

Using neurofeedback to prevent PTSD in soldiers

December 11 2018, by Bob Yirka



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A team of researchers from Israel, the U.S. and the U.K. has found that using neurofeedback could prevent soldiers from experiencing PTSD after engaging in emotionally difficult situations. In their paper

published in the journal *Nature Human Behavior*, the group describes experiments they conducted with military personnel engaged in intensive training sessions, and what they learned from it. Kymberly Young with the University of Pittsburgh School of Medicine has written a News and Views [piece](#) on the work done by the team in the same journal issue.

Prior research has shown that [neurofeedback](#) training sessions with patients having difficulty regulating emotional responses can help them become better at it. Such training typically involves placing the patient in an fMRI machine where they can watch their own brain activity while they reenact [stressful situations](#). Patients attempt to change their brain wave activity, and in so doing, reduce the strength of their emotional response. Patients then use the same concentration technique in subsequent real-life stress-inducing situations. Because of the benefits it offers, it has been suggested that such training might be of use to soldiers before they head to war, but the cost of fMRI machine time is prohibitive. In this new effort, the researchers have found a way to track pertinent brain wave activity using much cheaper EEG testing.

By conducting studies of volunteers reenacting stressful situations, the researchers isolated some of the brainwaves that were involved—enough that they were able to see them via EEG. To find out if such a [simple test](#) might allow for neurofeedback training, the researchers contacted the Israeli army and asked for volunteers willing to go through EEG-based neurofeedback training prior to engaging in combat training.

The researchers tested 180 volunteers, who they split into three groups. One group got EEG-based neurofeedback training, another got EEG training that was not targeted towards amygdala activity. The third group received no neurofeedback training. The researchers report that the group that got the amygdala-focused neurofeedback [training](#) showed improvements in emotional regulation. This finding is just the first step, of course. The next step will be to find out if such an improvement

results in soldiers experiencing reduced PTSD when exposed to actual warfare.

More information: Jakob N. Keynan et al. Electrical fingerprint of the amygdala guides neurofeedback training for stress resilience, *Nature Human Behaviour* (2018). [DOI: 10.1038/s41562-018-0484-3](https://doi.org/10.1038/s41562-018-0484-3)

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