A Functional Medicine approach to Amine sensitivity

(Histamine / Tyramine / Caffeine)

Histamine sensitivity Symptoms:

Due to gut damage, nutrient deficiencies, chronic inflammation, toxicity and poor ability to process chemicals, many of our patients suffer from sensitivities to various food chemicals. Histamine is a common trigger for symptoms including:

- Itching, hives and skin flushing
- Irritability and Pre-Menstrual Syndrome
- Headaches and Migraine
- Bladder irritability and bedwetting in children
- Palpitations, episodes of feeling faint or low Blood pressure
- Anxiety and nightmares

Everyone has their own tolerance threshold for histamines, caffeine and Tyramines (the associated neuro-biogenic amines). For instance, all of us would eventually become very ill if we drank enough coffee.

The aim of the following information is to help you to lower your amine levels to see if this has an impact on your symptoms. If things are improved, then slow re-introduction to find your tolerance level will let you know how careful you need to be. This is not an allergy and total avoidance is not the aim of the changes. At the same time as lowering the histamine intake, we will be working on all the underlying causes of histamine sensitivity – so that hopefully the diet can be relaxed in time and symptoms will settle.

Why does Histamine sensitivity occur?

Patients with increased intestinal permeability, food sensitivity or allergies, B12 deficiency and those with poor 'methylation' capacity (often those with autoimmune conditions, fatiguing illness or mental health problems), are all at increased risk of developing high histamine levels with subsequent overload and sensitivity. Unfortunately, this is a common finding in the clinic and sensitivity is something we routinely screen for.

It is not that histamine containing foods can't be eaten at all, but that the total intake needs to be reduced sufficiently that the total level in the body can reduce. Histamine levels depend on:

- The total amount eaten over time (depending on the choice of foods and how aged they are)
- How well histamines are broken down in the gut (by the enzyme Diamine Oxidase / DAO)
- How much dietary histamine is absorbed from the gut (more if there is bowel damage or 'leaky gut')
- How well amines can be processed once entering the bloodstream depends on:
- Methylation capacity – determined by genetic and nutritional status (needs intracellular B12, folate and B6)
- Genetic predisposition – reduced DAO, COMT and MAOA/MAOB function may reduce the speed of neuro-biogenic amine processing. You may wish to learn more about this here: https://www.lifecodegx.com/products/histamine-intolerance
- Nutritional status – the availability of B vitamins for methylation and the intake of polyphenol antioxidants will alter the predisposition to release histamine from mast cells.
- Competition for the processing enzymes due to raised cortisol (stress), oestrogen levels and associated food colourings and benzoates.

Because of the natural variation in these factors, some patients will be much more tolerant of certain chemicals than others. The most severely affected patients may also be affected by oxalates or sulphur sensitivity too (we refer to this as Multiple chemical sensitivity/ MCS).

However, it would be a mistake to simply stop eating all foods containing chemicals which are difficult to process (although I have seen patients on high fat carnivore diets as a consequence of these issues). We are designed to be able to eat these plants and finding out why there is a problem, through a Functional medicine approach, can often help to restore the processing ability.

The Histamine / Amine 'Bucket' theory:

Each of us has a certain tolerance level for histamines (represented by a bucket). When we eat histamines we fill the bucket. If it overflows, then we get the high histamine symptoms. The bucket will fill more slowly when less histamine escapes from the gut into the blood stream and when Diamine oxidase works better.

A hole in the bottom of the bucket represents our individual processing capacity to get rid of histamines. The hole gets bigger when our processing improves (if we get more B12 or eat antihistamine foods and when our toxin and inflammation levels fall). The hole gets smaller when processing worsens.

Therefore, our treatment plan is not just about reducing histamine intake – but also needs to encompass:

- Healing the gut (often with a gluten free AIP diet)
- Speeding up the processing (often with B12 and methylation support)
- Reducing inflammation (increasing antioxidant intake)
- Reducing toxic burden
- Reducing stress to keep adrenaline levels down
- Improving hormonal processing (Eg, Cruciferous vegetables to improve oestrogen elimination)

All of this will be considered as part of our Functional Medicine protocol for you.

General pointers for avoiding histamines:

- Avoid or reduce canned foods and ready meals
- Avoid fermented foods as these have very high amine levels.
- Histamine levels in foods vary, depending on how ripe, matured or hygienic the foods are. As much as it is possible, buy and eat fresh products and don't allow foods to linger outside the refrigerator – especially meat products.
- Also avoid other similar chemicals (caffeine, tyramine), and those chemicals also similarly processed (benzoates, food colourings and preservatives)

- When batch cooking freeze small portions for future use to reduce histamine development overnight.

Buying Frozen Fish:

Unfortunately tinned and shop bought fish are often high in histamine. However, freshly frozen fish are the perfect answer for any histamine sufferer and we recommend the services of Seafresh UK who are experts in low Histamine fish provision.

The official Swiss Interest group list is available from the clinic and here: https://www.histaminintoleranz.ch/downloads/SIGHI-Leaflet_HistamineEliminationDiet.pdf

What really matters:

Especially in children, the main culprits are usually

- Tomatoes (and ketchup),
- Chocolate or cocoa,
- Bananas,
- Dried fruits
- Cheese.

Those sensitive to these should also pay close attention to sensitivity to food colourings and preservatives (especially sweets), flavour enhancers such as MSG, yeast extract in crisps and stock cubes can also be problematic.

Low histamine/ amine foods (eat freely):

- **Freshly cooked meat** or poultry
- **Freshly caught fish** (or buy fish which has been frozen and remained frozen), lobster
- **Cooked eggs / egg yolks** (raw egg white is a histamine liberator)
- **Gluten-free grains*:** amaranth, buckwheat, millet, oatmeal, quinoa rice, teff
- **Selected Nuts:** Macadamia nuts and chestnuts

- **Fresh fruits:** apple, blackberries, blueberries, lychee, mango, peach, pear, pomegranate, persimmon, honeydew, cantaloupe and watermelon, cantaloupe, Rhubarb.
- **Fresh vegetables** all except tomatoes, spinach, avocado, edamame, mushrooms and aubergine
- **Legumes:** Green beans, black eyed peas and Green peas are low / medium, all others are high
- **Dairy substitutes:** coconut milk, rice milk, hemp milk, almond milk*.
- **Dairy:** For those eating dairy, butter/ghee and cottage / cream / Ricotta cheese.
- **Cooking oils:** olive oil, coconut oil
- Leafy herbs
- Herbal teas

Therapeutic Antihistamine foods: These are foods which can help with mast cell stabilisation and reduce symptoms:

- Watercress
- Onions (especially red) and Garlic
- **Teas:** Try Holy Basil (also called Tulsi), Chamomile, peppermint or Nettle tea
- **Herbs:** Thyme and Tarragon
- **Spices:** Ginger and Turmeric
- **Fruits:** Pomegranates, Apples, Peaches**, blueberries**
- **Elderberry -**usually found over the counter in health food stores as a liquid syrup. Never eat the berries raw!

High histamine /amine foods and histamine releasers (to avoid):

- **Fermented foods:** sauerkraut, vinegar, soy sauce, kefir, yogurt, kombucha, all alcohol
- **Vinegar-containing foods:** pickles, mayonnaise, olives
- **Cured meats:** bacon, salami, pepperoni and hot dogs
- **Dried fruit:** apricots, prunes, dates, figs, raisins
- **Fruits:** Most citrus fruits, bananas, papaya, Pineapple, strawberries are all histamine releasers. Kiwi, dates, figs and

grapes are high. Cherries, and raspberries may be tolerated but are high in amines.
- **Aged cheese** including goat cheese
- **Nuts:** walnuts, cashews, and peanuts (all are histamine releasers)
- **Vegetables:** tomatoes, spinach, avocado, edamame, mushrooms and aubergine
- **Smoked fish** and certain species of fish: mackerel, mahi-mahi, tuna, anchovies, sardines
- **Bone Broth** (Cooked >12 hours) is high in amines – stick to cooking bones briefly for stock.
- **Raw egg white** is a histamine releaser (cooked is fine)
- **Chocolate, cocoa**

Diamine Oxidase (DAO) blockers:

- Alcohol
- Black and green tea (caffeine)
- Energy drinks (any containing caffeine)
- Coffee

Menu Suggestions (Gluten, Dairy, Corn, Soy, Colour, Flavour & Preservative Free and Low Histamine)

Breakfasts

- Porridge with low histamine fruits (blueberries and blackberries), made with oat milk
- Green smoothie with low histamine fruits leafy veg and dairy free milk alternative
- Stewed apple with coconut cream and buckwheat pancakes
- Home-made turkey or beef patties with cooked spring greens and onions
- Cooked spring greens with fried eggs (over easy to ensure all the whites are cooked)

Main meals

- Paleo Turkey and apple Patties with sweet potato and green salad

- Vegetable soups and stews
- Fresh Salmon with Asparagus and Quinoa Salad
- Courgetti noodles with fresh basil pesto and bolognaise with 'nomato' sauce
- Thai green chicken curry with cauliflower rice
- Sea Bass (frozen) with beetroot salad and watercress

Snacks

Particularly for children, avoiding all chocolates and sweets for parties and special occasions can be impossible. In this case, options include:

- **Gelatin fruit gummies:** https://www.creativehealthyfamily.com/homemade-healthy-gummies/(although be sure to choose low histamine fresh fruits and juices).
- Uncoloured marshmallows, popcorn and Meringues are off the shelf options which are likely to be tolerated.
- Root veg crisps, kale crisps and even potato crisps are great fir snacking (check for MSG, yeast extract and preservatives – plain crisps are less likely to cause problems).
- Chopping fruit creatively always helps to make it more appealing to children

Desserts:

Favourites such as fruit crumbles, carrot cakes, blueberry muffins, Gluten free pancakes and frozen fruit 'sorbets' are all possible with appropriate substitutions.

Targeted Nutritional Support:

Vitamin C helps to increases diamine oxidase, the enzyme which breaks down excess histamine in the digestive tract. This in turn helps to lower blood levels of histamine, and protects cells from oxidative stress. This makes it a key antihistamine supplement

Quercetin:
Quercetin is a natural flavonoid found in many foods including apples, berries, red onions and broccoli. It has been shown to inhibit

production and release of histamine, making it an important consideration in those with hay fever and allergies.

Bromelain (derived from pineapple), has been shown to possess anti-inflammatory and immune-modulating properties.

Omega-3 fatty acids (from oily fish), can help to support a healthy balanced immune system as western diets (typically high in pro-inflammatory omega 6's), have been shown to increase the rates of allergic disease. However, it is important to ensure the oil you are taking is fresh and pure as oxidised oils can do more harm than good.

Toxaprevent a clinoptolite, medical-grade clay, has a high affinity for histamine and can be used before histamine containing meals to reduce the effects of histamine in the food. Take a sachet (or 2 opened capsules), 20 minutes before a histamine containing meal).

Lifestyle recommendations:

Adrenaline and cortisol will slow down the processing of histamine and increase symptoms. Stress reduction, meditation and breathing exercises can all help to improve symptoms of histamine intolerance. Likewise, reducing histamine can help to lower adrenaline and reduce symptoms of anxiety and panic attacks.

Re-Introducing Histamines

After the histamine elimination phase, you'll want to reintroduce each food one by one in order to establish tolerance levels. Start by reintroducing one new high-histamine food every 2 to 3 days.

During day 1 of the trial, it is best to eat that food a few times throughout the day. For instance, if you are trialling aubergine, then eat some aubergine with each of your meals, approximately every 4 hours. Then, for the next two days, you will not eat the aubergine at all. Instead, you'll track any and all symptoms you experience in response to trialling the aubergine. If you don't experience any symptoms, you may include that food back into your normal diet. However, if you do experience symptoms, you'll want to continue to avoid that food.

If no or minimal differences are noted, continue slow reintroduction for a further 2-3 weeks. If no improvements are noted you can reintroduce several histamine foods at once and record any changes in symptoms.

Here is an indicative re-introduction plan*

- Day 1 of reintroduction: introduce aubergine
- Day 2 & 3: low histamine diet
- Day 4: introduce oranges
- Day 5 & 6: low histamine (+ aubergine - if tolerated)
- Day 7: introduce walnuts
- Day 8 & 9: low histamine (+ aubergine & oranges - if tolerated)
- Day 10: introduce tomatoes
- Day 11 & 12: low histamine (+ aubergine & oranges & walnuts - if tolerated)
- Day 13: introduce: dried fruit
- Day 14 & 15: low histamine (+ aubergine & oranges & walnuts & tomatoes - if tolerated)

If by day 16 you haven't experienced any changes in your symptoms then you can re-introduce several high-histamine foods that you normally have in your and see whether your symptoms change.

NB. It is still important to increase the quantities slowly in order to find your 'tolerance levels'.

Use the Symptom Tracker and a food diary to track symptoms. However, as an indication, the most common symptoms to look for after reintroducing the trial food include:

- Allergy-like symptoms
- GI upset (pain, bloating, gas, diarrhoea or constipation)
- Migraines
- Mood disturbances
- Joint pain
- Trouble sleeping

Finally, it is recommended to retrial any food that may have "failed" the trial after about 3 months have passed. It is vital to take detailed notes of your experience.

As a reminder, it is important to approach this trial in a curious, relaxed and positive manner and practice mindful eating. This will help to mitigate the stress surrounding eating which is important because any stress can trigger your symptoms.

* Speak to your nutritional therapist to amend the re-introduction plan according to your allergies/ sensitivities and dietary preferences.

Helpful Resources:

Low Histamine recipes are available on the following sites:

- **The Histamine Friendly Kitchen:** https://histaminefriendlykitchen.com/popular-low-histamine-recipes-2017/
- **Naughty Little Mast Cells:** https://www.naughtylittlemastcells.com/free-low-histamine-diet-recipes/
- **Through the Fibro fog:** https://www.throughthefibrofog.com/low-histamine-recipes/
- **Healing Histamine** https://healinghistamine.com/

Books:

- Histamine Intolerance: The Cookbook by Michelle Berridale –Johnson
- The Beginners Guide to Histamine Intolerance by Dr Janice Joneja