



# CALIFORNIA STATE SCIENCE FAIR 2004 PROJECT SUMMARY

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<b>Project Title</b> <b>Stress Without Distress</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal for the project is to find a solution to stress. I compared the effects of Yogic relaxation (Deep Relaxation Technique) to that of Music, and Nap on one's Blood Pressure, Heart Rate, and Respiratory Rate. These factors are a tool to measure the level of stress. Nap relaxation will act as the control group for this experiment. I believe that yogic relaxation would prove to be the most effective as it is known to relax your body as well as mind.</p> <p><b>Methods/Materials</b> Three different groups consisting of 183 subjects were taken over a 4-month period. I recorded my voice for the 12 min. procedure for DRT. I used a classical music tape for the music. I used a watch to measure the respiratory rate and blood pressure monitors to measure blood pressure and heart rate. Group #1-Yoga Practitioners: This group consisted of 23 subjects, both hypertension and normal, who have been doing yoga for 2 or more years. They underwent yogic relaxation and nap relaxation. Group #2-Normal Subjects (Non-Hypertensive, Non-Yoga): This group consisted of 100 subjects who had no history of hypertension or yoga. They underwent all three experiments. Group #3- Hypertension Patients (Non-Yoga): This group consisted of 60 hypertensive patients. They underwent this experiment at a local cardiologist's office. They were divided into three groups; each group of 20 did music relaxation, nap relaxation, and DRT relaxation separately.</p> <p><b>Results</b> Group #1- Yoga Practitioners: In the nap study, the systolic blood pressure decreased, the diastolic blood pressure increased as did the pulse and respiratory rate. In the yogic relaxation all four factors decreased significantly. Group #2-Normal Subjects: For music as well as for nap, all four of the above factors decreased. For yoga, the decrease in the four factors was much more significant. Group #3- Hypertension Patients: In the music study all four factors decreased as was seen in the nap study. In the yogic study, all of the factors decreased to a greater extent than in the other groups.</p> <p><b>Conclusions/Discussion</b> My hypothesis was correct. Yogic relaxation led to the largest decrease in the 4 afore-mentioned factors in all the three groups. Yogic relaxation has thus proved to have reduced stress greatly. Doing DRT (yogic relaxation) is not only beneficial to those who have hypertension, but also helps normal people who constantly carry the load of stress.</p>	
<b>Summary Statement</b> In my project I am testing the level of stress reduction on Yoga Practitioners, Cardiac Patients, and Normal Subjects using Music, Nap, and Yoga.	
<b>Help Received</b> Dr. Kumar helped me in letting me do my project on his cardiac patients, Dr. Gupta helped clarify my knowledge on this subject, and my brother helped in teaching me Microsoft Excel on which I did my Data.	