ABSTRACT:

Background: Prolonged activation of the hypothalamus-pituitary-adrenal system is thought to have deleterious effects on brain function. Neuroendocrine studies suggest that brain exposure to higher cortisol concentrations contribute to cognitive deficits as we age. Mind-body techniques such as yoga have shown to improve stress levels by restoring the body's sympathetic-parasympathetic balance. The objective of this study was to determine whether yoga practice moderated the stress response resulting in improved executive function.

Methods: Sedentary community dwelling older adults (N=118, Mean age=62.02) were randomized to an 8-week yoga intervention or a stretching control group. At baseline and following 8 weeks, all participants completed measures of executive function, self-reported stress and anxiety and provided saliva samples before and after cognitive testing to assess cortisol.

Results: Yoga participants showed improved accuracy on executive function measures and an attenuated cortisol response compared to their stretching counterparts who showed increased cortisol levels and poor cognitive performance at follow up. The change in cortisol levels as well as self-reported stress and anxiety levels predicted performance on the running span task, n-back working memory and task switching paradigm (<beta>'s=.27 to .38, p's ≤.05 for yoga and <beta>'s=-.37 to -.47, p's ≤.01 for stretching control).

Conclusion: Eight weeks of regular yoga practice resulted in improved working memory performance that was mediated by an attenuated response to stress as measured by self-report stress and objective salivary cortisol measurements. This trial offers evidence for non-traditional physical activity interventions such as yoga that may be helpful in restoring HPA balance in older adults, thereby preventing cognitive decline.

Comment: I am satisfied with the way in which the authors addressed my previous comments. I have, however, one final comment regarding the conclusions sections. Since the authors now have directional hypotheses in their introduction I think it would be wise to adjust the conclusions (pages 13-15) to explain or address: 1. Why hypothesis 1 was not supported; 2. Reasons for which hypothesis 2 may have been partially and not fully supported. In its current format the conclusions appear to summarize current yoga literature but provide little critical insight into what the results (may) mean.