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## Deficient modulation of pain by a positive emotional context in fibromyalgia patients

[Sandra Kamping](#), [Isabelle C. Bomba](#), [Philipp Kanske](#), [Eugen Diesch](#), [Herta Flor](#)

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Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

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### Summary

Fibromyalgia patients show impaired emotion recognition and orientation when positive pictures are presented together with painful stimuli. Treatment approaches should emphasize the normalization of these disrupted emotional processes.

### Abstract

This study aimed to investigate the modulating effects of emotional context on pain perception in 16 patients with fibromyalgia syndrome (FMS) and 16 healthy control (HC) subjects. An infrared laser was used to apply individually adapted painful stimuli to the dorsum of the left hand. The emotional background of the painful stimuli was modulated by concurrent presentations of negative, neutral, and positive picture stimuli selected from the International Affective Picture System. As control conditions, painful stimuli and the pictures were also presented by themselves. During each of the 5 laser-picture trials, subjects received 10 painful stimuli and were asked to rate the average intensity and unpleasantness of the experienced pain. Functional magnetic resonance images were obtained, using a T2\* sensitive echo planar sequence. HC subjects showed a linear increase in pain intensity and unpleasantness ratings when painful stimuli were presented during positive, neutral, and negative pictures. In contrast, FMS patients showed a quadratic trend for pain intensity ratings indicating a lack of pain reduction by the positive pictures. In addition, the FMS patients showed less activation in secondary somatosensory cortex, insula, orbitofrontal cortex, and anterior cingulate cortex during the positive picture pain trials. Our results suggest that fibromyalgia patients are less efficient in modulating pain by positive affect and may benefit less from appetitive events than healthy control subjects.

**Keywords:** [Fibromyalgia](#), [Emotion](#), [Modulation](#), [Imaging](#)

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