

Six weeks of meditation training influences response bias in a discrimination task with emotional distractors

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Introduction: Focused attention meditation is the voluntary focusing of attention on a chosen object in a sustained fashion, whose objective is to develop attentional and emotional regulatory skills./objective: We investigated the effect of a six-week focused attention meditation training on a discrimination task with emotional distractors by comparing participants' discriminability and bias before and after training. **Method:** College students were randomly assigned to either focused meditation ($N=35$), progressive relaxation ($N=37$), or control groups ($N=28$). 120 neutral and 120 emotional - negative and arousing - pictures ($9^\circ \times 12^\circ$), flanked by two peripheral bars ($0.3^\circ \times 0.3^\circ$), equidistant from the centre of the picture (9°), were equally and randomly distributed and displayed among three blocks, one with low attentional (LA) and two with high attentional demand (HA). Participants indicated if bars were parallel or not by pressing one of two buttons. In LA and HA conditions, respectively, bars differed with 90° and 6° in half of the trials. Trials started with a fixation cross (1500ms) followed by the pictures and bars (200ms). Next, a chessboard remained on the screen until a response was given or for 2000ms. **Results:** Mixed-design ANOVAs showed no discriminability difference across groups (meditation=26; relaxation=24; control=24) pre-post training; only task difficulty affected discriminability [$F(1,68) = 739.8, p < .001$; LA > HA]. Response bias was affected by difficulty [$F(1,68) = 81.2, p < .001$; LA < HA], and testing session [$F(1,68) = 23.1, p < .001$; pre > post]. Additionally, there was a significant difficulty \times session \times group interaction [$F(2,68) = 4.02, p = .02$]: meditation ($M = .58, SE = .36$) and relaxation ($M = .65, SE = .36$) presented a reduction in response bias relative to control ($M = .69, SE = .37$), but only after training in the HA condition ($p < 0.05$). **Conclusion:** The reduction in response bias suggests that meditation and relaxation can affect decision making in a difficult perceptual discrimination task. Meditation showed the highest bias reduction, consistent with previous results linking meditation to attention and monitoring processes.

Keywords: Meditation. Relaxation. Response bias. Attention. Cognitive monitoring.