THE TRANSCENDENTAL MEDITATION TECHNIQUE AND SKIN RESISTANCE RESPONSE TO LOUD TONES

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Subjects participating in the Transcendental Meditation program showed more rapid habituation to loud tones than controls. —EDITORS

This study was an attempt to replicate previous findings that those who practice the Transcendental Meditation technique habituate more rapidly to loud tones. Five meditators and 11 nonmeditators were administered twenty 1,000 Hz, 80 db tones on a random schedule. Tones were grouped into five blocks of four tones each and analyzed using a repeated measures analysis of variance. A significant main effect for the groups was found (p = .05), indicating that the mean skin resistance response of the meditators evoked by the loud tones was less than that of the nonmeditators. Therefore, it was concluded from the meditators' faster habituation rate that meditators have greater stability of the autonomic nervous system than nonmeditators. This greater stability could produce a wide range of benefits for those living in the stressful environments found in most cities today.

INTRODUCTION

Orme-Johnson (4) has reported that those who practice Transcendental Meditation (TM) have fewer spontaneous skin resistance responses and habituate more rapidly to auditory tones than nonmeditators. These results suggest that TM develops greater stability in the nervous system. The present study was an attempt to replicate Orme-Johnson's finding that meditators habituate to loud tones more rapidly than nonmeditators.

METHOD

Sixteen subjects participated in the study. Five subjects (three males and two females) who had been instructed in Transcendental Meditation by qualified teachers and had been regularly practicing TM 22–36 months (with a mean of 29 months) composed the TM group. These subjects were two undergraduates, two teachers of TM, and one working adult. Eleven other subjects (seven males and four females), who were psychology students, composed the control group. All subjects participated on a volunteer basis. The meditators were obtained through the University of Michigan—Eastern Michigan University center of the Students International Meditation Society. The purpose of the present experiment and the results of Orme-Johnson's previous study were explained to all of the participating subjects to equalize their familiarity with the experiment, since the meditators had some knowledge of Orme-Johnson's study.

The tone used in this study was generated by a General Radio tone burst generator, and was amplified and delivered monaurally to the right ear via Grason-Stadler earphones. Evoked skin resistance response was recorded on a Grass model 16 polygraph. The experiment was conducted in a quiet room. Each subject was seated in a comfortable chair in front of and facing away from the audiometer and polygraph. The subject could not see the apparatus during the experiment, but the experimenter sitting quietly at the apparatus could observe any movements made by the subject. The electrodes were placed on the tip of the left index finger. The subjects were asked to sit quietly for about 25 minutes while the experimenter measured the response to the tones. The subjects were asked if they had any questions and were requested not to make unnecessary movements of the hands. The earphones were then comfortably adjusted, and the tone presentation was begun. The tone was 1,000 Hz, 80 db, 0.05 sec and was presented on the average of one per 55 seconds with a range of 10–180 seconds between stimulus presentations. The skin resistance was allowed to recover and/or stabilize before the next tone was presented. Twenty tones were presented to each subject.

RESULTS

The skin resistance responses to the 20 tones presented to each subject were grouped into five blocks of four tones each and analyzed by a repeated measures analysis of variance. Figure 1 shows the mean evoked skin resistance
response to each tone for the meditator and nonmeditator
groups.

Table 1 shows the results of the analysis of variance of the five blocks of skin resistance responses. The significant main effect for groups (p = .05) indicates that the mean evoked skin resistance response for the meditators was less than for the controls. The main effect for trials was also significant (p < .001), as expected, showing that subjects' responses to the tones decreased significantly with repeated presentations of the tones. A significant interaction was not found.

**DISCUSSION**

The mean skin resistance response evoked by the loud tones was less for the meditators than for the nonmeditators. Even at the end of the 20 trials the mean evoked skin resistance response of the control group was higher than that of the TM group. If more trials had been presented it is possible that the mean evoked skin resistance response of the control group would have decreased further. If this were the case, the present findings would indicate that the meditators habituated much more quickly to the loud tones than the nonmeditators. It is also possible that the control group had habituated as much as it was going to by the end of the 20 trials. If this were the case, the present results would indicate that the meditators habituated much more fully to the stimuli than the nonmeditators. In either case, this study indicates that the stability of the autonomic nervous system of those practicing Transcendental Meditation is greater than that of nonmeditators.

Since skin resistance response is a physiological measure of anxiety and autonomic arousal, these results suggest that the overall stress experienced by meditators as the result of repeated presentations of stressful stimuli is much less than that experienced by nonmeditators. This effect becomes particularly valuable in the light of recent studies indicating that those living in noisy city environments become conditioned to operate at higher average levels of arousal because they never habituate completely to the various types of city noise. Responses to various noises are, therefore, superimposed. Since noise is virtually continual, the arousal of the autonomic nervous system is maintained at a high level, resulting in an increased probability of individuals developing one of the large number of stress-related physical problems (such as high blood pressure) or mental problems (such as depression) associated with anxiety. The value of the TM program in reducing stress-related difficulties such as high blood pressure (1) and anxiety (2, 3) has already been established. Therefore, the greater autonomic stability produced by the practice of Transcendental Meditation, while of general benefit, should prove particularly valuable to those working and/or living in stressful environments.

**REFERENCES**


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**TABLE 1**

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*NS = not significant.
3. Lazar, Z.; Farwell, L.; and Farrow, J. T. 1972. The effects of the Transcendental Meditation program on anxiety, drug abuse, cigarette smoking, and alcohol consumption. (Published in this volume.)