

## CHAPTER

## 1

## Autoimmune Diseases



Joint pain. Not an uncommon problem as you grow older. Is it due to normal wear and tear on the joints? Possibly. But rheumatoid arthritis is an autoimmune disease, which means the body's immune system mistakenly attacks healthy tissue.

#### Autoimmune Diseases

**Autoimmune diseases** occur when the immune system fails to recognize the body's own molecules as "self," or belonging to the person. Instead, it attacks body cells as though they were dangerous pathogens. There are more than 80 known autoimmune diseases. Recall that regulatory T cells help regulate the immune system. When autoimmune disorders occur, these regulatory T cells fail in their function. This results in damage to various organs and tissues. The type of autoimmune disorder depends on the type of body tissue that is affected

Some relatively common autoimmune diseases are listed in **Table 1.1**. These diseases cannot be cured, although they can be treated to relieve symptoms and prevent some of the long-term damage they cause.

**TABLE 1.1:** Autoimmune Diseases

Name of Disease	Tissues Attacked by Immune System	Results of Immune System Attack
Rheumatoid arthritis	tissues inside joints	joint damage and pain
Type 1 diabetes	insulin-producing cells of the pancreas	inability to produce insulin, high blood sugar
Multiple sclerosis	myelin sheaths of central nervous system neurons	muscle weakness, pain, fatigue
Systemic lupus erythematosus	joints, heart, other organs	joint and organ damage and pain

Why does the immune system attack body cells? In some cases, it's because of exposure to **pathogens** that have **antigens** similar to the body's own molecules. When this happens, the immune system not only attacks the pathogens, it also attacks body cells with the similar molecules.

You can watch an video about autoimmune diseases at this link:

**MEDIA**

Click image to the left or use the URL below.

URL: <http://www.ck12.org/fix/render/embeddedobject/170381>

Watch the video at: <http://www.youtube.com/watch?v=0mz33fLJGwQ>

**Summary**

- Autoimmune diseases occur when the immune system fails to distinguish self from non-self. As a result, the immune system attacks the body's own cells.

**Explore More**

Use this resource to answer the questions that follow.

- **Autoimmune disorders** at: <http://www.nlm.nih.gov/medlineplus/ency/article/000816.htm>

1. What is an autoimmune disorder? How many of these disorders exist?
2. Why do autoimmune disorders occur?
3. What are 5 common symptoms of an autoimmune disorder?
4. Describe the following:
  - a) Addison disease
  - b) Grave disease
  - c) Sjögren syndrome

**Review**

1. What is an autoimmune disease? Name an example.
2. Rheumatic fever is caused by a virus that has antigens similar to molecules in human heart tissues. When the immune system attacks the virus, it may also attack the heart. What type of immune system disease is rheumatic fever? Explain your answer.
3. Can autoimmune disease be cured?