What Are Allergies?

Allergies are an overreaction of the immune system to substances that under normal circumstances would cause no reaction in most people. The results of this immunologic overreaction are symptoms such as sneezing, watery eyes, and itching among other symptoms.

What Is Asthma?

Asthma is a disease in which the airways become blocked or narrowed, causing wheezing, coughing, shortness of breath, breathing trouble, and other serious symptoms. In the case of a severe asthma attack, a person may need emergency treatment to restore normal breathing.

What Is the Hygiene Hypotheses?

In 1989, David Strachan proposed the hygiene hypothesis. He suggested that the rising incidence of allergic disease, such as asthma or allergies, was actually linked to reduced exposure to germs through declining family sizes, more limited exposure to animals, and higher general standards of cleanliness. Strachan reasoned that repeated exposure to microbes at an early age, for example as a result of having siblings, owning a pet, living on a farm, or attending day care, actually helped our immune systems to properly adapt so they would not overreact to routine environmental stimuli, such as potential allergens.

According to this hypothesis, in the absence of this repeated exposure, our under-stimulated, developing immune system would then be over stimulated by harmless substances like pollen, resulting in the development of allergies.

What Does the Evidence Say?

One example of the hygiene hypothesis comes from comparing the prevalence of allergies in the East and West German populations before and after unification. Before unification, East Germany had more children growing up on farms and in larger families than West Germany; the population also had much lower rates of allergies and asthma than West Germany.

After unification, however, when East Germany developed a more western culture, its rates of allergies and asthma increased to the degree that they now resemble those of West Germany. East Germany also had a quite highly developed healthcare system, so it is perhaps less likely that the observed differences in asthma diagnosis were due to different patterns of medical diagnosis rather than true differences in disease prevalence.

A study published in the *British Medical Journal* sought to discover why some people who are exposed to microbes develop infectious diseases while most do not. The researchers theorized that an association likely existed between the diagnosis of an infectious disease and the later development of allergies. They compared the rates of eczema (a type of allergic disease also known as atopic dermatitis) in children who had been repeatedly diagnosed with infectious diseases (eg, colds, middle ear infection) to children who had been repeatedly exposed to environmental microbes without developing these infections. They found that while early and repeated microbial exposure decreased a child’s risk of developing allergies later in life, repeated infectious diseases...
actually increased this risk.

These findings support the hygiene hypothesis as it applies to microbial exposure, but contradict it when an infectious disease develops. They also appear to contradict the results of a study published in the *Journal of Allergy and Clinical Immunology*. In that study, researchers found that not only were children who had fevers early in life less allergy prone, but the more fevers they had, the more allergy resistant they became.

**What Can a Concerned Parent Do?**

The hygiene hypothesis is still merely that: a hypothesis. It may eventually teach us a great deal about why allergic diseases occur, or it may (like many other hypotheses) turn out to be simply wrong. Clearly, more research is needed before we solve the riddle of our increased rates of allergic disease.

**RESOURCES:**

American Academy of Allergy, Asthma, & Immunology
http://www.aaaai.org/

Asthma and Allergy Foundation of America
http://www.aafa.org/

**CANADIAN RESOURCES:**

Allergy Asthma Information Association
http://aaia.ca/

Calgary Allergy Network
http://www.calgaryallergy.ca/

**REFERENCES:**


