Histamine Intolerance (HIT)

Written by Dr Sarah Ball & Dr Louise Newson

WOMEN'S
Well-being Clinic

What is Histamine Intolerance?

Histamine Intolerance (HIT) is a condition that is generally very poorly understood by the medical profession and is rarely recognised or acknowledged. It is important to be aware of this condition in the setting of a menopause clinic as it does have implications for our hormonal health, and how we respond to our menopause and to HRT.

What is Histamine

Histamine is an important chemical that is crucial to the body's functioning - especially the gut, the brain, the nervous system and the immune system. Everybody needs histamine to survive but problems can occur if we have too much of it. Ideally we have a balanced process happening, where the amount of histamine we have entering our bodies is roughly equal to how much we get rid of. If this balance is altered and we have too much histamine and/or don't get rid of it as efficiently. then we can develop histamine intolerance.

Excess histamine can cause a variety of different symptoms which very often mimic allergic reactions. The most common symptoms are rashes (e.g. hives), itching, flushing, irritable bowel syndrome (IBS), indigestion, breathlessness, palpitations, migraines, dizziness, anxiety/panic, joint aches and nasal congestion. Most people affected by HIT don't get all of these symptoms, some ony have one or two symptoms, others may get far more. Symptoms can be very variable: you may be fine for short or long periods of time and then symptoms reoccur - either intermittently or continually. Symptoms are cumulative - the more excess histamine, the worse the symptoms are.

Current opinion is that HIT affects about I in every I 00 people. Howeve1 as this is a condition that is so rarely correctly identified in suffere1-s, it may be far more common than this. It is more common in females and more often happens in mid-life.

Is HIT an allergy?

When a person is allergic to a specific trigger and is exposed to this - for example, eating peanuts - histamine is released inside the body very abruptly, in large amounts, and any (or all) of the above mentioned symptoms can occur within minutes of ingestion. In its severest form. this is called anaphylaxis and can be fatal. HIT differs from this in that there is no specific allergy: histamine builds up in the body gradually and is not broken down quickly enough. The allergy-type symptoms therefore come on gradually and more insidiously. HIT is unpleasant but never fatal. Many sufferers of HIT have often thought they have been allergic or intolerant to things they are eating, but have rarely been able to pin down exactly what it is that upsets them. There is no 'one food' that is the culprit and symptoms can take hours to become apparent. In fact, HIT could be termed a 'pseudo-allergy'.

Some sufferers have had allergy tests for common allergens, but no specific allergy has been detected. Other sufferers have had investigations and/or treatments for their symptoms that have never particularly helped - for example, anxiety medications for panic attacks, nose sprays for a blocked nose, or bowel investigations for unexplained diarrhoea or constipation. They sometimes feel their problems have never been adequately explained and they can, at times, be inadvertently made to feel like hypochondriacs or 'malingerers'.

How does histamine build up in our body?

Histamine comes from two main sources from within us (our own cells, called 'mast' cells release it in response to certain stimuli) and from what we ingest in our diet. Many different types of food contain histamine and other foods cause us to release more of our own histamine from mast cells: some foods contain it and make us release it. Alcohol, for example, contains a lot of histamine and causes our bodies to release more histamine. Alcoholic drinks can therefore be quite a problem if you are histamine intolerant. To make things more complex, it is not always about the type of food we ingest but how the food was prepared or how old it is. For example, a green tomato has very little histamine, but a red tomato has a lot. Freshly cooked chicken that is eaten promptly contains very little histamine, but chicken leftovers (kept in the fridge for a day or two) contains more histamine. Fermented foods e.g. yoghurt, kefir, and sauerkraut are rich in histamine and should be avoided if you are a HIT sufferer.

How does histamine leave our body?

We have two enzymes responsible for breaking down the histamine within our bodies. The enzyme that predominantly deals with histamine from the food we eat is called Diamine Oxidase (DAO). We all have a different amount of DAO depending mainly on genetics (we can't do much about this) but it also depends on the health of our gut (which we can do something about). As already mentioned, some foods reduce the efficiency of this enzyme. In addition, many drugs can affect the activity of DAO, for example, some antidepressants and painkillers make histamine intolerance worse. Ironically, many patients may be prescribed these medications for symptoms caused by their HIT, if the intolerance has gone unrecognised.

What has HIT got to do with hormones?

Hormones and histamine have a very close link, especially in relation to estrogen. As a woman, your own estrogen (made predominantly by your ovaries) peaks at various times in your life, for example, when your periods first start, at the time of ovulation each month, and in the perimenopause when your levels of estrogen can become erratic and very high. When your estrogen levels rise, you release more of your own histamine. Histamine then stimulates your ovaries to release more estrogen - thus setting off a vicious cycle. In addition, estrogen stops your DAO from working well. If you are intolerant to histamine, you will not tolerate your own estrogen very well. You might notice that any symptoms get more noticeable at times in your life when your estrogen is highest. This is why those that develop HIT tend to start having problems either in their teens when their periods start, around the perimenopause or every month in a pattern, e.g. diarrhea or migraines each cycle or when it's a particularly heavy or painful period.
HIT, if the intolerance has gone unrecognised.

Interestingly, pregnancy is a time when women with HIT actually feel great and are usually completely free of their symptoms. This is because - although estrogen levels are very high in pregnancy - the body develops a way of protecting the fetus from excessive histamine.This is by increasing the amount of DAO by 500 times, hence breaking down histamine very efficiently. If a woman feels the best she ever has during pregnancy, this is a very helpful clue in a woman's history.
Around the perimenopause our hormones can become very variable. There will be times when our estrogen levels are low and typical menopausal symptoms are problematic e.g. hot sweats and flushes, low mood and anxiety, joint aches and palpitations. And then at times when our estrogen levels are high, if our histamine levels are adequate, those symptoms will reduce. If we are histamine intolerant however, and our own estrogen is stimulating even more histamine, we can get symptoms of histamine intolerance and as you may have noticed, the symptoms can be almost identical.
For the vast majority of women who take HRT (especially body identical HRT), their menopausal symptoms reduce rapidly, and they feel significantly better, usually within 3-6 months. But for those women who take HRT and also have histamine intolerance, their symptoms may get worse as the estrogen being put into the body can be fuelling the HIT even further. This is why it is very important to consider the possibility of HIT in women who get additional symptoms or worsening of existing symptoms, after starting HRT.

How to diagnose HIT

There are blood tests which can look at levels of DAO activity, histamine levels and that of a substance called tryptase (related to mast cell activity). However, these blood tests are not widely available and not necessarily diagnostic - as our levels vary so much from day to day. The gold standard way to diagnose HIT is to try and exclude histamine as much as possible from the diet for a period of approximately 4 weeks.This is likely to bring about an obvious reduction or elimination of symptoms in a HIT sufferer, thus essentially confirming the diagnosis.

How to treat HIT

There are a number of ways to try and tackle HIT and the most important by far is dietary modification.

Diet
The most important element of treating HIT is with dietary modification - the aim being to keep your histamine load below excessive levels. This takes time to achieve as histamine-containing foods and histamine-releasing foods are so widespread. You will need to do research into the foods in your diet and experiment with different foods and how you prepare them. A dietician or nutritionist knowledgeable about HIT can be invaluable to help you make these changes. This will almost certainly involve needing to cut out alcohol, many dairy products and fermented products at the very least. Some food typically considered healthy may actually not be good for histamine sufferers e.g. avocado and spinach.
You may find this table useful, to start looking at histamine levels in your diet:

Food Groups	Low Histamine	High Histamine	Note
Vegetables	All fresh vegetables except →	Avocado,Aubergines, Tomatoes,Spinach, Rocket, Mushrooms.Pickled & canned vegetables	The fresher the vegetables the better. Possibly peas may cause symptoms.
Fermented Vegetables & Pickles	No	Sauerkraut and other fermented vegetables. Pickled vegetables	Including fermented vegetable sauces e.g. soya sauce, miso
Fruit	All fresh fruit except →	Strawberries & raspberries, plums, citrus (oranges, limes, lemons, grapefruit).Tropical fruit e.g. papaya, banana, pineapple, kiwi.	Avoid over ripe fruit.
Dried Fruit	Only dried fruit that has NO sulphur dioxide or preservatives.	Dried fruit with sulphur dioxide and preservatives should be avoided.	Including food made with dried fruit such as fruit mince, unless it definitely has no preservatives and sulphur dioxide added
Grains, flour	Gluten free grains and flours e.g. rice, oat, corn, quinoa, potato, millet, amaranth, teff, kamut, buckwheat. Einkorn ancient wheat flour is ok.	All gluten grains e.g, wheat, barley, rye, spelt. Sourdough & Yeast, usually found in breads.	Avoid sourdough bread even if gluten free. Gluten free soda bread is ok.
Legumes & Pulses	No	chickpeas, beans, soy, lentils, butter beans, navy beans, black beans, red kidney beans, black eyed beans, peas etc.	This includes avoiding dips containing legumes/pulses e.g. hummus and soy products such as tofu.
Nuts and seeds	No, except macadamias, pistachios, chestnuts and pumpkin, hemp & chia seeds.	Most nuts and peanuts, most seeds.	Including nut butters & spreads
Dairy	Fresh dairy only e.g, fresh milk, cottage cheese, quark, fresh curd, mozzarella, ricotta	All fermented dairy foods from cow, goat, sheep.	Including yoghurt, kefir, fermented cheeses, sour cream.
Dairy Alternatives	Plant milks are ok, even if they are made from nuts/seeds. Almond milk, fortified with calcium, is the most suitable.	Fermented plant foods e.g. coconut yoghurt	Take care with 'fake'vegan cheese as they may contain artificial colourings & preservatives.
Fats	Extra virgin olive oil, ghee, rapeseed oil, coconut oil.	Fermented/cultured butter, soy oil, nut oils.	Fresh unfermented/ uncultured butter may be ok to eat.
Meat, Poultry, Eggs	Freshly cooked fresh meats & poultry. Fresh eggs may be ok.	Cured or aged meat e.g. bacon, salami, hot dogs, mincemeat.	Aged fresh meat is also high histamine, very fresh meat is ok.
Seafood	Freshly caught fish except→	Mackerel, mahi-mahi, tuna, sardines, herring, anchovies. All shellfish and crustaceans or molluscs. All smoked fish. All canned fish e.g. tuna, anchovies, sardines, salmon.	

Food Groups	Low Histamine	High Histamine	Note
Sugar, Sweets & Chocolate	Sugar & Sweets are ok except→	Chocolate, cocoa, cacao, carob and sweets that contain sulphur dioxide dried fruit, nuts and seeds.	Sweeteners such as honey, cane sugar & maple syrup are ok. Not artificial sweeteners or malt extract.
Seasonings, Condiments & Herbs	Fresh and dried herbs, spices, distilled white vinegar, salt pepper. Homemade vegetable stock & homemade whitefish stock.	Other vinegars, mayonnaise, tomato ketchup, pickles, olives, capers, soy sauce, miso, fish sauce, tamari, Marmite, Vegemite, cumin, excess garlic.Yeast extract, enhancers (glutamate, sodium glutamate),bouillon, broth, animal /poultry stocks.	Including heavily salted food. Take care with hot spices - cayenne, chillies, curries - keep dishes mild.If not using the vegetable/ fish stock immediately after making, then freeze in portions & use from frozen.
Teas & Coffee, Drinks	Herbal tea, including rooibos tea.	Green and black teas,Yerber Mate, coffee, kombucha, kefirs & other fermented drinks. Tomato & tropical juice. Energy drinks. AVOID ALL ALCOHOL.	Including any drinks with artificial colours or preservatives.

Improving gut health is integral to improving symptoms. Eating a low histamine diet for 4 - 6 weeks (under the guidance of a qualified professional), may bring about benefits to gut symptoms. Keeping a food and symptom diary helps you understand correlations with different foods and helps you and your health professional to work out a healing plan. Probiotics may be helpful, however some probiotics aggravate, rather than help, the symptoms of HIT.

Top tips

• It is really helpful to keep a Food Dairy & follow the above list for 4 weeks under the guidance of a professional who is qualified & understands Histamine Intolerance.

• Freshness of your food is very important; if possible, buy little and often, so your food is always fresh.

• Alcohol is high in histamine, so best to avoid.

Supplements and medications

There are no supplements or medications that can effectively treat HIT without addressing your diet. But there are some additional treatments which may help:

Antihistamines - these can be brought over the counter (e.g. cetirizine and loratadine are examples of non-sedating ones). For HIT they need to be used twice daily (despite the leaflet advising once daily). These do not help to lower histamine levels but can 'mop up' any excess.

H2 Blockers - H2 are the type of histamine receptor in our stomach. Cimetidine is an example of an H2 blocker; it is a prescription-only medicine. This can reduce the amount of stomach acid made in response to histamine excess.

Vitamin C (low dose) - this acts a natural antihistamine.This should ideally be taken 3-4 times per day in small doses, such as 250mg each dose. This is to avoid the occurrence of loose bowels happening from single larger doses.

L-glutamine this also acts as a natural antihistamine.

DAO supplements - these can be taken 30-60 minutes before a meal to try and reduce the amount of histamine that is ingested and absorbed. However, they are expensive. (They may have a role if you are eating out or have a social occasion where it would be impossible to avoid histamine foods).

Some HIT sufferers may be able to wean off some or all of their treatments if and when their diet is stable, but others may need to continue in the long term, to stay well.
It is necessary to consider the impact that any other prescribed medications might have and its important that you don't suddenly stop any prescribed medications without discussion with a doctor who is knowledgeable about HIT.

Lifestyle

Avoiding stress can be helpful at reducing histamine release. Meditation and yoga can be valuable. Exercise can have variable effects on HIT sufferers. It is best to take regular exercise and se

Managing the menopause

The principles of managing the difficult symptoms of the menopause still apply in HIT sufferers. Hormone replacement therapy effectively treats menopausal symptoms and provides future health benefits such as lowering your risk of heart disease and osteoporosis. However, if HIT is having an impact on your life, this needs to be factored in when discussing starting HRT with your health professional. Usually, once HIT symptoms are under control with an established histamine-restricted diet (with or without supplements), HRT can be gradually introduced.

Further information on this topic

Table compiled from the following:
SIGHI (Swiss Interest Group Histamine Intolerance). www.histaminintoleranz.ch
www.histamineintolerance.org.uk
https://www.food-intolerance-network.com/food-intoleranc-es/histamine-intolerance/
www.drtinapeers.com
https://youtu.be/em-BxplmE6A
https://thecommunality.com/hit-mcas-treatment

This booklet has been written by Dr Sarah Ball, GP with a special interest in the menopause, and Dr Louise Newson, GP, menopause specialist and director of the balance app. Louise is also director of the not-for-profit company, Newson Health Research and Education, and is the founder of The Menopause Charity.

WOMEN'S Well-being Clinic