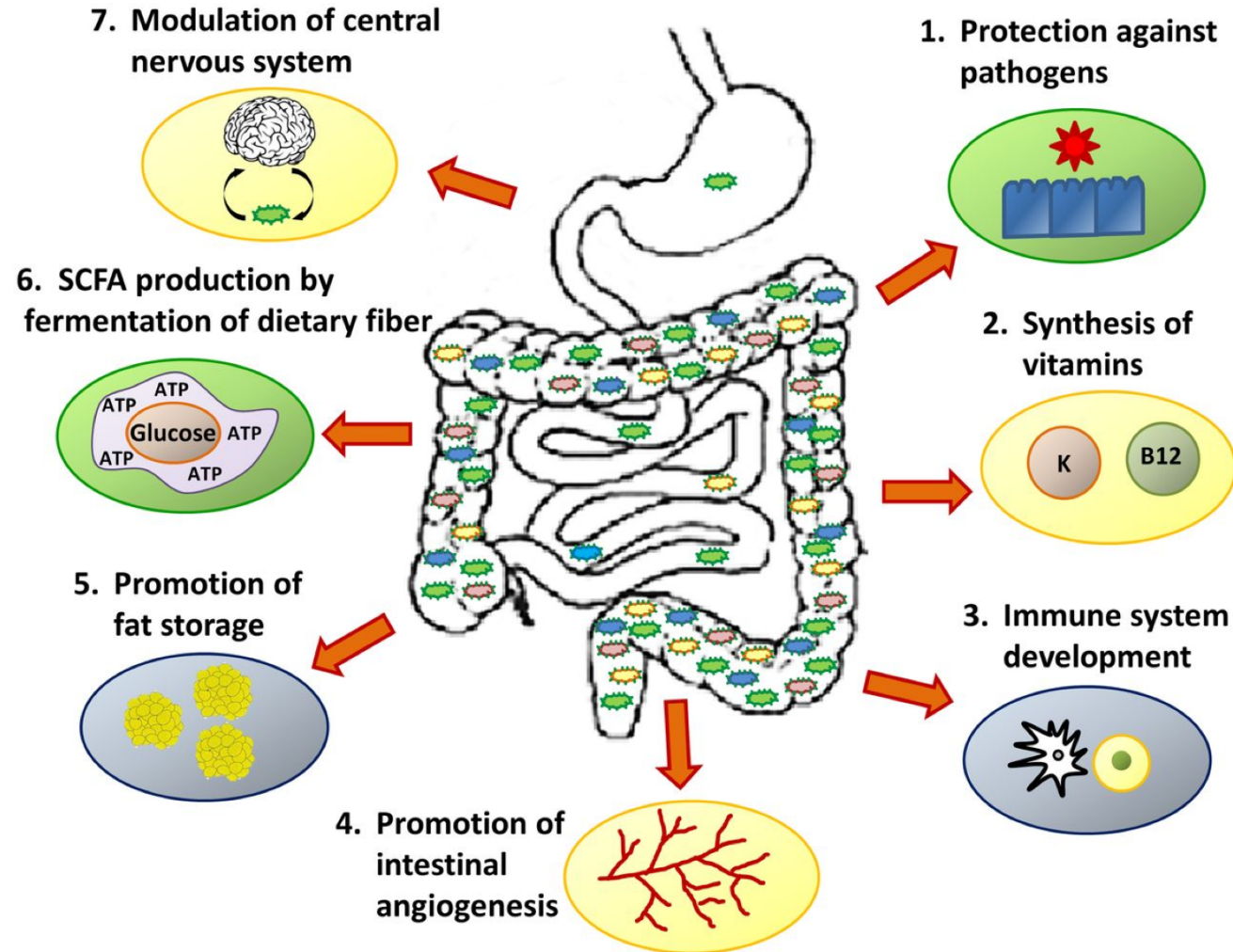
The microorganisms in our gut can communicate with the brain and several systems that could play a role in depression and anxiety, and the composition of the gut microbiota is DIRECTLY influenced by nutrition.<sup>4</sup>

# Microbiome

Your gut **microbiome** is made up of trillions of bacteria, fungi and other microbes. The gut **microbiome** plays a very **important** role in your health by helping control digestion and benefiting your immune system and many other aspects of health.

A healthy gut microbiome influences metabolism, body weight, propensity to illness, immune system, appetite and mood.





# How to Boost Your Gut Microbiome

1. Fibre
2. Variety of fruits and veggies
3. High antioxidant foods: Polyphenols are antioxidants that act as fuel for microbes. Examples are: *nuts, seeds, berries, olive oil, brassicas, coffee and tea – especially green tea.*
4. Avoid Snacking
5. Fermented foods - Kefir, which is a sour milk drink with five times as many microbes as yogurt
6. Avoid antibiotics and non essential medication
7. Go outdoors (gardening)
8. Avoid artificial sweeteners



# Nutrients to Ease Anxiety

**Vitamin D** - plays an important role in mood regulation, as well as nerve and brain health. Research found a link between **vitamin D** (increasing serotonin) levels and **depression**. Some research suggests that having a vitamin D deficiency could also be linked with anxiety disorders.<sup>5</sup> Hard to find in food sources - best to supplement 2000 IU daily.



**Omega 3** - healthy fats found in foods such as wild Alaskan salmon, tuna, sardines, mackerel, anchovies, chia seeds, flaxseeds, walnuts, soybeans, are all great sources of omega-3s. They play an important role in brain health. The body cannot make these fats, so people must get them from their diet. Omega 3 normalizes BDNF levels - research in mice show this is helpful after traumatic brain injury.<sup>6</sup>

**B Vitamins:** A group of eight different nutrients that work together to manage many processes in the body, including stress levels. A 2017 study found that people who had lower blood levels of vitamin B -12 were more likely to have depression or anxiety. <sup>7</sup>

**Magnesium:** An important mineral necessary for the proper functioning of almost every system in the human body. Lots of research has been done and studies show how magnesium can be helpful in managing anxiety. Foods high in Mg: leafy greens, lentils, beans, whole grains, avocado, nuts, dark chocolate. Can supplement 300-500 mg/day

## the best food sources OF MAGNESIUM

PUMPKIN SEEDS



ALMONDS



SPINACH



QUINOA



BEANS



DARK CHOCOLATE



PEANUTS



EDAMAME



CASHEWS



CACAO POWDER



OATMEAL



AVOCADO





**L-Theanine:** amino acid found in green and black tea. Some evidence suggests that it is a mild sedative and anti-anxiety agent. A 2016 double-blind study found that people who consumed a beverage containing 200 mg of l-theanine had lower stress response and cortisol levels after undertaking a challenging task than those who received a placebo.<sup>8</sup>

**Zinc:** An essential mineral that may be lacking in processed and strict vegetarian diets, as major sources include meat, poultry, cashews, liver, egg yolks and oysters. Studies have found that the more depressed someone is, the lower the zinc level.<sup>9</sup> Low zinc also seems to affect inflammation and immunity.

**Antioxidants:** Protect the brain against oxidative stress. Oxidative stress leads to inflammation, which can impair neurotransmitter production. Diets rich in *beta-carotene* like carrots, sweet potatoes, squash, spinach, and kale; *vitamin C* like citrus fruits, red peppers, Brussels sprouts, broccoli, and strawberries; and *vitamin E* like almonds, avocado, spinach, sunflower seeds, spinach, and sweet potatoes, are essential for supporting optimal brain function.



# Foods to Feed Your Neurotransmitters:

## *Serotonin*

Tryptophan is an amino acid that is important for the production of serotonin in the body. It is also key to brain function and has a role in healthy sleep.

People cannot make tryptophan in their bodies, so must obtain it from their diet.

Fortunately, tryptophan can be found in food whereas serotonin cannot.

90% of body's serotonin is found in the gut.

Tryptophan is generally found in protein rich foods such as meat, eggs, poultry, fish, seeds and spinach, milk, soy and nuts.

# Foods to Feed Your Neurotransmitters

## *Dopamin*

One amino acid called tyrosine plays a critical role in the production of dopamine.

Enzymes within your body are capable of turning tyrosine into dopamine, so having adequate tyrosine levels is important for dopamine production.

Tyrosine is found in protein sources: turkey, beef, eggs, dairy, soy and legumes

Exercise often

Get enough sleep 7-9 hours

Sunlight Meditation/prayer

Having adequate levels of iron, niacin, folate and vitamin B6 is important for dopamine production

# Foods to Feed Your Neurotransmitters

***GABA*** *Gamma-Aminobutyric Acid*

Certain bacteria also produce GABA, which means fermented foods, such as yogurt, kefir and tempeh, can also help you get more GABA from the food you eat. *Lactobacillus* and *Bifidobacterium*, produce GABA and may increase the neurotransmitter in your enteric nervous system, which may increase concentration of the GABA.

- Cruciferous vegetables (broccoli, cabbage, cauliflower, Brussels sprouts)
- Soy beans
- Adzuki beans
- Mushrooms
- Spinach
- Tomatoes
- Buckwheat
- Peas
- Chestnuts
- Sweet potatoes
- Sprouted grains
- Rice (specifically brown rice)
- White tea

# How to Boost BDNF

Intermittent Fasting

Sunlight

Deep sleep

Exercise

Polyphenols: *Coffee, green tea, dark chocolate, blueberries, and colorful veggies*

Stress

Sugar - directly curbs BDNF

Social Isolation

# Foods Contributing to Anxiety

Your food choices is how your body provides the brain with what it needs to make neurotransmitters.

The modern diet sets you up for chronic inflammation that can lead to anxiety:

- Refined flours
- Caffeine
- Sugars
- Unhealthy fats
- Preservatives/pesticides
- Alcohol

The above can increase intestinal permeability, disturb the microbiome, over excite the brain and create hyperarousal which can lead to increased anxiety.

## LOVE IT UNSATURATED (POLY & MONO)



Go for oils, salad dressing, mayo, nuts, avocado, fish, etc.

## LEAVE IT SATURATED



Limit red meat, cheese, butter, coconut oil, fatty sweets, etc.

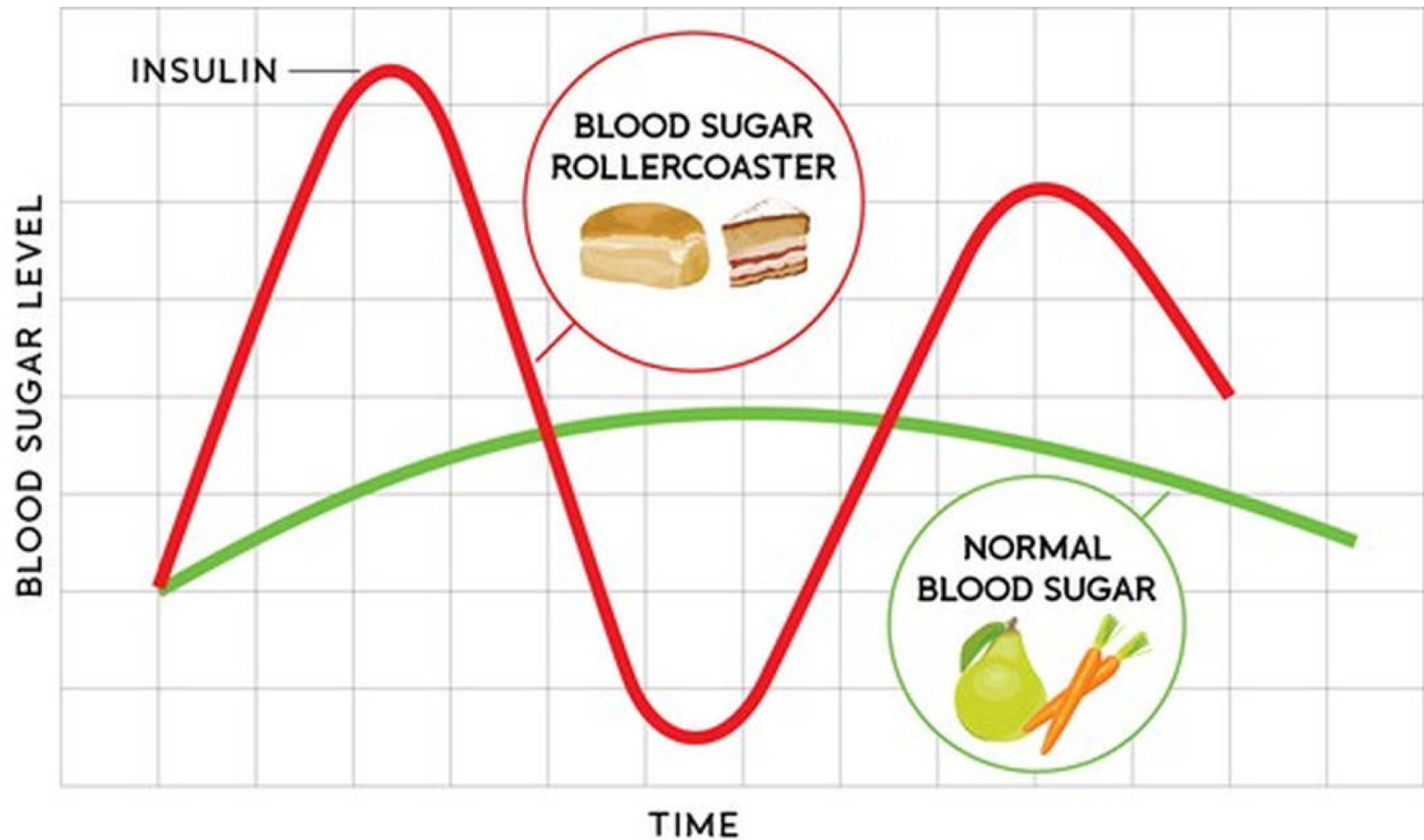
Source: Adapted from "The Facts on Fat," American Heart Association.

# Refined Sugars and Flours

Added sugars cause your blood sugar to go on a roller coaster ride of spikes and crashes and with it, your energy also goes up and down. When blood sugar crashes, your mood dampens and anxiety levels can spike.

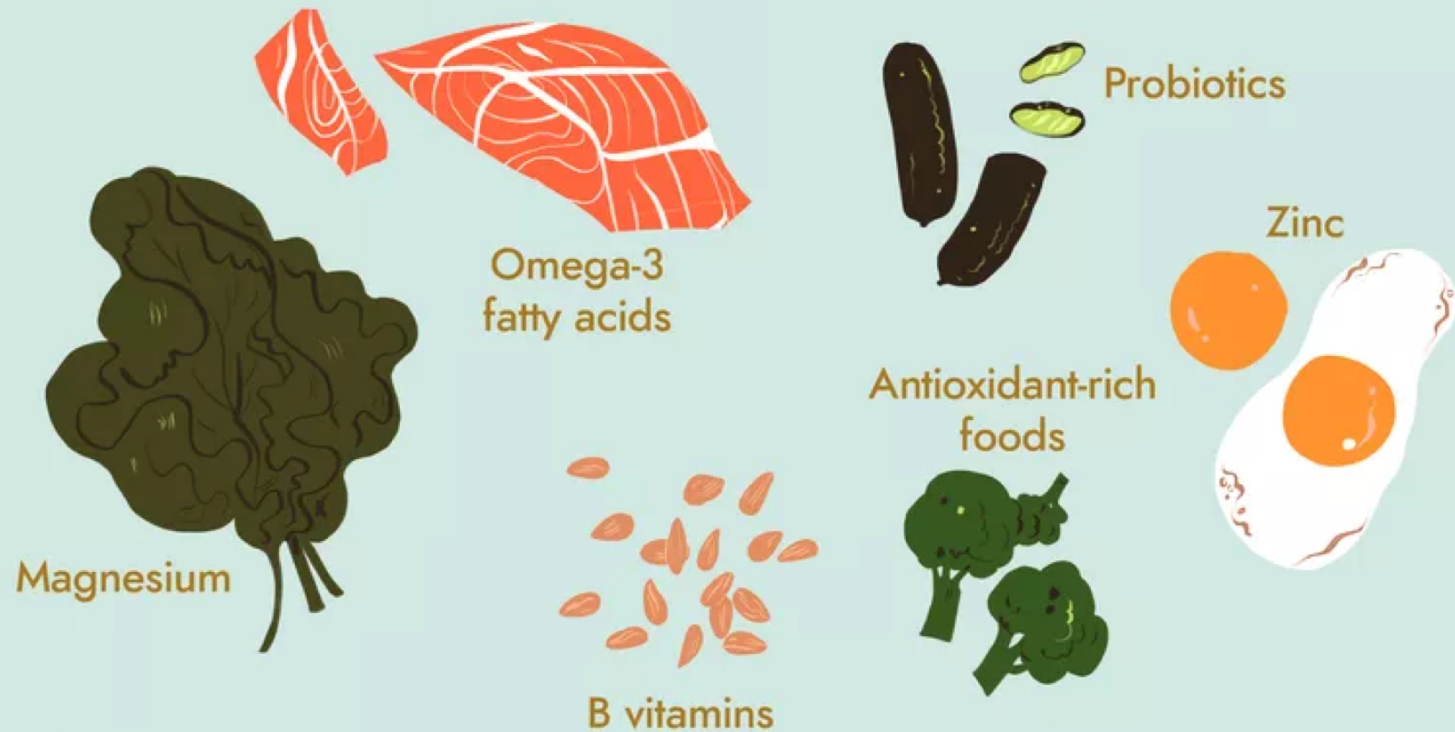
The body releases insulin to help absorb the excess glucose and stabilize blood sugar levels, but a sugar rush makes the body work too hard to get back to normal, causing the highs and lows.

Consuming large amounts of processed sugar (salad dressing, ketchup, juice, etc) and refined flours (white flour, donuts, pastries, crackers, white bread, cookies) can trigger feelings of worry, irritability, and sadness.





# Foods to Ease Anxiety



SLOW  
DOWN

KEEP  
CALM

BE  
POSITIVE

TAKE  
IT  
EASY

UNPLUG

ENJOY  
LIFE

HAVE  
FUN

BREATHE

RELAX

GO  
OUTSIDE



MEDITATE

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# Questions?

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