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Oral allergy syndrome

Oral allergy syndrome causes symptoms around the mouth that are triggered by certain foods. It is associated with other conditions caused by plant allergies, such as hay fever and allergy to birch pollen. It's also called pollen-food syndrome, or pollen-food allergy.

What is oral allergy syndrome?

Oral allergy syndrome (OAS) is an allergic condition which causes itching and swelling of the lips and mouth after eating raw fruits, vegetables or certain nuts.

Foods in oral allergy syndrome typically only cause symptoms when raw. Raw foods that cause symptoms should be avoided.

The chemicals that cause oral allergy syndrome are broken down by heat. Cooking or processing fruit, vegetables or nuts destroys those chemicals, and so most people with oral allergy syndrome don't have any reaction to them when they are cooked or processed.

However, lightly cooked foods, such as stir-fried vegetables or steamed or poached fruits or vegetables, may also cause an allergic reaction.

Some people do get symptoms with cooked fruits or fruit juices as well as when raw. This can mean that a more severe type of allergy is present.

Is oral allergy syndrome dangerous?

It's rare for oral allergy syndrome to cause a serious allergic reaction.

Most people have a mild, but unpleasant and irritating, allergic reaction. The symptoms usually go away within a few minutes of spitting out, or swallowing, the food.

Allergens that cause oral allergy syndrome are broken down by saliva and digestive enzymes in the stomach. So, allergic symptoms usually only occur in the mouth as the allergens are destroyed quickly.

Rarely, people with oral allergy syndrome experience severe allergic reactions, such as [anaphylaxis](#). It's estimated that fewer than 2 out of every 100 people with oral allergy syndrome develop anaphylaxis.

What causes oral allergy syndrome?

The symptoms are caused by cross-reactivity to plant proteins (allergens), which are similar to those in pollen. There are several allergens that can be responsible for the condition.

The most common allergen in the UK is birch pollen. It has been estimated that as many as 3 in every 4 people with allergy to birch experience a sensation in the lips or tongue after eating raw apples, which is a mild form of OAS.

Many people with OAS have had [hay fever symptoms](#) (such as itchy eyes and nose, and sneezing) between February and July for a number of years before developing OAS.

People who have hay fever from February to May are usually allergic only to tree pollen and are more likely to react only to fruits and some nuts such as hazelnuts.

People who have hay fever from March to the end of July are probably allergic to both grass and tree pollen and are not only more likely to develop OAS, but will be potentially allergic as well to a much wider range of foods, including fruits, vegetables, tree nuts and peanuts.

Allergy to grass and mugwort pollens can also cause OAS and a similar condition occurs in some patients with rubber latex allergy.

There is, at present, no way to predict who will develop a problem with any particular food.

What foods cause oral allergy syndrome?

Most people with OAS are sensitive to one or two foods, although some will find they may develop problems with a number of the different foods.

Foods that are more common causes of oral allergy syndrome include:

- Fruits: apple, cherries, peach, plum, pear, nectarine, strawberries, apricots, melon, watermelon.
- Vegetables: carrot, potato, spinach, celery, cucumber, tomato.
- Nuts: walnut, peanuts, hazelnuts, almonds, brazil nuts.
- Herbs and spices: fennel, wheat, cumin, coriander, parsley, camomile tea, honey.

Birch pollen cross-reacts with almond, apple, apricot, raw carrot, raw celery, cherry, coriander, fennel, hazelnut, kiwi, nectarine, parsley, parsnip, peach, pear, peppers, plum, raw potato, prune, tomato, and walnut.

Rye-grass pollen cross-reacts with melon, peanut, tomato, and watermelon.

Weed pollen (usually mugwort) cross-reacts with melon, apple, peach, banana, celery, celeriac, carrot, parsnip, raw potato, courgette, bell pepper, broccoli, cabbage, fennel, garlic, onion, parsley, hazelnut, sunflower seeds, aniseed, angelica, chervil, coriander, cumin, dill, fennel, parsley, rosemary, and honey.

Rubber latex cross-reacts with almond, apple, apricot, avocado, banana, chestnut, cherry, dill, fig, ginger, kiwi, mango, melon, oregano, papaya, passion fruit, peach, pear, plum, raw potato, sage, and raw tomato.

How common is oral allergy syndrome?

Many people do not realise that they have a mild form of food allergy and the condition is therefore not always diagnosed.

One estimate is that about 2% of adults in the UK have OAS.

Children and teenagers occasionally develop OAS but it is more common in adults.

What are the symptoms of oral allergy syndrome?

The main symptoms of oral allergy syndrome are:

- Redness, burning, swelling and itching in the mouth immediately after contact with certain foods.
- Sometimes, a blotchy, pimply or blistering rash on the lips, tongue and inside of the mouth.
- Discomfort, [heartburn](#), [nausea or vomiting](#) can also occasionally occur.

General allergy symptoms, such as [urticaria](#), [rhinitis](#) and [asthma](#), are relatively unusual but when they do occur, it is normally after a period of minutes or hours. These symptoms are more likely if you ignore the initial mouth symptoms and eat all of the food causing the reaction.

Anaphylaxis

Anaphylaxis is a rare complication of OAS. [See the separate leaflet called Anaphylaxis for more information.](#)

How to test for oral allergy syndrome

Doctors may be able to make a diagnosis of OAS by identifying symptoms that are clearly linked to foods. This is more useful for making the diagnosis than allergy testing.

Tests may be recommended if:

- The symptoms are unusual or severe, or;
- Reactions occur to processed or cooked food, or;
- Reactions occur to foods that don't typically cause OAS, such as cashew, pistachio, or macadamia nuts.

The standard skin prick testing and specific IgE (RAST) blood tests that are used for food allergy are unreliable. Food allergens causing OAS are usually damaged or destroyed by heat and processing, and so are likely to be destroyed during the process of making the extracts used in these tests.

Allergy skin prick, testing using the juices from the fresh fruits and raw vegetables themselves, can be tried. This is a more sensitive test and can be effective. A skin prick test for birch pollen is the most useful of the standard allergy tests.

Standard allergy tests covering peanuts and all the tree nuts are also often helpful. Almond, hazelnut and walnut are the nuts often involved in OAS.

If you are worried about eating other foods then you can safely test them yourself:

- Rub the food on the outside and then the inside of your lip.
- If you feel no tingling or itchiness or swelling then take a bite, chew well and spit it out.
- Then wait for 15 minutes to see whether you develop any symptoms that suggest OAS.

NB: You must only perform this test if your usual symptoms are mild and only involve your mouth. If your symptoms usually include swelling, wheezing or tummy (abdominal) pain then you must not test any food except under medical supervision.

Can you get rid of oral allergy syndrome?

All raw foods which cause symptoms should be avoided. If lightly cooked foods also cause a reaction, they should also be avoided. If your symptoms are not just in your mouth, you may also need to be careful with cooked foods. If you have symptoms of OAS caused by nuts then you should avoid these in both their raw and their roasted state.

There are currently no desensitisation treatments for OAS. However, several studies of specific immunotherapy using birch pollen have shown at least a temporary improvement of symptoms among people with OAS who are allergic to birch pollen.

What is the outcome (prognosis)?

OAS is usually a lifelong condition and allergies to other fruit and vegetables may also develop. However, it is relatively harmless if you can avoid any fruit, vegetable or nut that causes symptoms.

Further reading

- [Kondo Y, Urisu A](#); Oral allergy syndrome. *Allergol Int.* 2009 Dec;58(4):485–91. doi: 10.2332/allergolint.09-RAI-0136. Epub 2009 Oct 25.
- [Skypala IJ, Hunter H, Krishna MT, et al](#); BSACI guideline for the diagnosis and management of pollen food syndrome in the UK. *Clin Exp Allergy.* 2022 Sep;52(9):1018–1034. doi: 10.1111/cea.14208. Epub 2022 Aug 17.

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