

Cross reactions

Allergies to a certain pollen are associated with OAS reactions to certain foods. For instance, an allergy to ragweed is associated with OAS reactions to banana, watermelon, cantaloupe, honeydew, zucchini, and cucumber. This does not mean that all sufferers of an allergy to ragweed will experience adverse effects from all or even any of these foods. Reactions may begin with one type of food and with reactions to others developing later. However, reaction to one or more foods in any given category does not necessarily mean a person is allergic to all foods in that group.

- **Alder pollen:** almonds, apples, celery, cherries, hazel nuts, peaches, pears, parsley, strawberry, raspberry
- **Birch pollen:** almonds, apples, apricots, avocados, bananas,^[10] carrots, celery, cherries, chicory,^[11] coriander, fennel, fig,^[12] hazel nuts, kiwifruit, nectarines, parsley, parsnips, peaches, pears, peppers, plums, potatoes, prunes, soy, strawberries, wheat; *Potential:* walnuts
- **Grass pollen:** fig,^[12] melons, tomatoes, oranges
- **Mugwort pollen :** carrots, celery, coriander, fennel, parsley, peppers, sunflower
- **Ragweed pollen :** banana, cantaloupe, cucumber, green pepper, paprika, sunflower seeds/oil, honeydew, watermelon, zucchini, echinacea, artichoke, dandelions, honey (if bees pollinate from wild flowers), hibiscus or chamomile tea
- **Possible cross-reactions (to any of the above):** berries (strawberries, blueberries, raspberries, etc), citrus (oranges, lemons, etc), grapes, mango, figs, peanut, pineapple, pomegranates, watermelon

WHAT IS ORAL ALLERGY SYNDROME? — Oral allergy syndrome (OAS), which is also called pollen-food allergy syndrome, is a type of food allergy caused by uncooked fruits, raw vegetables, spices, and nuts. The most common symptom is itching of the mouth and throat, which begins quickly after a food is put in the mouth, and usually lasts only a few minutes after the food is swallowed. OAS is seen in people who have allergies to pollens and is caused by allergens in fruits, vegetables, and nuts that are very similar to allergens in pollen.

This topic will focus on the cause, diagnosis, and treatment of OAS.

ORAL ALLERGY SYNDROME SYMPTOMS — The symptoms of OAS are:

- Itching and tingling of the mouth, throat, and sometimes lips
- Slight swelling and bumpiness of the mouth, throat, or lips

The symptoms of OAS usually begin a few minutes after a person starts eating the problematic food. Once the person swallows the food, the symptoms usually go away within a few minutes. Most people stop eating the food because these symptoms are uncomfortable and unpleasant. Occasionally, the symptoms are so mild that people continue to eat the food, but this is less common.

Other symptoms that do not affect the mouth and throat are less common:

- Some people develop itching, redness, or slight swelling of the hands if they peel or handle peeled fruits or vegetables that cause OAS, such as mangoes, apples, or white potatoes.
- About 10 percent of people with OAS experience nausea or stomach upset. An even smaller number of people, probably fewer than 5 percent, develop more serious whole-body allergic reactions, such as throat tightness, chest tightness, difficulty breathing, nausea, vomiting, diarrhea, or loss of consciousness [1]. (See ['When to seek help'](#) below.)

Symptoms of OAS can vary depending upon the pollen season. Symptoms are usually most noticeable during the related pollen season and for a few months after. Also, OAS symptoms can be very specific to one variety of fruit. For example, Granny Smith apples tend to cause more OAS symptoms than Fuji apples.

WHO GETS ORAL ALLERGY SYNDROME? — Both children and adults can get oral allergy syndrome (OAS), but it is more common in adults. In fact, it is the most common type of food allergy in adults.

All people with OAS have pollen allergy. However, it is possible for a person to have bothersome OAS and have only a mild pollen allergy that he or she is unaware of. In such cases, skin and

blood allergy tests reveal a pollen allergy. Allergy evaluation can clarify the diagnosis and establish an appropriate food avoidance and management plan.

Pollen allergy causes symptoms that occur at the same time each year:

- **Nose:** Watery nasal discharge, blocked nasal passages, sneezing, nasal itching, mouth breathing, postnasal drip, pain and pressure in the face (see "[Patient information: Allergic rhinitis \(seasonal allergies\) \(Beyond the Basics\)](#)").
- **Eyes:** Itchy, red eyes, feeling of grittiness in the eyes, swelling of the clear layer over the white of the eye, swelling of the skin around the eyes (see "[Patient information: Allergic conjunctivitis \(Beyond the Basics\)](#)").
- **Throat and ears:** Sore throat, hoarse voice, congestion or popping of the ears, itching of the throat or ears.
- **Sleep:** Frequent awakening, daytime fatigue, difficulty performing work or school tasks.

Pollen allergy is also called seasonal allergic rhinitis, seasonal allergies, or hay fever.

WHAT CAUSES ORAL ALLERGY SYNDROME? — Oral allergy syndrome (OAS) is caused by allergens in foods that come from plants. These are mainly uncooked fruits and raw vegetables. Some nuts can cause OAS symptoms, but since nuts can also trigger allergic reactions that are not related to pollen and can be severe, extreme caution is needed with nut reactions. Only foods that come from plants cause OAS; other types of foods, such as dairy, seafood, or meats do **not** cause OAS. If you have OAS, you get symptoms where these foods touch your mouth and throat.

The allergens that cause OAS are easily destroyed by stomach acid, so the reaction usually stops as soon as the food is swallowed. Also for this reason, OAS rarely causes severe or life-threatening reactions. Cooking or heating also destroys the allergens, so cooked or canned fruits and vegetables rarely cause symptoms of oral allergy syndrome.

Some common examples of foods that cause OAS are listed in the table, along with the type of pollen that is related to these foods ([table 1](#)):

- If you are allergic to **birch tree pollen**, you may develop oral symptoms when eating apples, peaches, apricots, cherries, plums, pears, almonds, hazelnuts, carrots, celery, parsley, caraway, fennel, coriander, aniseed, soybeans, or peanuts.
- If you are allergic to **ragweed pollen**, you may develop oral symptoms when eating melons, zucchini, cucumber, kiwi, or bananas.
- If you are allergic to **grass pollen**, you may develop oral symptoms when eating melons, tomatoes, oranges, swiss chard, or peanuts. You may also develop itchy, red hands when peeling raw white potatoes.

Although several foods are listed for each of the pollens above, most people with OAS react to just one or a small number of these foods.

HOW IS ORAL ALLERGY SYNDROME DIAGNOSED? — Your healthcare provider might be able to diagnose oral allergy syndrome (OAS) simply by asking you some questions.

If your healthcare provider cannot tell if you have pollen allergy, he or she might refer you to an allergy specialist for more evaluation. The allergy specialist might recommend skin testing to pollens or to the foods that cause the symptoms [2], or the allergy specialist might ask you to eat the food while he or she observes your reaction. This is called a food challenge.

Skin testing and food challenges should be done by an allergy specialist, because these procedures must be done safely and interpreted correctly to be useful. Sometimes skin testing has to be done with fresh fruit and raw vegetables because testing with commercial food extracts is not always accurate.

HOW IS ORAL ALLERGY SYNDROME TREATED? — In most cases, simply avoiding the foods that cause symptoms, in their raw forms, is sufficient treatment. This might involve avoiding dried or dehydrated forms of the foods, since dried foods are not usually cooked and can still cause symptoms. Sometimes, peeling a fruit (because much of the allergen is in the skin) or microwaving it for at least 10 seconds will destroy enough of the allergen that the fruit does not cause symptoms anymore, but this does not work for everyone or for all foods. As mentioned before, both raw and roasted nuts can cause OAS and reactions to nuts should be treated with caution and discussed with a healthcare provider. There is no reason to avoid cooked, canned, or processed forms of the foods that do not cause symptoms.

Usually, OAS symptoms affecting the mouth and throat are mild, resolve quickly, and do not need treatment. However, more severe symptoms may occur rarely. If you have ever experienced allergic symptoms **other than** mild mouth or throat symptoms, such as chest tightness, difficulty breathing, nausea, severe throat discomfort (swelling, difficulty swallowing, drooling, hoarse voice), vomiting, diarrhea, or loss of consciousness, then you may need to carry an epinephrine autoinjector (Epi-Pen or similar device) for injecting epinephrine. Epinephrine is the best treatment for a severe allergic reaction [3]. Epinephrine autoinjectors are discussed more elsewhere. (See "[Patient information: Use of an epinephrine autoinjector \(Beyond the Basics\)](#)" and "[Patient information: Epinephrine auto-injectors \(The Basics\)](#)".)

WHEN TO SEEK HELP — If you suspect that you have oral allergy syndrome, then you should discuss this with a healthcare provider. The most important reason for doing this is to make sure you do not have a more serious type of food allergy. **This is especially important for reactions to nuts, as other forms of nut allergy can be very serious.**

In addition, if you have ever experienced allergic symptoms from a raw fruit or vegetable or a nut that affected a part of the body **other than** the mouth or throat, you should be referred to an allergy specialist to determine if this is oral allergy syndrome or a more serious form of food allergy.