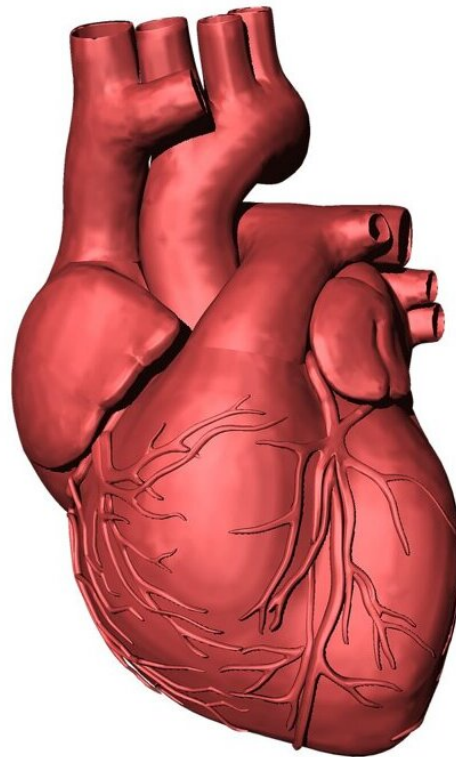


# Population-based study: Autoimmune disorders increase risk of cardiovascular disease

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About 10% of the population in high income regions like Europe and the United States has been diagnosed with one or multiple autoimmune

disorders. Examples are rheumatoid arthritis, psoriasis, systemic sclerosis, lupus erythematosus and type I diabetes. Although earlier research has suggested associations between some of these disorders and a higher risk of cardiovascular disease, these studies were often too small and limited to selected autoimmune or selected cardiovascular conditions to draw conclusive evidence on the necessity of cardiovascular disease prevention among patients with autoimmune disease, until now.

At the annual congress of the European Society of Cardiology, held this weekend in Barcelona, an international research team led by KU Leuven presented the outcome of a thorough epidemiological investigation into possible links between 19 of the most common autoimmune disorders and [cardiovascular disease](#). The results of the study show that patients with autoimmune disease have a substantially higher risk (between 1.4 and 3.6 times depending on which autoimmune condition) of developing cardiovascular disease than people without an autoimmune disorder. This excess risk is comparable to that of type 2 diabetes, a well-known risk factor for cardiovascular disease. The research shows for the first time that cardiovascular risks affect autoimmune disease as a group of disorders, rather than selected disorders individually.

## **The whole cardiovascular disease spectrum**

In the research paper, which will be published in *The Lancet*, the authors show that the group of 19 autoimmune disorders they have studied accounts for about 6% of cardiovascular events. Importantly, excess cardiovascular risk was visible across the whole cardiovascular disease spectrum, beyond classical coronary heart disease, including infection-related heart disorders, heart inflammation, as well as thromboembolic and degenerative heart disorders, suggesting the implications of autoimmunity on cardiovascular health are likely to be much broader than originally thought.

Furthermore, the excess risk was not explained by traditional cardiovascular risk factors such as age, sex, socioeconomic status, blood pressure, BMI, smoking, cholesterol and type 2 diabetes. Another noteworthy finding: the excess risk is particularly high among patients with autoimmune disorders under 55 years and suggests that autoimmune disease is particularly important in causing premature cardiovascular disease, with the potential to result in a disproportionate loss of life years and disability.

The study was based on [electronic health records](#) from the United Kingdom's Clinical Practice Research Datalink (CPRD), a very large database of anonymized patient data from about one-fifth of the current U.K. population. Among 22 million patient records, the researchers assembled a cohort of patients newly diagnosed with any of the 19 autoimmune disorders. They then looked at the incidence of 12 cardiovascular outcomes—an unprecedented granularity that was made possible by the very large size of the dataset—in the following years, and they compared it to a matched control group.

The risk of developing cardiovascular disease for patients with one or more autoimmune disorders was on average 1.56 times higher than in those without autoimmune disease. They also found that the excess risk rose with the number of different autoimmune disorders in individual patients. Among the disorders with the highest excess risk were systemic sclerosis, Addison's disease, lupus and type I diabetes.

## **Need for targeted prevention measures**

The results show that action is needed, says Nathalie Conrad, lead author of the study. "We see that the excess risk is comparable to that of type 2 diabetes. But although we have specific measures targeted at diabetes patients to lower their risk of developing cardiovascular disease (in terms of prevention and follow-up), we don't have any similar measures for

patients with autoimmune disorders." Conrad mentions the European Society of Cardiology guidelines on the prevention of cardiovascular diseases, which don't yet mention autoimmunity as a cardiovascular risk factor (the guidelines only mention some specific disorders, like lupus) nor do they list any specific prevention measures for patients with autoimmune disease.

Conrad hopes the study will raise awareness among patients with autoimmune disease and clinicians involved in the care of these patients, which will include many different specialties such as cardiologists, rheumatologists, or general practitioners. "We need to develop targeted prevention measures for these patients. And we need to do further research that helps us understand why patients with an autoimmune disorder develop more cardiovascular diseases than others, and how we can prevent this from happening."

Speaking of the pathophysiology, the underlying mechanisms are still poorly understood. Conrad says, "The general hypothesis is that chronic and systemic inflammation, which is a common denominator in autoimmune disorders, can trigger all sorts of cardiovascular disease. Effects of autoimmune disease on connective tissues, small vessels, and cardiomyocytes, and possibly some of the treatments commonly used to treat autoimmunity are also likely to contribute to patients' cardiovascular risk. This really needs to be investigated thoroughly."

Also part of the team was cardiologist John McMurray (University of Glasgow, U.K.). He says, "This population-based study suggests that a much broader range of [autoimmune disorders](#) than previously recognized are associated with a variety of different cardiovascular problems." He also mentions a possible solution in the short term: "Some of these problems are potentially preventable using readily available treatments such as statins."

**More information:** Autoimmune diseases and cardiovascular risk: a populationbased study on 19 autoimmune diseases and 12 cardiovascular diseases in 22 million individuals in the UK, *The Lancet* (2022). [DOI: 10.1016/S0140-6736\(22\)01349-6](https://doi.org/10.1016/S0140-6736(22)01349-6)

Provided by KU Leuven

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