

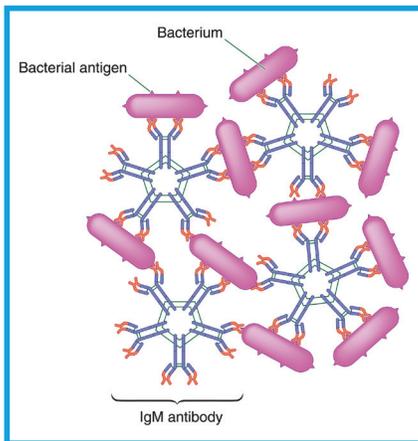
# Autoimmunity and Autoimmune Diseases: What Teachers Should Know

The human immune system—including the spleen, lymph nodes, tonsils, bone marrow, and white blood cells—is designed to protect the body from outside invaders, including harmful bacteria and viruses.

When the immune system works properly, it is an amazing machine that can tell the difference between good cells and the bad cells that can make a person sick. It recognizes viruses, bacteria, and parasites and marks them for elimination by white blood cells.

When the immune system recognizes these foreign bodies, it sends in a type of white blood cell called a B cell. When they recognize antigens (foreign bacteria and viruses), B cells either eliminate them or create antibodies to attack specific antigens. There are three common types of antibodies: IgM, IgG, and IgA.

The immune system is smart, too. Once it has made a specific type of antibody to fight a specific type of antigen, it will always remember.



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## What Are Some Autoimmune Diseases Your Students May Know?

Your students may be familiar with some autoimmune diseases.

- Multiple sclerosis
- Type 1 diabetes
- Rheumatoid arthritis
- Autoimmune hepatitis
- Crohn's disease
- Celiac disease
- Lupus
- Alopecia
- Psoriasis
- Vitiligo

## What Is Autoimmunity?

Autoimmunity is the body's immune response that turns against the body itself. It is not uncommon and can be serious. And it can happen to any part of the body. In fact, autoimmunity can happen to anyone.

## What Is an Autoimmune Disease?

An autoimmune disease occurs when the immune system attacks the host body and doesn't stop. It continues and can severely damage or threaten the body.

A combination of genetic and environmental factors generally cause an autoimmune disease. In fact, researchers believe that even people with a genetic predisposition to an autoimmune disease still require an environmental "trigger" to cause an autoimmune disease response.

Environmental triggers may include stress, bacteria, viruses, etc. Solvents and pesticides have also been determined to trigger autoimmune disease.

## Teachers and Autoimmune Disease

Researchers believe that the school environment may contain more triggers for autoimmune diseases than other work environments, putting teachers at higher risk. A recent study suggests that infection could be the culprit. For example, rheumatic fever is triggered by streptococcal bacteria; researchers believe that lupus, rheumatoid arthritis, Sjögren's disease, and multiple sclerosis are triggered by the same virus that causes mononucleosis.

## Autoimmune Disease Facts

- More than 75% of Americans living with autoimmune disease are women.
- Women of childbearing age are most likely to suffer from an autoimmune disease.
- Autoimmune disease is one of the top ten causes of death in women under 65.
- 50 million Americans suffer from autoimmune diseases.
- Some autoimmune diseases can be treated with medications.
- Some autoimmune diseases have to be treated with very powerful drugs, while others require dietary restrictions.
- Autoimmune diseases are difficult to treat and diagnose.

## Words to Know

**Monocytes**—large white blood cells that ingest large foreign particles and cell debris in the blood stream; formed in bone marrow and spleen

**Lymphocytes**—type of white blood cells that determine immune response to infectious microorganisms and other foreign substances; found in spleen, tonsils, and lymph nodes

**B cells**—part of the immune system; cells that make immunoglobulins, or “antibodies”

IgM antibodies protect the blood

IgG antibodies provide lifelong immunity to certain antigens

IgA antibodies are outside the body (e.g. saliva, tears) and prevent invaders

**T cells**—specific type of white blood cells that determine immune response to antigens

**Natural killers**—small killer cells that destroy virus-infected cells or tumor cells without activation by an immune system cell or antibody

**Antigens**—bacteria and viruses that enter your body and make you sick