



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Gregory T. Adamson

Science Fair Use Only

J1501

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

Do Wind Instruments Improve Inspiratory Capacity?

Division

Junior (6-8) **Senior (9-12)**

Preferred Category (See page 5 for descriptions.)

15 - Physiology

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

This experiment studied the relationship between inspiratory capacity and experience playing wind instruments. I hypothesized that children who play a wind instrument develop significantly greater inspiratory capacities than children who do not play wind instruments.

Twenty-five wind instrument players were tested, along with twenty-five children without wind instrument experience. The two groups were matched with respect to age, gender, and Body Mass Index. Using the DHD Coach 2 inspiratory capacity measuring device, each child was instructed to inhale as long as possible on the mouthpiece after a forced exhalation. Each child was tested three times, and his/her highest inspiratory capacity was recorded. A disinfectant swab was applied on the mouthpiece before each subject was tested. Information was recorded on a data sheet and analyzed.

The average inspiratory capacity of the experimental group was 2,540 milliliters, and for the control group it was 1,832 milliliters. The only significant variable in this experiment was experience playing a wind instrument - the experimental variable itself. Data analysis showed that there is a 67% chance that the difference between the groups was actually caused by experience in playing a wind instrument.

There are several experimental improvements that might yield a more significant difference between the groups. These changes include use of a more precise inspiratory capacity measuring device, using children with more playing experience, and increasing the sample size of each group.

Summary Statement (In one sentence, state what your project is about.)

My project demonstrates that playing a wind instrument improves the inspiratory capacity of the lungs.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

I would like to thank my father, Thomas Adamson, for his help with supplies, and with the scientific method. Thank you also to my teacher, Mrs. Gillum, for her instructions and help.