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## Babies with high risk of allergy: Could prebiotics in infant formulas make a difference?



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Allergies are quite common in babies, but the risk largely depends on their genes: up to 7 out of 10 babies develop an allergy if both parents have allergies. For comparison: only 1 out of 10 babies develops an allergy if none of their close relatives has an allergy. Food intolerance affects about one in 20 children under the age of three. Food intolerance symptoms are either caused by an allergic reaction or a different kind of sensitive reaction to certain types of food.

For many of these babies the food intolerance will go away by the time they are 10 years old. For others, though, the food intolerance might be the start of several allergies that develop during childhood.

Allergies can develop if a baby becomes oversensitive to certain foods as the result of an immune system response. This is called "sensitisation". Food sensitisation means that the baby becomes so sensitive to even tiny amounts of the food that they have some kind of allergic reaction to it. It is thought that this reaction may first develop in their digestive tract (gut), involving bacteria in the bowel. Sensitisation may also be caused by things in the air we breathe, such as pollen. However, in babies, allergies usually start with a sensitive reaction to food.

Food intolerance and allergies can cause dry, red and itchy skin ("atopic eczema"), stomach problems or breathing difficulties. If a baby with an allergy wheezes, even though she or he does not have an acute cold, this could be a sign of asthma. The best way known to prevent a child from developing allergies is breastfeeding. However, it is not always possible for mothers to breastfeed. Some try non-dairy formulas, like soy formulas, but these have not been shown to help. You can read more about this in our [fact sheet](http://www.informedhealthonline.org/index.376.en.html) (URL: <http://www.informedhealthonline.org/index.376.en.html>).

Supplements are sometimes used in baby formulas in the hope that this could prevent babies from developing allergies and food intolerance. One of the supplements now used in some baby formulas are the so-called "prebiotics". These are not bacteria like probiotics (often called "friendly bacteria"). Prebiotics are substances that the

body cannot digest, so they reach the bowel intact. It is thought that they stimulate the development of friendly bacteria in the bowel, such as lactic acid bacteria, and reduce the kind of bacteria that can lead to allergies and food intolerance.

Breastfed babies have a lot more lactic acid bacteria in their bowels than babies who are fed infant formula. It is thought this might be one of the reasons breastfeeding can help protect against the development of allergies and food intolerance. One kind of prebiotic used in infant formula is a type of carbohydrate (a sugar or starch) called oligosaccharides.

Researchers from the Cochrane Collaboration analysed the available trials on infant formulas containing prebiotics to see whether these products can prevent allergies and food intolerance, and to find out about possible adverse effects. They found 2 trials that tested the effect of prebiotics on allergies and food intolerance. The trials involved just over 400 babies. There were obvious differences between the trials. For example, one study only looked at babies who had a high risk of developing allergies. This means that more research is needed before we can be sure about what effects prebiotics in infant formulas have.

One of the two trials found that eczema was slightly less common in babies who were fed infant formula containing prebiotics than it was in babies who were fed normal infant formula. The other trial, which included babies who were not at high risk of allergy, found that the kind of infant formula fed did not affect the likelihood of developing eczema.

Neither of the trials lasted long enough to be able to determine the long-term effects or possible adverse effects of infant formulas with prebiotics. For example, researchers still need to rule out that these kinds of supplements in formulas could themselves cause food intolerance. The researchers concluded that, although more research on prebiotics would be worthwhile, the best known way to feed babies is still breastfeeding.

## Glossary

### bacteria

Bacteria are micro-organisms that, unlike viruses, can exist on their own. Viruses, on the other hand, can only exist inside a living cell. Most bacteria are not harmful to people, and some are actually beneficial. Bowel bacteria support bowel health. However if they get into the urinary system, they can cause an infection there. Doctors prescribe antibiotics for illnesses where bacteria need to be stopped or killed off. Immunisation is also possible against some bacterial infections, such as diphtheria, tetanus or whooping cough.

### Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

### allergy

An allergy is the body's overly sensitive reaction to a foreign substance. The body produces antibodies just as it would if the substance were a germ, although it is not dangerous to the body. The symptoms of the allergy partly depend on the substance causing it, the allergen. People with allergies often have symptoms like running nose, watery eyes, itching, rashes, stomach and bowel problems or asthma. Typical allergens are pollen, animal hair, proteins in certain food or house dust mite excrement.

### asthma

Asthma (asthma bronchiale) is a permanent (chronic) disease with symptoms like coughing and breathlessness often occurring in acute attacks. In asthma, the airways are overly sensitive. The development of asthma is often associated with an overreaction to foreign substances or physical stimuli, frequently in connection with an allergy.

### immune system

The immune system is the body's defense system and its task is to protect the body against germs or degenerated cells (like cancer cells). The immune system is very complex and has not been understood in every detail yet. There are two components: the cellular immune defense (for example "scavenger cells" and "killer cells") and the complement system ("antibodies", for example).

**Sources**

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## **Evidence basis of our health information**

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at **[www.informedhealthonline.org](http://www.informedhealthonline.org)**

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