CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
J0319

Project Title
The Effects of Heavy Exercise on Fine Motor Skills

Abstract

Objectives/Goals
My objective was to learn what effects heavy exercise had on fine motor skills.

Methods/Materials
Materials included a stopwatch, a questionnaire, 3 millimeter-wide beads, 3 inch beading needles, a 23 centimeter step, and human subjects.
In the beginning of the procedure subjects were given a questionnaire that consisted of 20 general questions. This was used to calm the subject and lower their heart rate. After the questionnaire was completed the subjects# heart rate was taken. The subjects were then given directions on the beading procedure. In this procedure the subjects had to place as many beads as possible on a needle in one minute. The number of beads threaded by the subject was then counted. Immediately after completing the beading procedure a modified version of the Harvard step test was administered. Following the 3-minute step test the subjects# heart rate was taken again and the results were recorded. Immediately after taking their heart rate the subjects repeated the same beading procedure and the number of beads threaded was recorded and compared.

Results
The average time used to complete the questionnaire was 3 minutes 24 seconds. The average resting heart rate for the subjects was 73 beats per minute and the average amount of beads threaded before exercise was 15. Most subjects stayed at a steady pace during the Harvard step test (between 2-4 seconds per completed step) and their average increased heart rate rose to 140 beats per minute. In the final beading procedure each subject beaded an average of 17 beads. After all experiments were completed the difference in beading totals were averaged and improvement was noted in 80% of the tests.

Conclusions/Discussion
It was hypothesized that heavy exercise would have a negative effect on fine motor skills. Contrary to this statement, fine motor skills actually improved after exercise. Eighty percent of the subjects tested showed improvement on fine motor skills and only 20% demonstrated a negative effect.
Though the results differed from those stated in the hypothesis the information found is important and useful. Individuals who use fine motor skills in their careers or hobbies should recognize the advantage of a brief full body warm-up prior to the use of fine motor skills. The findings of this experiment suggest an improvement could be expected in fine motor skills 80% of the time from such a warm-up.

Summary Statement
My project studied what advantages or disadvantages heavy exercise would have on fine motor skills.

Help Received
Mother and father proof-read work, Mrs. Donoghue, teacher, gave guidance and encouragement.