

# Circulation: Cardiovascular Quality and Outcomes

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## Original Article

### Stress Reduction in the Secondary Prevention of Cardiovascular Disease

Randomized, Controlled Trial of Transcendental Meditation and Health Education in Blacks

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#### Abstract

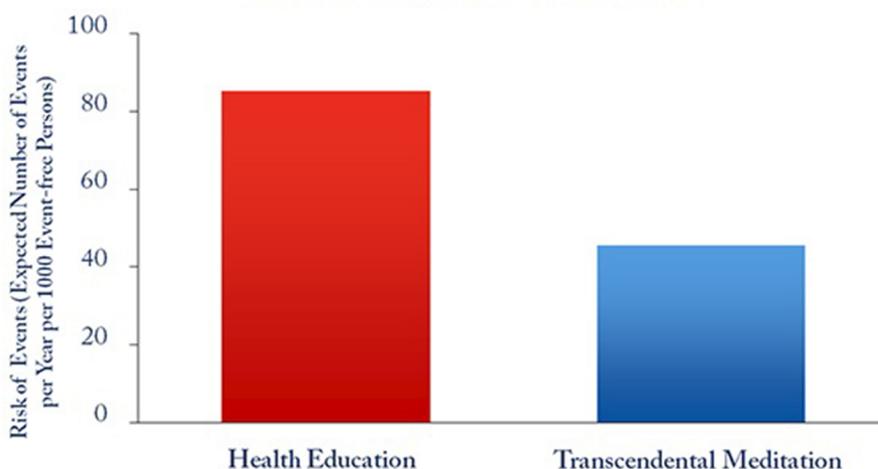
Background—Blacks have disproportionately high rates of cardiovascular disease. Psychosocial stress may contribute to this disparity. Previous trials on stress reduction with the Transcendental Meditation (TM) program have reported improvements in cardiovascular disease risk factors, surrogate end points, and mortality in blacks and other populations.

Methods and Results—This was a randomized, controlled trial of 201 black men and women with coronary heart disease who were randomized to the TM program or health education. The primary end point was the composite of all-cause mortality, myocardial infarction, or stroke. Secondary end points included the composite of cardiovascular mortality, revascularizations, and cardiovascular hospitalizations; blood pressure; psychosocial stress factors; and lifestyle behaviors. During an average follow-up of 5.4 years, there was a 48% risk reduction in the primary end point in the TM group (hazard ratio, 0.52; 95% confidence interval, 0.29–0.92;  $P=0.025$ ). The TM group also showed a 24% risk reduction in the secondary end point (hazard

ratio, 0.76; 95% confidence interval, 0.51–1.13;  $P=0.17$ ). There were reductions of 4.9 mmHg in systolic blood pressure (95% confidence interval  $-8.3$  to  $-1.5$  mmHg;  $P=0.01$ ) and anger expression ( $P<0.05$  for all scales). Adherence was associated with survival.

Conclusions—A selected mind–body intervention, the TM program, significantly reduced risk for mortality, myocardial infarction, and stroke in coronary heart disease patients. These changes were associated with lower blood pressure and psychosocial stress factors. Therefore, this practice may be clinically useful in the secondary prevention of cardiovascular disease.

### Reduced Rates of Death, Heart Attack and Stroke with Transcendental Meditation



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