Reaction time to Tactile Stimulus

It is recommended to complement this experiment with two similar experiments – measurement of reaction time to visual stimulus and measurement of reaction time to auditory stimulus.

What you need

- data logger LabQuest 2 or interface LabQuest Mini
- hand dynamometer HD-BTA sensor
- dynamometer DFS-BTA

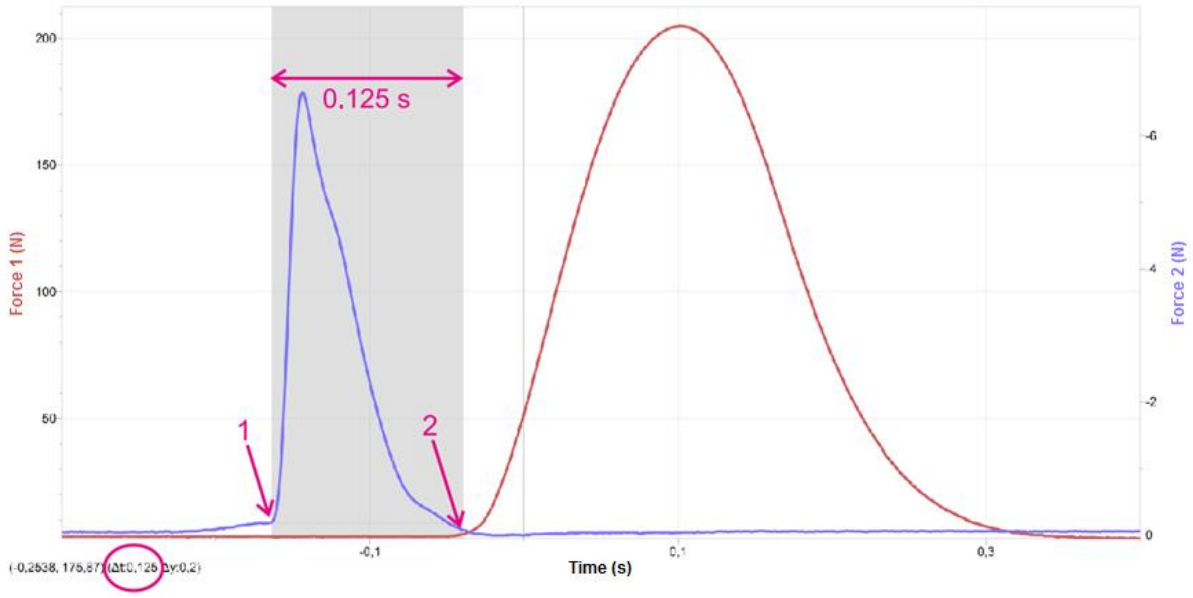
Preparation

1. Set the hand dynamometer to a higher range (± 50 N).
2. Connect the hand dynamometer and the second dynamometer to the LabQuest or LabQuest Mini interface.
3. Connect the interface your computer via a USB port.
4. Launch the Logger Pro programme on the computer, and open the file reakcni-doba- hmat.gmbl which can be downloaded from the web page http://www.vernier.cz/experimenty/IPOINTS
5. The person, whose reaction time you want to measure, sits on a chair and grips the hand dynamometer in one hand. Then they put the other hand on the table and turn their head, so that they cannot see the hand.
6. Prepare the second dynamometer so that you can touch the hand of the measured person with its hook (as shown in the figure below).
7. Instruct the measured person to quickly and strongly press the hand dynamometer immediately after they feel the pressure of the hook in their palm.

Methodology

Measurement

1. Once the measured person is ready, start the measurement. Then randomly within a few seconds poke their palm with the hook of the dynamometer.
2. A sample graph displayed by the computer is shown below. The force measured by the hand dynamometer is plotted in red; the force measured by the second dynamometer is plotted in blue. Click and drag the cursor over the graph between the points 1 (the hook of the dynamometer toutched the palm) and 2 (the hand dynamometer was pressed). Below the graph at the bottom left you can read the length of the time interval Δt of the indicated part of the graph, in this case it is 0.125 sec.



3. Perform the measurement three times for each measured person.

Notes for teachers

The typical reaction time to auditory and tactile stimulus is about 0.15 seconds. The reaction time to visual stimulus is usually around 0.2 s, which is about 0.05 seconds longer.

During this experiment, you can also try to touch different body parts (head, foot, etc.). You can perform this either with the measured person knowing the part in advance, or it can be a surprise to them.