CONDITION

Autoimmune diseases

Learn how autoimmune diseases affect the body, what symptoms they may cause, how they are diagnosed, and the treatments and follow-up care that can help.

WHAT IT IS
Group of conditions where the immune system attacks the body

BODY SYSTEM
Immune system and multiple organs

MAIN SYMPTOMS
Ongoing fatigue, joint pain and swelling, muscle weakness, skin rashes

WHAT CAUSES IT
Unknown combination of genetic and environmental factors

HOW IT IS DIAGNOSED
Condition-specific laboratory tests, imaging, sometimes biopsy

MAIN TREATMENT
Anti-inflammatory, immune-suppressing, or replacement treatment

CAN IT BE CURED?
No, many are long-term conditions

IS IT AN EMERGENCY?
Sometimes, with severe trouble breathing

LONG-TERM OUTLOOK
Often long-term with flares and possible organ damage

Overview

Autoimmune diseases are a large group of conditions in which the immune system mistakenly attacks the body's own cells, tissues, or organs. The immune system normally protects against infections and other harmful substances. In an autoimmune disease, parts of this defense system become misdirected.

Some autoimmune diseases mainly affect one organ. For example, Hashimoto's disease affects the thyroid gland, and type 1 diabetes damages insulin-producing cells in the pancreas. Others can affect several parts of the body. Lupus may involve the skin, joints, kidneys, blood cells, lungs, heart, or nervous system.

Other examples include rheumatoid arthritis, multiple sclerosis, celiac disease, inflammatory bowel disease, psoriasis, psoriatic arthritis, and Sjögren's disease. Each condition has its own

pattern, diagnostic criteria, and treatment.

Many autoimmune diseases are long-term conditions. Symptoms may come and go. A period of increased disease activity is often called a flare , while a period when symptoms and inflammation improve may be called remission . Remission does not always mean that the disease has permanently gone away.

Autoimmune diseases matter because uncontrolled inflammation can affect daily life and, in some conditions, damage organs over time. Early evaluation, appropriate treatment, and regular follow-up can reduce symptoms and help protect health.

Symptoms

Symptoms vary widely depending on which tissues are affected. They may develop gradually, appear suddenly, or change over time. Several other health problems can cause similar symptoms, so symptoms alone cannot confirm an autoimmune disease.

Possible symptoms include:

Symptoms often overlap across conditions. Fatigue and joint pain, for example, occur in many autoimmune diseases but can also result from infections, anemia, sleep disorders, medication effects, thyroid problems, and other causes.

A flare may involve the return of previous symptoms or the development of new ones. Possible triggers differ among people and diseases. Infection, major stress, sun exposure, smoking, medication changes, and hormonal changes may play a role in some conditions. Symptoms do not always reflect the amount of internal inflammation, which is why laboratory tests or imaging may still be needed during follow-up.

- Ongoing fatigue that is not explained by activity or sleep
- Joint pain, swelling, warmth, or morning stiffness
- Muscle pain or weakness
- Unexplained fever
- Skin rashes, thickened skin, or areas of color change
- Sensitivity to sunlight
- Dry eyes or a dry mouth
- Mouth or nose sores
- Numbness, tingling, balance problems, or changes in vision

- Abdominal pain, persistent diarrhea, or blood in the stool
- Unexplained weight gain or weight loss
- Hair loss
- Swollen glands
- Fingers or toes that turn white or blue in response to cold or stress

Causes and risk factors

There is no single cause of autoimmune disease. Researchers believe these conditions usually develop through a combination of genetic susceptibility and environmental or biological exposures. Having a genetic tendency does not mean that a person will definitely develop an autoimmune disease.

Factors that may affect risk include:

Autoimmune disease is not caused by a person's attitude, diet, or stress alone. Stress can affect symptoms and coping, but it is not a complete explanation for the immune system changes involved.

- Family history: Some autoimmune diseases are more common in families. Relatives may develop different autoimmune conditions rather than the same one.
- Sex and hormones: Many autoimmune diseases are diagnosed more often in women, although the pattern varies by condition. Hormones may influence immune activity.
- Age: An autoimmune disease can begin at any age, but particular conditions are more likely to appear during certain stages of life.
- Smoking: Tobacco use is associated with a higher risk of certain autoimmune diseases and may worsen some established conditions.
- Infections: Some infections may contribute to autoimmune activity in genetically susceptible people. This does not mean that autoimmune diseases are contagious.
- Medicines: A small number of medicines can cause autoimmune-like syndromes or trigger specific immune reactions. These reactions may improve after the medicine is stopped under medical supervision.
- Environmental exposures: Sunlight, silica dust, and other exposures have been linked to selected conditions, but their effects are not the same for everyone.

Diagnosis

There is no single test that detects every autoimmune disease. Diagnosis usually combines the medical history, physical examination, laboratory findings, imaging, and sometimes a tissue sample called a biopsy.

A clinician may ask about the timing and pattern of symptoms, recent infections, medicines, pregnancy history, smoking, work exposures, and family medical history. The physical examination may focus on the skin, joints, muscles, nerves, eyes, mouth, heart, lungs, abdomen, or thyroid, depending on the symptoms.

Blood and urine testing may include:

An antinuclear antibody, or ANA , test is sometimes used when lupus or another connective tissue disease is suspected. A positive ANA does not by itself diagnose an autoimmune disease. Some healthy people have a positive result, and the test may also be positive for other reasons. Likewise, a normal result does not exclude every autoimmune condition.

Imaging may include X-rays, ultrasound, MRI, CT scans, or other studies. A biopsy may be needed to examine skin, kidney, bowel, liver, muscle, or another tissue under a microscope.

Reaching a diagnosis can take time because early symptoms may be nonspecific or may appear in stages. Depending on the suspected condition, care may involve a rheumatologist, endocrinologist, neurologist, gastroenterologist, dermatologist, immunologist, or another specialist.

- A complete blood count to look for anemia or changes in white blood cells and platelets
- Tests that measure inflammation, such as C-reactive protein or the erythrocyte sedimentation rate
- Kidney, liver, thyroid, or muscle tests
- Urinalysis to check for blood, protein, or signs of kidney inflammation
- Tests for specific antibodies, which are proteins made by the immune system

Treatment and management

Treatment depends on the specific disease, the organs affected, symptom severity, test results, other medical conditions, and personal priorities. The goals may include controlling inflammation, easing symptoms, preventing organ damage, replacing substances the body can no longer make, and maintaining daily function.

Common treatment approaches include:

Medicines that reduce immune activity can increase susceptibility to some infections. Before and during treatment, a clinician may recommend blood tests, infection screening, or other monitoring. Vaccination plans should be reviewed with the treating team because the timing and choice of vaccines can depend on the medicine and degree of immune suppression. Live vaccines may not be appropriate with certain treatments.

Do not stop corticosteroids, immune-suppressing medicines, insulin, thyroid hormone, or other prescribed treatment without medical guidance. Sudden changes can cause withdrawal effects, disease flares, or other complications.

Daily management is tailored to the condition. Regular movement can support joint mobility, muscle strength, sleep, and cardiovascular health. Activity may need to be adjusted during a flare. A balanced diet can support general health, but no single diet treats all autoimmune diseases. Strict food avoidance is medically necessary for some conditions, such as avoiding gluten in celiac disease, but it is not appropriate for every autoimmune disorder.

Avoiding tobacco is especially important. Sun protection may help people whose condition is sensitive to ultraviolet light. Sleep, pacing activities, and mental health support can also make persistent symptoms easier to manage.

People who are pregnant, planning pregnancy, or breastfeeding should review medicines and disease control with their clinicians. Some treatments need to be changed in advance, while stopping other medicines may be riskier than continuing them. Decisions should be individualized.

- Anti-inflammatory medicines: These may reduce pain, swelling, or stiffness. They do not control every type of autoimmune inflammation and can have stomach, kidney, heart, or bleeding risks in some people.
- Corticosteroids like prednisone or hydrocortisone : These medicines can suppress inflammation quickly. Because longer use may affect bones, blood sugar, blood pressure, eyes, mood, and infection risk, clinicians generally consider the lowest effective exposure for the individual situation.
- Disease-modifying medicines: Often called DMARDs in rheumatic diseases, these medicines reduce immune activity and may limit joint or organ damage. Some take weeks or months to have their full effect.
- Biologic and targeted therapies: These treatments block particular immune signals or cells. They are used for selected conditions and usually require screening and monitoring.
- Replacement treatment: Some diseases require replacement of a substance the body lacks. Examples include insulin for type 1 diabetes and thyroid hormone for autoimmune hypothyroidism.

- Symptom-focused treatment: Physical therapy, occupational therapy, skin treatment, artificial tears, pain management, and digestive support may be part of care.

Complications

Complications depend on the disease and the organs involved. Persistent inflammation may cause joint damage, scarring, nerve injury, bowel damage, or reduced function of the kidneys, lungs, heart, thyroid, or other organs.

Some autoimmune diseases increase the risk of blood clots, cardiovascular disease, bone loss, anemia, or infection. The disease itself, reduced physical activity, and certain medicines may each contribute. Regular screening and treatment monitoring help clinicians identify these problems early.

Living with unpredictable symptoms can also affect work, school, relationships, sleep, and emotional health. Anxiety or depression can occur alongside chronic illness and deserve appropriate care. These concerns are not a sign that physical symptoms are imagined.

Treatment can cause complications as well. The risks vary greatly by medicine and may include infection, liver or kidney changes, low blood cell counts, high blood sugar, or weaker bones. Monitoring is chosen according to the treatment being used.

Follow up

Routine follow-up may include reviewing symptoms, examining affected organs, checking laboratory results, monitoring medicine safety, and updating vaccinations and preventive care. Keep a current list of medicines and supplements, including nonprescription products. A brief record of symptoms, possible triggers, and effects on daily activities can help during appointments.

Contact the treating clinician promptly for new or clearly worsening symptoms, a possible medication reaction, signs of infection, or a flare that is not responding to the agreed management plan. Fever or infection symptoms deserve particular attention when taking medicines that suppress the immune system.

Seek urgent medical assessment for symptoms such as a new painful swollen leg, sudden vision change, significant weakness, blood in the urine, persistent vomiting, or rapidly worsening shortness of breath.

Call emergency services for severe trouble breathing, chest pain, fainting, sudden one-sided weakness, difficulty speaking, a seizure, confusion, uncontrolled bleeding, or signs of a serious

allergic reaction such as swelling of the face or throat. These symptoms can have many causes and require immediate evaluation.

Sources

- National Institute of Arthritis and Musculoskeletal and Skin Diseases. "Autoimmune Diseases." National Institutes of Health.
- MedlinePlus Medical Encyclopedia. "Autoimmune Disorders." U.S. National Library of Medicine.
- Office on Women's Health. "Autoimmune Diseases." U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention. "Altered Immunocompetence." General Best Practice Guidelines for Immunization.
- Bass AR, Chakravarty E, Akl EA, et al. "2022 American College of Rheumatology Guideline for Vaccinations in Patients With Rheumatic and Musculoskeletal Diseases." Arthritis & Rheumatology . 2023;75(4):449-464.
- Sammaritano LR, Bermas BL, Chakravarty EE, et al. "2020 American College of Rheumatology Guideline for the Management of Reproductive Health in Rheumatic and Musculoskeletal Diseases." Arthritis & Rheumatology . 2020;72(4):529-556.