



FACT SHEET

1. What is pollen allergy (hay fever)?

Pollen allergy, also called “hay fever” or “pollinosis”, is an allergic condition affecting the mucous membranes of the nose and the eyes. It is usually characterized by nasal discharge, nasal congestion, and itchy, watery eyes, itchy nose, inner ears and roof of the mouth. These symptoms are caused by a hypersensitivity to airborne pollen such as the pollen of trees, grasses, and weeds. When the allergen comes in contact with cell-bound immunoglobulin E (IgE) in the tissues of the body’s conjunctiva and nasal mucosa, the tissues release mediators such as histamine or leukotrienes and induce annoying allergic symptoms.

2. What is the prevalence of pollen allergy (hay fever) globally?

According to the International Study of Asthma and Allergies in Childhood (ISAAC), self-reported pollen allergy (hay fever) prevalence in 13- to 14-yr-old children was 22.1% as global total. It differs among regions: 29.5% in Africa, 23.9% in Asia, 20.1% in Eastern Mediterranean, 15.8% in Indian subcontinent, 23.7% in Latin America, 33.3% in North America, 12.3% in Northern & Eastern Europe, 39.8% in Oceania, and 21.2% in Western Europe.

3. Are people who suffer from pollen allergy (hay fever) sensitive to other allergens in the environment?

People who suffer from pollen allergy (hay fever) can be sensitive to other allergens in the environment. For example, “pollen-food allergy syndrome”, also known as “oral allergy syndrome”, is a type of food allergy that develops in individuals sensitized to pollens. Patients feel itching and/or irritability and/or mild swelling of the mouth and throat immediately after ingesting raw fruits (such as apples, pears, strawberries, peaches, cherries, and some kind of nuts) or raw vegetables. The symptoms result from contact urticaria in the oropharynx by pollen-related proteins in these foods.

In addition to those foods, many patients who have allergy to pollen may have allergy to molds or fungi. As warming occurs, there is an increase in flooding and indoor humidity which supports growth of molds (fungi). Warmer weather results in earlier fruiting of mushroom fungi. Inside of homes and buildings this is a potential for mismatches of air conditioning systems and inadequate dehumidification, which also supports growth of molds (fungi).

4. What are some of the ways that climate change affects pollen allergy?

Climate changes are lengthening the pollen allergy seasons and also introducing increased intensity of allergens. Pollen allergy (hay fever) and other allergies, including mold, are increasing in prevalence and severity and will continue to be a concern as climate changes bring more allergen sensitivity. In every

country, the prevalence of pollen allergy appears to be increasing, and there are associated economic costs (loss of work or school productivity), which can be addressed with new treatments and environmental control measures.

5. How can pollen allergies impair quality of life?

Pollen allergy (hay fever) reduces quality of life and affects physical, psychological and social functioning. Signs and symptoms present in some patients during pollen season include fatigue, irritability, anxiety, depression, frustration, self-consciousness as well as lower energy, motivation, alertness, and ability to concentrate. Nasal congestion is often associated with sleep-disturbance, which results in intermittent awakening, leading to daytime fatigue and somnolence, and decreased cognitive functioning. These are accompanied by disorders of learning performance, behavior and attention in children. Adults suffer from work absences and reduced productivity.

6. What can people with pollen allergy (hay fever) do to adapt to the effects of climate change on pollen allergens?

Patients with pollen allergy (hay fever) need to be aware of the changes that can occur in their area to help them adapt to changes in the pattern and presentation of disease that may result from climate change. These types of changes can include prolonged pollen season, increased intensity of allergens, and unexpected new pollens in certain areas. It is essential for patients to receive an accurate diagnosis and appropriate treatment. Allergen immunotherapy (by shots or by under the tongue tablets) helps reduce the symptoms and need for medications. A specialist can help confirm the allergies and advise on treatments that can reduce symptoms as well as preventive measures including environmental controls.

Further Reading

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[Abstract](#)

D'Amato G, Cecchi L, Bonini S, Nunes C, Annesi-Maesano I et al. Allergenic Pollen and pollen allergy in Europe. *Allergy* 2007; 62(9): 976–990. (doi:10.1111/j.1398-9995.2007.01393.x) [Full Text](#)

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D'Amato G, Rottem M, Dahl R, Blaiss M, Ridolo E et al. Climate Change, Migration, and Allergy Respiratory Diseases: An Update for the Allergist. *WAO Journal* 2011; 4(7): 120–125. (doi:10.1097/WOX.0b013e3182260a57) [Full Text](#)

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Ziska L, Knowlton K, Rogers C, Dalan D, Tierney N et al. Recent warming by latitude associated with increased length of ragweed pollen season in central North America. *Proceedings of the National Academy of Sciences* 2011; 108(10): 4248-4251. (doi:10.1073/pnas.1014107108) [Full Text](#)