

Reaction Times – Investigation Assessment

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Interest in the measurement of human reaction time (the time between the onset of a stimulus and the onset of a response to that stimulus) apparently began as a result of the work of a Dutch physiologist named F.C Donders. Beginning in 1865, Donders became interested in the question of whether the time taken to perform basic mental processes could be measured. Prior to this time, mental processes were thought to be immeasurably fast.

Aim: To investigate the reaction times of young adults and the factors that may affect them.

Hypothesis: (1 mark)

Variables: (3 marks)

Materials: Ruler

# Procedure:

1. Person A sits comfortably with the right forearm on a table with the hand over the edge.
2. Hold out the hand forming a 4cm gap between thumb and forefinger
3. Person B holds a 30cm ruler between the thumb and forefinger with the thumb in line with the zero mark
4. Person B drops the ruler
5. Person A tries to catch the ruler as quickly as possible between the thumb and forefinger, without moving any part of the arm.
6. Record the distance shown just above the thumb on the ruler
7. Repeat steps 1-6 at least 5 times for each person and acquire data for at least 3 others
8. Calculate the average distance for each person
9. Repeat the process for the left hand

Results: Table your results below and collect all necessary data (4 marks)

Graph: Graph the results on the paper provided. (5 marks)

# Discussion:

1. From these results, could you tell if someone as right or left-handed? Explain.

(3 marks)

1. Explain how the neural pathway of this task would differ to a reflex, such as the patella reflex.

(2 marks)

1. Assess the validity and reliability of this experiment.

(4 marks)

1. Suggest how a control could be used in this experiment, and explain why this would be useful. (2 marks)
2. Identify limitations of measuring reaction times through the distance dropped by the ruler.

(2 marks)

1. Explain how increasing replication or repetition would affect this experiment. (3 marks)
2. Identity an ethical consideration in this experiment and how it could be addressed.

(2 marks)

Using the App UltraReaction, test your reactions on Easy, and then again on Ultra

1. How did your time vary between the levels? (1 mark)
2. Explain what is occurring cognitively that leads to this difference. (3 marks)