

# Science Fair Research notes

## What is an epi pen

Epinephrine, also known as adrenaline, is both a neurotransmitter and a hormone. It plays an important role in your body's "fight-or-flight" response. It's also used as a medication to treat many life-threatening conditions.

Epinephrine is part of your sympathetic nervous system, which is part of your body's emergency response system to danger — the "fight-or-flight" response. Medically, the fight-or-flight response is known as the acute stress response.

## Most common anaphylactic allergies

The most common triggers of anaphylaxis in children are food allergies like peanuts, milk, fish, shellfish and insect stings and some medication.

## What is Epinephrine

An antihistamine is a pill that blocks certain cells in the body from receiving histamine. Histamine is a chemical released by the immune system that causes the symptoms of an allergic reaction.

More than 3 million Canadians have at least one food allergy. Over 600,000 Canadian children under 18 years old have food allergies. Peanut allergy in Canada affects about 2 in 100 children.

## Allergist questions and answers

### Questions:

- What do you think is the best way to advertise allergy awareness?

Allergy information doesn't usually get out to the public. It is not a priority for people without food allergies. If a school had a day

where you learn about allergies in science class that could help inform people.

- What can you tell me about the inclusion principles in allergy desensitization? Like who can participate?

Different at all clinics. Anyone can but at different times. You have to make sure the immune system is ready. Desensitization works better for younger children. It does not work as well for adults and takes more time.

- What can schools do to make environments safer for people with allergies?

Don't isolate kids at a food allergy table . It feels like punishment for something you can't control. Instead, make sure people are educated about allergies. Wipe down the tables and wash hands. Allergies are not a bad thing. People just need to be educated.

- Are there any common allergy misconceptions that you could clarify?

Allergies can't be airborne (except fish because the proteins are water soluble). The bigger concern is cross contamination. During an anaphylactic reaction breathing is not the only big concern. Low blood pressure (hypotension) is also very important. When blood pressure is dropping a kids heart will push pressure up until they pass out. Adults' blood pressure will just drop. If a person is only focused on breathing, a kid might pass out due to dropping blood pressure. This is not well known.

- Can food allergies be prevented?

One theory is that if you have eczema and you absorb that food into your skin you become allergic. But that is not the case. They suspect allergies happen because of the maternal environment. During the third trimester (last three months of pregnancy) or breastfeeding something upsets the mother's immune system. And when the immune system is upset her body releases chemicals called cytokines. Those chemicals go through the placenta into the baby and also through the breast milk. They act like a signal to the baby and say "there is some sort of danger, we need to be ready".

So it depends what happens during the pregnancy. Early exposure to allergens helps as well.

- Do allergic reactions vary across different age groups? If so, why?

Yes. Seasonal allergies usually appear after 5 years of age. If the immune system is already agitated by seasonal allergies the response to an allergen in the body will be larger. The immune system also gets more agitated when you have a cold or flu and has a higher chance of a severe allergic reaction.

- Does the LEAP study apply to other allergens?

It was specifically done for peanuts. But It can work with other allergies.

## Websites

<https://www.medicalnewstoday.com/articles/319708#:~:text=When%20the%20body%20mistakes%20one,into%20contact%20with%20the%20culprit.>

<https://alexlyttle.com/the-allergist/contact/>

[https://www.youtube.com/watch?v=N\\_dp6qZY-2s&ab\\_channel=FoodAllergyCanada](https://www.youtube.com/watch?v=N_dp6qZY-2s&ab_channel=FoodAllergyCanada)

<https://www.nejm.org/doi/full/10.1056/NEJMoa1414850>

<https://www.mayoclinic.org/>

<https://foodallergycanada.ca/>

[https://youtu.be/9ELxAOgmzmM?si=JU\\_AJKtBNtKrTb73](https://youtu.be/9ELxAOgmzmM?si=JU_AJKtBNtKrTb73)