



The field of meditation research has grown exponentially in the past two decades, driven largely by a growing appreciation of the potential for contemplative practices to affect psychophysiological functioning positively, re-









into which the participant would be randomized. Participants who were oriented to the study, met the criteria, and reviewed and signed consent were then randomized to one of the groups in a rolling enrollment. When a group of at least ten was formed, the intervention was started for that group. We enrolled and implemented interventions until our time limit was up for the study funding, and thus, the number of participants enrolled is not equal in the two conditions. We enrolled and implemented interventions until our time limit was up for the study funding, and thus, the number of participants enrolled is not equal in the two conditions.

This study was conducted at the University of Virginia (UVA) School of Medicine, Division of Perceptual Studies (DOPS) in Charlottesville, VA, and consisted of an 8-week trial to examine the impact of meditation or physical exercise on the variables stated above. This study was approved by the institution's IRB. Subjects were recruited from the general population through the University of Virginia's research database.

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To test the study hypothesis, we conducted a series of multivariate regression models for each of the outcomes, combining mid, and follow-up measures for each score using the cohort groups as the unique independent variable. This analysis is appropriate since we have several dependent variables jointly regressed on the same independent variables. Using a joint estimator, it is possible to measure between-equation covariances, making this model more convenient for several measures across time points (Table 4). For the psi and paranormal experiences related to meditation variables (Table 5), we conducted a unique multivariate regression model with all outcomes at post 1 using the cohort groups as the sole independent



improvements over time on the anxiety and general health subscales of the GWBS at the follow-up. See Table 4 for more details. The data supports that both meditation and exercise have a positive impact on well-being over time, as it can be seen for anxiety and general health, which has previously been supported in the literature (Iwon et al., 2021). This finding may have interesting implications for designing future wellness programming since exercise alone appears to be as effective in improving wellness as meditation.

Our hypothesis that meditation group members would demonstrate significantly increased mindfulness scores on the FFMQ-24 overtime was partially supported. See Table 4 for details. We found significant increases in the meditators acting with awareness at the end of the study ( $p < 0.001$ , *CI* 95% -5.85; -1.90) and at the two months follow-up after the study ended ( $p < 0.001$ , *CI* 95% -5.88; -2.02) when compared to the participants in the exercise cohort. Additionally, at the end of the intervention, meditators endorsed suggestive changes in non-judging when compared to those at the post-follow-up two months later ( $p = 0.011$ , *CI* 95% -4.96; -0.68).

We further explored mindfulness as assessed by the

AMPS, which is designed to quantify how mindfulness is used. See Table 4 for details. At the end of the study, we found that the exercise group endorsed significantly more use of negative emotional regulation versus the meditation group at the 2-month follow-up ( $p < 0.001$ , *CI* 95% 1.56; 5.07). As a caveat, the data indicates that negative emotional regulation was higher at the baseline stage for the exercise group. However, effects are still suggestive with the inclusion of the baseline variable as a confounding variable ( $p < 0.001$  at post-2, results not shown in Table 4).

We examined the hypothesis that social connectedness would increase significantly more in the meditation versus the exercise group over time and found that the overall sense of closeness and connectedness at the end of the study was not higher in the meditation group than in the exercise group. Results are just weakly suggestive (at post-1:  $p = 0.025$ , *CI* 95% -3.61; -0.26). We also explored self-transcendence over time and found no differences in the measures of self-transcendence on the ASTn study.





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non-significant result of  $Z = 0.0004$   $p = 0.5002$ . The results from the exercise cohort, 3 meditation sessions for 18 minutes, and 1303 trials yielded a non-significant result of  $Z = 0.0001$   $p = 0.5000$ . The deviation plots below show lines at  $p = 0.05$ ; the jagged lines show the cumulative deviation. The results show the --

randomness vs. the exercise cohort, even with the knowledge that neither group was experienced in meditation practices. As expected, the RNG did not show any deviations in randomness during any of the pre-test baselines at the  $p = 0.05$ . The RNG also did not show any residual deviations during any of the post-test data acquisitions at the  $p = 0.05$ . The results of the first meditation cohort, three meditation sessions for 26 minutes and 1796 trials, yielded a non-significant result of  $Z = -0.0013$   $p = 0.4995$ .

The results from the second meditation cohort, 3 meditation sessions for 22 minutes and 1415 trials, yielded a

fulness, oneness, interconnectedness, timelessness, and dissolution of ordinary limits of perception might have some basis in reality and lead to increases in abilities and experiences such as intuition and extrasensory perception. To examine these questions, our research examined 45 participants learning and practicing meditation, and 27 participants engaged in an active control exercise group.

The study participants were predominantly non-Hispanic white females from the United States of America and working full-time; thus, future research would benefit from examining a more diverse population in order to ex-



ral sense of closeness and connectedness present in the meditation group during the study and at the end of the study. The meditation group reported more psi and paranormal experiences than the comparison group, and these persisted over time into the two-month follow-up after the end of the study. Furthermore, the meditation cohort endorsed at least some of the experiences that were significantly important or meaningful to them. Reported that these experiences were more important or meaningful to them than they were to the comparison group.

None of the results were significant in showing deviations from randomness on the RNG.

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ere are several limitations to this study that need to be acknowledged and discussed. One potential limitation is the sample size. The study may lack statistical power to detect small but meaningful effects. This is especially important given the large number of outcomes examined. Lack of power could result in false comparisons.

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