

### Reaction Time to Auditory 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 tactile stimulus.

#### What you need

- data logger [LabQuest 2](#) or [LabQuest Mini](#) interface
- hand dynamometer [HD-BTA](#) sensor
- microphone [MCA-BTA](#)

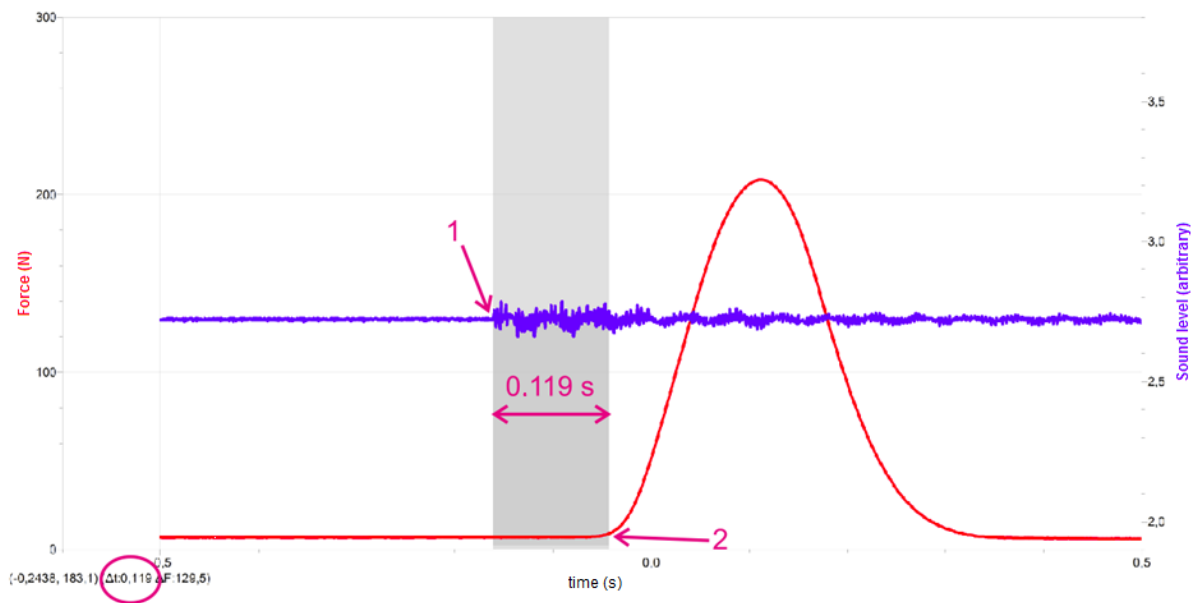
#### Preparation

1. Connect the hand dynamometer and the microphone to the LabQuest or LabQuest Mini interface.
2. Connect the interface to your computer via a USB port.
3. Launch the computer programme Logger Pro, and open the file reakni-doba-sluch.gmbl, which can be downloaded from the web page <http://www.vernier.cz/experimenty/IPOINTS>
4. The measured person sit on a chair and takes the hand dynamometer in one hand and use their other hand to hold the microphone near their ear (The distances from the sound source to the ear and to the microphone should be the same).
5. Stand behind the measured person so that they cannot see you (and therefore only respond to the sound).
6. Instruct measured person to press the hand dynamometer as strongly as possible immediately after hearing you clap.



### Measurement

1. Once the measured person is ready, start the measurement. Then randomly within a few seconds clap your hands a few times.
2. A sample graph displayed by the computer is shown below. The signal from the microphone is plotted in blue; the force measured by the hand dynamometer is plotted in red. Click and drag the cursor over the graph between the points 1 (the sound from the clapping is captured) and 2 (the hand dynamometer is pressed). Below the graph at the bottom left you can read the length of the time interval  $\Delta t$  of the indicated part of the graph, in this case it is 0.119 sec.



3. Perform this 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. The reaction time to visual stimulus is usually around 0.2 s, which is about 0.05 seconds longer.