

Social isolation can cause physical inflammation

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Social isolation could be associated with increased inflammation in the body, new research from the University of Surrey and Brunel University London has found.

In the largest study of its kind researchers investigated the link between social isolation and [loneliness](#) with [inflammation](#) in the body. Analysing 30 previous studies in this area researchers found that social isolation could be linked to increased inflammation in the body.

Inflammation is the body's way of signalling the [immune system](#) to heal and repair damaged tissue, as well as defending itself against viruses and bacteria. Inflammation can eventually start damaging [healthy cells](#), tissues and organs and lead to an [increased risk](#) of developing non-communicable diseases such as cardiovascular disease.

Researchers found that social isolation, the objective state of being isolated from other people, was associated with the presence of C-reactive protein, a protein substance released into the bloodstream within hours of a tissue injury, and increased levels of the glycoprotein fibrinogen, which is converted into fibrin-based blood clots.

Interestingly, researchers also identified that the link between social isolation and physical inflammation was more likely to be observed in males than females. Further work is needed to clarify why this might be, but previous work suggests that males and females might respond differently to social stressors.

The link between loneliness and inflammation was less clear-cut with results indicating a possible link between loneliness and the pro-inflammatory cytokine IL-6. However, this finding was not consistent across the studies examined. Taken in combination with previous knowledge the researchers propose that it is likely that loneliness changes how the inflammatory system responds to stress rather than

directly impacting inflammatory response.

Dr. Kimberley Smith, Lecturer in Health Psychology at the University of Surrey, said: "Loneliness and social isolation have been shown to increase our risk of poorer health. Many researchers propose that part of the reason for this is because they influence the body's inflammatory response.

"The evidence we examined suggests that social isolation may be linked with inflammation, but the results for a direct link between loneliness and inflammation were less convincing. We believe these results are an important first step in helping us to better understand how loneliness and social isolation may be linked with health outcomes."

Christina Victor, Professor of Gerontology and Public Health at Brunel, added: "Our results suggest loneliness and [social isolation](#) are linked with different inflammatory markers. This shows how important it is to distinguish between loneliness and [isolation](#), and that these terms should neither be used interchangeably nor grouped together."

More information: Kimberley J. Smith et al, The association between loneliness, social isolation and inflammation: A systematic review and meta-analysis, *Neuroscience & Biobehavioral Reviews* (2020). [DOI: 10.1016/j.neubiorev.2020.02.002](#)

Provided by University of Surrey

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