

# What Happens When the Immune System Attacks Itself?

When the immune system malfunctions, it can affect the skin, heart, central nervous system, and almost any structure in the body. There are two types of autoimmune diseases: localized and systemic.

Localized diseases slowly destroy a specific type of organ or tissue, make an organ grow excessively, or interfere with the organ's function. An example is when the immune system attacks the pancreas, which stops making insulin, so a person develops type 1 diabetes. In systemic diseases, the autoimmune activity is spread through the body, such as in rheumatoid arthritis.

There are more than 100 autoimmune diseases. Besides the two mentioned above, other common ones include Crohn's disease, celiac disease, lupus, alopecia, psoriasis, and vitiligo. You've probably heard of some of these diseases, but chances are, you didn't realize they were caused by the immune system working overtime.

## What Causes Autoimmune Diseases?

Usually, autoimmune diseases do not have one simple cause. Both genes and the environment play a part. Autoimmune diseases are caused by several mutated genes that are passed down in families. Having the genes doesn't mean you're doomed, only that you have a tendency to inherit an autoimmune disease. Researchers call this "family clustering."

Several different autoimmune diseases often appear in the same family. A child may have type 1 diabetes, his mother may have lupus, and his aunt may have rheumatoid arthritis. People can also have more

than one autoimmune disease at a time. This is why knowing your family medical history and sharing it with your doctor is so important.

Environmental factors are the other half of the cause-and-effect equation. Certain drugs, dietary substances, viruses, bacteria, pollutants, and even stress are thought to contribute to autoimmune diseases. Researchers are working hard to learn more about these causes.

## How Are Autoimmune Diseases Treated?

Doctors prescribe many different treatments for autoimmune diseases. Drugs are used to correct hormone deficiencies. For example, in type 1 diabetes, insulin is injected because the pancreas no longer produces it. Another treatment involves decreasing the activity of the immune system, although not too much. The body still needs to defend itself against disease. Several drugs are used for this, including corticosteroids. Drugs called NSAIDs ease pain and swelling from rheumatoid arthritis. If the autoimmune disease affects the blood, transfusions may be given.

Researchers are also trying experimental treatments to improve people's lives. These include stem cell therapy to reprogram cells and bone marrow transplants to repair defective immune systems. In the future, we hope to find cures for all autoimmune diseases or find ways to prevent them.



## Questions:

- How many autoimmune diseases are there? \_\_\_\_\_
- What are the two types of autoimmune diseases? \_\_\_\_\_
- Autoimmune diseases are caused by:
  - one mutated gene
  - two mutated genes
  - several mutated genes
- What is "family clustering"? \_\_\_\_\_
- True or false: Treatment for autoimmune diseases involves shutting off the immune system. \_\_\_\_\_

## What Happens When the Immune System Attacks Itself?

### Answers

1. More than 100
2. Localized and systemic
3. c
4. The tendency for mutated genes for autoimmune diseases to run in families
5. False; treatment involves decreasing immune system activity without affecting the body's ability to defend itself.

**Learn more about autoimmune disease at [www.aarda.org](http://www.aarda.org).**