

MCAS SELF MANAGEMENT TOOLKIT



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Research and Written: Joy Mason, Chloe Hall - HCPC Registered Dietitian, Ruth Slater and Sally Snow

Graphic Designer and Creator: Edward Dawes, BA

With special thanks:

Dr Bethan Myers MB BCh MA FRCP FRCPath, Consultant Haematologist

Alison Holloway BSc (Hons) RD, The Unexpected Dietitian

Cordula Henggeler, UK registered dietitian with a master's degree in nutrition and dietetics

WHERE TO START

This resource has been developed for people living with Mast Cell Activation Syndrome (MCAS) or caring for someone with MCAS. It contains information about substances in food and the environment that can affect mast cell activity or trigger MCAS symptoms. It also includes practical advice to help you understand and avoid these triggers, as needed.

This resource is not intended to replace medical advice. Any changes to your diet or lifestyle should be done slowly, step-by-step, and ideally with professional support.



The information in this resource has been produced by Mast Cell Action, in partnership with Chloe Hall, a registered dietitian. Chloe has worked in the NHS for over 10 years, alongside setting up her own business, The Calm Gut Dietitian (www.thecalmgutdietitian.com), to support those with gut health conditions, MCAS and histamine intolerance. She is particularly passionate about helping people with MCAS and histamine intolerance, following her husband's diagnosis with the conditions.


Understanding triggers

Many different substances can trigger MCAS symptoms. Histamine is a well-known example, but there are many others, including tyramine, glutamates and salicylates. Trigger substances can be found in natural foods and food additives, in the environment, and even in medications. Many of these trigger substances are also made naturally by the body, so levels can increase in response to temperature, pressure, emotions, stress, and sleep deprivation, among other things.

MCAS can affect almost any part of the body, with symptoms ranging from headache to wheezing to joint pain (see the image on the next page). Individual symptoms can easily be confused with other conditions, leading to delayed diagnosis for many people with MCAS. MCAS should be considered if a person has unexplained symptoms affecting two or more body systems, for example the skin, digestive system, muscles and bones, brain and nerves, or lungs and breathing.

Symptoms and their triggers will be different for each person with MCAS. Symptoms may happen straight after encountering a trigger, or several hours or days later. Sensitivity to specific triggers can also vary over time.

Symptoms are wide-ranging and affect multiple parts of the body. These can include:



Nasal-ocular (nose and eyes)

- Nose congestion
- Eye watering and itching

Respiratory (lungs & breathing)

- Sore throat
- Hoarseness
- Wheezing
- Shortness of breath
- Throat swelling

Musculoskeletal

- Joint & muscle pain
- Osteoporosis (brittle bones)
- Loss of bone mass

Genital and urinary

- Genital pain or swelling
- Pain when urinating
- Vaginal pain, discharge or itching
- Bladder urgency or loss of control

Dermographic (skin)

- Flushing/redness
- Hives or wheals
- Itching with or without a rash
- Swelling

Neurologic (brain and nerves)

- Headache
- Brain fog (memory and concentration difficulties)
- Numbness, pain or tingling skin
- Anxiety
- Behavioural issues, rages

Cardiovascular

- Chest pain
- Low blood pressure
- Fast heart rate
- Fainting or light-headedness

Gastrointestinal (digestive system)

- Bloating
- Stomach cramps or pain
- Reflux
- Feeling or being sick
- Diarrhoea
- Constipation
- Dumping syndrome
- Food allergies or intolerance

General

- Extreme tiredness
- Anaphylaxis, which can be life threatening

Top Tip: Use a symptom diary

For a period of 6 weeks, log the foods you eat, cosmetics, fragrances or cleaning products used, the places you go, the weather conditions, and how you are feeling on that day. Use a symptom tracker (You can download a copy of our symptom log at www.mastcellaction.org) to track possible MCAS symptoms. Tracking symptoms alongside possible triggers can help you to understand patterns and have more productive conversations with a healthcare professional, who will then be able to guide you appropriately.



The bucket theory

Understanding triggers can be complicated. A person with MCAS may be able to cope with a small amount of a substance on one day, but on other days, the same trigger may lead to symptoms. This is because different sources add up over the day – sometimes referred to as the “bucket theory”. Your “bucket” can overflow if you have several different sources of the same trigger in a short space of time. Read more about the “bucket theory” (Find out more about the bucket theory at www.mastcellaction.org)



Understanding triggers in children

For children with MCAS, understanding triggers can be particularly challenging. Children may not have the words to accurately communicate how they are feeling. Our Casper the Chameleon storybook and resource pack have been designed to help children communicate with their families. You can order your copy for free by emailing denise@mastcellaction.org.

It's important to remember that food aversions can occur as a result of the food being a trigger for symptoms – although this isn't always the case. If there are foods that your child avoids, it may be helpful to monitor these foods to see if they are triggering reactions.

There is no one-size-fits-all diet or lifestyle for a person with MCAS. Each individual should be supported to find their own personal balance, based on what works for them. Usually, the best way to manage suspected triggers is to make small stepwise changes, rather than changing a lot of things all at once.

Depending on your level of sensitivity and the types of symptoms it causes, you may need to work towards entirely avoiding a trigger. Or, you may be able to tolerate moderate sources as long as they are not all present at the same time.

***Top tip: Try different approaches to learn what works for you
Re-test your sensitivity to triggers at different times of day or
during different seasons of the year. For example, you may need
to avoid dietary triggers on days when the pollen count is high,
but be able to eat more freely at other times.***



Find more information about specific trigger substances in the Fact Sheets included in this resource.

Environmental triggers

Although diet is often the first thing people think about, it is important to remember that foods are only one of the possible sources of mast cell triggers. Before making significant changes to your diet, think about possible triggers in your home or places you visit.

Cleaning products and fragrances

Soaps, air fresheners, scented candles, perfumes, and cleaning products can all contain chemicals or fragrances that trigger symptoms for some people.

- * Carry your own soap when outside of the home, if this is a trigger for you.
- * Remember, natural products often contain essential oils or other triggers—just because a product is labelled “natural” doesn’t mean it is “safe”.
- * Outside your home, it can be difficult to control exposure to fragrances and cleaning products. You may need to ask schools, friends or workplaces to avoid using air fresheners or certain cleaning products when you visit.

Pollen

Grass pollen, tree pollen and weed pollen are carried in the air. All have different peak levels over the course of the year. Weather conditions and atmospheric pressure can also affect the pollen count from day to day.

- * Wear lightweight overclothes when going outside if the pollen count is high – these can then be removed and put into a sealed bag when going indoors.
- * Consider changing clothes and/or showering when returning home, to remove pollen from skin and clothing.
- * Check the 5-day pollen forecast across the UK, published by the National Pollen and Aerobiological Unit:

<https://www.worcester.ac.uk/about/academic-schools/school-of-science-and-the-environment/science-and-the-environment-research/national-pollen-and-aerobiology-research-unit/pollen-forecast.aspx>

Mould/fungal spores

Fungi, including mould, produce spores that are carried in the air, like pollen. These can be found both outside and indoors, especially in damp or humid conditions or near woodland.

- * Check the spore forecast from the National Pollen and Aerobiological Unit. (See above link)
- * Indoors, reduce humidity by ensuring a good airflow (e.g. opening a window), using a dehumidifier, and being careful about drying clothes indoors.
- * Deal with any signs of mould as soon as possible, eradicating mould from your home wherever possible.

Pesticides

If you live in an area where pesticides are sprayed on crops, you may notice heightened sensitivity to triggers at certain times of year.

- * Keep windows closed if you know crops are being sprayed locally.
- * Wash fruit and vegetables thoroughly to remove pesticides.



Top tip: Air purifiers can help reduce airborne triggers
Air purifiers can remove up to 99.7% of airborne particles which may help to keep your home or office safe from airborne triggers.

Medicines and their ingredients

Although medicines are often a core part of the management for MCAS, flavourings and stabilisers can be different in alternative brands of the same drug. Your doctor can specify certain brands on your prescription if other brands are not safe for you.



***Remember: Always read medicine ingredients lists, including flavourings, fillers and “excipients”.
Talk to your pharmacist to ensure they are aware of your needs.***

(Changes in) temperature

Some people with MCAS are sensitive to changes in temperature, or find their symptoms flare up in hot or cold weather. Extremes of temperatures, like moving from a hot shower into a cold house, or eating ice lollies, can also trigger symptoms. Minimising exposure to drastic temperature change can be helpful.

In winter:

- * Use a scarf or face covering to cover the nose and mouth when going from inside to outside.
- * Try an electric blanket on a low setting in bed.
- * Dress in layers – to keep better control of temperature when moving between locations.



In summer:

- * Use a spray bottle of water, fan or cool flannel to help you stay cool.
- * Use thermal curtains to keep the house cool.
- * In bed, try a cool mat or put sheets in the freezer, to reduce the temperature.
- * Consider using a UV-protective parasol to stay in the shade, or UV-protective clothing in sunny weather.



Barometric (atmospheric) pressure

Changes in atmospheric pressure influence the weather from day to day. On high pressure days, the weather is settled with light winds and few clouds. Low pressure days are often associated with cloudy, unsettled weather. Atmospheric pressure is measured in millibars or hectopascals (hPa) and is included in weather reports. *Read more at:*

<https://www.metoffice.gov.uk/weather/learn-about/weather/how-weather-works/high-and-low-pressure>

Hormones

Women in their reproductive years may find that their symptoms (and sensitivity to other triggers) fluctuate in line with their monthly cycles. Hormonal transitions, such as puberty, pregnancy and menopause can also affect symptoms.

Insect bites/stings

This can include sensitivity to stings from wasps and bees, or bites from other insects like mosquitos.

Emotions, stress and tiredness

Some people with MCAS are more sensitive to triggers at times when they feel scared, tired or stressed. This is because the body produces its own mast cell activating substances when under stress, which can add to external sources.

- * Stress and MCAS symptoms can work in a vicious cycle, with symptoms causing stress that then contributes to making symptoms worse. Try to break the stress-symptom cycle by practicing relaxation techniques, such as yoga, mindfulness and breathing techniques.
- * Cognitive behavioural therapy (CBT) has been shown to help people to manage symptoms of anxiety.
- * If managing your MCAS is contributing to your stress levels, give yourself a break. Seek support from your family and friends, your healthcare professional, or Mast Cell Action.

Top tip: Plan ahead

Some environmental triggers are practically impossible to avoid. Try to minimise other sources of triggers to ensure your total level doesn't become too high (like an overflowing bucket).



Dietary changes

Many adults and children with MCAS follow a low histamine diet. Other common dietary management strategies include dairy free, gluten free, low salicylate or low oxalate diets. It is unlikely that an individual will need to follow all of these diets at the same time. If you feel that restricting foods will cause additional stress, then this may not be the best strategy for you. Remember that stress in itself can trigger MCAS symptoms.

Always seek the support of an experienced professional before making major changes in diet that excludes certain food groups. Exclusion diets must be done with great care to avoid vitamin or nutrient deficiencies, particularly in children. Be aware that sensitivity to excluded foods may increase if you are exposed to them in future.

If you feel that you (or the person you care for) can only tolerate a very small range of foods, please speak with your health professional about optimising other aspects of your MCAS treatment to achieve a better personal balance.



Get in touch with Mast Cell Action at info@mastcellaction.org or search the British Dietetic Association's private dietitian database (<https://www.bda.uk.com/find-a-dietitian.html>) for MCAS-aware dietitians if you are struggling to find appropriate support.



Withdrawal reactions

After making a change, some people with MCAS find their symptoms get worse before they get better. You may find that symptoms initially reduce but then flare up again for a few days at around day 7.

These symptoms should stabilise over time – if they don't, you may need to try a different approach.



Reintroducing foods

Reintroducing foods after a period of exclusion can be a stressful process.

Take it slow, trying one thing at a time. Be aware of the environment and other triggers that may be contributing to symptoms. Remember, reactions don't necessarily mean you can never tolerate that food – try again when your symptoms have been stable for a period of time.

Identifying triggers

It can be difficult to track multiple potential triggers and reactions. Keeping a diary which includes foods, fragrances, stress, temperature changes and exercise can help to identify which triggers are contributing to your symptoms.

Mast Cell Action has provided a symptom log which can be downloaded for free from our website.

Once you have identified a potential trigger, you can then trial removing or avoiding that trigger where possible to check if this is correct.

Remember that multiple triggers can cause symptoms at the same time, so it is unlikely that removing or avoiding one trigger will relieve all of your symptoms.



Managing restrictions

While multiple triggers can cause symptoms for people with MCAS, it is important not to overly restrict foods which may not be contributing to symptoms. Finding the least restrictive diet which allows you to manage your symptoms is a key part of managing MCAS whilst ensuring your diet has sufficient nutrition.

We recognise that it can be frightening to re-introduce or trial foods after a period of elimination and recommend working with your dietitian and other health professionals to find the best approach for managing your unique symptoms and triggers.

Top 10 self-management tips from the MCAS community

1. Go slow. Change one thing at a time.
2. Focus on the things you can have rather than things you can't have.
3. Remember that symptom flares can be triggered by things other than foods, so re-test regularly and in different conditions (e.g. at different times of day or year).
4. Always check labels every time you buy something, even if you've bought the product before. Recipes and ingredients can change.
5. Have a few "safe" dishes that are easy and quick to make – so that you don't get tempted to opt for a takeaway.
6. Keep a list of "safe" foods and meals with you (either printed or on your phone).
7. Always carry "safe" snacks in your bag when travelling.
8. Think about bringing your own food to an event or party.
9. Everyone is different. Just because something is on a list of "foods to avoid", it doesn't mean it will be a trigger for you.
10. Sometimes fear itself can trigger or worsen symptoms. Don't be hard on yourself – you are doing the best you can.



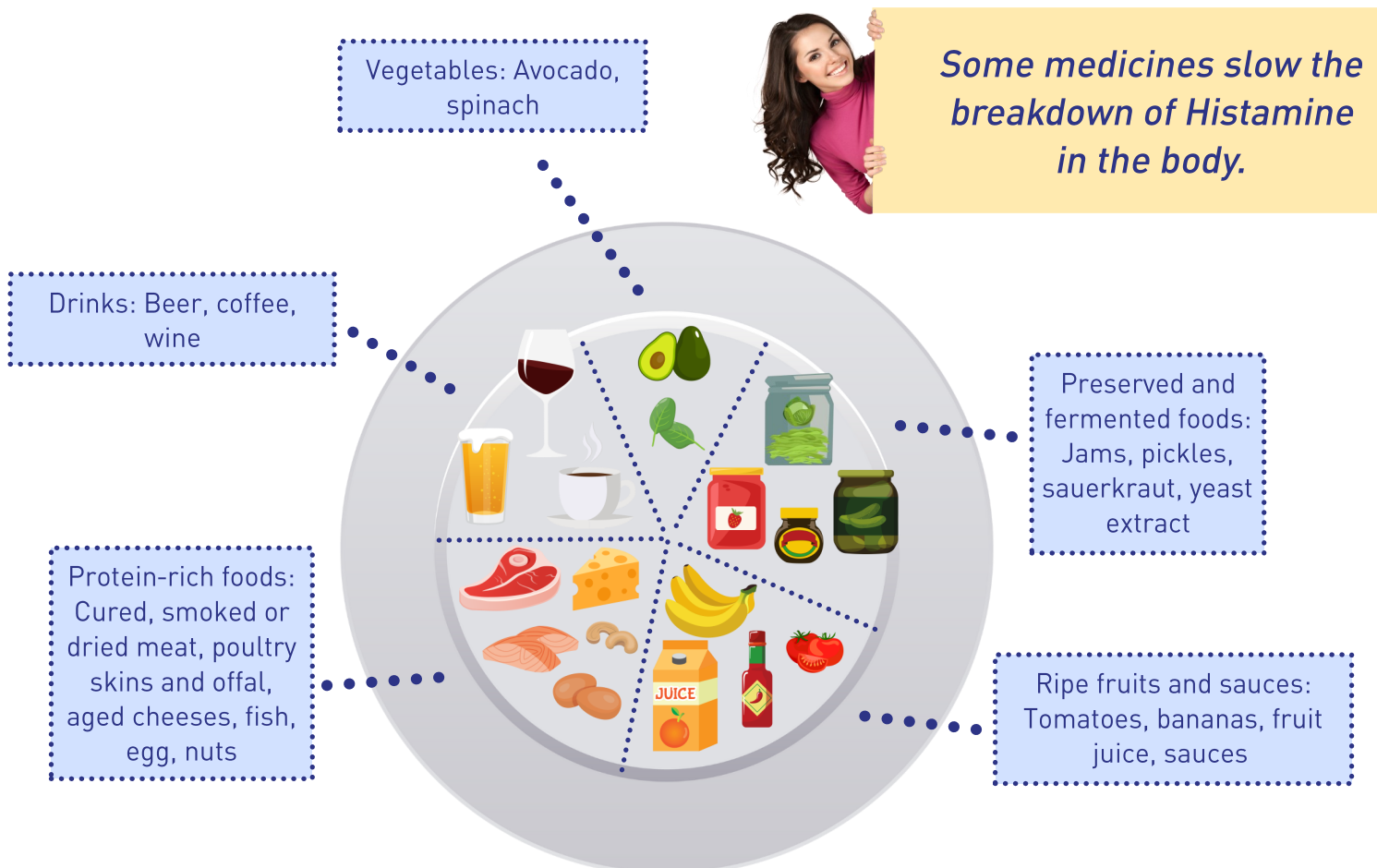
What is it?

Histamine is one of the chemicals released by mast cells when they are activated. It acts as a chemical messenger throughout our bodies. It plays a role in temperature regulation, menstruation and many other body systems. It can, however, cause symptoms, like a runny nose, skin rashes and redness, tiredness, low blood pressure and gut symptoms, when it is elevated.

Some people lack the enzymes to break down histamine or their enzymes don't work well. These people can be very sensitive to histamine in their diet and environment. Remember that stress itself can increase histamine levels and can make any reaction worse.

Where is it found?

Histamine is found naturally in many foods, particularly when they are fermented or decaying. Chemicals in meat, fish and eggs rapidly break down into histamine as they age. Processed foods, flavourings and preservatives can be a problem for some people. Some foods, alcoholic drinks and certain medicines can also slow down the breakdown of histamine in the body. Using a symptom tracker can highlight any potential reactions and help you to identify specific triggers.



*Fish contains high levels of histidine, which rapidly breaks down to form histamine when it is not cooled or handled properly. People who are sensitive to histamine can usually only tolerate very fresh or rapidly frozen fish.

The following pages contain practical tips for following a low-histamine diet, developed and reviewed by registered dietitian, Chloe Hall. Chloe specialises in supporting people affected by MCAS and in low histamine diets.

Caution: A low histamine diet can be restrictive, so please consult a Dietitian or other health professional experienced in this area before trying to exclude food groups.



When shopping, the fresher the better

- Avoid fermented foods, yoghurt, mature cheese.
- Avoid any food near its sell by date.
- If possible, get to know your local farm shop, fishmonger or butcher. They should be able to tell you when your meat or fish was processed and how fresh it is.
- Source eggs fresh from the farm, if possible.

Store foods carefully

- Avoid storing meat, fish or leftovers in the fridge.
- Although freezing will slow the production of histamine, levels will still increase over time in frozen food:
 - Freeze leftovers straight away – even if you plan to use them soon.
 - Label frozen food with the date it was cooked/frozen.
 - Avoid freezing large quantities of food.
 - Rotate frozen foods, using the oldest food first, to use up foods as quickly as possible.



*MCAS community members who have experience of following a low-histamine diet have found it helpful to:
Limit cooking time – avoiding frying, barbecuing and browning.
Avoid chicken skin, liver and bones (don't simmer carcasses to make stock).*



Eating on a budget on a low histamine diet

- Cook in bulk and make your own low-histamine ready meals by freezing the meals as soon as possible after preparation.
- Chicken mince can often be cheaper than beef and lamb mince, so try this in dishes such as Spaghetti Bolognese with a low-histamine “No-mato sauce” instead (see next page for the recipe).
- Bulk up meals with frozen low-histamine vegetables, such as sweetcorn or carrots.
- Low histamine frozen fruit can be cheaper than fresh and can reduce wastage.
- It can be cost-effective to buy staple low-histamine products in bulk (e.g. rice or pasta).
- Make your favourite takeaway at home. Ideas include:
 - Air-fryer chicken thighs with home-made wedges and coleslaw.
 - Lamb curry with rice. Make curry sauce with coconut milk or roasted peppers rather than tomatoes.
 - Make home-made soups with vegetables that would be wasted otherwise. This will also allow you to have control over the ingredients and avoid higher-histamine ingredients such as yeast extract or tomatoes.
 - Homemade pizza with “No-mato sauce”.



No-mato sauce

Ingredients:

- * 1 butternut squash, peeled and diced
- * 6 small carrots, peeled and diced
- * 1 large onion, diced
- * 3 stalks of celery, diced
- * 2 pointed red peppers
- * 1 whole bay leaf or any other herbs (e.g. fennel seeds, oregano, basil etc.)
- * 350 milliliters water or yeast-free stock



Instructions:

1. Start by roasting the butternut squash and pointed peppers in the oven for 30 minutes or until soft enough to blend. Let it cool slightly.
2. Whilst the butternut squash is roasting, put everything else in a covered pan, bring to a boil. Reduce heat to simmer until the vegetables are soft.
3. Take out the bay leaf and then blend the pan contents and butternut squash together until smooth and use as you would a tomato sauce.

Eating out on a low-histamine diet

- Look at menus in advance to see if there are any suitable meals for your dietary needs. Phone ahead to see if the restaurant can make any adaptations to meals.
- Try to have low-histamine meals in the few days before to eating out to keep your “bucket” low.
- If eating multiple courses, choose low-histamine options where possible.
- If you choose to have alcohol, avoid wines, beers and ciders. A small amount of spirits, such as gin or vodka, may be tolerated by some people on a low-histamine diet.
- Speak with your friends or family about your dietary needs. Pick the venue yourself, if possible, to try and reduce stress, as this can increase your histamine levels.
- Don't be afraid to ask for changes to dishes, if they are freshly prepared, the chef may be happy to make safe swaps.
- DAO enzymes may allow some people on a low-histamine diet to tolerate foods that are higher in histamine. They are often expensive to purchase, but may be an option to reduce the potential for a reaction when eating out.
- If you can't eat food prepared by a restaurant, you may still be able to join in by taking safe food with you - explain the situation to the restaurant prior to going.



There is some limited evidence from small trials that a supplement called diamine oxidase (DAO) could help with some of the symptoms of histamine intolerance. However, they are not a cure and don't work for everyone. If you are considering taking DAO then please discuss this option with your healthcare professionals.



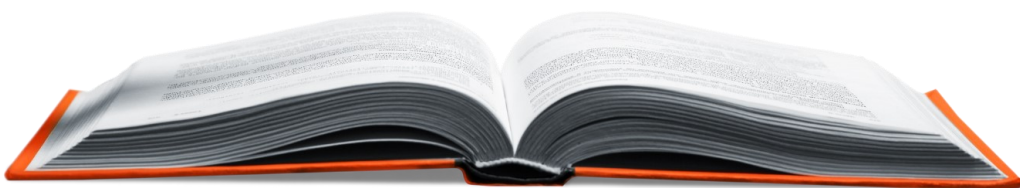
Holidays on a low histamine diet

- Self-catering holidays may help you to control what you are eating more easily than if you are staying in a hotel.
- Take the opportunity of being on holiday to enjoy shopping for fresh foods by going to local farmers markets or looking at the different foods available in local butchers or fishmongers.
- Have a translation app or printed card close by to help explain your dietary requirements if you are eating out abroad.
- If staying by the sea or in a fishing village, see if you can find any freshly-caught fish as a holiday treat.
- Take a few “safe” snacks in your suitcase in case of delays.
- Take some packaged “safe” foods with you, in case you have trouble sourcing “safe” foods during your holiday.
- Call ahead to speak with the hotel and local restaurants to find places that can accommodate your needs prior to traveling.
- Reduce the histamine in your diet as much as you can prior to traveling so that your total level (your “bucket”) is as low as possible.
- Make sure you carry your medications such as anti-histamines or epi-pens.
- Try to reduce external triggers such as stress as much as possible.



Low histamine resources

- Swiss Interest Group Histamine Intolerance (SIGHI) Introduction to histamine intolerance. Available at: <https://www.histaminintoleranz.ch/en/introduction.html> [Accessed 10 January 2023]
- Swiss Interest Group Histamine Intolerance (SIGHI) Food Compatibility list (Updated 2016-04-01). Available at : https://www.mastzellaktivierung.info/downloads/foodlist/21_FoodList_EN_alphabetic_withCateg.pdf [Accessed 10 January 2023]
- Histamine, fructose & co. Food intolerance app: <https://www.baliza.de/apps/histamin.html> [Accessed 10 January 2023]
- Mast Cell 360. Low and high histamine foods list. Available at : <https://mastcell360.com/low-histamine-foods-list/> [Accessed 10 January 2023]
- British Dietetic Association. Food Allergy and Food Intolerance: Food Fact Sheet <https://www.bda.uk.com/resource/food-allergy-food-intolerance.html> [Accessed 10 January 2023]
- Maintz and Novak. Histamine and histamine intolerance, Am J Clin Nutr. 2007;85(5):1185-96. <http://www.ajcn.org/cgi/content/full/85/5/1185>



What is it?

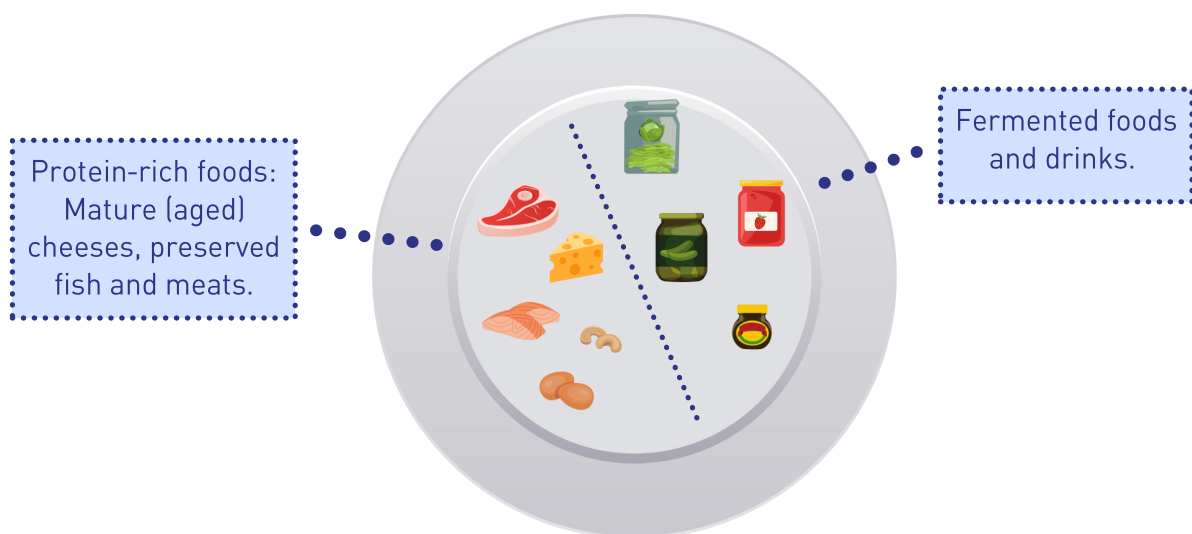
Like histamine, tyramine is involved in several important processes in the body. It is usually broken down quickly, which stops it building up to high levels. Tyramine is also found naturally in foods as they age.

Some people lack the enzymes needed to break down tyramine so levels build up in the body. Tyramine breakdown can be slowed by certain substances or medications (called monoamine oxidase inhibitors).

Presence of high levels of tyramine may trigger symptoms such as migraines or high blood pressure.

Where is it found?

Tyramines are natural compounds formed from the breakdown of an amino acid called tyrosine. They are commonly found in foods that are aged or fermented, such as cheese, wine, and cured meats, and can also be produced by certain bacteria during the fermentation process.



Further reading and resources

- Histamine, fructose & co Food intolerance app: <https://www.baliza.de/apps/histamin.html> [Accessed 10 January 2023]
- British Dietetic Association. Food Allergy and Food Intolerance: Food Fact Sheet <https://www.bda.uk.com/resource/food-allergy-food-intolerance.html> [Accessed 10 January 2023]

What is it?

Glutamate is a building block of protein. It is produced in the body, but is also found at particularly high levels in flavourful foods and food additives. Levels of glutamate in fruits such as banana, avocado and tomato increase with ripening and softening.

High glutamate consumption has been linked with symptoms including headaches, increased blood pressure and insulin resistance (a precursor of diabetes).

Where is it found?

In addition to “monosodium glutamate,” look for ingredients including:

- Hydrolysed vegetable protein
- Autolysed yeast
- Hydrolysed yeast
- Yeast extract
- Soy extracts
- Protein isolate

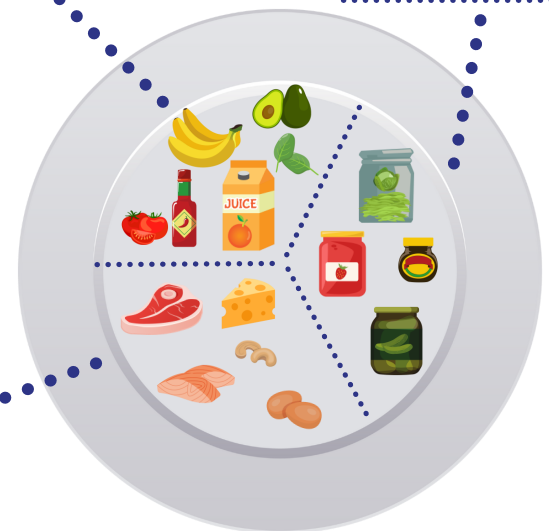
Glutamates are natural substances called amino acids that are important for the nervous system to function properly.

They are also used in many foods to enhance their flavour, particularly the savoury or meaty taste known as umami. You can find glutamates in many different foods, such as soy sauce, tomatoes, and aged cheeses.

Fruit and vegetables: Tomato, mushrooms, fruit juices.

Ingredients: stock cubes, soy sauce, meat extracts, yeast extracts, monosodium glutamate (MSG) flavouring.

Protein-rich foods: Cheese, walnuts, processed meats, seafood.



Further reading and resources

- Royal Prince Albert Hospital (RPAH) Elimination Diet Handbook (Restricted availability)
- Histamine, fructose & co Food intolerance app: <https://www.baliza.de/apps/histamin.html> [Accessed 10 January 2023]
- British Dietetic Association. Food Allergy and Food Intolerance: Food Fact Sheet <https://www.bda.uk.com/resource/food-allergy-food-intolerance.html> [Accessed 10 January 2023]
- WebMD. High Glutamate Foods. Available at: <https://www.webmd.com/diet/high-glutamate-foods> [Accessed 10 January 2023]

What is it?

Salicylates are plant chemicals that have natural anti-bacterial and preservative properties.

Symptoms of salicylate intolerance include wheezing, runny blocked nose, sinusitis, skin rashes, stomach pain, asthma, migraines, diarrhoea and tiredness (fatigue).

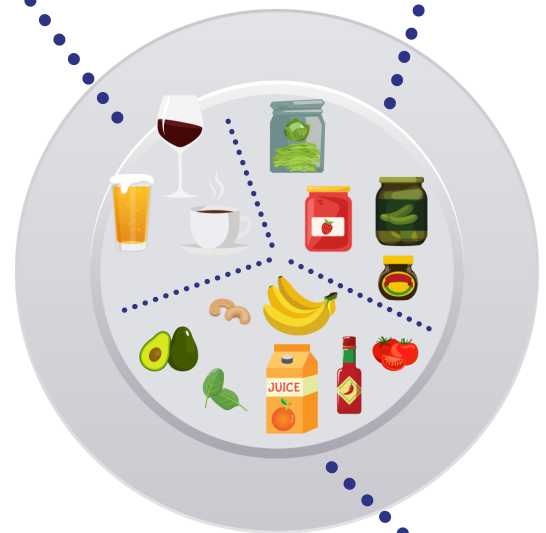
Often found in:

Drinks: tea, coffee, juices.

Ingredients: yeast extracts,
natural flavourings.
Preserved foods: jams, honey.

Salicylates are also found in natural fragrances including mint and scents in perfumes, toiletries, cleaning products and washing powders (e.g. lavender, eucalyptus and tea-tree).

Salicylates are used to make some medications, such as aspirin as they can help to reduce pain and inflammation in the body. Salicylates can also be found in many foods, such as fruits, vegetables, nuts, and spices, where they act as natural preservatives and pesticides. They are found in larger amounts close to the surface of fruits and vegetables and levels decrease with ripening.



Tips for reducing salicylates in food

- Peel fruits and vegetables to remove the salicylates close to the surface.
- Cooking vegetables in water can reduce the amount of salicylate they contain.

Unripe fruits and vegetables, nuts, herbs and spices.

Caution

A low salicylate diet can be restrictive, so please consult a dietitian or other health professional experienced in this area before trying to exclude food groups.



Further reading and resources

- Royal Prince Albert Hospital (RPAH) Elimination Diet Handbook (Restricted availability)
- Histamine, fructose & co Food intolerance app: <https://www.baliza.de/apps/histamin.html> [Accessed 10 January 2023]
- British Dietetic Association. Food Allergy and Food Intolerance: Food Fact Sheet <https://www.bda.uk.com/resource/food-allergy-food-intolerance.html> [Accessed 10 January 2023]

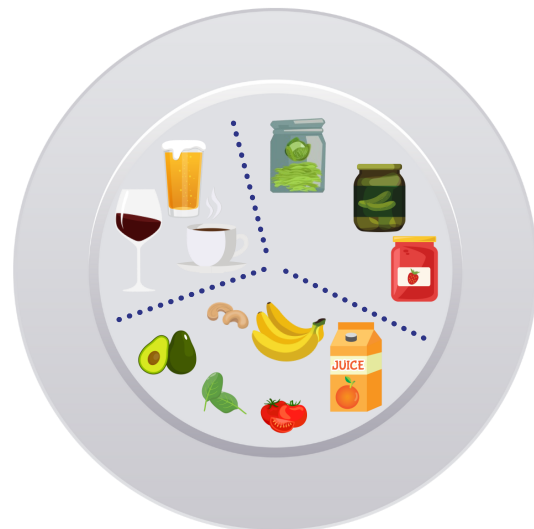
Oxalates are natural substances found in many plants, including fruits, vegetables, nuts, and seeds. They play a role in plants as a natural pesticide, protecting the plant from being eaten by animals and insects. They also help regulate the levels of calcium and other minerals in the plant.

As well as being found in some foods, oxalates are also produced as a waste product by the body. They exit the body through the urine and high levels can cause kidney stones in some people. Oxalates are also thought to affect mast cell activity.

Often found in:

Foods high in oxalate include:

- beans and nuts
- some vegetables and fruits (e.g. beetroot, berries, cranberries, oranges, rhubarb, spinach)
- beer, chocolate, coffee and (black) tea, soda (cola)
- nuts
- soy products (e.g. soy beans, soy milk, tofu)
- wheat bran



Foods that are high in oxalates include spinach, rhubarb, beetroot, and chocolate.

Further reading and resources

- Histamine, fructose & co Food intolerance app: <https://www.baliza.de/apps/histamin.html> [Accessed 10 January 2023]
- University of Michigan Health. Foods high in oxalate. Available at : <https://www.uofmhealth.org/health-library/aa166321> [Accessed 10 January 2023]
- British Dietetic Association. Food Allergy and Food Intolerance: Food Fact Sheet <https://www.bda.uk.com/resource/food-allergy-food-intolerance.html> [Accessed 10 January 2023]

People who are sensitive to natural food chemicals are often also sensitive to common additives, preservatives or colourings. Reactions to these chemicals may be easier to recognise because of the higher concentrations added to processed foods.

Additives are sometimes also hidden in staple foods where you would not expect them. Therefore, please always read the list of ingredients on the packaging.

The following colours, preservatives or flavour enhancers are common triggers for people with food intolerances:

- Colours: (E102, 107, 110, 122-129, 132, 133, 142,151, 155, 1608 (annatto))
- Preservatives: Sorbates (E200-203), benzoates (E210-218), sulphites (E220-228), nitrites, nitrates (E249-252), propionates (E280-283), antioxidants (E310-312, E319-321)
- Flavour enhancers: Glutamate (MSG) E621-635, Hydrolyzed vegetable protein (HVP), Textured vegetable protein (TVP)

