

Occupational textile dust exposure linked to rheumatoid arthritis

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Occupational exposure to textile dust is associated with a more than doubling in the risk of developing rheumatoid arthritis, finds research published online in the *Annals of the Rheumatic Diseases*.

And it is also linked to a heightened risk of [genetic susceptibility](#) to the risk of developing antibodies to [rheumatoid arthritis](#), known as ACPA, which hasten progression of the disease.

This is the first time that such associations have been identified, say the researchers.

The researchers base their findings on 910 Malaysian women who had been diagnosed with [early stage](#) rheumatoid arthritis and 910 women of similar age, but free of the disease.

The women were all asked if they had ever worked in the [textile industry](#), and had been exposed to other chemicals and silica dust—factors that are associated with heightened risk of developing rheumatoid arthritis. Blood samples were also taken to see if they had any ACPA antibodies, which are indicative of the disease.

Only women were included in the study because few men work in the textile industry in Malaysia and the prevalence of smoking among them is high: smoking is a known risk factor for the development of rheumatoid arthritis.

Forty one of the women with rheumatoid arthritis (4.5%) had been exposed to textile dust compared with 15 (1.7%) of the women free of the disease.

Those who had been exposed to the textile dust were almost three times as likely to develop rheumatoid arthritis as those who had not worked in textiles.

Furthermore, textile dust exposure was associated with a more than doubling in risk of testing positive for ACPA.

Almost two thirds of those with rheumatoid arthritis (63%) tested positive for ACPA, and just under 40% carried a genetic risk factor (HLA-DRB1 SE) that increases the risk of developing the disease.

Those with the risk factor, who had been exposed to textile dust, were 39 times more likely to test positive for ACPA compared with those without this risk factor and who had not been exposed to textile dust.

This magnitude of risk is similar to that found for [smoking](#) among carriers of the same genetic risk factor.

This is an observational study so no firm conclusions can be drawn about cause and effect, and the researchers can only speculate about the potential explanations underlying their findings.

The properties of textile dust will also differ, depending on the fabric and the chemicals used in production of the material, such as dyes, flame retardants, and water repellants, they say.

"The association between textile dust and risk of rheumatoid arthritis might involve several potential disease mechanisms since the differing physiochemical properties of airborne dust affect where it deposits in

the respiratory tract," they write.

The unique shape of textile fibres gives them the capacity to penetrate deep into the lung, where they could prompt an inflammatory response.

Another potential explanation could lie in the toxins produced by certain types of bacteria that can be found in textile dust. These toxins may cause respiratory disease in textile workers by generating an inflammatory response in the lungs.

"From a public health perspective, our results imply that efforts should be considered to reduce the incidence of rheumatoid arthritis by reducing [occupational exposure](#) to textile dust," they conclude.

More information: Chun Lai Too et al. Occupational exposure to textile dust increases the risk of rheumatoid arthritis: results from a Malaysian population-based case–control study, *Annals of the Rheumatic Diseases* (2015). [DOI: 10.1136/annrheumdis-2015-208278](https://doi.org/10.1136/annrheumdis-2015-208278)

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