

Materials List for:

# A Method for Evaluating Timeliness and Accuracy of Volitional Motor Responses to Vibrotactile Stimuli

Matthew J. Leineweber<sup>1</sup>, Sam Shi<sup>2</sup>, Jan Andrysek<sup>1,2</sup>

<sup>1</sup>Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital

<sup>2</sup>Institute of Biomaterials and Biomedical Engineering, University of Toronto

Correspondence to: Matthew J. Leineweber at [mleineweber@hollandbloorview.ca](mailto:mleineweber@hollandbloorview.ca)

URL: <https://www.jove.com/video/54223>

DOI: [doi:10.3791/54223](https://doi.org/10.3791/54223)

## Materials

Name	Company	Catalog Number	Comments
Vibrating Pager Motors	Precision Microdrives	Model 310-101	Coin eccentric rotating mass motors. As many as necessary to test all locations and interactions of interest
Tri-axis Accelerometer	Dimension Engineering	ADXL 335	Advanced analog accelerometer. 500 Hz bandwidth, 3.5-15 V input. Designed for motion, tilt, and slope measurement, as well as vibration and shock sensing.
Arduino Uno	Arduino	DEV-11021	Microcontroller board for communicating with the tri-axis accelerometer
Arduino Mega 2560	Arduino	DEV-11061	Microcontroller board for interfacing with the vibration motors.
LabVIEW	National Instruments		Data acquisition software used to control motors and display accelerometer signals
Arduino IDE Software	Arduino	v. 1.6.5	
Push-Button	Bridges	Buddy Button	Wired switch featuring a 2.5 in/6.35 cm activation surface that provides an auditory click and tactile feedback.
Optional:			
Dedicated haptic motor driver	Texas Instruments	DRV2605L	Can be used to replace the entire amplification circuit described in Step 1.
Flexible wearable goniometer	Biometrics Ltd.	SG110	Twin axis flexible goniometers to measure angles in up to two planes of movement that can be used in lieu of the push button to measure joint movement in response to stimuli. <a href="http://www.biometricsltd.com/gonio.htm">www.biometricsltd.com/gonio.htm</a>