

# Smokers who consume too much sodium at greater risk of developing rheumatoid arthritis

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Credit: Vera Kratochvil/public domain

A new study published online in the journal *Rheumatology* today indicates that the interaction between high sodium intake and smoking is associated with a more than doubled risk of developing rheumatoid arthritis (RA).

The study, carried out by Björn Sundström and colleagues from the Department of Public Health and Clinical Medicine, Rheumatology at Umeå University, Sweden, was carried out to see whether recent animal and human cell study results that showed a link between a high sodium intake and RA would yield similar results in a nested case-control study of data from the Västerbotten Intervention Programme (VIP). It focused on 386 individuals who had stated their dietary habits as part of a community intervention programme a median of 7.7 years before the onset of RA symptoms. For comparison, 1886 matched controls were identified from the same database and co-analysed.

As part of the VIP, health-screening data ([dietary habits](#), physical exercise, smoking, and other social factors) were collected, along with blood samples. The study did not find any significant association between sodium intake and the developed of RA when all the individuals were included, and so the researchers were not able to confirm their original stated hypothesis. However, when the results were stratified for current smokers, sodium intake more than doubled the risk for RA.

Dr Sundström says: "Additive interaction analyses suggested that approximately half (54%) of the increased risk from smoking in the development of RA is due to interaction with sodium intake. A large influence of sodium intake on smoking as a risk factor for RA is also supported by the fact that we could not identify any significant proportion of risk from [smoking](#) in individuals with a low [sodium intake](#)."

"These findings will provide new insights into the aetiopathogenic process leading to the development of RA among smokers. The finding of sodium being a risk factor for the development of RA among smokers is intriguing, as it may explain discrepancies in previous studies of diet as a risk factor for RA. That consumption of fruit and vegetables is associated with a lower risk of developing RA, while consumption of protein, red meat, and fish with a medium fat content is associated with

a higher risk, could be explained by these dietary products being associated with a higher intake of sodium.

"These results could have implications for analyses of diet in other conditions in which inflammation is of importance."

**More information:** 'Interaction between dietary sodium and smoking increases the risk for rheumatoid arthritis: results from a nested case control study' by Björn Sundström, Ingegerd Johansson, and Solbritt Rantapää -Dahlqvist , *Rheumatology*, [DOI: 10.1093/rheumatology/keu330](https://doi.org/10.1093/rheumatology/keu330)

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