BioSpectrum
the business of Bi
24 years of leveraging the business of Bio
www.biospectrumindia.co

What Is More Influential in the Development of Allergies in Children: Genetic Background or the Environment?

29 July 2021 | Views | By Ankit Kankar | ankit.kankar@mmactiv.com

Allergies are one of the most common ailments around the world.



Around 40% of children in the US have some type of allergy, and sometimes they can be life-threatening.

Researchers have been puzzling over the reasons behind allergies for many decades. The golden question is, what has the heaviest hand in causing allergies; genes or the environment?

The above question is not just crucial for medical researchers. Parents need to understand it as well so that they can provide the best environment and care for a child with allergies.

In this article, we are going to explore the two causes behind allergies in children and attempt to determine which one is the bigger culprit.

Allergies and Your Body

Allergies happen when the immune system reacts to an allergen that does not affect other people. The immune system reacts this way because it believes that the allergen is harmful to the body when, in fact, it is not.

An allergen can be any substance that triggers the immune system to react abnormally in some people. To protect the body from the supposed "harmful substance," the immune system produces immune cells and antibodies. These cause inflammatory reactions that affect various parts of the body.

A child with an allergy can feel adverse symptoms in their lungs, nose, throat, eyes, skin, gut, or throughout the body. These symptoms will appear whenever the allergic child comes into contact with the allergen.

Types of Allergic Conditions

Allergies come in various forms. Allergic conditions include atopic eczema, asthma, hay fever, and food sensitivities or allergies.

It's important to note that allergies have diverse causes. There may be both environmental and genetic factors involved. However, their degree of involvement will vary with each allergic condition.

Here are some of the common allergies that your child may have developed:

Food Allergies

Here are some common allergens in food that your child may be reacting to:

- Dairy
- Eggs
- Peanuts
- Tree nuts
- Fish
- Shellfish
- Gluten
- Soy

If you suspect that your child is allergic to some foods but are not sure which one, it's possible to find out with at-home allergy and food sensitivity kits. If you are interested, you can learn more in this article about the best kits to use at home. You can also figure out if your child has multiple allergies.

Airborne allergies

Airborne allergies cause problems in the respiratory tract. Here are some common ones:

- Pets
- Dust mites
- Pollen
- Molds
- Cockroaches

Other common allergies

Some allergies are not airborne or food-related. Here are some common ones:

- Insect bites
- Medicines
- Dyes
- Detergents
- Pesticides

Genetic Factors in Allergies

You may have noticed that if your child has an allergic condition, they might not be the only one in the family with it. Many kinds of allergies have a genetic link that has been passed down from the parents.

However, it's important to remember that if you have an allergy, it's not necessary that your child will develop it as well. The opposite is true too. If you and your spouse don't have an allergic condition, your child can still develop it.

The above scenarios happen because genes don't entirely *cause* allergies. They only increase the chances that someone will have an allergy. This process is also called genetic predisposition.

For example, you and your spouse may have no problem eating eggs. But your child has an allergic reaction whenever they eat eggs. In this case, you or your spouse may carry genes associated with this allergy, but they don't have a strong expression. In the child, however, these genes are strongly expressed.

Impact of the Environment on Allergies

The environment also has a significant role in the development of allergies. In most cases, a child will develop an allergic condition when they have the genetic predisposition for it.

So when a child is exposed to a specific allergen that they have a genetic predisposition for, it can worsen their allergic condition.

Early exposure to some environmental factors has been linked to the development of allergic conditions. Some of these include:

- Cigarette smoke
- Farm animals and products
- Pets
- Viruses
- Vaccines
- Air pollution
- Diet
- Medicines

Since allergens in the environment trigger allergies, the best way to combat them is to make changes in the child's lifestyle and surroundings.

For food allergies, this task is easy. You only need to tweak their diet and check labels on packaged foods.

Airborne allergies, on the other hand, are more challenging to deal with. Try minimizing allergens in your house by rooting out pests and thorough cleaning to remove animal allergens. Make sure that your child wears a mask for seasonal allergies, and try investing in an air purifier.

Epigenetics — When Genetics and the Environment Conspire Together

Scientists are uncovering a new reason behind the early development of allergies; epigenetics. It has come to light that some environmental factors can bring changes to how your genes work and express.

The effect of epigenetics is the strongest on fetuses. The mother's lifestyle, diet, environmental exposure, and surroundings can significantly impact the child's long-term health.

A study showed that exposure to air pollutants during pregnancy in some women caused the development of asthma in their toddlers. Many other studies show that eating processed foods during pregnancy has an effect on the child's DNA structure which can possibly trigger allergies.

The good news is that children with a healthy lifestyle and diet have a reduced tendency to develop allergies. That may be true even if they have a genetic predisposition to develop that allergic condition.

The Final Word

Both genetics and the environment have a part to play in the development and seriousness of allergic conditions in children. Your child may have the genes to develop a certain condition. But if they have a healthy lifestyle and diet, it's less likely that the condition will appear. That's why even if your genes put you at a disadvantage, don't lose heart because you can take steps to fight against them,