



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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Project Title
How Missing the "Sweet Spot" Affects the Outcome of a Putter's Performance

Objectives/Goals **Abstract**

The purpose of this experiment was to determine how much the distance and accuracy of a putt was affected by the position of the ball on the clubface. Three putters were tested. There were four distances: 91.5 cm (3 feet), 183 cm (6 feet), 366 cm (12 feet), and 549 cm (18 feet).

Methods/Materials

Wood, Screws, Washers, 4 metal brackets, 2 metal clasps, 1 metal rod, 1 ruler, roll of masking tape, 1 pair of scissors, 1 permanent marker, 1 Wilson True golf ball, 4 paper circles with diameter of 10.8 cm (4 1/4 in), 1 blade putter, 1 mallet putter, 1 face-balanced, toe-heel weighted putter.

1. The materials were gathered and the pendulum was put into place; 2. Seven marks were placed on each club: 1,2,3 cm to the heel and 1,2,3 cm to the toe and the "sweet spot"; 3. Each putter was placed into the pendulum and adjusted to fit; 4. Each putter was tested for each of the seven marks and for the four distances; 5. The results were recorded.

Results

In reference to the charts:

- Putter number one is the blade putter.
- Putter number two is the mallet putter.
- Putter number three is the face-balanced, toe-heel weighted putter.
- O.C. stands for Off Center. In other words, O.C. shows how far in centimeters the center of the ball finished from the center line. The + means anything to the right of the center line and the # means anything to the left of the center line.
- O.D. stands for Off Distance. This simply shows how far in centimeters the center of the ball finished from the ideal distance line. The + means anything beyond the line, and the # means anything short of the line.
- The red lines on the O.C graphs represent the width of the hole. Putts outside the red lines would miss the hole. The red line on the O.D. graph represents the distance to the hole from the ideal distance line. The closer that the plots are to the center means the closer that the ball was to the hole.

Conclusions/Discussion

In fact, the "sweet spot" is definitely the most consistent place to hit the ball on the club. The face-balanced, toe-heel weighted putter came out the winner. It was the best and most forgiving putter of the three. Just as most of the golfing world would agree, taking the club straight back and straight through, hitting the ball solidly (hitting it in the "sweet spot"), and using a face-balanced putter will give

Summary Statement
The purpose of my project was to determine how much the distance and accuracy of a putt is affected by the position of the ball on the clubface.

Help Received
My grandfather designed the pendulum used in the experiment. Once designed, my father and my grandfather helped to assemble the pendulum. My father aided me in the actual performing of the experiment.