

## Reaction Time to Visual Stimulus

It is recommended to complement this experiment with two similar experiments - measurement of reaction time to auditory stimulus and measuring the reaction time to tactile stimulus.

### What you need

- data logger [LabQuest 2](#) or [LabQuest Mini](#) interface
- hand dynamometer sensor [HD-BTA](#)
- light sensor [LS-BTA](#)
- camera with flash
- MP3 player with headphones

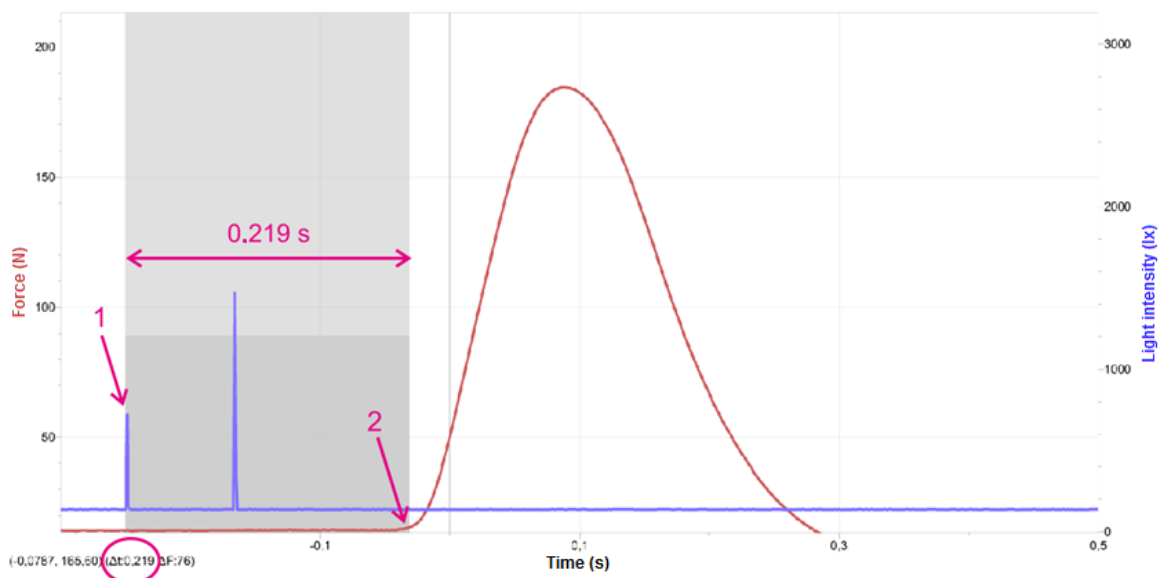
### Preparation

1. Set the light sensor to range from 0 to 6000 lx.
2. Connect the hand dynamometer and the light sensor to LabQuest or LabQuest Mini interface.
3. Connect the interface to your computer via a USB port.
4. Launch the Logger Pro computer programme and open the file reakcni-doba-zrak.gmbl.
5. The measured person sits in a chair and takes the hand dynamometer in one hand.
6. Giving the fact, that the camera makes a sound during taking a picture with a flash, it is necessary to make sure, that the measured person reacts to visual and not to auditory stimulus. Therefore, make them wear the headphones and play some music in the MP3 player.
7. Stand behind the measured person with the camera and position the light sensor in the direction of the flash.
8. Instruct the measured person to strongly press the hand dynamometer as soon as they see the light from the flash.



### Measurement

1. Once the measured person is ready, start the measurement. Then randomly within a few seconds take a picture with the camera, so that the camera flashes.
2. A sample graph displayed by the computer is shown below. The signal from the light sensor is plotted in blue. In this case, there are two peaks in the graph, because the camera flashed twice when taking a picture. The force recorded by the hand dynamometer is plotted in red. Click and drag the cursor over the graph between the points 1 (the first flash was recorded) and 2 (the hand dynamometer was pressed). Below the graph at the bottom left you can read the length of the time interval  $\Delta t$  which is indicated in the graph, in this case it is 0.219 sec.



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

# BIOLOGY

## Methodology



### Notes for teachers

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