

# Secondhand smoke increases risk of children developing arthritis later in life

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A new study in the journal *Rheumatology* indicates that being exposed to secondhand smoke in childhood could increase the risk of someone developing arthritis as an adult.

Rheumatoid arthritis is a complex disease that may be developed by environmental agents interacting with genetic factors. The role of genetics into arthritis susceptibility is well recognized. There are over 100 types of arthritis, but rheumatoid arthritis is one of the most common ones as well as one of the most frequent auto-immune diseases. The suspected relationship relies on the hypothesis that an environmental factor may induce changes in some tissues (for example the lung). But, this triggering of changes by interaction between genes and environmental factors might occur decades before the emergence of the disease.

The study investigated the link between [smoking](#) status, including [childhood](#) and adult passive exposures, and the risk of rheumatoid arthritis.

The patients studied included 98,995 French female volunteers prospectively followed since 1990. Self-administered questionnaires sent every 2-3 years collected medical events, and general, lifestyle, and environmental characteristics. Arthritis diagnoses were collected in three successive questionnaires, and confirmed if women received an arthritis-specific medication.

The results of the study confirmed that adulthood smoking was associated with an increased risk of arthritis. In addition, ever (current and past) smokers who also had childhood passive smoking [exposure](#) had a higher risk of arthritis than those not exposed as children. Also, arthritis began earlier in smokers exposed to childhood passive smoking. The data also suggested that even in nonsmokers, passive exposure to tobacco during childhood tended to increase the risk of arthritis, the magnitude of the increase being similar to that associated with regular adulthood smoking, i.e. about 40%.

In summary, childhood passive exposure to tobacco is associated with increased risk of RA and earlier RA onset, particularly in adult smokers. This study also suggests for the first time that passive exposure to tobacco during childhood might also increase the risk of arthritis even in [adults](#) who never smoked.

"Further study is needed to explore if this increased risk is also mainly observed in people carrying the gene at risk for [rheumatoid arthritis](#), which is quite likely with regard to [tobacco](#)," said the paper's lead author, Dr. Marie-Christine Boutron-Ruault. "These results also highlight the importance of children—especially those with a family history of this form of [arthritis](#)—avoiding secondhand smoke."

**More information:** Raphaële Seror et al, Passive smoking in childhood increases the risk of developing rheumatoid arthritis, *Rheumatology* (2018). [DOI: 10.1093/rheumatology/key219](https://doi.org/10.1093/rheumatology/key219)

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