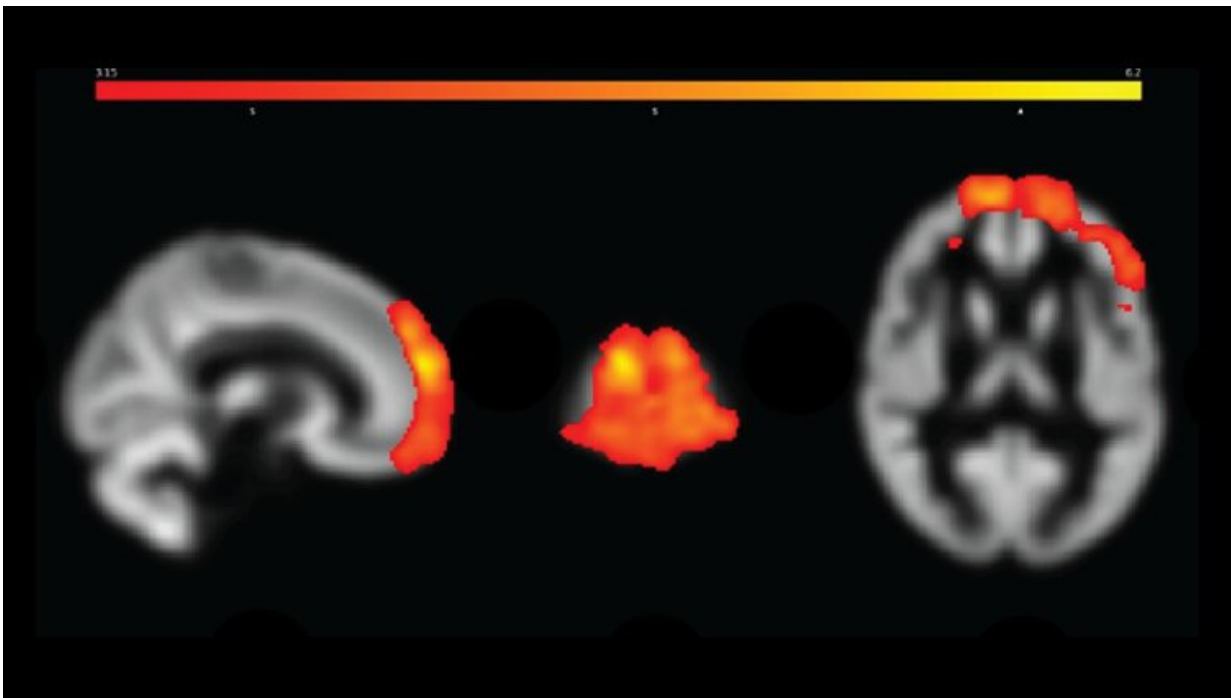


Chronic pain in Gulf War veterans linked to brain structure changes

June 13 2022



Gulf War Veterans with chronic pain had had lower regional gray matter volume in the left and right insular cortices. Credit: Ninneman et al., *JNeurosci* 2022

The brains of Gulf War veterans with chronic pain possess larger pain processing regions and smaller pain regulation regions compared to their healthy peers, according to new research published in *JNeurosci*.

Over one third of Gulf War veterans experience widespread, [chronic](#)

[pain](#) linked to a condition called Gulf War Illness. The underlying cause of the [pain](#) is poorly understood, preventing the development of effective treatments. Ninneman et al. analyzed the brains of Gulf War veterans with and without pain using MRI. The participants also completed questionnaires about their pain symptoms, fatigue, and mood.

Those with chronic pain displayed smaller left and right insular cortices, two [brain areas](#) involved in regulating pain. They also had larger areas of the frontal cortex, specifically in regions involved in pain sensitivity and emotional regulation. The structural changes were more pronounced in people with worse pain, but there was no relationship with fatigue or mood.

These results indicate the chronic pain from Gulf War Illness may stem from changes in how the central nervous system processes pain, rather than with issues with nerves or pain receptors.

More information: Pain, but not Physical Activity, is Associated with Gray Matter Volume Differences in Gulf War Veterans with Chronic Pain, *JNeurosci* (2022). [DOI: 10.1523/JNEUROSCI.2394-21.2022](https://doi.org/10.1523/JNEUROSCI.2394-21.2022)

Provided by Society for Neuroscience

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