

## **CLSA Activity Trackers Participant Information Package**

The CLSA is asking participants to collect some additional data at their home between their in-home and data collection site visit. We are collecting additional information on your daily activities using wearable **activity trackers**, to complement and enhance existing data already being collected about mobility and sleep.

Please read the information provided below carefully. At your in-home interview, you can speak with the interviewer about the information, ask any questions you might have, and decide if you wish to take part in this at home data collection.

You may choose not to take part in these data collection measures and this decision will not affect your participation in the CLSA.

Research shows that having mobility limitations may have a negative impact on your physical abilities, visits to emergency departments, hospitalization, and on admission to nursing homes. Mobility can be monitored through activity trackers that can record such things such as step counts, number of stairs climbed, distance traveled, type of travel (e.g., car, public transit, walking, cycling), number of minutes active, body position (i.e., lying, sitting, or standing). Similarly sleep headbands monitor different patterns of brain activity while sleeping that are potentially linked to various diseases including dementia, frailty and increased healthcare use.

There are two types of trackers that we are asking our participants to consider wearing. The first set of two trackers will focus on measuring mobility (day-to-day activities). The second set will focus on measuring sleep.

### **What will my responsibilities be if I take part in the mobility and sleep trackers data collection?**

If you agree to wear these trackers, there will be two parts to the tracker data collection as described above. You can choose to do one part of the data collection and not the other. One part measures mobility and the other measures sleep activity.

You can decide that you do not wish to wear any of the trackers.

You will not be able to see most of the data the trackers collect, or keep a copy of any of the data.

### Mobility Trackers

- At your in-home interview, you will be provided with one activity tracker that will be worn on your non-dominant wrist (TicWatch) for 7 days in a row, and the other on your upper leg (thigh ActiGraph), for the same 7 days in a row.
- Your data collection site visit will be scheduled to allow you time to use these devices for the 7 days to complete this data collection. You will bring both trackers to your data collection site visit.

### Sleep Trackers

- To collect data about your sleep activity, you will wear a tracker on your wrist (called a wrist ActiGraph) for at least 7 days in a row, and a sleep monitoring device on your head (called a Muse headband) for 3 nights in a row within those 7 days. A tablet will also be used with the headband to capture the data. The tablet will be locked so that it cannot be used for other purposes.
- You will return these trackers and the tablet to the CLSA by mail in packaging provided.

**You will be asked to complete this data collection every three years.**

## **What data are being collected by these trackers?**

### Mobility Trackers:

- The TicWatch and thigh ActiGraph will record information about your movements throughout the day (e.g., step count, body position, etc.). The thigh Actigraph collects accelerometer data, which is information about speed of movement in any direction and is used to interpret your daily activity. The TicWatch collects accelerometer data as well, and also gyroscopic data, heart rate, ambient light, and

location. All of this data is used to track activity intensity and activity transition (the point when you change from one activity to another – such as from sitting to walking), as well as how you travel (car, public transit, bicycle, or walking), and the types of places you visit in your day. The TicWatch tracks location with GPS data. Specifically, longitude and latitude data from locations you visit are collected. These coordinates are turned into destination information only (restaurant, shopping, entertainment, hospital, etc.) in the research data. The specific longitude and latitude data is encrypted on the device and only accessible to the researchers who have the decryption algorithm (like a password) to do the translation from specific location data into destination information. For example, we would be interested in knowing that you travelled 4 km from your home by bus to get to a grocery store.

- The data that are collected with the mobility trackers are stored on the devices under an ID number, and downloaded to an application run on a CLSA computer. The data are then transferred through a secure (encrypted) pathway to the CLSA server. The data on the mobility trackers will be deleted from them after the information is downloaded.

### Sleep Trackers:

- The sleep monitor is an EEG (electroencephalogram) sleep headband, which captures EEG data using sensors on the forehead and behind the ears. These data are collected through an application that runs from the tablet that you will be provided with. Each night you will start the app and when you get up the next morning you will stop it. If you wake in the night but plan to go back to sleep (e.g., getting up to go to the bathroom) you will keep it on.
- The information from the Muse headband is collected using an application run on the tablet, and de-identified data from the Muse recordings are automatically uploaded to a company-provided cloud server (neither your name nor any personal information will be included).
- The wrist ActiGraph collects accelerometer data, which is information about speed of movement in any direction and is used to interpret your daily activity. The data

that are collected through the wrist ActiGraph are stored on the ActiGraph itself under an ID number, and will be downloaded at the data collection site by the staff. The data are then transferred through a secure (encrypted) pathway to the CLSA server. The data on the wrist ActiGraph will be deleted from the device after this download has occurred.

## **What are the possible risks and discomforts?**

There are no known medical risks to wearing activity trackers. There are some minor discomforts you may have from using these devices. First, there is the general feeling of being aware that you are wearing these devices while you go about your usual activities. The level of discomfort, however, should be small and hopefully go away as you get used to having them on.

### Mobility Trackers:

- There are no known medical risks to you from using the thigh ActiGraph or TicWatch to record your physical activity.
- There may be some minimal discomfort from wearing the thigh ActiGraph and TicWatch.
- You may find that the bands and adhesives on the thigh ActiGraph may cause skin irritation.
- There is also a slight chance that you may feel as if you are being watched due to being tracked by the GPS device in the TicWatch.

### Sleep Trackers:

- There are no known medical risks to you from using the wrist ActiGraph or Muse headband to record your sleep and daily activity.
- There may be some minimal discomfort from wearing the wrist ActiGraph. This discomfort is similar to wearing a watch.

- You may experience some minor disturbance of your usual sleep on the nights that you are wearing the Muse headband.
- You may find that the bands on the Muse headband may cause skin irritation.

### **What if I do not want to wear these trackers?**

Your participation in this part of the CLSA is completely voluntary, and not wishing to wear these devices will not affect your participation in the CLSA overall. If you do agree, you may also decide to stop at any time.

### **How will my information be managed and kept safe?**

The data collected on all of the trackers and their applications are de-identified (meaning the data are connected to an ID number, not to your name or any other personal identifying information). This means that if a tracker is lost or an unauthorized person tries to access the data, they will not be able to connect the data or tracker back to you. Further, data are protected by encryption that cannot be accessed without having credentials. These credentials are only known to key CLSA staff. No identifiable information will be shared with anyone outside of our established CLSA protocols.

The data from this part of the study are kept, like all CLSA data, on secure servers located at McMaster University.



The CLSA is collecting additional information on daily activities using wearable activity trackers to enhance existing data already being collected on sleep.

**You may choose not to take part in these data collection measures and still remain in the CLSA.**

For more information about this data collection, please refer to the **CLSA PARTICIPANT INFORMATION SHEET**.

## SLEEP TRACKERS – 7 DAYS AND 3 NIGHTS

To collect information about your sleep, you will be asked to wear an **ActiGraph tracker on your wrist** for seven days, and a **Muse headband** while you sleep for three nights within those seven days.



ActiGraph, worn on your wrist like a watch.

You will also be given a tablet that will be used to collect the data from the Muse headband.



Muse headband, worn as pictured.

Receive trackers  
at Data Collection  
Site visit

Wrist tracker – 7 days  
Sleep headband – 3 nights

Return  
by mail

You will be given the sleep trackers and tablet at your Data collection Site visit. You will return the devices by mail in packaging provided.

If you require assistance, please contact us:



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www.clsa-elcv.ca

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The CLSA is collecting additional information on daily activities using wearable activity trackers to enhance existing data already being collected about mobility.

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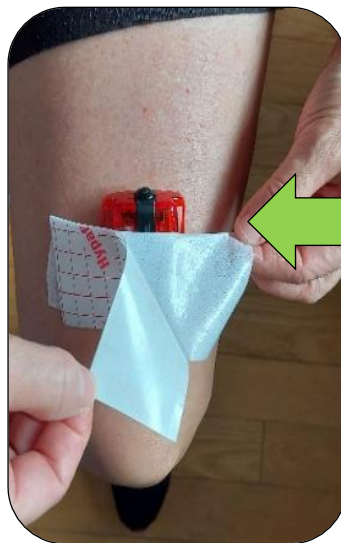
For more information about this data collection, please refer to the **CLSA PARTICIPANT INFORMATION SHEET**.

## MOBILITY TRACKERS – 7 DAYS

To collect information about your mobility, you will be asked to wear a **TicWatch on your wrist** and an **ActiGraph tracker on your thigh** for seven days.



TicWatch, worn on your wrist like a watch.



ActiGraph, worn on your thigh (will be stuck down with an adhesive patch).



You will be given the mobility trackers at your in-home interview and we ask that you wear them for 7 days in a row. You will return them at your Data Collection Site visit.