

Effects of meditation interventions on cortisol levels. A meta-analysis.

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Background and objectives

Higher daily cortisol secretion is related to lower health status (Lovell et al., 2011). A recent meta-analysis (Sanada et al., 2016) found that mindfulness meditation is effective in reducing salivary cortisol levels in healthy, adult subjects. We extended these results by including data on the efficacy of any kind of meditation in order to compare the efficacy of mindfulness and other types of meditation. Furthermore, we made no restrictions on cortisol sampling (taken not only from saliva but also from hair or blood) and no restriction on the age or the clinical status of the sample. In fact, we hypothesized that the effects of meditation might be larger for samples at a risk for elevated cortisol levels (e.g., depression, stressful life situations or certain somatic illnesses). Finally, we conducted a meta-analysis not only on post-test measures but also synthesized the results on follow-up assessment in order to investigate the long-term effects of meditation.

Methods

We conducted a systematic search in electronic databases (Web of Science (Core collection), EBSCO (PsychInfo, PsychArticles, MEDLINE), PubMed and ProQuest) to find eligible publications and dissertations. We searched for randomized controlled trials that assessed the effects of a meditation program on participants' cortisol levels as an outcome measure. Two separate meta-analysis were conducted: 1. for post-test measures (within one month from the end of the meditation program) and 2. for follow-up assessment (after 1 month).

Results

The majority of the studies tested a mindfulness meditation program. Meditation had a small but significant effect on pre- to post-test change in cortisol levels ($g+ = 0.40$). There was a marginally significant, moderate effect for at-risk samples ($g+ = 0.52$) and a marginally significant, small effect for no-risk samples ($g+=0.30$). Surprisingly, on follow-up assessment the effect was not significant ($g+= 0.24$).

Discussion and conclusion

Meditation has a potential to decrease cortisol levels, especially for populations at a risk for elevated cortisol levels. However, a continued practice seems essential as benefits disappear on follow-up measures.