

1. **Purpose:** Assigning device to study participants and extracting data from device
2. **Scope:** For Program Coordinator and Data Manager
3. **Instructions:**

SETUP

- a. Before beginning setup, device must be fully charged. Charge the device by clicking it into the cradle and looking for the flashing light on the device to confirm it is charging. Device must be charged for 2 hours, a 2 hour charge will last 1 week collecting data at 100 hz. It is not recommended to leave the device charging on the cradle for more than 2 hours.
- b. Once device is fully charged Open the GENEActiv software and connect the charging cradle to a USB port. Insert a GENEActiv device into the cradle. The software will display information about the device and any data previously stored on it will be shown. If it is the first time setting up the device, there will be no previous data shown.
- c. Click 'Config. Setup' from the left-hand menu. This page allows you to set recording options and to enter information about the trial and test subject. Select the 'Measurement Frequency and set for 100hz, which will automatically set the length of recording for 7 days.
 - a. Select measurement period (will set automatically for 7 days as mentioned above)
 - b. Select the local time
- d. On the right side of the screen, fill out subject information and start time.
 - a. Select when you want the recording to start, 'On Button Press', 'Immediately' on 'Disconnect', or 'At Future Time'. If you select 'On Button Press', a further option, 'Allow Stop and Restart', will appear. This is useful for lab experiments but during actual user trials could lead to recording being stopped by an accidental button press. The button is hidden under the serial number and requires a firm press to avoid accidental activation.
 - b. If button press mode was selected, when the button is pressed the green light will give a long flash to show that recording has started (and if Allow Stop & Restart has been selected, pressing the button again will stop recording and the red light will give a long flash).
 - c. For future time, be sure to start recording at midnight on the day selected. Allow for 2 days for package to arrive and recommended to begin recording at midnight the following day. You may prompt participant to out device on before bed on the evening it arrives so it begins collecting data while they sleep.
 - d. Fill out the subject ID, height in cm, weight in kg, birthdate, gender and where device is worn. It is recommended the device be worn on the non-dominant wrist, similar to a wrist watch.
- e. To configure the GENEActiv and get it ready to record, select the serial number of the device in the Devices box in the bottom right-hand corner of the screen (the serial number is printed on the front of the device)

- f. Click Erase & Configure. Pop-up windows will advise you of any problems (such as mandatory information missing or low battery charge), and warn that configuring will erase any existing data. The configuration will take about 10 seconds and a pop-up will confirm that it has been completed successfully

NOTE: If device is reconnected to the charger cradle once it has started recording, it will stop recording and require reconfiguration.

DOWNLOADING DATA

- a. Once recording is complete and device is returned and ready for data extraction: Open the GENEActiv software and connect the charging cradle to a USB port. Insert a GENEActiv device into the cradle. Click 'Data Extractor' from the lefthand menu. This page previews the first few minutes of recorded data and allows you to download data to a chosen file location.
- b. Choose a file location and select whether to also create a .csv format file. The default data format is a compressed .bin that can be interpreted, with a suitable script, by most mathematical analysis software packages, but not Excel. A .csv format file is readable by Excel but can be unwieldy if there is a large amount of data. The Data Converter and Data Analysis tabs (selected from the left-hand menu) can convert .bin files to .csv files or to compressed .csv files that can be handled more easily. This means that .bin files can be saved and then converted to another format at a later date if required.
- c. Click the 'Extract' button. The data can take up to 20 minutes to download and a pop-up will confirm completion.

DATA CONVERTING

- a. The 'Data Converter' creates .csv files, which can be used by Excel, from .bin files.
- b. The 'Data Analysis' tab has a viewer which allows data from .bin and .csv files to be previewed. There is an option to look more closely at sections of the data. The 'Epoch Converter' can be used to turn .bin and large .csv files into a smaller compressed version. It does this by creating epochs of 1, 5, 10, 15, 30, or 60 seconds – the means for each parameter and the Sum Vector Magnitude are calculated for each epoch.
- c. Select epoch length of 60 seconds
- d. Save raw file and .csv file to S drive
- e. Once completed and data is downloaded successfully, you may erase the device for configuration.

QA

Review device data for compliance. The device must be worn at least 50% of the time for data to be compliant. A tracking sheet sent by participant can be used to review data accuracy. After data has been downloaded, file can be cleaned to remove data collected during device shipment so that the dataset only include participant wear time.