Histamine Intolerance Intensive
by Summer Bock

Histamine intolerance has a long list of familiar symptoms that includes hives, runny nose, reactions to wine and other ferments, racing pulse, fatigue, and frequent headaches. If you struggle with Candida, dysbiosis, SIBO, and have and of these symptoms, you’ll gain an understanding of the connection between the two in this comprehensive lecture plus learn steps to relieve the symptoms.

Histamine intolerance is unlike other food allergies or sensitivities in that the response is cumulative, not immediate. It causes rashes, hives, heartburn, allergies, and excessive ‘allergic’ reactions to certain foods. For people who are highly reactive and not responding to normal dietary changes, this may be the underlying cause. Sometimes people react to fermented foods, such as wine, sauerkraut, kimchi, alcohol, and even yogurt. From hives to itchy throat this can indicate something deeper.

Histamine intolerance has a connection to probiotics, yeasts, and bacteria. This is why fermented foods often stimulate a reaction. Some bacteria create histamine as a byproduct of fermentation. If you are interested in learning more about the interactions between fermented foods, probiotics, and allergies - this class will educate and excite you.

Histamine intolerance is best discussed in accordance with the gut and can be overcome. Learn case studies and examples of histamine intolerance and the protocol for dealing with it. You will learn about the low-microbe diet versus the low-histamine food diet. We will talk about H1 and H2 receptors and some basic anatomy and physiology.

Histamine Fun Facts

- It is known to be involved in 23 different physiological functions throughout the body.
- It is a neurotransmitter, which means they are essentially messengers for the brain. Serotonin is another famous neurotransmitter.
- Histamine is produced in your white blood cells.
- Histamine is produced by some bacteria, too!
- High levels of histamine is found in some foods. Some people mistake fish and shellfish allergies for an overwhelming response to the large amounts of histamine that are constantly increasing after a fish has died.


- Created from an amino acid (hist-amine) that is produced in white blood cells in the body.
  - Part of the immune system.
  - Two kinds of white blood cells - ones that are stationary and ones that move through the blood. They both produce histamine.
Histamine increases the permeability of the capillaries to allow white blood cells and other immune defenses to reach pathogens and foreign invaders in the infected tissues.

The highest concentration of histamine-producing white blood cells (mast cells) are found in the nose, mouth, feet, ears, skin, lungs, and stomach. Some are found in the brain and heart.

Histamine stimulates an allergic response when the body mistakes dust, pollen, dander, or other environmental allergens for a foreign invader.

Where does histamine come from?

- Produced by bacteria - many kinds of bacteria in the large intestines can create histamine using a special enzyme, histidine decarboxylase, to convert amino acids into histamine.
- Histamine is also produced within our bodies’ white blood cells with the highest concentration being in the nose, mouth, feet, ears, skin, lungs, and stomach. Some are found in the brain and heart.
- Histamine is also found in food. http://link.springer.com/article/10.1007/s000110050463#page-1
  - Fermented foods have higher levels of histamine because of the bacterial fermentation that creates histamine. Not all bacteria create histamine.
    - Sauerkraut and fermented veggies
    - Miso
    - Wine
    - Soy Sauce
    - Sake
    - Cured meats such as bacon, pepperoni, salami, etc.
  - Other foods with histamine
    - Citrus
    - Berries: strawberries, raspberries
    - Tomatoes
    - Cherries
    - Apricots
    - Plums
    - Eggplant
    - Pumpkin
    - Egg
- Artificial preservatives are thought to stimulate the release of histamines.
- Fish & Shellfish
  - The longer a fish remains ungutted after it dies, the higher the level of histamine in its tissues. Furthermore, since shellfish are not gutted after harvesting, the bacteria in their gut will produce histamine as long as the fish remain uncooked. Many a reaction to fish or shellfish has been blamed on allergy, when in reality it was a reaction to an exceedingly high level of histamine in an incorrectly processed fish.
• Histamine can bind to 4 different receptors that are designated H1-H4.
  ◦ Each of these types of receptors controls a different response in the body. When histamine binds to that receptor, it activates that response in the body.
  ◦ H1 and H2 are the most talked about: [http://ajcn.nutrition.org/content/85/5/1185.full](http://ajcn.nutrition.org/content/85/5/1185.full)
    • H1 is in charge of your sleep wake cycle, body temperature, appetite, mood, learning, and memory. It helps constrict the bronchial tubes, dilates the blood vessels, causes hives, makes you itch from poisons, causes runny nose from allergies, and motion sickness.
    • H2 is in charge of vasodilation - the widening of the blood vessels. It stimulates gastric acid secretion.
  ◦ H3 Decreases the release of histamine and other pertinent neurotransmitters like acetylcholine, norepinephrine, and serotonin.
  ◦ H4 Helps certain white blood cells migrate to the right places in the body.

• Diseases and disorders associated with Histamine
  ◦ Eczema
  ◦ Anaphylaxis
  ◦ MS
  ◦ My theory - Alzheimer’s
  ◦ Autoimmune diseases
  ◦ Allergies
  ◦ Schizophrenia

• Symptoms of histamine intolerance
  ◦ Pruritus (itching especially of the skin, eyes, ears, and nose)
  ◦ Urticaria (hives) (sometimes diagnosed as “idiopathic urticaria”)
  ◦ Tissue swelling (angioedema) especially of facial and oral tissues and sometimes the throat, the latter causing the feeling of “throat tightening” (sometimes diagnosed as “idiopathic angioedema”)
  ◦ Hypotension (drop in blood pressure)
  ◦ Tachycardia (increased pulse rate, “heart racing”)
  ◦ Symptoms resembling an anxiety or panic attack
  ◦ Chest pain
  ◦ Nasal congestion and runny nose
  ◦ Conjunctivitis (irritated, watery, reddened eyes)
  ◦ Some types of headaches that differ from those of migraine
  ◦ Fatigue, confusion, irritability
  ◦ Very occasionally loss of consciousness usually lasting for only one or two seconds
  ◦ Digestive tract upset, especially heartburn, "indigestion", and reflux
What causes histamine disorders?
  ◦ Excessive histamine is the cause
    ▪ Inability to break down histamine properly
    ▪ Deficiency in the DAO (diamine oxidase) enzyme system in the intestinal mucosa [http://ajcn.nutrition.org/content/85/5/1185.full]
      "Various single-nucleotide polymorphisms (SNPs) in the DAO gene have been shown to be associated with inflammatory and neoplastic gastrointestinal diseases, such as food allergy (44), gluten-sensitive enteropathy, Crohn disease, ulcerative colitis, and colon adenoma (45-47). No significant difference in the distribution of the investigated HNMT alleles could be shown between patients with gastrointestinal diseases and control subjects (45, 47), but a functional relevant polymorphism of the HNMT gene (chromosome 2q22) has been described for white asthma patients (48). Conversely, this association could not be observed in Japanese (49), German pediatric (50), and East Indian (51) populations. Thus, histamine intolerance seems to be acquired mostly through the impairment of DAO activity caused by gastrointestinal diseases or through the inhibition of DAO, but the high interindividual variations in the expression of DAO in the gut and the association of SNPs in the DAO gene with gastrointestinal diseases provide evidence for a genetic predisposition in a subgroup of patients with histamine intolerance (27)."
    ▪ Deficiency in the HMT (histamine N-methyl transferase) enzyme system
      ▪ Connected to autoimmune diseases.
        ▪ There are more than 80 (possibly 180) autoimmune diseases.
        ▪ In healthy individuals there may still be a histamine response from eating a meal abundant in histamines. Face flushes, heart races, etc.
        ▪ For many with food allergies, this may be a familiar feeling.
          ▪ Distinguishing histamine intolerance from food allergy.
            ▪ Food allergies are caused when IgE antibodies are produced against a specific food protein (allergen)
            ▪ Histamine intolerance is something that builds up over time. Once someone has reached their histamine threshold they will start to experience symptoms.
• Short term resolutions for dealing with histamine.
  ◦ Firstly, you can put your client on a low-histamine diet. This will help reduce the load of histamine in the body and create more room for the body to process histamine. This will lower reactivity and help reduce systemic inflammation.
  • The Histamine Restricted Diet [Link]
    DO NOT EAT THE FOLLOWING FOODS

• Meat, Poultry, Fish
  • Fish and shellfish whether fresh, frozen, smoked, or canned, if processing is unknown
    ◦ If the fish is freshly caught, gutted and cooked within ½ hour, it may be eaten
  • Egg
    ◦ a small quantity of cooked egg in a baked product such as pancakes, muffins, cakes is allowed
  • Meat
    ◦ Processed, smoked and fermented meats such as luncheon meat, sausage, wiener, bologna, salami, pepperoni, smoked ham, cured bacon
    ◦ Avoid left-overs: freeze any uneaten protein-based food. Bacteria will quickly act on protein at room and refrigerator temperatures, resulting in histamine production

• Milk and Milk Products
  All fermented milk products, including:
  ◦ Cheese: any kind of fermented cheese such as Cheddar, Cheshire, Colby, Blue cheese, Brie, Camembert, Feta, Romano, etc.
  ◦ Cheese products such as processed cheese, cheese slices, cheese spreads
  ◦ Cottage cheese
  ◦ Ricotta cheese
  ◦ Yoghurt
  ◦ Buttermilk
  ◦ Kefir

• Fruit
  ◦ Orange, grapefruit, lemon, lime, cherries, grapes, strawberries, apricots
  ◦ Raspberries, pineapple
  ◦ Cranberries, prunes
  ◦ Loganberries, Dates
  ◦ Raisins, currants (fresh or dried)

• Vegetables
  ◦ Tomatoes, tomato sauces, ketchup, soy and soy products
  ◦ Spinach, red beans
  ◦ Eggplant, olives in vinegar or brine
- Pumpkin, avocado
- Pickles, relishes and other foods containing vinegar

**Food Additives**
- Tartrazine and other artificial food colours
- Preservatives, especially Benzoates and Sulphites
  - *Note*: Many medications and vitamin pills contain these additives; ask your physician or chemist to recommend additive-free supplements and medications

**Seasonings**
- Cinnamon, cloves, vinegar
- Chilli powder, anise
- Curry powder, nutmeg

**Miscellaneous**
- Fermented soy products (such as soy sauce, miso)
- Fermented foods (such as sauerkraut)
- Tea (regular or green)
- Chocolate, cocoa, and cola drinks
- Alcoholic beverages of all types
- “Dealcoholised” beverages (e.g. beer, ale, wine, etc)

**Low Microbe Diets**
- Gabriel Cousens outlines in his book *Rainbow Green Live Food Cuisine*, an entire diet based off of eating foods that have low microbial activity. This is the diet I used to clear myself of histamine intolerance and reduce my health issues dramatically.
- 6 - Dave Asprey has battled toxic mold exposure and has subsequently worked diligently to create a diet that is extremely low in reactive foods.

- Over-the-counter medications
  - Benadryl mostly for blocking histamine H1 receptors
  - Zyrtec mostly for blocking histamine H1 receptors
  - "You defo. have something here about histamine intolerance. I looked into this due to getting the prodromal phase ("aura") of migraine attacks, but in my case without the headaches, for years.

A few days ago when an aura started, I took my usual Ibuprofen, but also included one 10mg. cetirizine hydrochloride (Zyrtec) tablet, a common over the counter antihistamine. This was to a stomach containing a very light meal.

Right on cue, after about 25mins. the aura was aborted. There were the usual starting symptoms, tingling in the fingers, flashy lights in vision etc., but the rest — memory loss, slurred speech etc. — stopped.

I also lately have had a terrible runny nose, violent attacks of sneezing, and “the itchies” I’ve suffered for
years, esp. at bedtime.

I really do hope histamine intolerance is my problem as I can do something about that.”

- Zantac an antihistamine that blocks H2 histamine receptors
- Claritin
- Allegra
- **Herbal Anti-Histamines**
  - Fresh, freeze dried nettles powder in capsules
  - Quercetin by Jarrow
  - Zyflamend by New Chapter
  - Butterbur
  - Bromelain

- **Long term solutions for reducing or resolving histamine intolerance.**
  - Heal the gut to get rid of the histamine-producing bacteria
    - **Histamine producing bacteria:** Lactobacillus casei, Lactobacillus reuteri, and Lactobacillus bulgaricus (found in most yogurts and fermented foods).
    - Histamine is produced from L-histadine via histadine decarboxylase by some fermentative bacteria including *Lactobacilli*, but mostly by *Enterobacteria*. “This report highlights the identification of the biogenic amine, histamine, as an immunoregulatory factor linking diet, the microbiome (*L. reuteri* strain 6475), and the innate immune system. For the first time, histamine is described as a probiotic immunomodulin that potentially explains the suppression of innate immunity by intestinal bacteria.” [http://www.plosone.org/article/info:doi/10.1371/journal.pone.0031951](http://www.plosone.org/article/info:doi/10.1371/journal.pone.0031951)
  - Enterobacteria (such as E. Coli and others) are mainly responsible for histamine production not LAB strains that come proliferate later in fermentation and inhibit the growth of the former.
  - From **The Handbook of Fermented Functional Foods**: "Histamine production is more typically associated with Gram-negative bacteria such as the Enterobacteriaceae. However, these bacteria may only occur in significant numbers during the early stages of sauerkraut fermentation and are soon inhibited by the competing LAB and the concomitant reduction of pH. ... histamine production mainly occurs during the first fermentation phase." There is also a chart showing that the biogenic amines spike between 0-15 days before dropping and leveling off
  - Introduce histamine-reducing bacteria into the diet/body
    - **Histamine degrading bacteria:** Bifidobacterium infantis (found in breast milk), Bifidobacterium longum, Lactobacillus plantarum, and some soil-based organisms.
      - Microorganisms suitable for food fermentation were examined with regard to their potential to degrade histamine and...
tyramine. Out of 64 lactic acid bacteria evaluated in this study, 27 degraded histamine and one tyramine, respectively, with low activity. Among 32 strains of *Brevibacterium linens* and coryneform bacteria, 21 exhibited histamine and tyramine oxidase activity.

- This article suggests that L.Plantarum produces a substance called bateriocin AMA-k which inhibits growth of other microbes especially Enterobacteriales present in fermented foods that seems be be predominantly responsible for the high-levels of histamines present in early stages of fermentation [http://www.scielo.br/scielo.php?script=sci_arttext&pid=s1517-83822008000100035](http://www.scielo.br/scielo.php?script=sci_arttext&pid=s1517-83822008000100035)

More Reading Resources:
- [http://www.histamineintolerance.org.uk/about/the-food-diary/the-food-list](http://www.histamineintolerance.org.uk/about/the-food-diary/the-food-list)

Resources for eating low-histamine:
- [http://thelowhistaminechef.com](http://thelowhistaminechef.com)
- [http://paleorecipes.chriskresser.com](http://paleorecipes.chriskresser.com)