

Wheat Allergy – the Facts

This information sheet focuses primarily on a condition known to doctors as **immediate onset IgE-mediated** wheat allergy. This is an overreaction of the body's immune system to proteins in wheat and usually occurs quite quickly after initial contact with wheat. The allergic response may range from mild or moderate symptoms (such as itching, rashes, hives and swelling) to a more severe reaction (such as difficulty breathing, wheezing and loss of consciousness). This fact sheet gives guidance and advice for people with this form of allergy.

As wheat can also cause a number of other medical conditions, we have covered these briefly further on. They include:

- **Delayed onset wheat allergy** – also referred to as non-IgE antibody mediated wheat allergy
- **Coeliac disease** – an autoimmune reaction to the gluten protein in wheat and some other cereals
- **Wheat intolerance** – either due to a non-coeliac wheat protein hypersensitivity (which can mimic the symptoms of coeliac disease), or an intolerance to the carbohydrate in wheat.

If you or your child suffers adverse symptoms that you believe are triggered by wheat, it is vital to understand which of the above conditions is causing them. You should see your GP as soon as possible.

Throughout this fact sheet you will see brief medical references given in brackets. More complete references are published towards the end.

Immediate onset IgE-mediated wheat allergy

Our aim is to provide information that will help you or your child to get appropriate medical help, avoid products containing wheat, minimise risks and know how to treat any allergic reactions should they occur.

What is immediate onset IgE-mediated wheat allergy?

Food allergy occurs when the body's immune system reacts to a harmless food component, usually a protein, because it mistakenly registers that substance as a threat. In people with immediate onset food allergy, the immune system has produced substances called immunoglobulin E antibodies (IgE). When these IgE antibodies identify the presence of the allergenic food in the body (in this case wheat), they trigger the allergic reaction. Most people react when they eat wheat or wheat products, but a reaction can be triggered by touching or breathing in wheat, although this is rare.



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Gluten is one of the many proteins in wheat. If you are allergic to wheat, you may be reacting to gluten and/or other proteins.

Symptoms

Symptoms may occur within seconds to minutes after the food is eaten, but can happen up to two hours after exposure. You may show some or all of the following:

Mild-to-moderate symptoms

Fortunately most reactions show only mild-to-moderate symptoms, which can be treated with antihistamines. These symptoms include:

- Itching
- Nettle rash (also known as hives or urticaria)
- Tingling or itchy mouth, runny nose
- Swelling of the lips or face (angioedema)
- Abdominal pain.

Severe symptoms (known as anaphylaxis)

Emergency medical help must always be sought for potentially life-threatening symptoms. Adrenaline must be given and an ambulance called. Severe symptoms include:

- Swelling of the tongue or throat
- Difficulty breathing and/or swallowing, cough, shortness breath
- Voice becomes hoarse, husky
- Severe symptoms of the digestive tract – such as severe abdominal pain and profuse vomiting

It's important to remember that digestive symptoms can also occur with other wheat-induced conditions. When severe digestive symptoms occur rapidly as part of **anaphylaxis**, other allergic symptoms such as nettle rash (hives or urticaria) and angioedema (swelling) will usually also be present.

Remember the importance of getting expert medical advice.

Anaphylactic shock

On rare occasions the symptoms of anaphylaxis may progress to full anaphylactic shock, where blood pressure drops sharply and the person becomes pale, limp, floppy and may lose consciousness and stop breathing. This can happen very quickly.



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Getting a diagnosis

Your GP will be able to refer you, if appropriate, to an allergy clinic (see www.bsaci.org/find-a-clinic for your local clinic).

If you are referred to an allergy specialist, they will discuss your symptoms with you in detail as well as your medical history. You will usually need allergy skin prick tests and/or blood tests in the clinic to make the diagnosis. These tests are very simple to perform but a healthcare professional with the right skills is needed to interpret them correctly. For example, many people with an allergy to grass pollen will have a positive skin-prick test to wheat even if they have no symptoms to wheat. This is due to shared proteins in wheat and grass pollen. The results of both skin prick tests and IgE blood tests will therefore need to be interpreted taking into account your own history of reactions.

In most cases the diagnosis will be confirmed by a clear medical history supported by positive allergy tests. Should either the medical history or the allergy tests not be clear, the clinic may then need to conduct an oral food challenge with wheat. This involves eating very small amounts of wheat, gradually increasing the amount until either a reaction occurs or allergy is discounted. Such an oral food challenge must be carried out under careful specialist observation.

If diagnosed with immediate onset IgE-mediated wheat allergy, you must avoid all wheat and wheat products. How severe any reaction is likely to be cannot be accurately predicted. Skin prick and blood tests can only suggest the likelihood of a further reaction, but not how mild or severe it may be.

If you have experienced a severe reaction before, or if your reaction was triggered by a small amount of wheat, you will need to be prepared for any future accidental reactions possibly being severe.

If you are asthmatic, it is very important that your asthma is well-controlled and you take any prescribed treatment as instructed. Asthma – especially when poorly controlled – is known to be a major risk factor for more severe allergic reactions.

Always record details of any reactions to show to your consultant.

Treating symptoms

A positive diagnosis should mean that the allergy clinic develops a written allergy action plan for you. Injectable adrenaline may be prescribed for self-administration, as well as antihistamines.

The adrenaline injectors currently prescribed in the UK are EpiPen, Jext and Emerade. These injectors are designed for self-administration.

If you are prescribed an injector, it should be carried with you at all times – with no exceptions. Adrenaline must be administered as soon as a severe reaction is suspected and an ambulance called.



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Symptoms may worsen and more than one injection of adrenaline may be required to control the reaction. Oxygen and steroids may be needed, and you are likely to need hospital monitoring in case of a second reaction (known as a biphasic reaction).

If you are prescribed an adrenaline injector, you will need to know how and when to use it. Ask your GP or allergist for advice on this. You can also find help on the website relevant to the injector you carry.

- Emerade: www.emerade-bausch.co.uk
- EpiPen: www.epipen.co.uk
- Jext: www.jext.co.uk

Make sure that your family, friends, colleagues, and school or nursery if appropriate, know about your allergy and how to spot and treat the signs of anaphylaxis.

Outgrowing your allergy

Wheat allergy is most common in children, but is usually outgrown in the pre-school years (Wood, 2003). Wheat allergy in adults is rare and may be associated with exercise.

Wheat and exercise

For some people, an allergic reaction to wheat can only occur in conjunction with exercise. If they eat wheat without exercise, symptoms do not occur (Matsuo et al., 2005; Romano et al., 2001). The correct medical term for this is 'wheat dependent exercise-induced anaphylaxis' (WDEIA).

Any exercise-induced allergy is complex and needs the expert diagnosis of a specialist at an allergy clinic. The specialist will be able to consider which cases require an adrenaline injector to be prescribed.

Other conditions triggered by wheat

The following conditions are different to immediate onset IgE-mediated wheat allergy and require separate approaches to diagnosis, treatment and dietary management. It is vital to consult your GP.

Delayed onset wheat allergy (non-IgE mediated wheat allergy): This type of allergic reaction is caused by special cells in the immune system. It does not involve IgE antibodies. Symptoms are delayed for several hours or even days after eating wheat, for example diarrhoea or worsening of eczema.

Coeliac disease: This is a lifelong autoimmune condition triggered in sensitive people when they eat gluten. Gluten is a cereal protein found in wheat, rye and barley. People who react to gluten develop damage to the lining of the small bowel. This damage decreases the ability of the gut lining to absorb nutrients, which can result in pain, gastro-intestinal symptoms and in the long term nutritional deficiencies. Your GP can perform a blood test to screen for coeliac disease. See www.coeliac.org.uk/symptoms



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Wheat intolerance: This does not involve the immune system. Symptoms include digestive discomfort, diarrhoea and bloating.

If you have tummy or bowel symptoms that you suspect may be triggered by wheat it is important to see your GP as soon as possible. Wheat may not necessarily be the cause. Your doctor will first consider whether you should have an initial blood test for coeliac disease. There are no blood or skin tests that can confirm the diagnosis of either non-IgE wheat allergy or wheat intolerance so a trial elimination of wheat may be suggested, followed by a planned reintroduction, ideally under the guidance of a dietitian.

Avoiding wheat

If you need to avoid wheat it is vital to read food labels carefully every time you shop as food producers sometimes change the ingredients they use. It is helpful that all pre-packaged food sold within the EU, including the UK, must declare and highlight the presence in the ingredient list of major allergens including cereals containing gluten, of which wheat is one.

There are also strict regulations governing food sold in catering establishments. When eating out or buying takeaway food, food businesses must provide information on major allergenic ingredients including cereals containing gluten. This information can be provided orally and/or in writing. If information is provided orally, the food business will need to ensure that there is some sort of written signage that is clearly visible, to indicate that allergen information is available from a member of staff. Systems should also be in place to ensure that, if requested, the information given orally is supported in a recorded form to ensure consistency and accuracy.

You should question staff very directly, asking whether wheat is an ingredient of the food you have chosen or whether there is a risk of cross-contamination. Don't be afraid to ask the waiter to check with the chef. Make it clear that you have a life-threatening allergy, if this is the case.

Schools and nurseries should be able to cater for allergen-free diets and you will need to agree a school or nursery written Allergy Action Plan with them.

Ingredients which might contain wheat include:

- **Processed foods** including gravy, salad dressings, sauces, soups, Yorkshire pudding and burgers. There are many other examples.
- **All types of bread** including rolls, malt bread, chapatti, pitta, naan, paratha, croissants, soda bread and fancy breads. Wheat-free bread is available in many supermarkets. Food labelled 'gluten free' may not necessarily be suitable for people with wheat allergy (see our section below headed Gluten-free foods).
- **Wheat-based breakfast cereals.** Look out for anything with wheat in the name, as well as bran. And read ingredient lists carefully.



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- **Pasta and other wheat products.** Avoid any pasta made with wheat or semolina. Pasta is found in some soups such as minestrone. Other wheat-based foods to avoid include couscous, rusks, pizza, spelt and semolina.
- **Desserts and sweet things.** Anything containing wheat or wheat flour is a problem food including cakes, crackers, pastries, ice cream wafers and cones, biscuits, doughnuts and batter.
- **Hydrolysed vegetable protein (HVP)** can be derived from wheat and is used to give a savoury flavour to products such as sauces, soups and gravies.
- **Modified starch.** Avoid modified wheat starch and raising agents such as baking powder unless it is wheat-free.
- **Beers** can also contain wheat as well as barley, and they will certainly contain gluten.

The above list covers many wheat-containing foods, but there may be others.

'Gluten-free' foods

Under EU law, products labelled 'gluten-free' must contain no more than 20 parts per million of gluten. This sounds like a tiny amount and such products may prove tempting for people with wheat allergy.

Be aware that the description 'gluten-free' is based on the principle that this level will be safe for people with coeliac disease. Some people with wheat allergy react to amounts less than 20 parts per million if a reasonable portion is eaten. There is not enough research to determine what level of wheat is safe for people with wheat allergy, so we advise all those affected to avoid 'gluten-free' foods (unless you can be sure that wheat is not an ingredient). Remember too that gluten may not be the only protein in wheat to which you may react.

Wheat protein isolates

If you suffer unexplained reactions to a food such as pizza or pasta, but can eat bread and other wheat products, you may have an unusual type of allergy.

An ingredient known as wheat protein isolate or deamidated wheat is used in the food industry. It is commonly added to pasta and pizza dough but also used to increase the protein content of nutrition bars, granola bars, cereal coatings, baked goods and meat substitutes (Leduc, Moneret-Vautrin, Guerin, Morisset, & Kanny, 2003) (Denery-Papini et al., 2012). Very rarely, some people can develop an allergy to the wheat protein isolate but not to wheat.

A specialist allergy diagnosis is needed to determine whether you are one of the small number of people with this problem.



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Key messages

If you suffer symptoms that you suspect are caused by eating wheat, it is vital to see your GP as soon as possible. You may be referred to a specialist.

- Always be vigilant when food is around
- Check food labels and avoid wheat and wheat proteins

If your allergy could possibly be life-threatening the following points are particularly important:

- Be proactive when eating out - tell people if your allergy is life-threatening
- Learn how and when to use your adrenaline auto-injector
- Make sure those around you know how to spot and treat the signs of anaphylaxis
- Ensure that asthma is well managed
- Use the resources available from the Anaphylaxis Campaign website and support groups
- Always carry your prescribed medication everywhere you go.

Reviewers

The content of this Fact Sheet has been Peer Reviewed by **Dr Trevor Brown**, Consultant Paediatric Allergist, Ulster Hospital, Belfast; and **Sue Clarke**, Specialist Allergy Health Visitor with a sensitivity to gluten.

Disclaimer – The information provided in this leaflet is given in good faith. Every effort has been taken to ensure accuracy. All patients are different, and specific cases need specific advice. There is no substitute for good medical advice provided by a medical professional.

About the Anaphylaxis Campaign – *"supporting people with severe allergies"*

The Anaphylaxis Campaign is the only UK charity to exclusively meet the needs of the growing numbers of people at risk from severe allergic reactions (anaphylaxis) by providing information and support relating to foods and other triggers such as latex, drugs and insect stings. Our focus is on medical facts, food labelling, risk reduction and allergen management. The Campaign offers tailored services for individual, clinical professional and corporate members.

Visit our website www.anaphylaxis.org.uk and follow us on Twitter [@Anaphylaxiscoms](https://twitter.com/Anaphylaxiscoms). Our helpline is manned 9am – 5pm Mon-Fri on 01252 542029.



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