CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
Sarah N. King

Project Number
22335

Project Title
Altitude = Ineptitude

Abstract

Objectives/Goals
The object of my project is to determine the affects of altitude on the oxygen content in the blood of a human being. I hypothesized that as altitude increased, the amount of red blood cells saturated with oxygen would decrease.

Methods/Materials
I took ten test subjects up in an airplane to different altitudes and measured their oxygen saturation with a pulse oximeter machine. We flew to altitudes 3000 feet, 6000 feet, 9000 feet, 12000 feet, and 15000 feet to test the amount of oxygen in the subjects' blood.

Results
I found that as altitude increased, the percentage of oxygen saturation steadily decreased. At sea level the average percent of oxygen saturation was 97 percent and by the time we reached 15000 feet the average oxygen saturation had dropped to 74 percent.

Conclusions/Discussion
My hypothesis was correct. I concluded that as altitude increases, the amount of oxygen molecules in the air decreases. Since there are less oxygen molecules in the air, the amount of red blood cells occupied with oxygen is less. So as we went higher and higher in the airplane, the amount of red blood cells in our bodies that carried oxygen decreased.

Summary Statement
My project tests the affects of altitude on the oxygen content in red blood cells.

Help Received
My father flew the airplane (he already owned the airplane before I started my testing). My father also borrowed the pulse oximeter machine from the aviation center for me to use.