

Mindfulness meditation could mitigate the adverse effects of fatigue on emotional processing

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Figure summarizing the procedure followed in the team's experiment. Credit: Fan et al, *Frontiers in Behavioral Neuroscience* (2023). DOI: [10.3389/fnbeh.2023.1175067](https://doi.org/10.3389/fnbeh.2023.1175067)

Fatigue, which can be defined as lacking energy and the motivation to do things during the day, is a very common symptom that most humans will experience at least once in their life. While it is sometimes linked to medical conditions, in most cases it is caused by poor lifestyle choices,

stress, environmental circumstances, and/or psychological factors.

Past studies suggest that irrespective of its causes, fatigue can intensify negative emotions, making affected people feel more overwhelmed and reducing their [positive feelings](#). This can in turn impair their ability to process emotions throughout the day.

Research findings suggest that [mindfulness meditation](#), which focus on being present in the moment and observing the breath, along with passing feelings, emotions, and sensations, can help to reduce the intensity of negative feelings, facilitating the healthy processing of emotions. Researchers at Shenzhen University in China recently set out to investigate whether mindfulness practices could also help to alleviate the adverse effects of fatigue on [emotional processing](#).

"In previous research, mindfulness [meditation](#) reduced the intensity of negative emotional stimuli," Jialin Fan, Wenjing Li and their colleagues wrote in their paper published in *Frontiers in Behavioral Neuroscience*. "However, if individuals continue to be affected by [negative emotions](#) when they are fatigued, it is unclear whether mindfulness can buffer the negative association between fatigue and emotions. This study examined whether mindfulness meditation affects the association between fatigue and emotions, using event-related potentials (ERPs)."

Event-related potentials (ERPs) are tiny electrical voltages generated in the brain in response to specific events or stimuli, such as seeing someone or something, hearing a specific sound, and so on. Measuring these voltages can help neuroscientists and psychology researchers to better understand peoples emotional and physiological responses to different experiences in everyday settings.

In their experiment, Fan, Li and their colleagues recorded the ERPs of 145 participants who were randomly assigned to one of two groups.

Participants in the first group completed a 15-minute guided mindfulness meditation, during which they were asked to pay attention to their breathing and to different body parts. During these 15 minutes, people in the second group simply rested with their eyes closed.

Subsequently, all the participants completed a simple image processing task, where they were presented with different photographs on the screen while electrodes placed behind their ear recorded ERPs. All the participants were all asked to rate their level of fatigue and [emotional state](#) both before and after the experiment.

The researchers ultimately analyzed the data they collected to determine whether the mindfulness meditation practice had affected the participants' emotional state, as well as ERPs in their brain. They specifically looked at late positive potential, or LPP, a neural indicator of intense or heightened attention to emotional stimuli, which can offer insight about the processing of emotions while exposed to positive or negative stimuli.

"LPP is an important indicator of emotional stimuli perceived by individuals, and positive or negative pictures can induce an increase in LPP amplitude more than neutral pictures," Fan, Li and their colleagues wrote. "Our findings suggest that fatigue significantly affected individuals' LPP amplitudes in the early, mid, and late windows in the Non-mindfulness group, specifically, the more fatigued individuals had lower LPP amplitudes, but not in the Mindfulness group."

The researchers found that participants who reported feeling fatigued at the time of the experiment did not report a significant improvement in their emotional state after the mindfulness meditation session; However, the signals recorded by the electrodes suggested that the meditation had affected how their brain processed emotional stimuli, improving their responsiveness to emotional stimuli compared to fatigued participants

who had simply rested for 15 minutes.

"These results suggest that in a state of fatigue, mindful individuals are able to maintain responsiveness to emotional [stimuli](#) by maintaining LPP amplitude," Fan, Li and their colleagues added. "Our study demonstrates that mindfulness meditation, to some extent, offsets the negative association of fatigue with the neural activation of emotions."

The recent work by Fan, Li and their colleagues offers interesting new insight about the possible benefits of mindfulness meditation, suggesting that it could mitigate the adverse effects of fatigue on emotional processing. Future studies could explore this topic further employing different experimental methods, for instance including more reliable measures of [fatigue](#) and longer or recurring meditation sessions.

More information: Jialin Fan et al, Effects of mindfulness and fatigue on emotional processing: an event-related potentials study, *Frontiers in Behavioral Neuroscience* (2023). [DOI: 10.3389/fnbeh.2023.1175067](https://doi.org/10.3389/fnbeh.2023.1175067)

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