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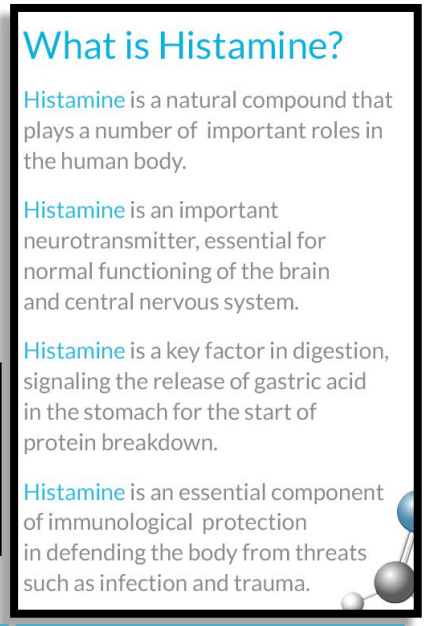
HISTAMINE INTOLERANCE

WHAT IS HISTAMINE?

We've all heard of taking anti-histamines for hay fever or seasonal allergies. But *Histamine* is present in our body even when we aren't having allergies.

- Mast cells in our *blood store Histamine* and are always ready to *release Histamine* in response to a perceived invader or allergen.
- When Mast cells are *"activated"*, they *release Histamine* into the blood to flow through the body & *stimulate* a "*Histamine* receptor".
- *Histamine* receptors are designed to cause a reaction in the body.



4 HISTAMINE RECEPTORS

H1 RECEPTORS- cause "hay fever" & seasonal allergy symptoms

- Brain- makes you more *awake & alert* (antihistamines cause drowsiness)
- White Blood Cells (WBC)
  - *Increase WBC* to fight off infections, injury, allergens
  - *Increase in inflammatory cells* (cytokines)
  - Platelet aggregation (*clotting of the blood*)
- Blood Vessels-
  - Dilation of vessels in the skin (*red & flushed*)
  - Increased permeability (*fluid leakage* & *swelling*)
  - Dilation of blood vessels in the brain (*headache*)
  - Dilation & permeability of vessels in nasal passages (*congestion*)
  - Bronchodilation (*chest congestion*)
- Skin- *Hives* (*skin rashes, itching*), hay fever & allergy symptoms

Medications that block H1 receptors: "Antihistamines" Benadryl, Claritin, Zyrtec Allegra

H2 RECEPTORS- heart & GI

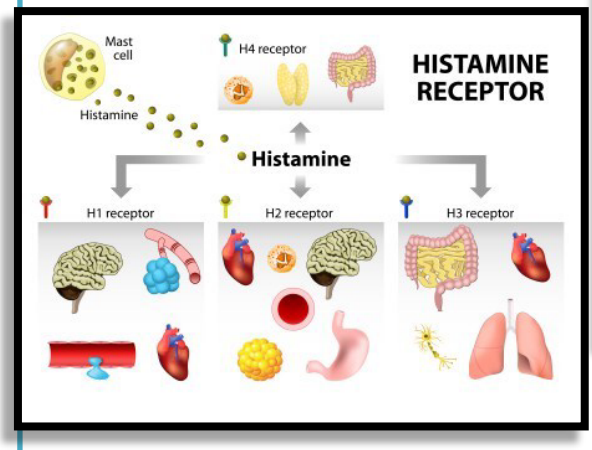
- Digestion- in the stomach & intestines
  - *Increases gastric acid* causing abdominal pain, nausea, acid reflux, peptic ulcer disease, cramping, diarrhea
- Heart- Blood vessels dilate & increased heart rate
  - *Drop in blood pressure*
  - *Increased heart rate* (heart palpitations & can eventually lead to *increased blood pressure*

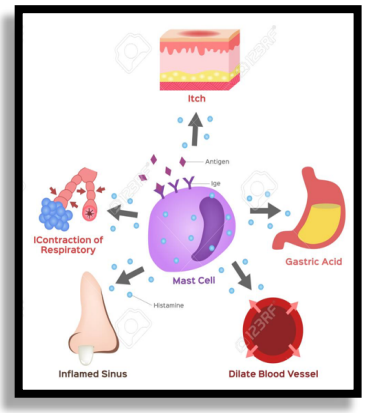
Medications that block H2 Receptors: "Acid blockers/Antacids" Zantac, Tagamet, & Pepcid

H3 RECEPTORS- nervous system Regulate *histamine* in the body, by *inhibiting* further *synthesis of histamine*

H4 RECEPTORS- Discovered in 2001, these receptors *regulate white blood cells released* from bone marrow & regulate the *inflammatory response*

- ➔ Located in the thymus, small intestine, spleen, colon, bone marrow & basophils





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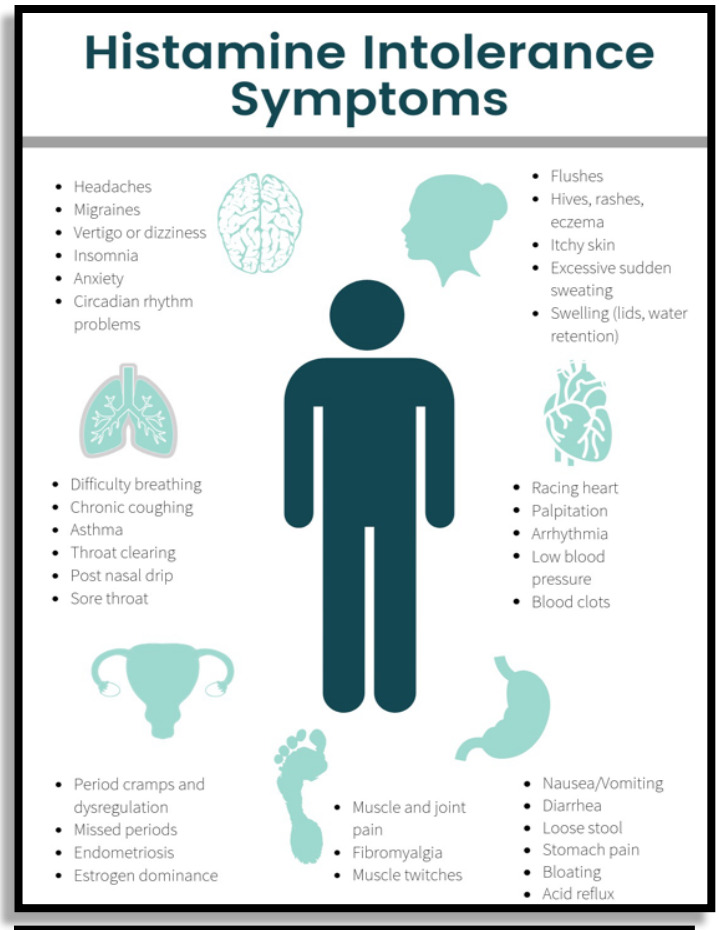
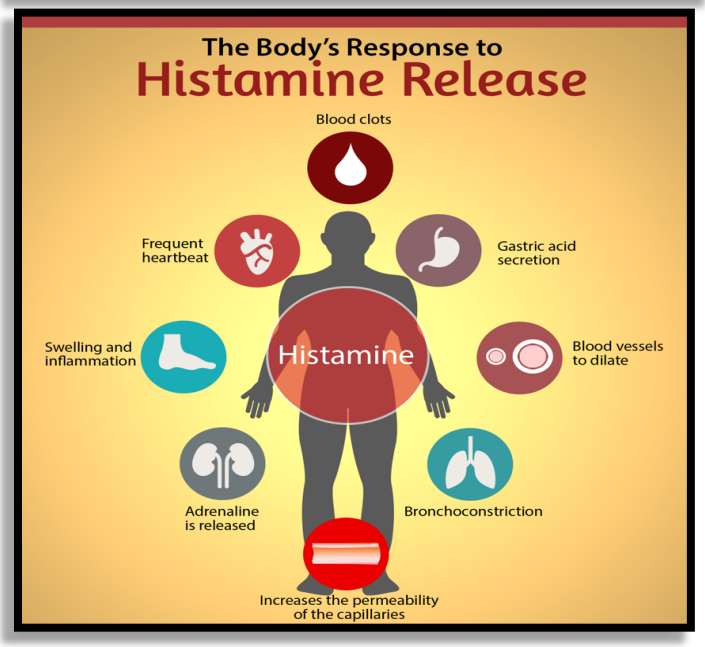
WHAT DOES HISTAMINE DO?

- Affects *metabolism*
- Controls *appetite*
- Plays a role in digestion (*acid reflux*, *indigestion*)
- Smooth *muscle contraction*
- *Immune* system function
- *Blood* cell *formation*
- *Wound healing*
- Day-night rhythm (imbalance leads to *sleep disorders*)
- Regulating factors involved in *cancer* prevention
- Triggers symptoms involved in *allergic* response:
  - *Dilation* of blood *vessels* (*flushing* in the cheeks)
  - *Swelling* (increased leaking of blood vessels)
  - Increased *mucus* secretion (*runny nose*, *congestion*, *cough*)
  - Tachycardia- (*rapid heartbeat*) & arrhythmias (*irregular heartbeat*)
  - Alteration in *blood pressure* (high or low blood pressure)
  - Pain receptors are stimulated causing *pain*
  - *Inflammation* (important to help the body fight off an invader & begin to heal

What most people don't know is that histamine is found in *foods* and *medications*. So eating a large quantity of foods that are high in histamine (or trigger our body to release more histamine) can cause "allergy" type symptoms.





OTHER CAUSES OF INCREASED HISTAMINE

Stress	Immune Response
Alcohol	Injury
Certain Foods	Illness
Medications/Drugs	Extreme Hot or Cold

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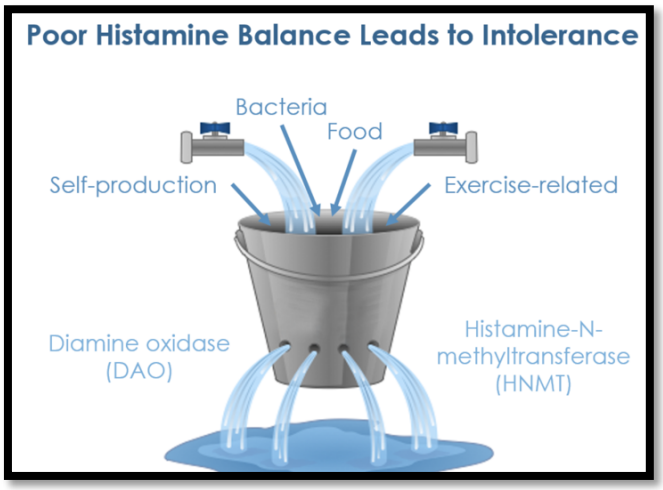
WHAT IS HISTAMINE INTOLERANCE?

Histamine intolerance results from *accumulated* histamine and *reduced* ability to *breakdown* or *eliminate* histamine.

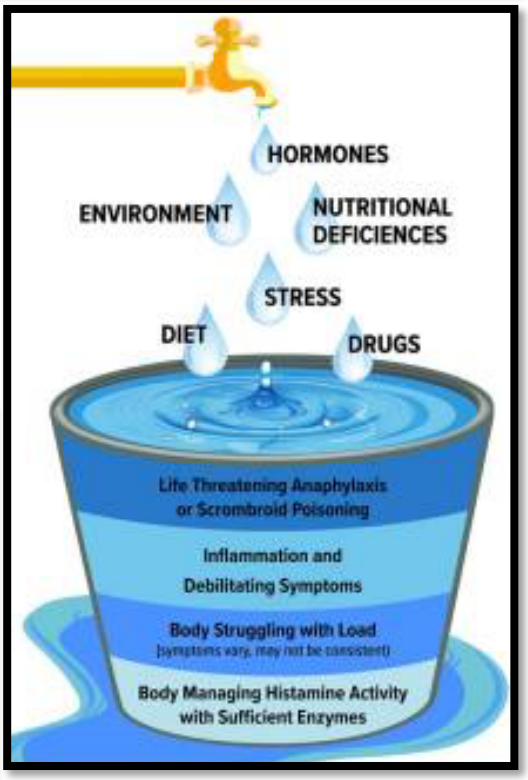
THINK OF YOUR BODY HAVING A "HISTAMINE BUCKET"

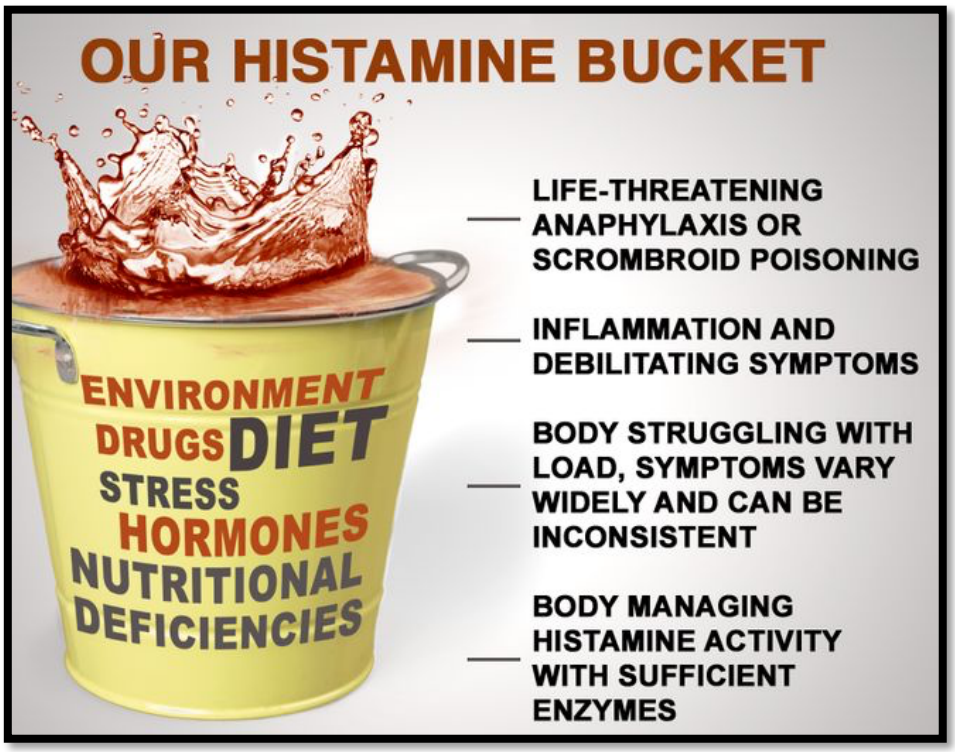
- Certain causes of increased Histamine fill the bucket.
- The body produces enzymes such as **Diamine Oxidase (DAO)** that breaks down *ingested* Histamine and another enzyme (**HNMT**) breaks down *circulating* Histamine.
- If we can't break down Histamine fast enough, the bucket overflows causing "Intolerance" symptoms similar to allergy or inflammatory reactions.



*****When we take "antihistamines" this is only blocking the histamine receptors (reduces allergy symptoms temporarily).**

When the antihistamine wears off, symptoms worsen if you still have a large amount of histamine present in the body. You need to eliminate the cause of increased histamine and/or help your body break it down & eliminate excess histamine.***





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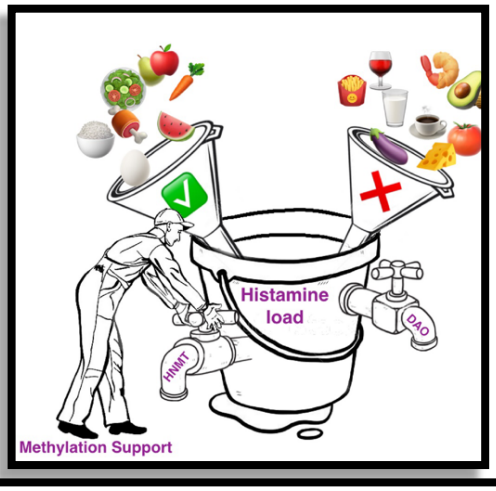
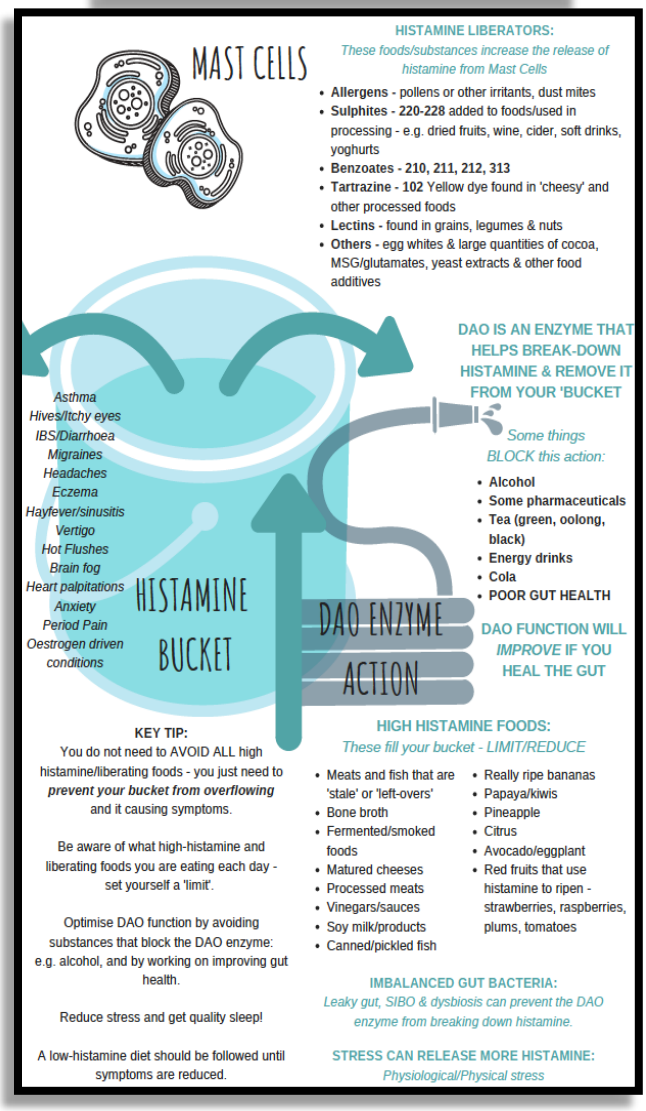
CAUSES OF ELEVATED LEVELS OF HISTAMINE

1. **LACK OF DIAMINE OXIDASE (DAO)**: This can be a genetic defect. Insufficiency in DAO makes you unable to break down & eliminate histamine.
2. **STRESS**: Extreme stress and/or chronic stress stimulates mast cells to dump histamine in the body & may cause reduced production of DAO.
3. **ALLERGIES**: Actual allergic reactions cause histamine to be released to fight off the allergen.
4. **LIVER & TOXINS**: The liver is responsible for breaking down histamine. If a high amount of toxins (such as pesticides, preservatives, chemicals, parabens, alcohol, medications...) are consumed, the liver will be working overtime. The liver needs certain NUTRIENTS to detoxify. If the diet is lacking in the nutrients that the liver needs in order to do its job, then this process breaks down & histamine levels build up.
5. **INJURY**: An injury activates the immune response causing increased histamine levels to aid the healing process.
6. **PARASITES, VIRUSES, INFECTION**: Any infection will trigger the immune system to release histamine. Chronic infections such as Epstein Barr Virus, Herpes Simplex, & Herpes Zoster Virus lead to long term increased histamine levels & can cause sensitivity to foods & other sources that may increase histamine levels.
7. **POOR DIET**: A diet that lacks nutrients & antioxidants (low in fruits & vegetables) & is full of fried foods, artificial ingredients, pesticides, preservatives, sugars, & other toxins worsens histamine intolerance.
8. **MAST CELL ACTIVATION SYNDROME:** When mast cells break open too easily dumping histamine & other inflammation into the blood stream. This condition is thought to be a genetic problem that also results from exposure to certain triggers. Another condition that is much less common is called MASTOCYTOSIS (the body makes too many mast cells).
9. **EXCESS HISTAMINE SOURCES**: A combination of overactive mast cells, consuming too much histamine from foods, a poor diet lacking the nutrients for the liver to flush out toxins & histamines, taking medications that trigger histamine response, too much stress, illness, injury, extreme temperatures can all add up to excessive histamine in the body. This can cause symptoms of an allergic reaction. If this is coupled with not enough DAO available to flush out the excess histamine, symptoms will become chronic and/or continue to worsen as allergic symptoms become severe.





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DIAGNOSING HISTAMINE INTOLERANCE

Histamine intolerance is under-diagnosed & many doctors do not recognize this condition. The symptoms overlap with several other conditions and can vary widely from person to person.

- ➔ Need to differentiate between Histamine Intolerance & true food allergy or intolerance to sulfites, salicylates, oxalates, dairy, or lactose.

Basically the way to confirm is the "Elimination Diet". Eliminate all foods that are high histamine or are "histamine liberators" (cause the body to produce more histamine).

NOTE: Since histamine causes allergic symptoms, it is possible that someone with histamine intolerance will be tested for allergies & test negative. This gets very frustrating when you KNOW you are having an allergic reaction to something!

Histamine and headache

Headache can be triggered in migraine sufferers when large amounts of Histamine rich foods are consumed. Histamine-induced headache is a vascular headache caused mainly by nitrate monoxide. An increase in the number of brain mast cells is associated with pathologic conditions such as migraine, cluster headache, and multiple sclerosis.

- *Many migraine patients have histamine intolerance and improved symptoms under a histamine-free diet & therapy with antihistamines & supplements.*
- *Tyramine is another common cause of migraines (cocoa & wine are high in tyramine & liberate histamine)*

Histamine and Gastrointestinal Issues

Small Intestinal Bacterial Overgrowth (SIBO)- When germs build up in your small intestines, this increases histamine levels. This happens when we take antibiotics which kill bacterial infections but also cause an imbalance in the good bacteria in our gut. Good bacteria are responsible for attacking bacteria that we consume from our diet.

- Leaky Gut- When histamine levels build up in the gut from foods, drinks, & medications; this causes inflammation in the stomach & intestines which allows germs & toxins to enter the blood stream leading to food intolerance symptoms.
- Inflammatory Bowel Disease (IBD)- There is a strong association with IBD such as Crohn's, Ulcerative Colitis, Celiac Disease, & gluten intolerance with Histamine intolerance. This is due to chronic GI inflammation & bad bacteria building up in the gut (SIBO).
- Stomach-ache, colic, flatulence, & diarrhea- may be symptoms of histamine intolerance

Histamine and airways

During or immediately after the ingestion of histamine-rich food or alcohol, runny nose or congestion may occur in patients with histamine intolerance; in extreme cases, asthma attacks also may occur.

Histamine and sexual steroids

In the female genital tract, histamine is mainly produced by mast cells in the uterus and ovaries.

- OVULATION & PERIODS- *Histamine-intolerant women often suffer from headache that is dependent on their menstrual cycle and from dysmenorrhea (painful periods)*. Histamine may worsen painful periods by increasing estrogen concentrations. And, in reverse, estrogen can influence histamine action. A significant increase in response to histamine during *OVULATION & TIME OF PERIOD causes migraines, painful periods, & GI issues if histamine intolerant.*
- *PREGNANCY- DAO is produced at very high concentrations by the placenta, & its concentration may become 500 times that when the woman is not pregnant. This increased DAO production in pregnant women may be the reason why, in women with food intolerance, remissions frequently occur during pregnancy.*

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Histamine and food

LEFTOVERS OR FERMENTED FOODS: Histamine and other biogenic amines are present to various degrees in many foods, and their presence increases with maturation. *High concentrations of histamine are found mainly in products of microbial fermentation, such as aged cheese, sauerkraut, wine, and processed meat or in microbially spoiled food. DON'T EAT LEFTOVERS OR OVER RIPE PRODUCE.*

SOME FOODS STIMULATE HISTAMINE REACTION- Histamine Liberators

In addition to histamine-*rich* food, many foods such as *citrus foods and pickled foods are considered to have the capacity to cause the body to release histamine directly from tissue mast cells, even if they themselves contain only small amounts of histamine*. These are known as "Histamine liberators" and are often "healthy foods".

ALCOHOL AND HISTAMINE

Alcohol, especially *red wine & beer*, is rich in histamine & is a potent inhibitor of DAO. The ingestion of wine & beer causes an increase in plasma histamine leading to Histamine Intolerance symptoms.

- ➔ There are other substances in wine such as *tyramine* and *sulfites* in addition to Histamine that can contribute to symptoms known as "wine intolerance" or "red wine asthma".

Histamine and atopic eczema (skin rash)

Severe atopic eczema (AE) is associated with increased Histamine levels. In addition, reduced DAO activities have been shown in AE patients. Thus, these patients have a significantly greater occurrence of chronic headache, dysmenorrhea, flushing, gastrointestinal symptoms, & intolerance to alcohol and food.

- ➔ TREATMENT OF SEVERE ATOPIC ECZEMA IS TO REDUCE CONSUMPTION OF HISTAMINE FOODS, ALCOHOL, & TAKE CLARITIN & NATURAL ANTIHISTAMINES.

MEDICATIONS AND HISTAMINE

As we age, we tend to develop medical conditions such as hypertension, high cholesterol, depression, & autoimmune diseases. Medications prescribed to treat these conditions can contain Histamine or "liberate" Histamine in the body.

- ➔ Commonly people wonder why these suddenly have food intolerances when they've never had these issues before. Often this is a result of several medications filling up your "Histamine bucket" and causing symptoms to worsen.

MEDICATIONS THAT CAN WORSEN HISTAMINE SYMPTOMS

NSAIDS- Ibuprofen, Aspirin, Aleve, Advil
ANTACIDS- Pepcid, Zantac, Ranitidine, Omeprazole
ANTIHISTAMINES- Benadryl, chronic use of antihistamines
ANTIDEPRESSANTS- Effexor, Cymbalta, Prozac, Zoloft, Amitriptyline
IMMUNE MODULATORS- Plaquenil, Humira, Enbrel, Chloroquine
ANTIARRHYTHMICS/BP MEDS- Propranolol, Metoprolol, Cardizem, Norvasc
ANTIBIOTIC- Augmentin
PAIN MEDS- Codeine, Opiates (hydrocodone/Lortab, oxycodone/Percocet, morphine, heroin)

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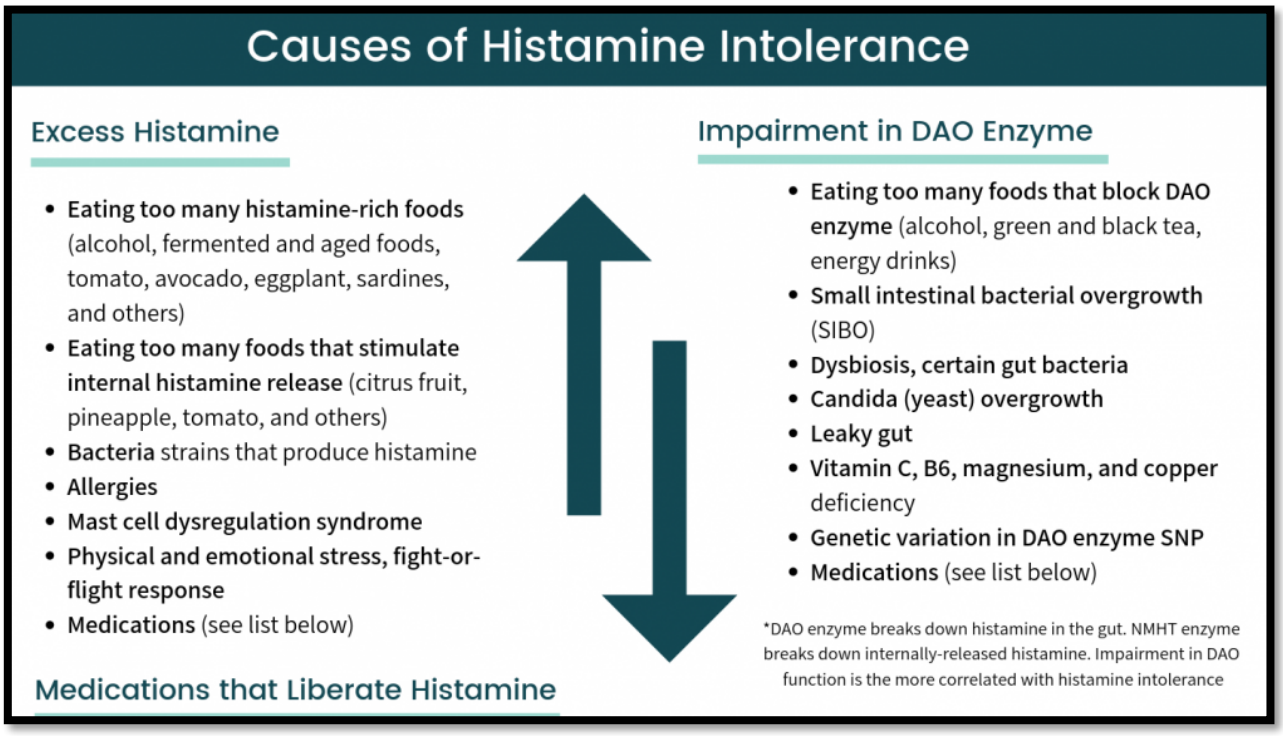
SUMMARY

- *Histamine is a neurotransmitter naturally produced by the body.* It controls bodily functions like immune response, mood, sleep, and even helps to secrete gastric juices.
- *Histamine is also present in many foods we eat.* So a person may produce too much histamine as well as be eating a diet high in histamine without knowing it—which increases symptoms.
- *Excess Histamine is involved in many types of allergic and inflammatory processes, including immediate and delayed hypersensitivity reactions.* You may react immediately to a food or stressor, or it may occur 1-3 days later (this makes it more difficult to pin down the cause).
- Histamine regulates physiological function in the gastrointestinal tract causing digestive issues.
- Histamine imbalances in the body may cause a variety of adverse effects ranging from life-threatening allergic reactions to localized itching, runny nose or hives.
- *The body is supposed to produce adequate levels of Diamine Oxidase (DAO), an enzyme that breaks down histamine, but due to gene mutations, gut dysfunction, nutrient deficiencies, and stress, people can lack adequate levels.*

BUCKET: The "bucket" situation can occur if you suffer any combination of Histamine triggers and/or your body is not good at breaking down excess Histamine. If the bucket overflows, this causes histamine intolerance symptoms.

- If you take antihistamines, this blocks histamine receptors to reduce allergy symptoms. If your body produces enough DAO enzyme, you can recover. If you don't produce enough DAO or are suffering from poor GI status (leaky gut, inflammatory bowel..,) then your symptoms will persist.



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HISTAMINE INTOLERANCE DIET

HISTAMINE RICH FOODS (AVOID)
Alcoholic drinks (especially beer and cider)
Anchovies
Avocados
Breads and Cakes which contain yeast
Cheese (the more mature it is the higher in histamine)
Dried fruits (if you wash them you might be able to remove the histamine)
Fermented foods
Mackerel
Mushrooms
Processed meats
Sardines
Sour cream, sour milk.
Smoked fish
Spinach and tomatoes
Vinegar and pickles
Yoghurt

HISTAMINE RELEASING FOODS (AVOID)
Alcohol
Bananas
Chocolate
Eggs
Fish
Milk
Papaya
Pineapple
Shellfish
Strawberries
Tomatoes

HISTAMINE LIBERATORS (AVOID)
Alcohol
Cheese
Seafood (not all), fish sauces
Cured and dried meats
Sauerkraut
Tomatoes, Spinach, Aubergine
Strawberries
Chocolate
Coffee
Sugar
Peas and Lentils
Egg Whites
Artificial Sweetners
Nightshade foods (aubergine, peppers, potatoes, paprika, tomatoes)

ANTI HISTAMINE FOODS (EAT DAILY)
Foods with Vitamin C
Omega 3 (cold water fish **Fresh or take supplements**
Flavonoids (quercetin to be specific.) Garlic, apples, parsley)
Walnuts
Local honey (find your local bee keeper. Local bees in your area will gather pollen from local plants.)
Apples
Apple Cider Vinegar with the mother (pulp) still in it.
Blackcurrants
Red Bell peppers
Kale
Parsley
Broccoli
Red Cabbage
Cauliflower
Sweet Potatoes
Asparagus

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FOODS HIGH IN HISTAMINE (AVOID)

FOOD

Proteins

- **Dairy products** - milk and most cultured dairy such as cheeses, kefir, yoghurt, sour cream, buttermilk, cottage cheese, ricotta
- **Leftover meat** - after meat is cooked, the histamine levels increase due to microbial action as the meat is stored even in the fridge
- **Processed, cured, smoked and fermented meats** - bacon, sausages, salami, pepperoni
- **Shellfish** - particularly smoked or canned seafood
- **Fish** - unless very fresh, the longer it waits for consumption the more histamine it has; canned tuna
- **Eggs** – especially egg whites
- **Nuts** – especially peanuts
- **Long cooked bone broth** – chicken soup cooked for a few hours may be OK depending on a person

Vegetables

- **All tomato products** - red tomatoes are higher histamine than yellow/orange
- **Spinach**
- **Eggplants**
- **Pumpkin**
- **Olives** in vinegar or brine

Fruits

- **Dried fruits** – prunes, cranberries, dates, figs, raisins, currants
- **Citrus fruits** – lemons, limes, oranges, grapefruits (increase histamine release)
- **Most berries** – including strawberries and raspberries (stimulate histamine production)
- **Avocado**
- **Pineapple**
- **Papaya**
- **Cherries**
- **Apricots**
- **Plums**

Drinks

- **Tea** - black, green, & mate (stimulate histamine production)
- **Alcohol of all types** – especially wine and beer
- **Cola drinks**
- **Coffee beans** (that are fermented)

Spices

- Cinnamon, cloves, chili powder, anise, nutmeg, curry powder, cayenne, cloves, anise (they stimulate histamine production)
- **Vinegar products** – various vinegars including apple cider vinegar, pickles, ketchup, mustard

Artificial colours and preservatives

- **Especially benzoates and sulphites** also nitrates, glutamate (MSG), tartrazine
- **Medications** - many medications and over-the – counter vitamins contain these additives. Make sure you ask your doctor or health practitioner to recommend additive-free supplements and medications

Fermented foods

- Sauerkraut, pickles, apple cider vinegar, kombucha
- Soy sauce, miso
- **Yeast** containing foods e.g. breads

Chocolate and cocoa

- All products containing cocoa and raw cacao including chocolate of any kind

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Foods to Avoid if You Are Histamine Intolerant

Histamine-Rich Foods

Fermented Alcoholic Beverages,
Fermented Foods: Sauerkraut, Vinegar, Soy Sauce, Kefir, Yogurt, Kombucha, etc.
Vinegar-containing Foods: Pickles, Mayonnaise, Olives
Cured Meats: Bacon, Salami, Pepperoni, Luncheon Meats and Hot Dogs
Soured Foods: Sour Cream, Sour Milk, Buttermilk, Soured Bread, etc.
Dried Fruit: Apricots, Prunes, Dates, Figs, Raisins
Most Citrus Fruits
Aged Cheese Including Goat Cheese
Nuts: Walnuts, Cashews, and Peanuts
Vegetables: Avocados, Eggplant, Spinach, and Tomatoes
Smoked Fish and Certain Species of Fish: Mackerel, Mahi-Mahi, Tuna, Anchovies, Sardines

Histamine-Releasing Foods

Alcohol
Avocados
Bananas
Chocolate
Cow's Milk
Nuts
Papaya
Pineapple
Shellfish
Strawberries
Tomatoes
Wheat Germ
Many Artificial Preservatives and Dyes

FOODS TO AVOID

- Alcohol and fermented beverages (especially wine and kombucha)
- Citrus, most berries (including bananas and avocado), and dried fruit
- Fermented foods (kimchi, sauerkraut, yogurt, kefir, etc.)
- Soured foods (sourdough bread, buttermilk, etc.)
- Aged cheese and cow's dairy
- Chocolate, cocoa, and cacao
- Processed, cured, smoked, or leftover meat. Meat should be as fresh as possible.
- Vinegar and vinegar containing foods (pickles, relishes, etc.)
- Teas (green, black, mate)
- Spinach, eggplant, and tomatoes
- Artificial food colorings and preservatives
- Seafood (fin or shellfish, in any preservation such as canned, smoked, etc.)
- Spices such as curry, cayenne, chili, cloves, cinnamon, and nutmeg
- Yeast
- Pineapple and papaya

Avoiding High Histamine Pitfalls:

- Fermented Foods
- Cured Foods
- Dyes
- Preservatives/Additives
- Sulphites
- Refrigerated Leftovers (freeze them)
- Alcohol
- High Histamine Foods
- Histamine Releasing Foods
- DAO Inhibiting Chemicals

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List of foods to enjoy when following a low-histamine diet:

- Freshly cooked meat or poultry
- Freshly caught fish
- Cooked eggs
- Gluten-free grains: rice, quinoa, corn, millet, amaranth, teff
- Pure peanut butter
- Fresh fruits: mango, pear, watermelon, apple, kiwi, cantaloupe, grapes
- Fresh vegetables (except tomatoes, spinach, avocado, and eggplant)
- Dairy substitutes: coconut milk, rice milk, hemp milk, almond milk
- Cooking oils: olive oil, coconut oil
- Leafy herbs
- Herbal teas

- Olive oil and coconut oil
- Freshly cooked meat
- Fresh caught seafood (avoiding fin or shellfish)
- Cooked eggs (be mindful of the whites if you are particularly sensitive)
- Gluten free grains such as rice, quinoa, and buckwheat
- Fresh fruits (excluding berries, avocado, citrus, bananas, pineapple, and papaya)
- Dairy-free milks
- Leafy herbs and greens (excluding spinach)
- Freshly ground spices (avoiding curry, cayenne, chili, cloves, cinnamon, and nutmeg)
- Pure nut butters
- Carob as an alternative to cocoa
- Coconut products (coconut oil, coconut butter, coconut meat, coconut milk)
- Hemp, chia, and flax seeds
- Fresh vegetables (excluding spinach and tomatoes)

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TREATMENT PLAN FOR HISTAMINE INTOLERANCE

1. BEGIN A **LOW HISTAMINE DIET** NOW
2. TAKE 1 **Claritin** pill (or preferred antihistamine) every morning until symptoms resolve

3. Take **D-Hist**- 2 pills three x a day for 1 week, then 1-2 pills 1-2 x a day for maintenance

4. Take **HistDAO** - 2 pills before a big meal 1-2 x a day until symptoms resolve, then as needed when eating a high Histamine meal
5. Drink **Inflammacore** with **SBI protect** daily for an anti-inflammatory protein shake to maintain healthy GI and reduce inflammation (Orthomolecular shake mix)

6. Take **probiotic** daily (Orthomolecular or Xymogen offer quality probiotics- powder or pills)

7. Take **Orthomega fish oil** 2 pills 1-2 x a day until symptoms resolve, then 1 pill 1-2 x a day for maintenance

8. **Orthomolecular Vitamin D-3 50,000 units** – take 1 pill 1-2 x a week
9. **Take activated B-Vitamins**- Orthomolecular & Xymogen have great multivitamins with activated B-Vitamins

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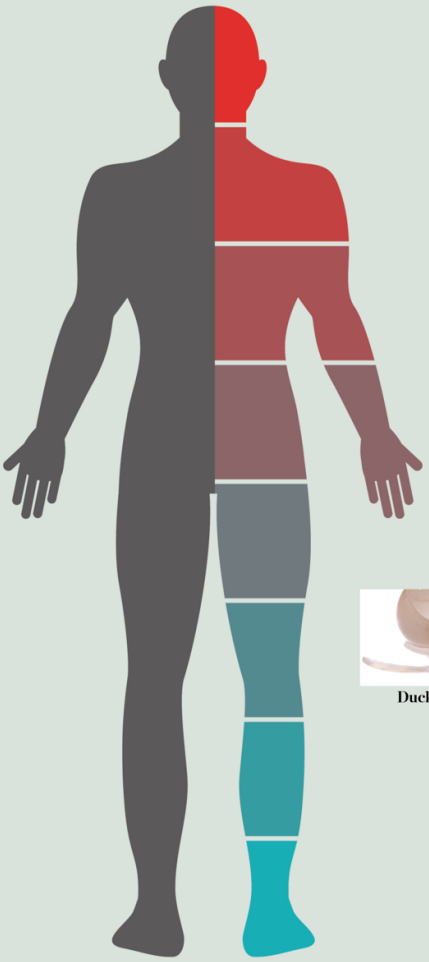
30 Low Histamine Foods With Healthy Fats



VEGETABLES


Broccoli


Cabbage


Capers


Cauliflower


Cos Lettuce


Firm Avocado


Onions


Zucchini

SPROUTS


Alfalfa Sprouts


Broccoli Sprouts


Radish Sprouts

HERBS


Basil


Marjoram


Oregano


Tarragon

PROTEIN


Duck Eggs


Grass Fed Chicken


Grass Fed Duck


Grass Fed Lamb


Grass Fed Veal


White Flesh Fish

FATS


Coconut Oil


Ghee


Hemp Oil


Macadamia Oil


Olive Oil

NUTS & SEEDS


Cashews


Chia Seeds


Hemp Seeds


Macadamia Nuts