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*Get a Grip*

The purpose of this project is to determine what the best thumb length is for a mechanical hand, and to investigate how three thumb joints instead of two affect the hand. I hypothesized that if the thumb length is increased, then the time it takes to pick up the ball will be decreased. The experiment involved setting up a whiteboard, with a 15° degree line, 9.5cm from the ground. Start timer; make the hand grasp the ball. Lift the hand five centimeters, if the ball falls repeat steps, if it does not stop the timer. Test the hand with 3 different thumbs (control [normal], long thumb and three joint thumb) aligning the top plastic plate with the 15° line. Each thumb was given five trials. The data collected partially supported my original hypothesis. I hypothesis that the long thumb would be the most efficient; however it was the second most efficient. The three joint thumb was the most efficient, and the control was the least efficient. The average for the control was 10.40 seconds; the long thumb's was 7.27 seconds, that's a difference of 3.13 seconds! The difference of time from the control to the three joint thumb is giant; the difference of seconds is 3.72 seconds, which is quite a bit in this experiment. These findings lead me to believe that the three joint thumb is the most efficient for gasping a ball.