

## Central representation of hyperalgesia from myofascial trigger point.

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The aim of the study was to investigate if an abnormal brain response to pain exists in patients with myofascial pain syndrome (MPS) when stimulated in a hypersensitive myofascial trigger point (MTP).

Event-related functional magnetic resonance imaging was used to characterize the brain response to pain evoked from an MTP. Activation patterns from patients were compared with those evoked from an equivalent site in healthy controls with stimulus intensity matched and pain intensity matched stimuli.

Compared to healthy controls at matched stimulus intensity, patients experienced significantly higher pain intensity (hyperalgesia). The corresponding brain response revealed significantly enhanced somatosensory (SI, SII, inferior parietal, mid-insula) and limbic (anterior insula) activity and suppressed right dorsal hippocampal activity in patients compared with controls.

At matched pain intensity, enhanced activity was found in the same somatosensory areas but not in limbic areas.

Our results show that the hyperalgesic state observed in MPS patients was associated with abnormal hyperactivity in regions processing stimulus intensity and negative affect.

We speculate that suppressed hippocampal activity might reflect stress-related changes in relation to chronic pain as an effective physical and emotional stressor.

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