



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anu Gupta</b>	<b>Project Number</b> <b>S0312</b>
<b>Project Title</b> <b>Life Without Stress</b>	
<b>Objectives/Goals</b> Stress, a part of our daily lives, is one of the main causes of high blood pressure today; it increases our respiratory rate, blood pressure and heart rate. I am evaluating the effect of the Deep Relaxation Technique (DRT) and Music on one's stress level measured by three factors present in the body: Blood Pressure, Heart Rate, and Respiratory Rate. I will be using cardiac patients, regular subjects, teenagers, and DRT practitioners to test stress reduction. I hypothesized that DRT will be most effective in reducing stress because it is a conscious process and is supposed to relax one's mind and create delta waves. Music creates alpha, beta, and theta waves; it cannot create delta waves because they have an extremely low frequency which can only be reached by DRT.	
<b>Abstract</b> <b>Methods/Materials</b> To experiment I borrowed 5 automatic blood pressure and pulse monitors, recorded my voice doing DRT in a tape, and bought a soothing music CD. I made sure that the music and the DRT were of the same length: about 12 minutes. I used a stopwatch to measure the respiratory rate per minute. For subjects, I went to the houses of people, school, the Heart Center, and yoga classes. At first, my subjects just laid down. This was my control group. Then they took a 20 minute break to walk around, etc. Next, the people listened to the music CD while relaxing while lying down. Here they took a break for about 40 minutes and after that, they listened to the DRT tape. My subjects that I tested fall into four categories: 107 Regular Subjects, 61 Cardiac Patients, 30 Yoga Practitioners, 25 teenagers. Regular Subjects are the people who don't practice Yoga and don't have a history of cardiac disease.	
<b>Results</b> Although DRT has led to more reduction in the blood pressure, pulse, and respiratory rate in all groups, the degree of reduction is different. (Exact numbers are on the board.)	
<b>Conclusions/Discussion</b> The data supported the hypothesis. This proves to be beneficial for those currently suffering from hypertension; it will help normal people who constantly carry the load of distress and anxiety (the root cause of high blood pressure) and many other medical problems. Both music and yoga help to reduce respiratory rate but yoga is more effective in reducing the respiratory rate. The same goes with the blood pressure and heart rate.	
<b>Summary Statement</b> My project is a two-year study to determine the effects of Deep Relaxation Technique (DRT) and Music on stress reduction tested by the blood pressure, heart rate, and respiratory rate in the body.	
<b>Help Received</b> Dr. Vinod Kumar M.D., F.A.C.C. let me experiment on hypertension patients at the Heart Center; Dr. Dhaval Buch allowed me to experiment on willing people in his evening yoga class at the temple; teenagers from my Yoga Club at high school participated in my study; my mother helped me put the	