

# Allergic asthma and eczema linked to heightened risk of osteoarthritis

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People with atopic (allergic) diseases like asthma or eczema may be at heightened risk of the painful and often disabling joint condition, osteoarthritis, finds research published online in the *Annals of the*

## *Rheumatic Diseases.*

Drugs used to tamp down the physiological prompts for [allergic reactions](#) in the body may help lessen this risk, suggest the researchers.

Osteoarthritis is the most common form of arthritis. But despite the high prevalence, substantial costs, and debilitating impact of the disease, there is as yet no effective cure. Treatment primarily focuses on symptom management.

Mounting evidence suggests that activation of a type of white blood cell called [mast cells](#) and inflammatory chemicals (cytokines) involved in allergic reactions may have key roles in the development of [osteoarthritis](#). But it's not clear if people with allergic asthma or eczema may be at increased risk of the condition.

To find out, the researchers drew on claims submitted to a nationwide U.S. insurance database (Optum CDM) between January 2003 and June 2019, and electronic health records from the Stanford Research Repository (STARR) for the period 2010 to 2020.

In all, 117,346 people with allergic asthma or eczema (average age 52; 60% women) and 1,247,196 people without atopic disease (average age 50; 48% women) were identified in the insurance claims database.

Some 109,899 people with atopic disease were matched with 109,899 people without allergic asthma or eczema for age, sex, race/ethnicity, education level, underlying conditions, length of monitoring period, and outpatient visits.

The risk of developing osteoarthritis over an average monitoring period of 8 years was 58% higher in those with allergic asthma or eczema than it was among those without atopic disease. In other words, there would

be 27 new cases vs. 19 new cases if 100 people with and without atopic disease were monitored for 10 years each.

This trend was even more noticeable among the 4,325 people with both allergic asthma and eczema: They were twice as likely to develop osteoarthritis as those without atopic disease.

Similarly, the 11,820 people with allergic asthma alone were 83% more likely to develop osteoarthritis over 8 years than those with [chronic obstructive pulmonary disease](#) (COPD), a [lung disease](#) that doesn't involve allergic pathways.

The researchers then compared osteoarthritis risk among those with and without allergic asthma/eczema from the STARR health records to see if they could obtain similar results.

The STARR participants comprised 114,427 patients, including 43,728 with allergic [asthma](#) or eczema and 70,699 with no history of atopic disease. This dataset also included information on weight (BMI), a significant risk factor for osteoarthritis.

After adjusting for BMI, the odds of developing osteoarthritis were 42% higher among those with either [allergic asthma](#) or [eczema](#), and 19% higher among those with both.

The researchers acknowledge various limitations to their findings, including reliance on insurance claims data for part of the study: these didn't include information on potentially influential factors, such as BMI, previous joint injury, or physical activity levels.

That the observed associations were weaker among the STARR participants, for whom information on BMI was available, suggests that other factors may be involved, the researchers point out.

Furthermore, no information was available on the severity of atopic disease or osteoarthritis, or the use of common over-the-counter remedies, all of which may have influenced the findings.

Nevertheless, the researchers conclude, "Patients with atopic disease have an increased risk of developing [osteoarthritis] compared with the general population. The association between atopic disease and [osteoarthritis] is supported by recent observations that mast cells and type II cytokines may play important roles in [its] pathogenesis broadly, not just in patients with atopic disease."

They add, "Our findings provide further support for the concept that allergic pathways may contribute to the development of [osteoarthritis]. If this is indeed true, non-atopic patients may also benefit from the use of treatments that inhibit mast cells and allergic cytokines to treat or prevent [osteoarthritis]."

**More information:** Increased risk of osteoarthritis in patients with atopic disease, *Annals of the Rheumatic Diseases* (2023). [DOI: 10.1136/ard-2022-223640](https://doi.org/10.1136/ard-2022-223640)

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