

Autoimmune Disease

NORMAL PATHWAY

1 B cells produce antibodies

2 Antibodies attach to the antigens of foreign substances

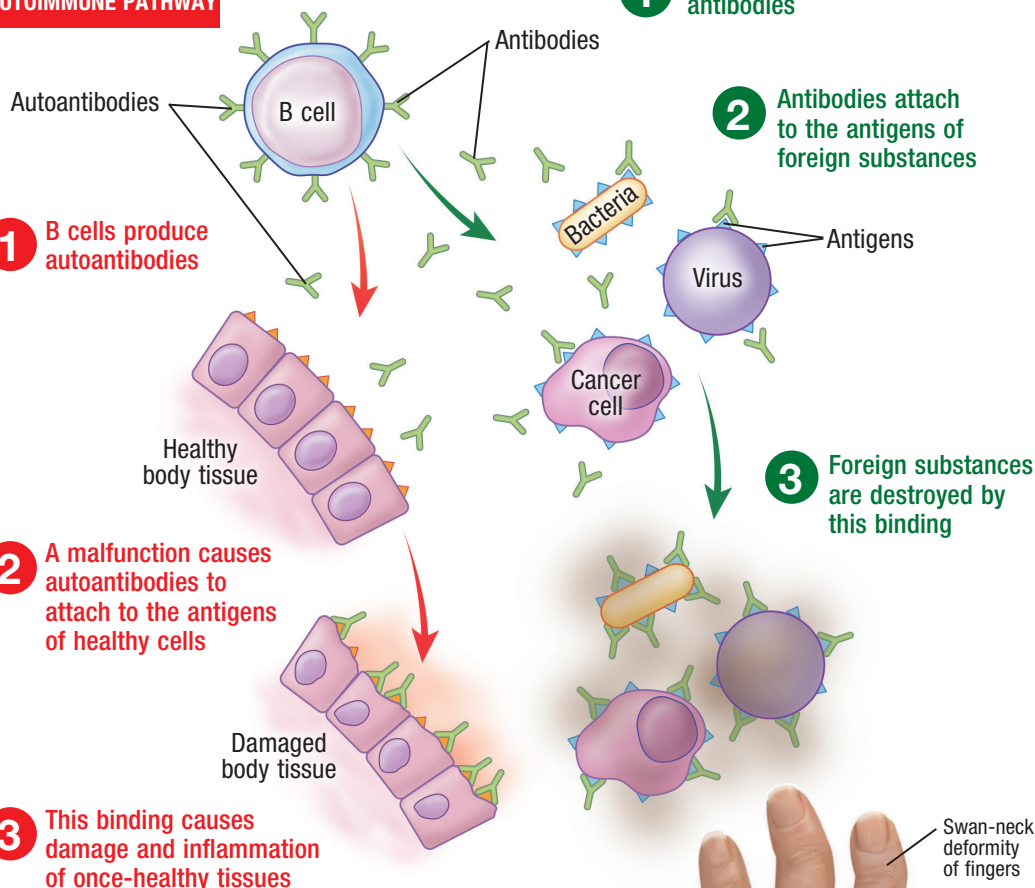
3 Foreign substances are destroyed by this binding

AUTOIMMUNE PATHWAY

1 B cells produce autoantibodies

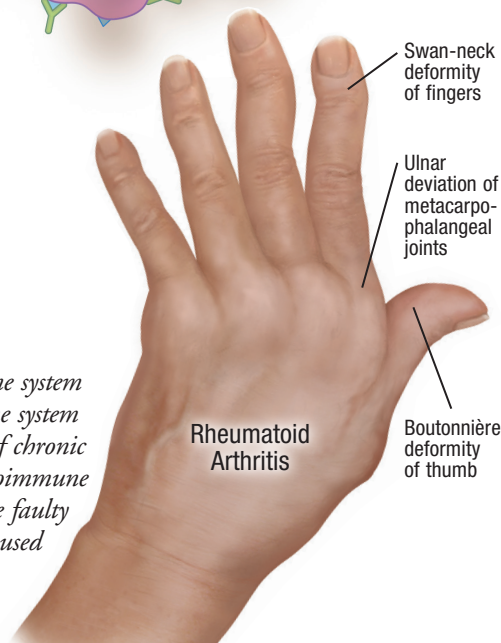
2 A malfunction causes autoantibodies to attach to the antigens of healthy cells

3 This binding causes damage and inflammation of once-healthy tissues



Condition in Which the Immune System Attacks Healthy Cells

An autoimmune disease occurs when the body's immune system starts attacking its own healthy cells. When the immune system malfunctions in this way, it can cause a wide variety of chronic diseases. Although there is no specific cure for most autoimmune diseases, drug treatments are available to counteract the faulty immune reaction and the symptoms that result. Drugs used to treat autoimmune diseases are potent and effective, but they are often expensive and can cause significant side effects and serious drug interactions.



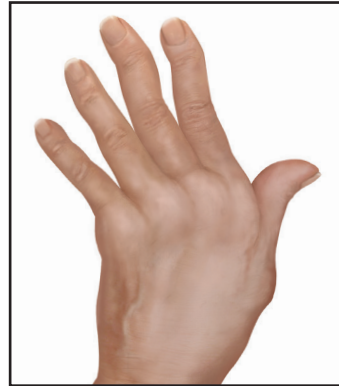
TEAR ALONG PERFORATION

MEDICAL ILLUSTRATION: KRISTEN WIENANDT MARZEJON 2016

Early Symptoms Are Vague, but Later Symptoms Are Specific to the Damage

In autoimmune diseases, a faulty immune system mistakes healthy tissues or organs for foreign, potentially harmful invaders. More than 80 diseases are considered to be caused by this defective immunity, including type 1 diabetes, rheumatoid arthritis, multiple sclerosis, psoriasis, and lupus. Millions of people in the United States—most of them female—have these conditions.

The specific cause of autoimmune diseases is not clear, but it is thought that exposure to a drug or infectious agent (such as viruses or bacteria) triggers the immune system to attack healthy tissues. People at highest risk for developing an autoimmune disease are those with a family history of the condition, which points to the possibility of a genetic link that increases a person's risk of autoimmune reactions.



© Jobson Medical Information LLC, 2016

Exposure to a drug or to certain bacteria or viruses may trigger the immune system to attack healthy tissues, resulting in an autoimmune disease.

Symptoms and Diagnosis of Autoimmune Diseases

Symptoms of autoimmune diseases depend on the tissues or organs the immune system attacks. Common tissues or organs affected by these diseases include the joints, muscles, connective tissues, nerves, blood vessels, skin, pancreas, and thyroid. Early symptoms of many autoimmune diseases include feelings of tiredness, illness, or weakness. These symptoms are general and may continue for an extended period before medical help is sought. Most autoimmune diseases eventually cause symptoms that are related to the tissues damaged by the immune system. Examples are joint pain and swelling in rheumatoid arthritis, muscle spasms and weakness in multiple sclerosis, abdominal pain and diarrhea in inflammatory bowel disease, and scaly skin plaques in psoriasis.

Depending upon the disease, the diagnosis is made by combining information from the medical history and physical examination with blood tests. Blood tests that assess immune-system function include complete blood count, C-reactive protein, antinuclear antibody, auto-antibody, and erythrocyte sedimentation rate. Other tests specific to a person's symptoms can provide more information for making the diagnosis.

Treatment Goals and Methods

Treatment goals include the control of symptoms, whenever possible, by controlling the autoimmune reaction that caused the disorder. In many autoimmune diseases, symptoms can go into remission with the proper drug therapy. Treatments aim to avoid symptom flare-ups. Drugs used to treat autoimmune disorders include anti-inflammatory agents such as prednisone, methylprednisolone, and dexamethasone. Other potent drugs that suppress the immune system but are not corticosteroids include sirolimus, methotrexate, and cyclophosphamide. The newest group of drugs—biologic response modifiers, or disease-modifying drugs—includes etanercept, belimumab, and infliximab. These drugs are effective at stopping inflammation and the damage it causes in certain autoimmune diseases, such as rheumatoid arthritis. All of these drugs have many side effects and often interact with other medications. The risk of infection increases with use of any drug that suppresses the immune system.

For some autoimmune diseases, supplements such as insulin, thyroid hormone, and vitamins are used to control symptoms that result from tissue or organ destruction.

Living With Autoimmune Disease

For many patients, the symptoms and treatment of autoimmune diseases are life-altering. These are chronic conditions that can be a difficult burden for patients and their families. There is no known prevention for these diseases because it is not understood how they develop. With continued research, scientists may someday understand how genetics and exposure to an infection or environmental toxin work together to spur the immune system to mistakenly attack healthy tissue and organs.