



DEC 13, 2022

 Advanced Dynamic Weight Bearing system for mice

COMMENTS 0

This protocol is published without a DOI.Fanglin Lu¹¹MD,MS

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WORKS FOR ME

1

ABSTRACT

We can assess spontaneous limb pain-like behaviors using advanced DWB apparatus, wherein changes in the postural equilibrium of each freely moving animal were tracked and analyzed.

This protocol outlines the procedures from calibration to data analysis.

PROTOCOL CITATION

Fanglin Lu 2022. Advanced Dynamic Weight Bearing system for mice. **protocols.io**
<https://protocols.io/view/advanced-dynamic-weight-bearing-system-for-mice-ckb7usrn>

MANUSCRIPT CITATION please remember to cite the following publication along with this protocol

Lu F, Kato J, Toramaru T, Sugai M, Zhang M, Morisaki H. Objective and Quantitative Evaluation of Spontaneous Pain-Like Behaviors Using Dynamic Weight-Bearing System in Mouse Models of Postsurgical Pain. *J Pain Res*. 2022 Jun 2;15:1601-1612. c 10.2147/JPR.S359220. eCollection 2022.

KEYWORDS

spontaneous pain-like behavior, pain evaluation

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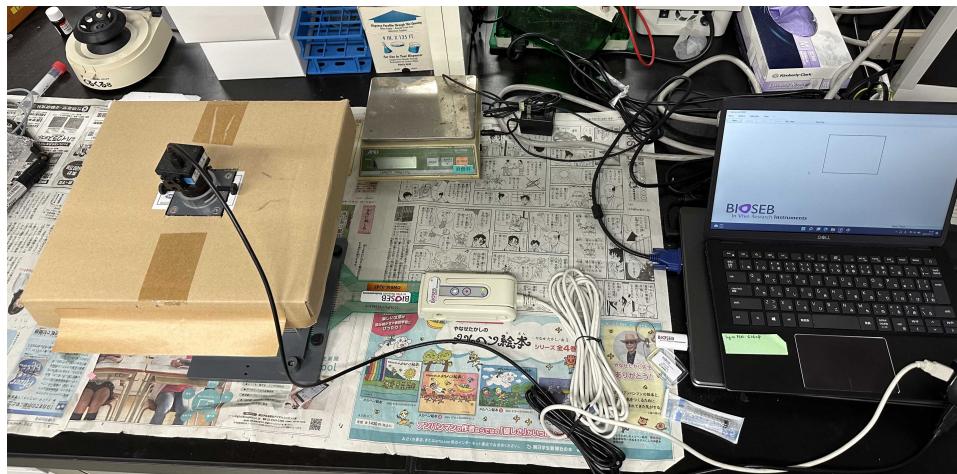
MATERIALS & METHODS

 protocols.io

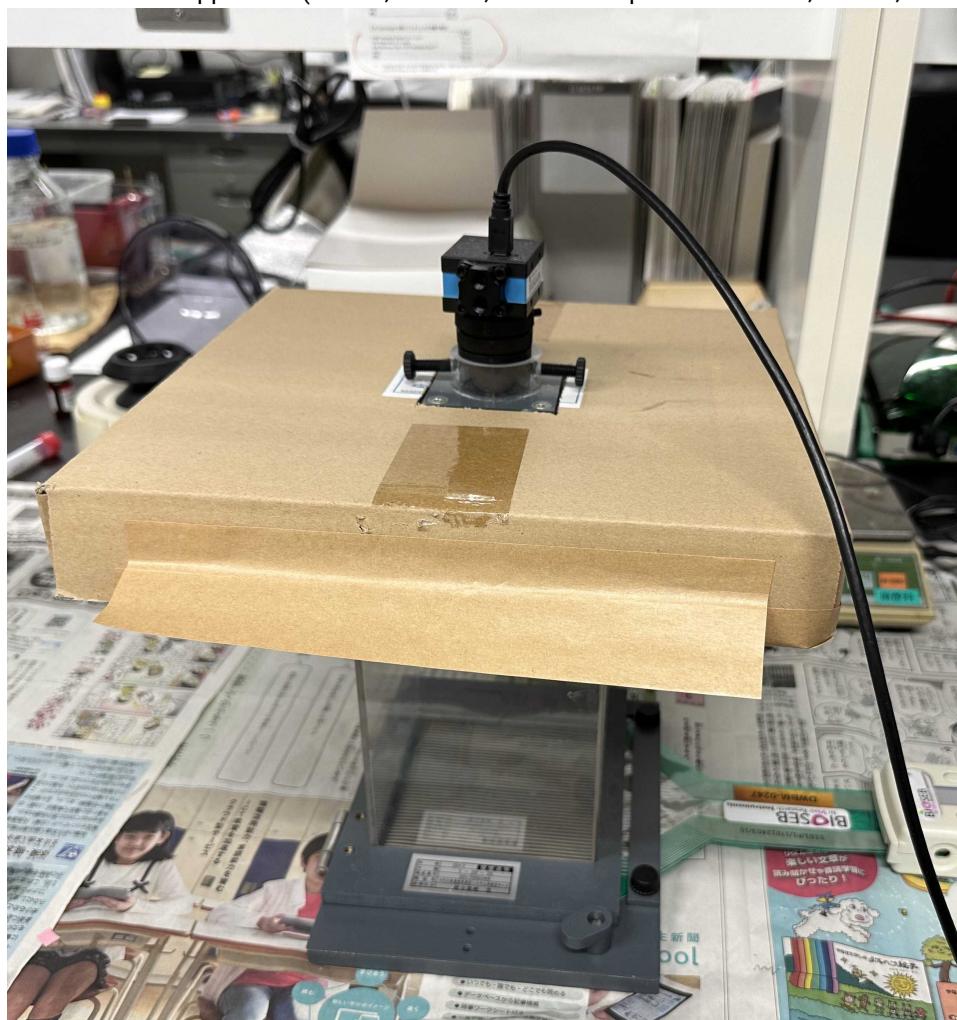
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PC



Advanced DWB apparatus (Bioseb, Vitrolles, Provence-Alpes-Côte D'Azur, France; catalog number: BIO-DWB-M)



We made the apparatus a hat to reduce the reflection of room light.

3000mL water



BEFORE STARTING

Install the DWB software set (drivers for digital USB camera, driver for PC/sensor interface, video codec, advanced DWB software).

Calibration

1

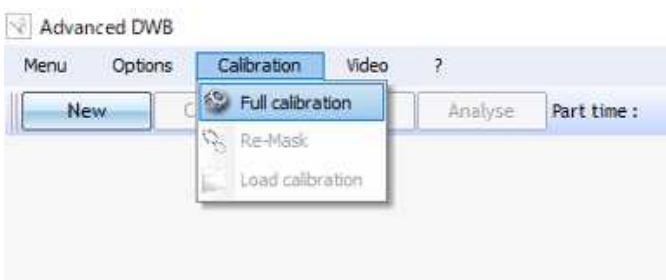
5m

Note

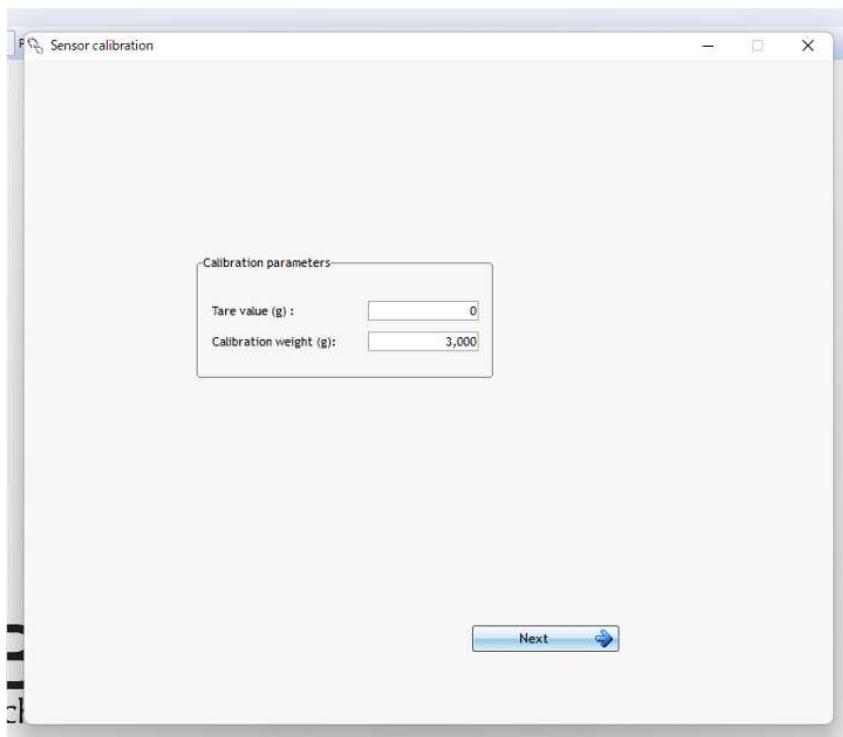
Connect the sensor and the camera to the PC.



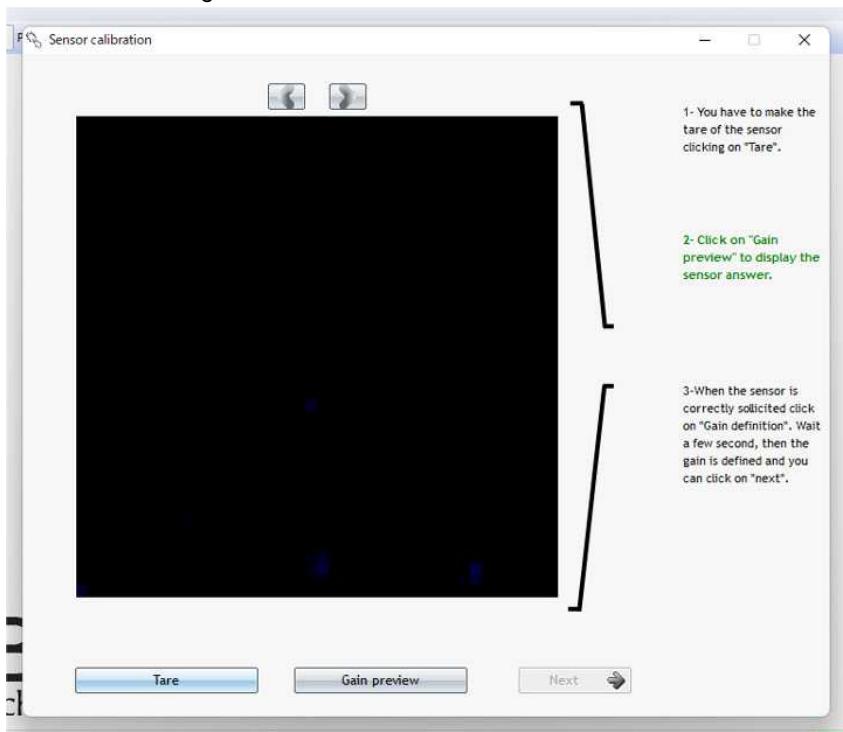
- 2 Launch the software and select the sensor type "Mice".
Click "Full calibration".



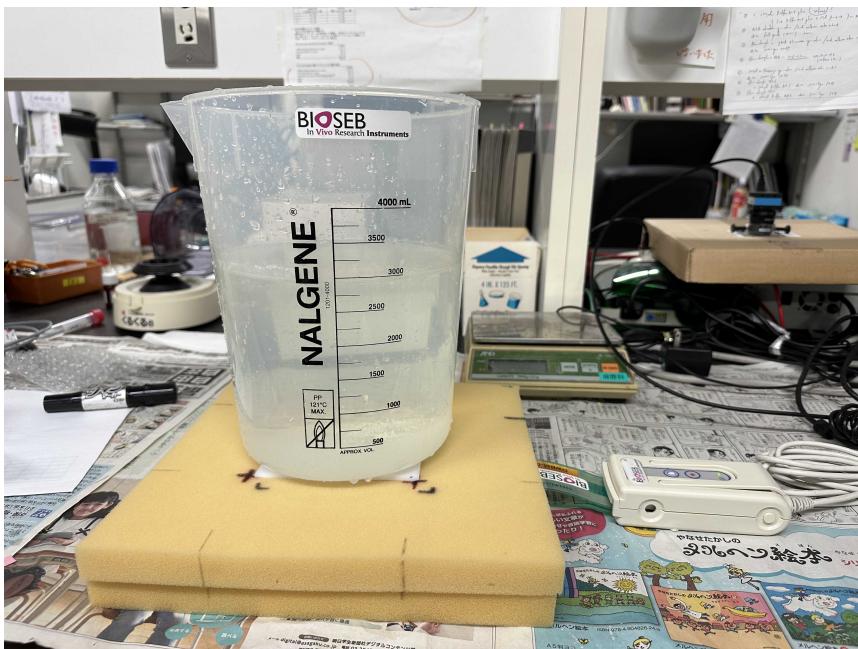
Enter the calibration weight, then click "Next".
For mice, 2000-3000g is preferred, and 7000-10000g for rats



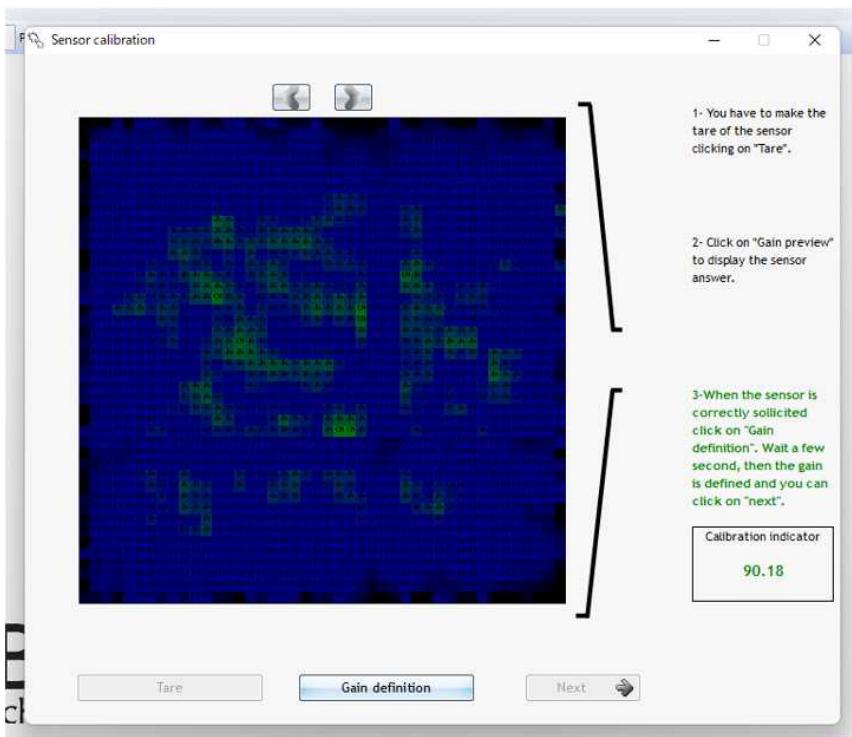
Adjust the display angle of the sensor to match the real sensor direction by clicking "<" or ">" on the top.
Make sure no weight is on the sensor and click "Tare".



Click "Gain preview", and apply the calibration weight (3000g) indirectly on the sensor.



3



Follow the guidance on the right.

Acquisition setting

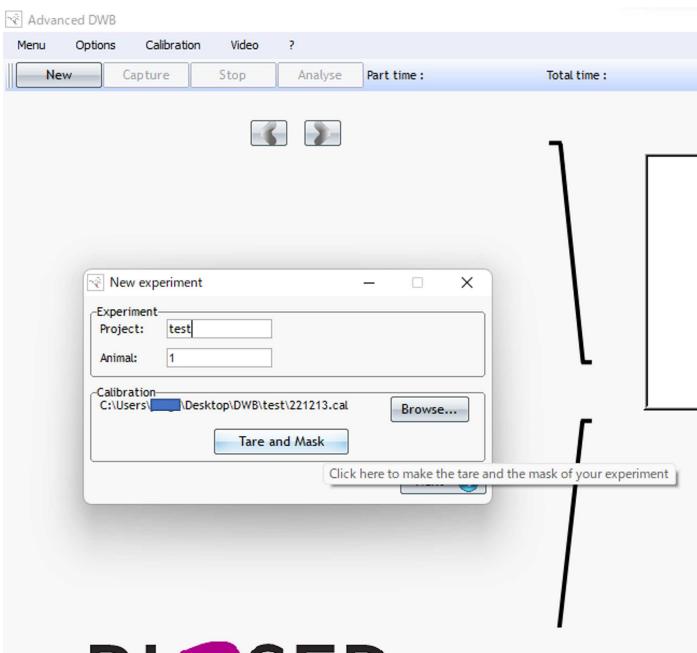
4



Embed the sensor in the floor of the chamber.



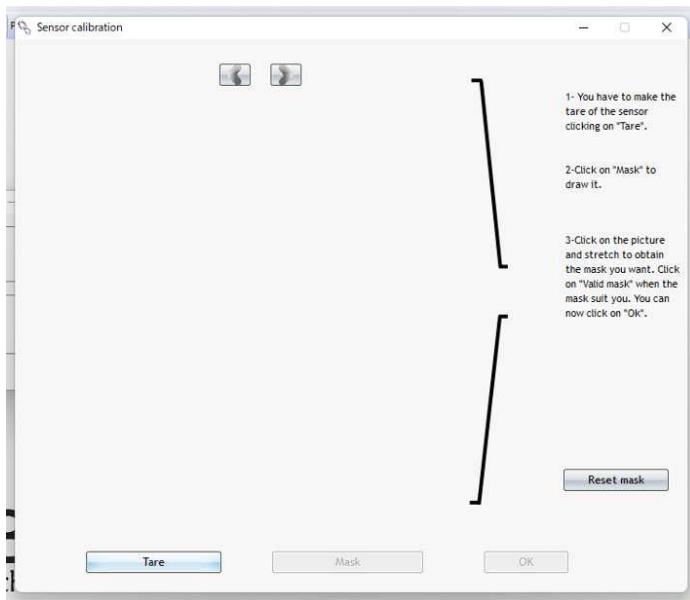
5



Click "New" to create a new experiment project.

Click "Browse..." and select the calibration file that is previously saved.

Click "Tare and Mask".



Follow the guidance on the right.

6 Click "Next".

Click "Video setting" to make sure that the DWB software is connected to the digital camera, not WebCam of the PC.

Click "OK".

Data acquisition

7 Place the mouse in the chamber.

Adjust the camera aperture and focus to get a bright and clear image.

Click "Capture" to lauch the acquisition.

Input the weight and click "OK".

Note

The mouse is allowed to move freely in the chamber and changes in postural equilibrium were synchronously and automatically tracked and analyzed by the software.

- 8 When the capturing is over, click "analysis" and compress the data file.
Place the mouse back to its cage and clean the chamber before the placement of next mouse.

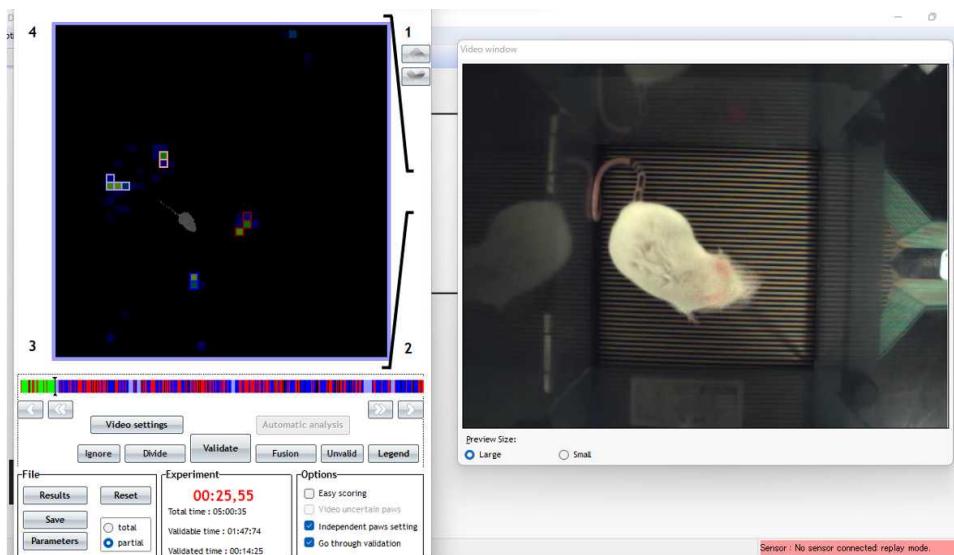
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Data analysis

- 9 Click "Menu"→"Open experiment file..."
Manually validate each automatically presumed paw position to avoid error identification afterward.

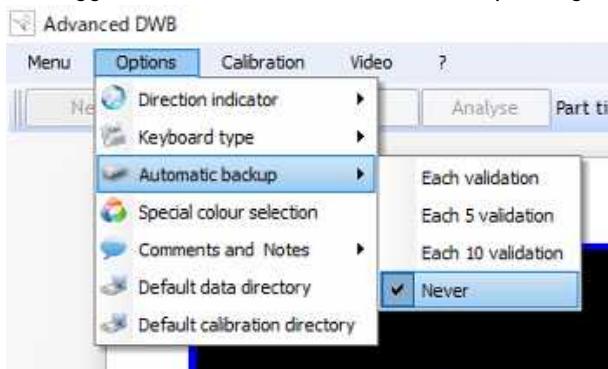
8m

6m

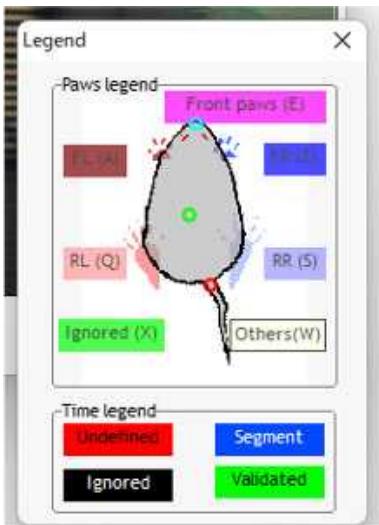


Tick "Independent paws setting" and "Go through validation".

We suggest to choose "never" make a backup during validation as it takes time to save the file.



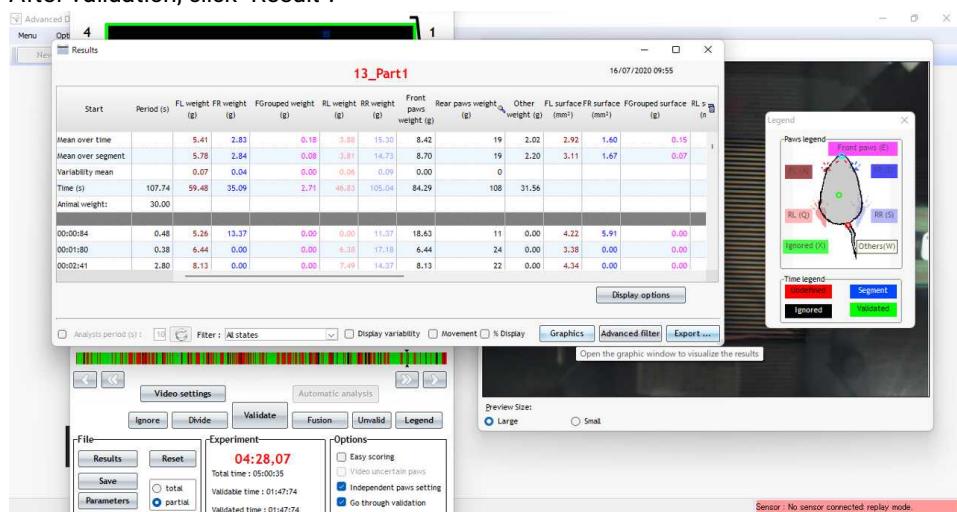
Click "Legend" to help validating each paw position.



Note

10

After validation, click "Result".



Click "Graphics" to visualize the results.



