ACCELEROMETRY

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1.   Background and rationale

Accurate and reliable assessment of physical activity remains an important measurement for epidemiologists, exercise scientists, clinicians, and behavioral researchers. However, a cost-effective and objective assessment of physical activity has until recently been unavailable. Recent advances in accelerometers, which quantify body movements in terms of acceleration, offer a cost-effective way to objectively record physical activity. Accelerometry is considered to be the "gold standard" for measuring habitual physical activity.

Accelerometry measurement is completed at 60-months and for a subset of participants at 84 months. At 84-months, check the Clinic Visit Data from Prior Visits Report for eligibility. Also any 84-month participants who refuse to complete the Physical Scale for the Elderly (PASE) interview should be asked to complete accelerometry, if they are willing.

General description of StepWatch
The StepWatch Activity Monitor (SAM) is a research-grade instrument for long-term assessment of ambulatory activity during day-to-day life. It is a small, waterproof, self-contained device that is worn comfortably on the ankle (Figure 1) and records the number of strides taken every minute for extended periods of time. Participants in the MOST study will wear the monitor for 7 days.

The monitor is programmed and downloaded with a standard computer via a docking station that plugs into a USB port. The SAM and dock communicate through an infrared link which allows the SAM to be completely sealed, waterproof, and impervious to tampering.

The SAM provides no feedback to the participant and, thus, does not encourage abnormal "performance behavior." The monitor is extremely durable and can survive substantial impacts without damage. The predicted battery life with continual use is 7 years.

Figure 1: StepWatch is worn on the ankle

Measurements

The raw SAM data reflect the number of strides per minute across the entire monitoring period. Visual inspection of the raw data plots can be employed to verify whether the participant was compliant with monitoring. Days or parts of days during which a participant was not compliant or which are not desired in the statistics can be excluded from analysis. By default, statistics are calculated for each full 24-hour day of data then averaged across the included days.

2.   Equipment and supplies

- StepWatch 3^{TM} activity monitor
- StepWatch 3^{TM} activity monitor straps, small, medium, and large
- StepWatch 3^{TM} USB docking station, cable, and step analysis software
- Cleaning supplies
- PC connected to internet

2.1   Maintenance

The StepWatch 3^{TM} monitor may be cleaned using a cloth dampened with mild soap and water or isopropyl alcohol. PDI Super Sani-Cloth disposable germicidal wipes have been successfully tested on the StepWatch. Strong detergents or solvents will damage the plastic and will void the warranty. Do NOT soak the StepWatch in any type of cleaner or solvent. Dry the StepWatch at room temperature. NEVER PLACE THE STEPWATCH IN ANY TYPE OF OVEN OR AUTOCLAVE.

The StepWatch straps may be cleaned with mild soap and water, or by dipping in isopropyl alcohol. Hand wash. Machine washing or drying may cause shrinkage and hasten deterioration of the elastic.

2.2   Service and repair

The StepWatch and the StepWatch dock are not user-serviceable. Opening or tampering will void the warranty. They are factory repairable/refurbishable; contact Orthocare Innovations for details.

3.   Safety issues and exclusions

There are no general safety issues for this exam. It is most important that the participant is reliable and can be counted on to wear the accelerometer for 7 days and will return the accelerometer to the clinic.

4.   Pre-exam procedures

4.1 Creating separate accelerometry data folders for 60-and 84-month follow-up visits

Prior to beginning accelerometry data collection for the 84-month visit, create separate folders for each visit in the StepWatch Library of your StepWatch software. Name the folder for the 60-month visit "MOST_60mCV_AccelerometryData" and name the 84-month folder "MOST_84mCV_AccelerometryData." Any 60-month accelerometry data should be moved to the 60-month folder. All 84-month data should be saved in the 84-month folder.

4.2 Materials to have available for each eligible participant

Have available for each eligible participant being seen in clinic that day:

- Instructions for Wearing the StepWatch (Appendix 1)
- Data from Prior Visits Report
- StepWatch
- StepWatch strap
- Stamped pre-addressed envelope for return of the StepWatch
- Accelerometer Distribution Teleform (in Follow-up Clinic Visit Workbook)
- StepWatch Participant Questionnaire (84-month visit only)

5.   Detailed measurement procedures

5.1 Introduction

The StepWatch comes with a selection of straps (small, medium, and large) that are used to attach the instrument just above the participant's ankle. The StepWatch should be worn with the **rounded end up**. If it is upside down, it will not count steps. It is important that the StepWatch is worn in the SAME POSITION EACH DAY.

5.2 Explain use of StepWatch to participant

On the day of the participant visit the examiner will explain the accelerometry study to the participant:

Script (60-month visit): "The purpose of this exam is to observe the number of steps taken by adults with arthritis or adults who may be at risk of developing arthritis. We're interested in studying the relationship between a person's normal number of steps per minute and knee osteoarthritis."

Script: (84-month visit): The purpose of this exam is to record the number of steps taken by adults with or at risk of arthritis. We have specially selected you as you wore the monitor at the last visit. Your continued participation is very important to us as wearing the monitor will allow us to examine how things like knee pain, fatigue, and problems with functioning are related to changes in walking over time. When you wear the monitor again, we will provide you a print out of how many steps you took from this visit and the last visit. We will also provide you with an information sheet of how to interpret your steps."

If the participant agrees to wear the monitor and the examiner deems the participant to be reliable and likely to return the monitor, then the examiner will explain how to wear the StepWatch and then fit the strap on the participant.

5.3   Setting up the StepWatch for a participant

Before setting up the StepWatch, be sure to record the serial number on the Accelerometry (StepWatch) Distribution form.

The dock should be attached to your computer before you launch the StepWatch software. Click on the StepWatch31b launch icon:
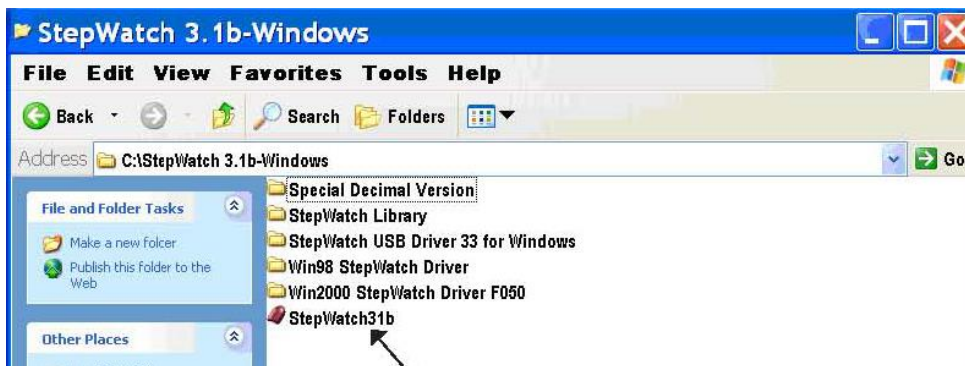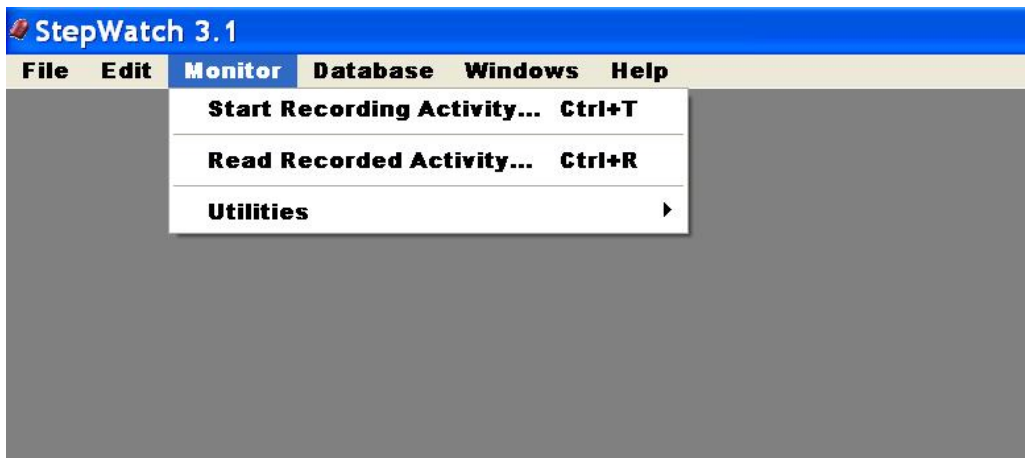

The docking station should be lit with a blue light when it is ready for set up.

Put the StepWatch face down on the docking station. A green light will appear.

The next screen you will see is this:

StepWatch 3.1

File   Edit   **Monitor**   Database   Windows   Help

To program the monitor, click on Start Recording Activity from the Monitor pull-down menu:

StepWatch 3.1

File   Edit   **Monitor**   Database   Windows   Help

Start Recording Activity...   Ctrl+T

Read Recorded Activity...   Ctrl+R

Utilities   ▶

After the monitor is set up, there will be a message and a green line across the screen. The first message on the screen is "Establishing Communications Link." The next message is "Identifying StepWatch."

After several moments you will see the following screen:

Enter the participant's height in inches (round up; i.e., if a person's height is 63.5 inches type in 64). The participant's height is listed on their Data from Prior Visits Report.

Quick Stepping, Walking Speed, Range of Speeds, and Leg Motion categories do not have to be altered. Go to item #2. "Set Start Time and Recording Duration." Click on the "Later" bubble; choose your time zone, CS, MDT; and then enter the month, day, and year the participant will begin to wear the monitor. This will be the date of their clinic visit. The time will be set at 5 minutes after you enter the set-up information on the monitor.

Next to "And the StepWatch should stop recording after:" text is a box that will be set up in your preferences as 9 days.*

Click right below item #3, "Add Your Own Notes" and type in the participant's MOST ID number, acrostic, and date of their clinic visit. The format in which the Notes should be typed is shown in the examples below:

MB45678 ABCD MM_DD_YYYY (UAB clinic)
MI45678 ABCD MM_DD_YYYY (UI clinic)

---

* To choose 9 days as your preference, go to the Edit screen, choose Preferences, and choose Other and 9 as the preferred recording duration. You will only have to choose this preference once.

Please see the example below. This participant is 65 inches tall and is being seen in a fictitious clinic on the West Coast on December 23ʳᵈ, 2008. She will be wearing the monitor beginning on December 23rd at 4:30 pm (16:30) in the afternoon (note: this is military time). The monitor has been set up to record for 9 days, allowing for the possibility that the participant will forget to wear the monitor one day, and will wear the monitor one extra day to make up for the missed one. Also, the clinic day will not count as one of the 7 days. Item #3, "Notes" includes the participant's MOST ID number, acrostic, and the date she was seen in clinic.

Click "Start."

After the monitor is set up, there will be a message and a green line across the screen. The first message is "Writing Notes," followed by several other messages. After this is set, you will see a clock with the information about when the StepWatch will begin recording:
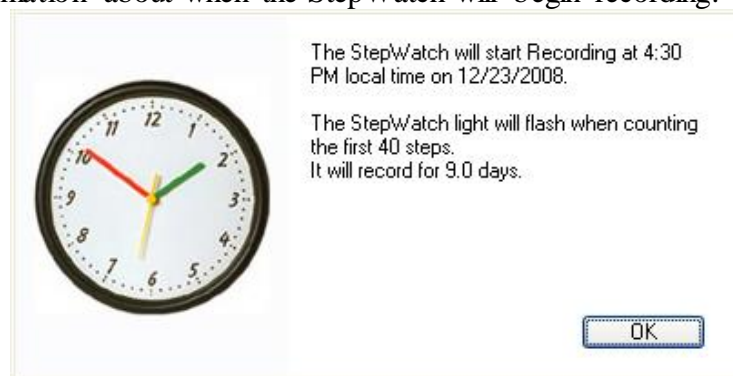
Click "OK."

5.4 StepWatch placement and instructions

Hand the participant the Instructions for Wearing the StepWatch (Appendix 1) and place the StepWatch on the participant while instructing them.

5.4.1 Fitting

Fit the strap that is holding the StepWatch around the participant's ankle and explain:

Script: "You will wear this StepWatch on your ankle to monitor your physical activity. First we will need to fit you for the strap."

Place and tighten the strap above the participant's ankle and ask,

Script: "Is that comfortable? OK, now do you see where the monitor is above your ankle? This is where you should wear it each day. The thing that matters is that you wear it in the same place every day like we have it now." **Make certain the rounded end of the StepWatch is UP. The writing on the case should appear right-side up to someone standing beside you. The monitor should be positioned like a rocket ready for launch.**

"You also want to make sure that the monitor is snug against your leg and that it doesn't slip down. If it begins to loosen, you can tighten the belt by pulling the end through the buckle like so (examiner demonstrates by pulling elastic through buckle to tighten)."

5.4.2 Walking

Ask the participant to walk. Walk alongside the participant, following the participant's pace, and watch the blinking red light. Explain to the participant:

Script: "Let's try walking. How does that feel? The light that is blinking will stop blinking after 40 steps. The StepWatch is still working even when the light stops blinking."

Note that for most participants, the light will blink once per step.

5.4.3 Scheduling

Explain schedule to participant.

Script: "Now we're going to talk about when you're supposed to wear the monitor. Put the StepWatch on right away when you get up in the morning, and wear it throughout the day. When you take it off at night, put it somewhere that will remind you to put it on first thing in the morning such as with your glasses, clock, watch, toothbrush, coffee/tea pot, or whatever will remind you. If you are worried about forgetting to put it on, it's OK to wear it to sleep."

5.4.4 Care

Explain care of StepWatch to participant.

Script: "Be sure to not leave the StepWatch in hot places such as on the dashboard of a car when the sun is shining. Do not throw it, cut into it, or remove the label. The StepWatch is waterproof. You can bathe or swim with it. Let us know if you regularly do water sports, such as swimming or water aerobics and we'll give you an extra strap so you'll have a dry strap to put on after you come out of the water. If you want to wash the StepWatch, hand wash it and use only mild soap and water."

5.4.5 Returning

Explain return procedure to participant.

Script: "Wear this monitor every day for 7 full days. If you forget to wear it one day, wear it an extra day to make up for the day you missed."

Explain the accelerometer monitor return process.

Script (60-month visit): "Here is a stamped envelope, addressed to our clinic. After you have worn the StepWatch for 7 days, not counting today, please put it in this package and mail it to us. The date to put your StepWatch into the mail is _____." (e.g., Wednesday, April 14, 2009.)

Script (84-month visit): "Here is a stamped envelope, addressed to our clinic. After you have worn the StepWatch for 7 days, not counting today, please put it in this package. Then complete this Stepwatch Participant Questionnaire and mail it back to us along with the StepWatch. The date to put your StepWatch into the mail is _____." (e.g., Monday, May 16, 2011.)

At the 84-month visit only, before you give the participant the StepWatch Participant Questionnaire, be sure to complete the header information at the top of the form, including the Staff ID.

5.4.6 Questions

Ask the participant if they have any questions and make sure they understand what they need to do.

5.4.7 Completing the Accelerometry (StepWatch) Distribution form

1. Fill out the header information and make sure that the serial number of the StepWatch you gave to the participant is recorded on the form.
2. Ask the participant if they regularly do water sports, and record their answer on the form. If they do swim or engage in other water sports regularly, give the participant an extra strap and let them know that they can do these water sports while wearing the StepWatch.
3. Write in the date and time the StepWatch was set to begin recording.

6. Conducting the Physical Scale for the Elderly (PASE) Interview

The PASE interview should be administered to participants who did not complete the accelerometry at 60 months. Also, the PASE interview should be administered to participants eligible for accelerometry at 84 months but who are not given a StepWatch to wear for any reason and are willing to answer the PASE questions. Ask the participant if they are willing to spend an additional few minutes in the clinic answering questions about their physical activity. If the participant agrees, obtain the PASE floating forms (identified as Clinic Visit pages 20-24, although at 84 months they are floating forms that are not included in the Clinic Visit Workbook) and conduct the interview.

6.1 Completing the PASE forms

1. Fill out the header information, making sure to enter the correct MOSTID and acrostic. Double check the prefilled visit bubble to be sure that you are using the 84-month floating forms.
2. Ask the participant each of the 11 PASE activity questions, showing flash cards as indicated on the forms.

6.1.2 Faxing in the PASE forms

Fax only completed PASE forms into the Coordinating Center. If the PASE interview was not administered for any reason, do not fax in blank PASE forms with only the header information written on the forms.

7. Downloading participant's data after return of StepWatch

When you receive the StepWatch back from the participant:
1. Make sure you have the docking station plugged into the computer and have given the computer a few moments to recognize the hardware.
2. Launch the StepWatch software, wait for the blue light on the dock, and place the StepWatch on the dock. You will then see a green light.
3. Choose "Read Recorded Activity" from the Monitor pull-down menu. The data will be downloaded to your computer.
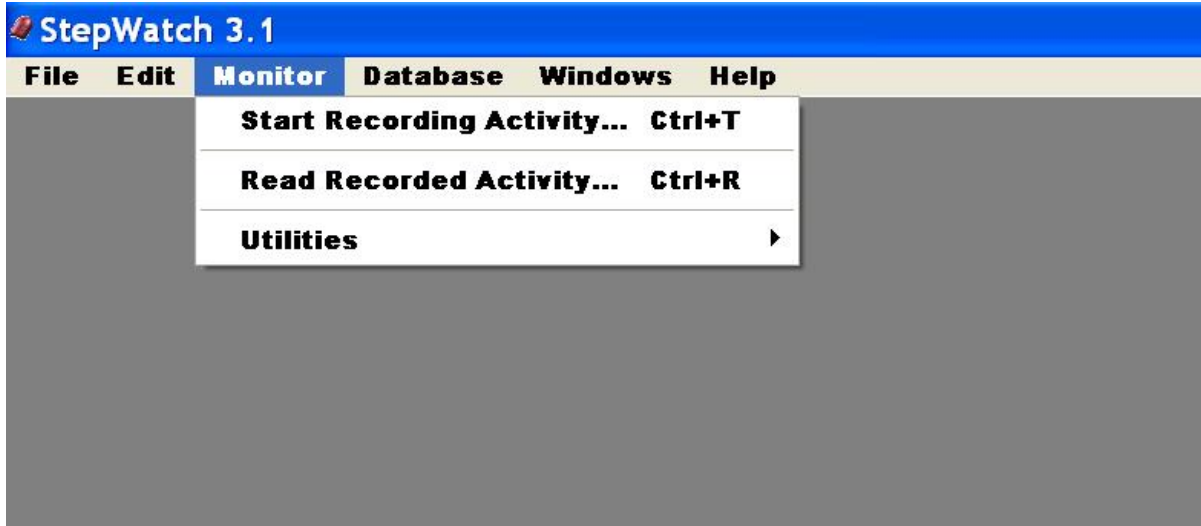
4. After the data have been downloaded, name the file. Choose "Save As" from the "File" pull-down menu and name the file as follows: participant's MOST ID number, underscore, and 1 if this is the first year the participant has had the accelerometry measurement (e.g., at the 60-month follow-up exam), and, 2, if this is the second year, (e.g., at the 84-month follow-up exam) etc. See examples below:

MB45678_1.swb
MB45678_2.swb

5. Save the file to the appropriate folder in your Clients Files directory in your StepWatch Library (MOST_60mCV_AccelerometryData for the 60-month visit and MOST_84mCV_AccelerometryData for the 84-month visit). Because you will be uploading the files through the Secure Data Gateway once per week, keep the files in separate weekly subfolders in the Clients Files directory. The naming convention for each weekly subfolder is "M," then clinic initial "I" for Iowa or "B" for Alabama, underscore (_), the letter "A" for accelerometry, and the date – year first, then month and day. For example, if you are uploading the files on Thursday, March 12th, you would have a folder that includes files you've received between March 6th and March 12th. If you were sending the file from UAB, you would name this file MB_A20090312 and keep all of that week's files in this folder. If you were sending the file from U of I, your file would be named MI_A20090312.

8. Editing the data

8.1 Editing 60-month data

Remove days that have partial data, such as the original clinic day when participant was given the StepWatch. Also, if the participant missed a day or wore the StepWatch upside down, delete that day. Open the participant's file and click "Edit Time."
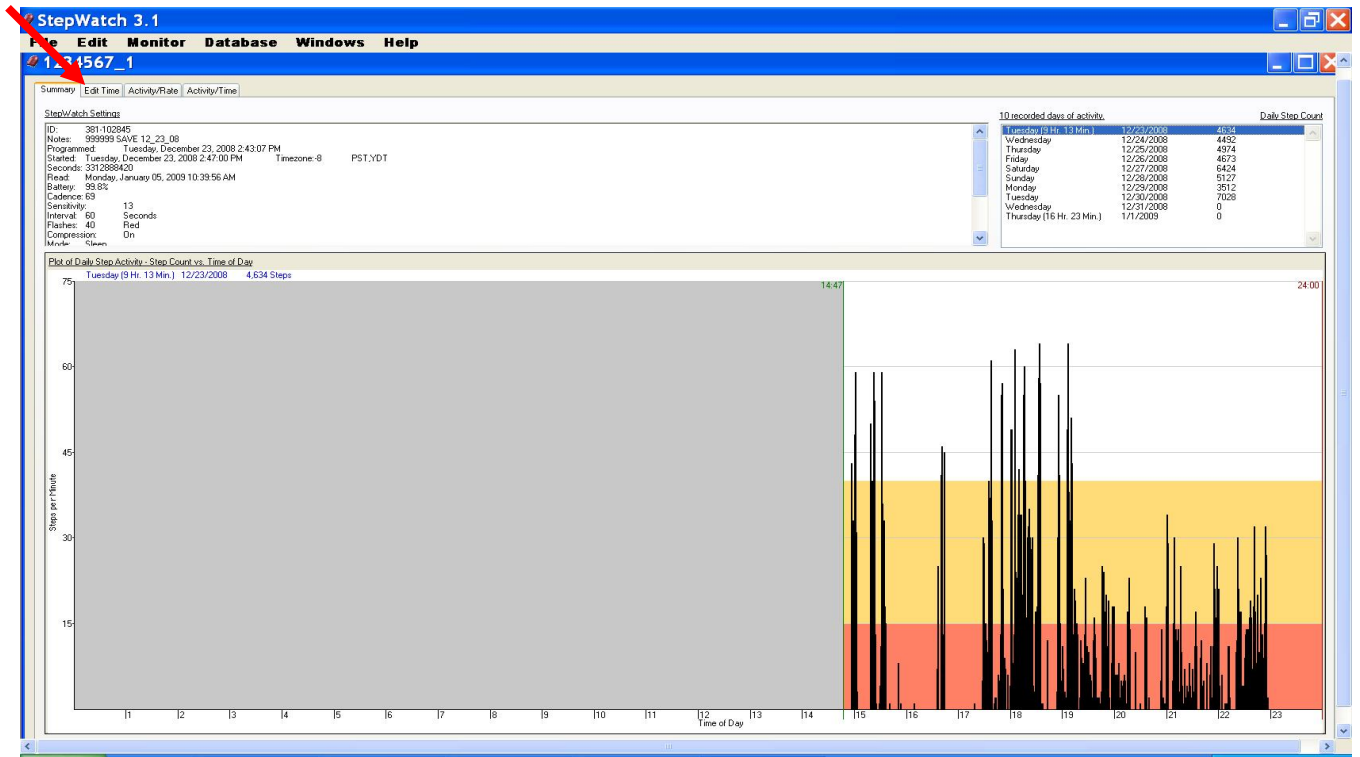
Look at the Edit Time screen. Example below shows the clinic visit day at the top:
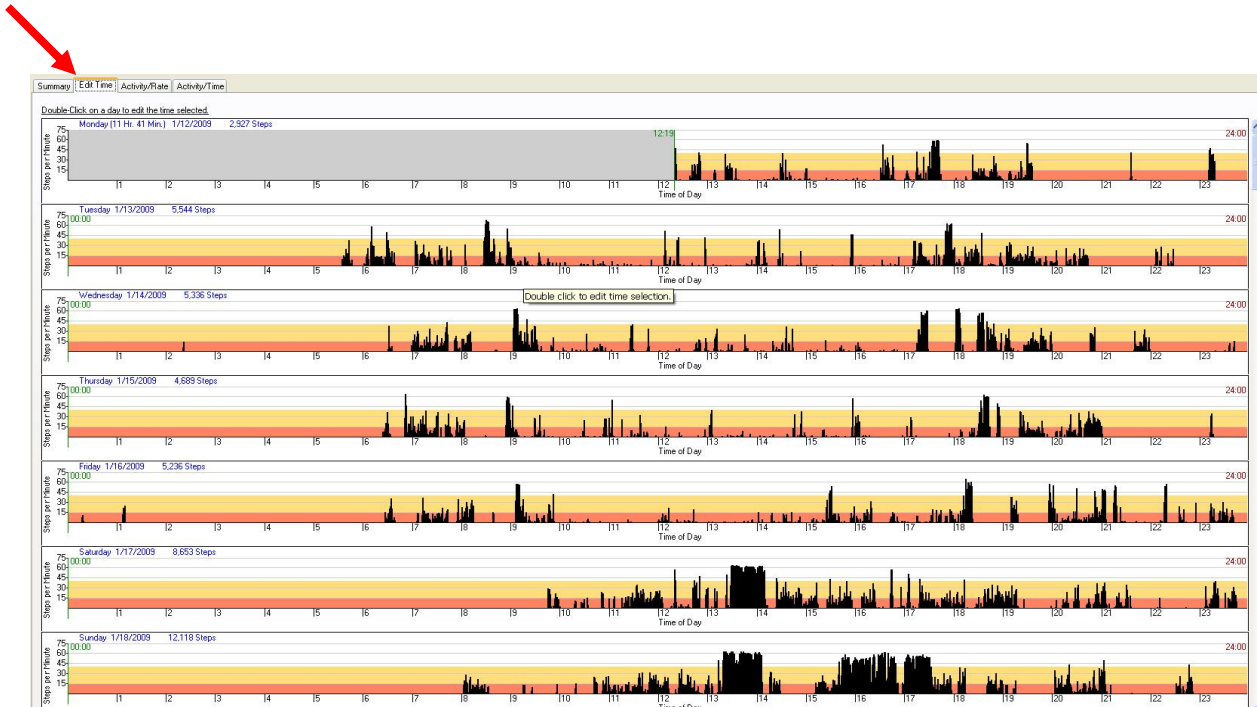
Double click on day you want to exclude:
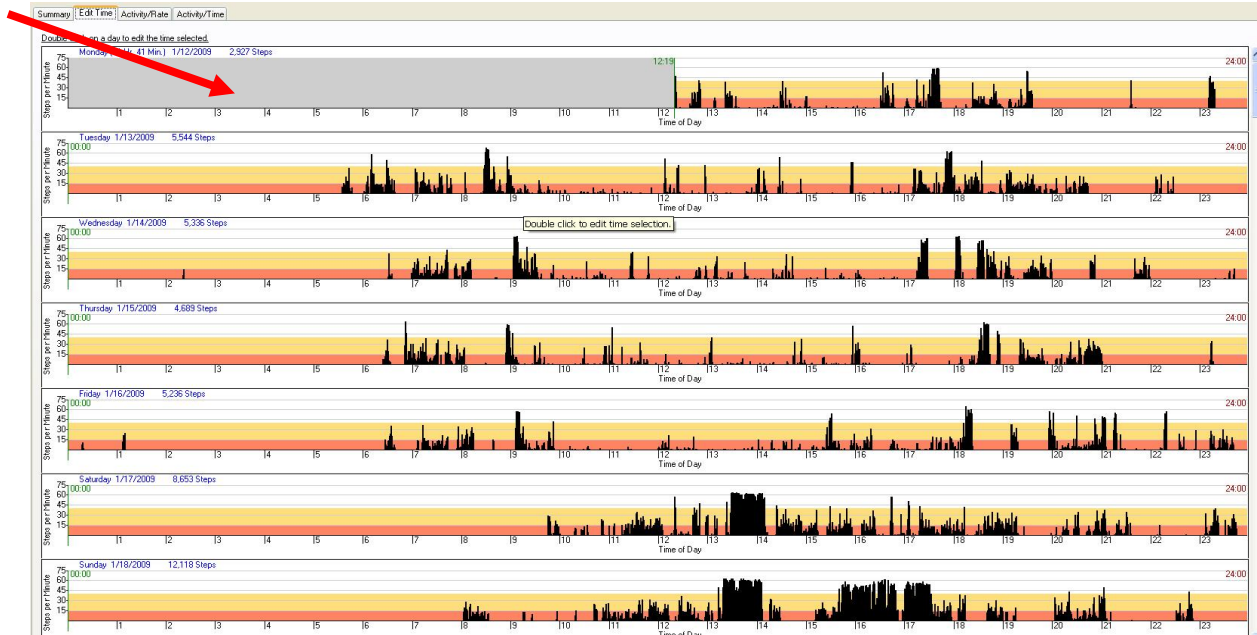
Click on "Exclude This Day"

Click "OK."
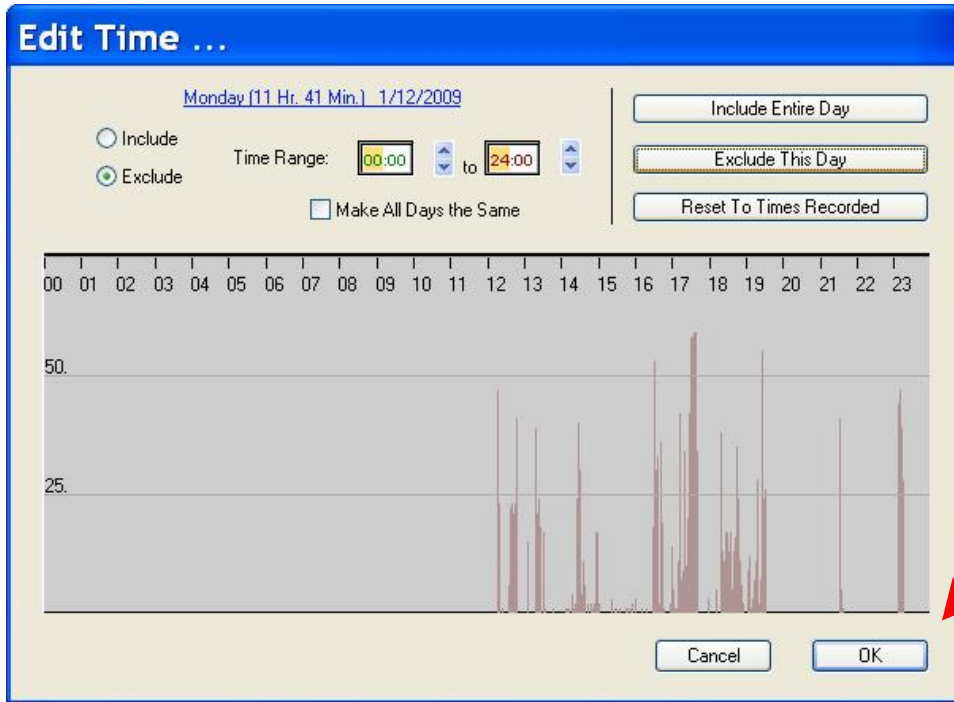
The excluded day will look like this:
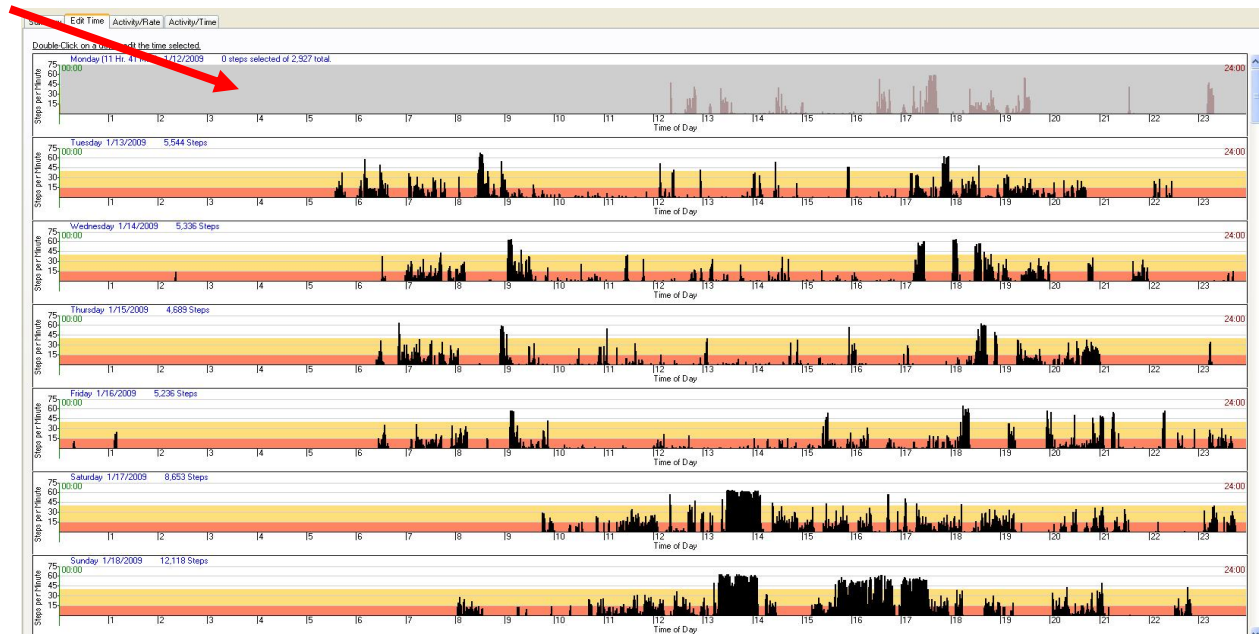
IMPORTANT – SAVE FILE AGAIN!

8.2 Editing 84-month data

Do not exclude any data. All data must be downloaded to the computer.

9.   Completing the Accelerometry (StepWatch) Return Form.

Be sure to match the MOST ID# and acrostic with the StepWatch. See the upper left of the
Weekly Summary Report for the MOST ID# and acrostic.
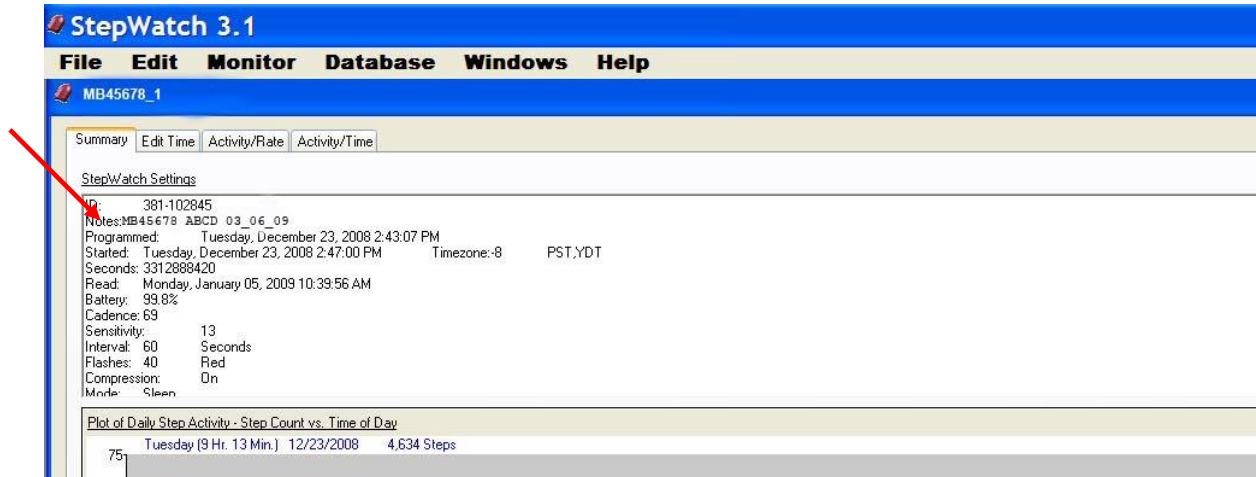
Record the date the StepWatch was returned and the number of days the StepWatch was worn,
i.e., the number of full days recorded on StepWatch. Fax the form into the data system.

10. Faxing the StepWatch Participant Questionnaire in to the Data System

For the 84-month visit only, when the completed StepWatch Participant Questionnaire is
returned along with the StepWatch, be sure the header information is completed and then fax the
form in to the data system. If the questionnaire is creased or crumpled to the point that it may not
be easy to fax, transcribe the questionnaire onto a new form. Be sure to complete the header
information and to transcribe the data exactly from the original form. Fax the transcribed form
into the data system.

11. Alert values/follow-up/reporting to participants

There are no alert values. At 60-months, the participant will be mailed two reports, one that
shows their steps each day and one that summarizes their walking activity. They will also be sent
a document that shows sample data from normative subjects.

At 84-months the participant will be mailed the following documents:

1) Stepwatch Summary Report for the 60 month visit

2) Stepwatch Summary Report for the 84 month visit

3) Normative Data Sheet

4) Daily Step Count Benchmarks

Examples of these documents can be seen in Appendix 2.

12. Data upload procedures

Upload all participants' data weekly on the same day each week. During the 84-Month visit, complete the MOST 84-Month Accelerometry Upload Log (see Appendix 3 for samples) with the ID and Acrostic of all files that you are uploading that week. (Download the log from the MOST website under Study Documents/non-TELEForm Forms/Accelerometry.) Save the log following the same naming convention that you used for the folder containing the weekly data files and adding "_LOG". For example, if you were uploading files on 7/7/2011, you would name the log MB_A20110707_LOG at UAB and MI_A20110707_LOG at U-Iowa. Type the acrostics and ID numbers and any comments directly into the Excel document rather than handwriting, so that the information can be read easily. Upload a new weekly log to the Secure Data Gateway each week, along with the weekly folder containing the accelerometry data for the participants seen during that week. See the Secure Data Gateway operations manual for instructions on uploading data.

13. Lost accelerometry device

For the 84-month visit only: In the event that the StepWatch device is not returned to the clinic and deemed as lost, be sure to complete an Accelerometry (Return) Form and fax it in. The form should be filled out as follows:

Question #2: Include the date when the device was deemed as lost
Question #3: Mark "00" days and include a handwritten side note "Lost"

14. Quality assurance

14.1 Training requirements

No special qualifications or experience are required to perform this assessment. Training should include:

- Read and study manual
- Attend MOST training session on techniques (or observe administration by experienced examiner)
- Practice on other staff or volunteers
- Discuss problems and questions with local expert or QC officer

14.2 Certification requirements

- Complete training requirements
- Demonstrate setup and return procedures for StepWatch
- Conduct exam on two volunteers:
  - According to protocol, as demonstrated by completed QC checklist

14.3 Quality assurance checklist

Day of clinic visit

☐ StepWatch explained to participant

☐ Serial number of StepWatch recorded on StepWatch Distribution form

☐ StepWatch placed on docking station and "Start Recording Activity" chosen from pull-down menu

☐ Participant's height correctly entered onto computer

☐ StepWatch set for 9 days beginning in 5 minutes

☐ Participant MOST ID#, acrostic, and date of clinic visit entered into "Notes" section on computer

☐ "Start" clicked

☐ Participant shown how to place StepWatch correctly on ankle

☐ Instructions for Wearing the StepWatch shared with participant

☐ Procedure for returning StepWatch explained to participant

☐ Participant instructed to walk after placement of StepWatch – red light observed to see that it flashes about once per step

☐ Complete packet compiled for participant

☐ Participant asked if they have any questions

☐ Fills out StepWatch Distribution Form

☐ Reviews forms for completeness

<u>After return of StepWatch</u>

☐ Docking station plugged into computer / hardware recognized

☐ StepWatch software launched

☐ StepWatch placed on docking station and "Read Recorded Activity" chosen from pull-down menu

☐ File saved with appropriate naming convention after double-checking ID and acrostic on Summary screen

☐ File placed in folder for the week, appropriately named (e.g., MB_A20090312)

60-month visit

    ☐ Data edited / incomplete days removed

    ☐ File re-saved

84-month visit

    ☐ All participant data is downloaded to the computer

15. Data collection forms

Accelerometry (StepWatch)

12343

Distribution

Visit	MOST ID #	Acrostic	Staff ID#
○ 60-month ○ 84-month			

MOST

Confirm that this is the correct participant: Ask their name, confirm in chart that the name matches the MOST ID# and Acrostic at the top of this form.

1. *Examiner Note: Refer to Data from Prior Visits Report.* Did participant have this exam at prior visit(s)?

   ○ Yes   ○ No

   Go to Question #2.   Stop exam. Do not issue StepWatch. Administer PASE.

2. Did the participant receive a StepWatch?

   ○ Yes   ○ No Administer PASE.

   Please record serial number:

   Why didn't participant receive a StepWatch?
   (Note: Mark all that apply.)
   ○ Participant refused
   ○ Cognitive impairment
   ○ No device available/schedule problem
   ○ Participant not reliable
   ○ Physical/medical problem *(Please specify: _____)*
   ○ Other *(Please specify: _____)*

Examiner Note: Ask participant:

3. Will you be doing any water sports, such as swimming or water aerobics during the next week?

   ○ Yes   ○ No   ○ Don't know

   Let participant know that they can wear the StepWatch while they engage in water sports. Give participant an extra strap for their StepWatch.

4. Date and time the StepWatch was set to begin recording:

   ☐☐ / ☐☐ / 2 0 ☐☐   ☐☐ : ☐☐   ○ am
   Month   Day   Year   Hours   Minutes   ○ pm

5. Was the take-home questionnaire given to the participant?

   ○ Yes   ○ No

MOST StepWatch
Clinic Visit Workbook
MM

12343

Accelerometry (StepWatch) Return

Visit	MOST ID #	Acrostic	Staff ID#
○ 60-month ○ 84-month			

6194

1. <u>Confirm that this is the correct participant</u>: Confirm on Summary Screen that the MOST ID# and Acrostic match the MOST ID# and Acrostic at the top of this form.

2. Date participant returned StepWatch to clinic: ☐☐ / ☐☐ / 2 0 ☐☐
   Month Day Year

3. What was the number of days the StepWatch was collecting data?
   (Examiner Note: After retrieving the data from the StepWatch, look at the summary screen and record the number of days that include steps, not counting the day of the clinic visit.)

   ☐☐ Days

4. Was the take-home participant questionnaire returned with the StepWatch?

   ○ Yes   ○ No

   ⬇

   Fax StepWatch Participant Questionnaire to CC.

MOST StepWatch
Tracking - Return
Version 3.0 5/2/11
MT

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StepWatch Participant Questionnaire (84-month visit only)

StepWatch Participant Questionnaire

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Visit	MOST ID #	Acrostic	Staff ID#
O 84-month			

~~~~Thank you for wearing the StepWatch for the past week.~~~~
Please complete the below questions and return this questionnaire with the StepWatch device.

Right knee

1a. How bad has the pain been in your right knee, on average, for the past week while you wore the StepWatch? Please mark an "X" on the line below. ("0" means "no pain" and "100" means "pain as bad as it could be")

0 10 20 30 40 50 60 70 80 90 100

no pain   pain as bad as it could be

Enter the number:

Left knee

1b. How bad has the pain been in your left knee, on average, for the past week while you wore the StepWatch? Please mark an "X" on the line below. ("0" means "no pain" and "100" means "pain as bad as it could be")

0 10 20 30 40 50 60 70 80 90 100

no pain   pain as bad as it could be

Enter the number:

2. How would you rate your sleep quality overall for the past week while you had the StepWatch?

O Very good
O Fairly good
O Fairly bad
O Very bad

3. Fatigue is a feeling of being worn out, pooped, sluggish, run down, tired, or lacking energy.
What number between 0 and 10 best describes your usual level of fatigue for the past week while you had the StepWatch?

A zero (0) would mean "no fatigue" and ten (10) would mean "fatigue as bad as it can be."

0	1	2	3	4	5	6	7	8	9	10
O	O	O	O	O	O	O	O	O	O	O

No fatigue   Fatigue as bad as it can be

4. What is today's date?: ☐☐ / ☐☐ / ☐☐☐☐
Month   Day   Year

MOST StepWatch Participant Questionnaire
Version 3.0 5/2/11
PD

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PASE Interview Floating Forms

Physical Activity Scale for the Elderly (PASE)

31496

Visit	MOST ID #	Acrostic
O 60-month ● 84-month	M	

(Examiner Note: Refer to Data from Prior Visits Report and Clinic Visit, page 75, Q#2 - StepWatch.)

These questions ask about your physical activity during the **last 7 days**. If the **last 7 days** have not been typical because of illness or bad weather, please estimate based on two or three weeks ago.

1. Over the **past 7 days**, how often did you participate in sitting activities such as reading, watching TV or doing handcrafts?

   O Never

   O Seldom (1-2 days)

   O Sometimes (3-4 days)

   O Often (5-7 days)

   (REQUIRED - Show Card #12a.)

   a. What were these activities?
   _____
   _____
   _____

   b. On average, how many hours per day did you engage in these sitting activities?
   (REQUIRED - Show Card #12b.)
   O Less than 1 hour
   O Between 1 and 2 hours
   O 2 to 4 hours
   O More than 4 hours

2. Over the **past 7 days**, how often did you take a walk outside your home or yard for any reason? For example, for fun or exercise, walking to work, walking the dog, etc.?

   O Never

   O Seldom (1-2 days)

   O Sometimes (3-4 days)

   O Often (5-7 days)

   (REQUIRED - Show Card #13a.)

   a. What were these activities?
   _____
   _____
   _____

   b. On average, how many hours per day did you spend walking?
   (REQUIRED - Show Card #13b.)
   O Less than 1 hour
   O Between 1 and 2 hours
   O 2 to 4 hours
   O More than 4 hours

◆Page 20◆

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MOST Follow-up PASE
Version 3.0 5/2/11
EH

60289

Visit	MOST ID #	Acrostic
○ 60-month ● 84-month	M	

Physical Activity

3. Over the **past 7 days**, how often did you engage in light sport or recreational activities such as bowling, golf with a cart, shuffleboard, fishing from a boat or pier, or other similar activities?

○ Never

○ Seldom (1-2 days)

○ Sometimes (3-4 days)

○ Often (5-7 days)

(REQUIRED - Show Card #14a.)

→

a. What were these activities?

_____

_____

b. On average, how many hours per day did you engage in these light sport or recreational activities?
(REQUIRED - Show Card #14b.)

○ Less than 1 hour

○ Between 1 and 2 hours

○ 2 to 4 hours

○ More than 4 hours

4. Over the **past 7 days**, how many flights of stairs have you climbed up?
(Interviewer Note: One flight is equal to about 10 steps. REQUIRED - Show Card #15.)

○ Less than one flight

○ 1 flight but less than 2 flights

○ 2 flights but less than 4 flights

○ 4 flights but less than 6 flights

○ 6 or more flights

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Visit	MOST ID #	Acrostic
○ 60-month ● 84-month	M	

Physical Activity

5. Over the **past 7 days**, how often did you engage in moderate sport and recreational activities such as doubles tennis, ballroom dancing, hunting, ice skating, golf without a cart, softball or other similar activities?

○ Never

○ Seldom (1-2 days)

○ Sometimes (3-4 days)

○ Often (5-7 days)

(REQUIRED - Show Card #16a.)

a. What were these activities?

_____

_____

_____

b. On average, how many hours per day did you engage in these moderate sport or recreational activities?
(REQUIRED - Show Card #16b.)

○ Less than 1 hour

○ Between 1 and 2 hours

○ 2 to 4 hours

○ More than 4 hours

6. Over the **past 7 days**, how often did you engage in strenuous sport and recreational activities such as jogging, swimming, cycling, singles tennis, aerobic exercise, skiing (downhill or cross country) or other similar activities?

○ Never

○ Seldom (1-2 days)

○ Sometimes (3-4 days)

○ Often (5-7 days)

(REQUIRED - Show Card #17a.)

a. What were these activities?

_____

_____

_____

b. On average, how many hours per day did you engage in these strenuous sport or recreational activities?
(REQUIRED - Show Card #17b.)

○ Less than 1 hour

○ Between 1 and 2 hours

○ 2 to 4 hours

○ More than 4 hours

	Visit	MOST ID #	Acrostic	
15896	○ 60-month ● 84-month	M ☐☐☐☐☐☐	☐☐☐☐☐	MOST

Physical Activity

7. Over the <u>past 7 days</u>, how often did you do any exercise specifically to increase muscle strength and endurance, such as lifting weights or pushups, etc.?

○ Never

○ Seldom (1-2 days)

○ Sometimes (3-4 days)

○ Often (5-7 days)

(REQUIRED - Show Card #18a.)

a. What were these activities?

_____

_____

_____

b. On average, how many hours per day did you engage in these exercises to increase muscle strength and endurance?
(REQUIRED - Show Card #18b.)

○ Less than 1 hour

○ Between 1 and 2 hours

○ 2 to 4 hours

○ More than 4 hours

8. During the <u>past 7 days</u>, have you done any light housework, such as dusting or washing dishes? ***(REQUIRED - Show Card #19.)***
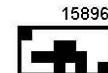
○ Yes   ○ No   ○ Don't know/Refused

9. During the <u>past 7 days</u>, have you done any heavy housework or chores, such as vacuuming, scrubbing floors, washing windows or carrying wood? ***(REQUIRED - Show Card #20.)***

○ Yes   ○ No   ○ Don't know/Refused

10. During the <u>past 7 days</u>, did you engage in any of the following activities? Please answer yes or no for each item.

a. Home repairs, like painting, wallpapering, electrical work, etc.?	○ Yes ○ No ○ Don't know/Refused
b. Lawn work or yard care, including snow or leaf removal, wood chopping, etc.?	○ Yes ○ No ○ Don't know/Refused
c. Outdoor gardening?	○ Yes ○ No ○ Don't know/Refused
d. Caring for another person, such as children, dependent spouse, or another adult?	○ Yes ○ No ○ Don't know/Refused

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Physical Activity

	Visit	MOST ID #	Acrostic
	○ 60-month ● 84-month	M	

MOST

11. During the __past 7 days__ did you work, either for pay or as a volunteer?

○ Yes   ○ No   ○ Don't know/Refused

How many hours in the __past week__ did you
work for pay and/or as a volunteer?   ☐☐ hours

Which one of the following categories best describes the amount of physical activity
required on your job and/or volunteer work?
(REQUIRED - Show Card #21.)

○ Mainly sitting with slight arm movements
    Examples: office worker, watchmaker, seated assembly line worker, bus driver, etc.

○ Sitting or standing with some walking
    Examples: cashier, general office worker, light tool and machinery worker

○ Walking, with some handling of materials generally weighing less than 50 pounds
    Examples: mailman, waiter/waitress, construction worker, heavy tool and machinery worker

○ Walking and heavy manual work often requiring handling materials weighing more than 50 pounds
    Examples: lumberjack, stone mason, farm or general laborer

○ Don't know

Appendix 1 Participant Information Sheet

Instructions for Wearing the StepWatch

Top

ORIENTATION: The StepWatch must be worn with the rounded end UP. The writing on the case should appear right-side up to someone standing beside you. The monitor should be positioned like a "rocket ready for launch."

PLACEMENT: The StepWatch is worn just above the ankle bone on either side of either leg. It should not be worn on the front or back of the ankle. Please wear the StepWatch on the same leg every day, if possible.

Adjust the velcro strap for comfort. Do not fasten it overly tightly. Most people find the monitor comfortable as is, but if you want additional padding, you can wear an extra sock.

SCHEDULE: Put the StepWatch on right away when you get up in the morning, and wear it throughout the day. When you take it off at night, put it somewhere that you will remember to put it on first thing in the morning such as with your glasses, clock, watch, toothbrush, or coffee / tea pot.

SCHEDULE: Do not leave the StepWatch in hot places such as on the dashboard of a car in warm weather. Please treat it with reasonable care. Do not throw it, cut into it, or remove the label. The StepWatch is waterproof. You can bathe or swim with it, but you may find the wet strap uncomfortable afterwards. If you want to wash the StepWatch, use only mild soap and water.

WEAR DAILY UNTIL the end of the day on: _____
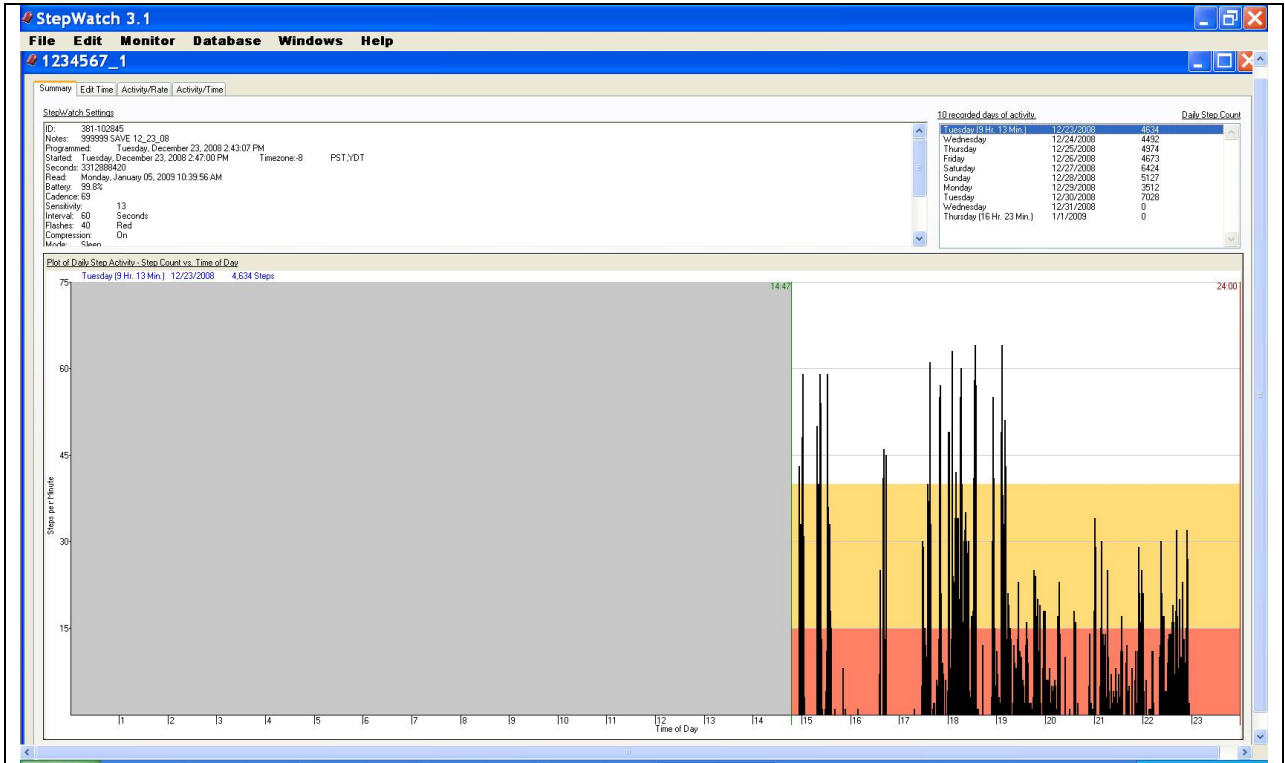
RETURN YOUR STEPWATCH ON: _____

If you have questions, feel free to contact us at:
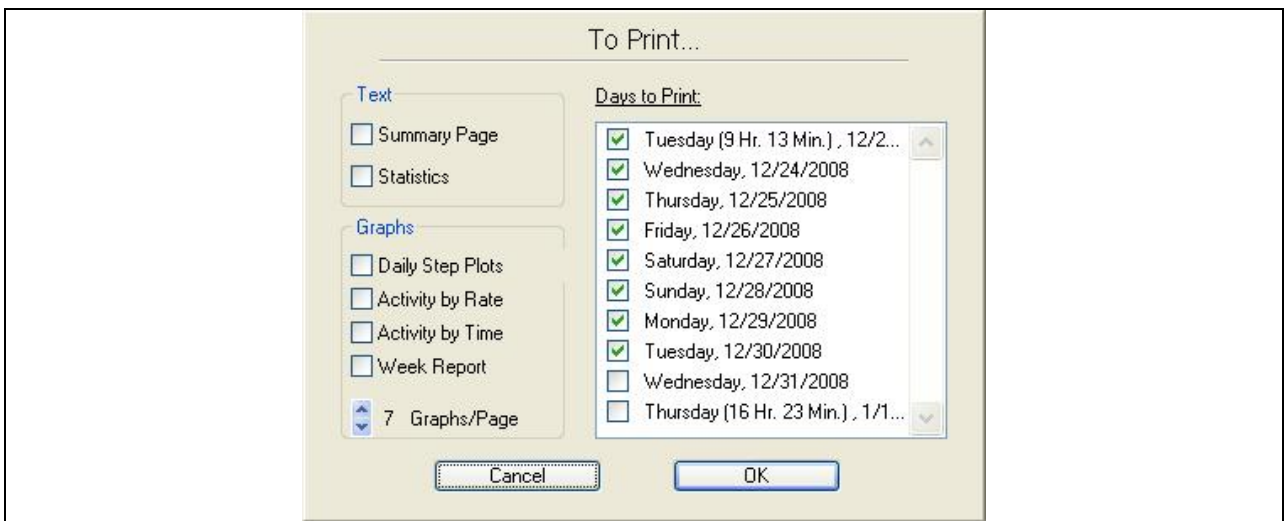
SAM3 Instructions-rev. 9.2.09

Appendix 2 Participant Report

Instructions for printing summary report for participant:

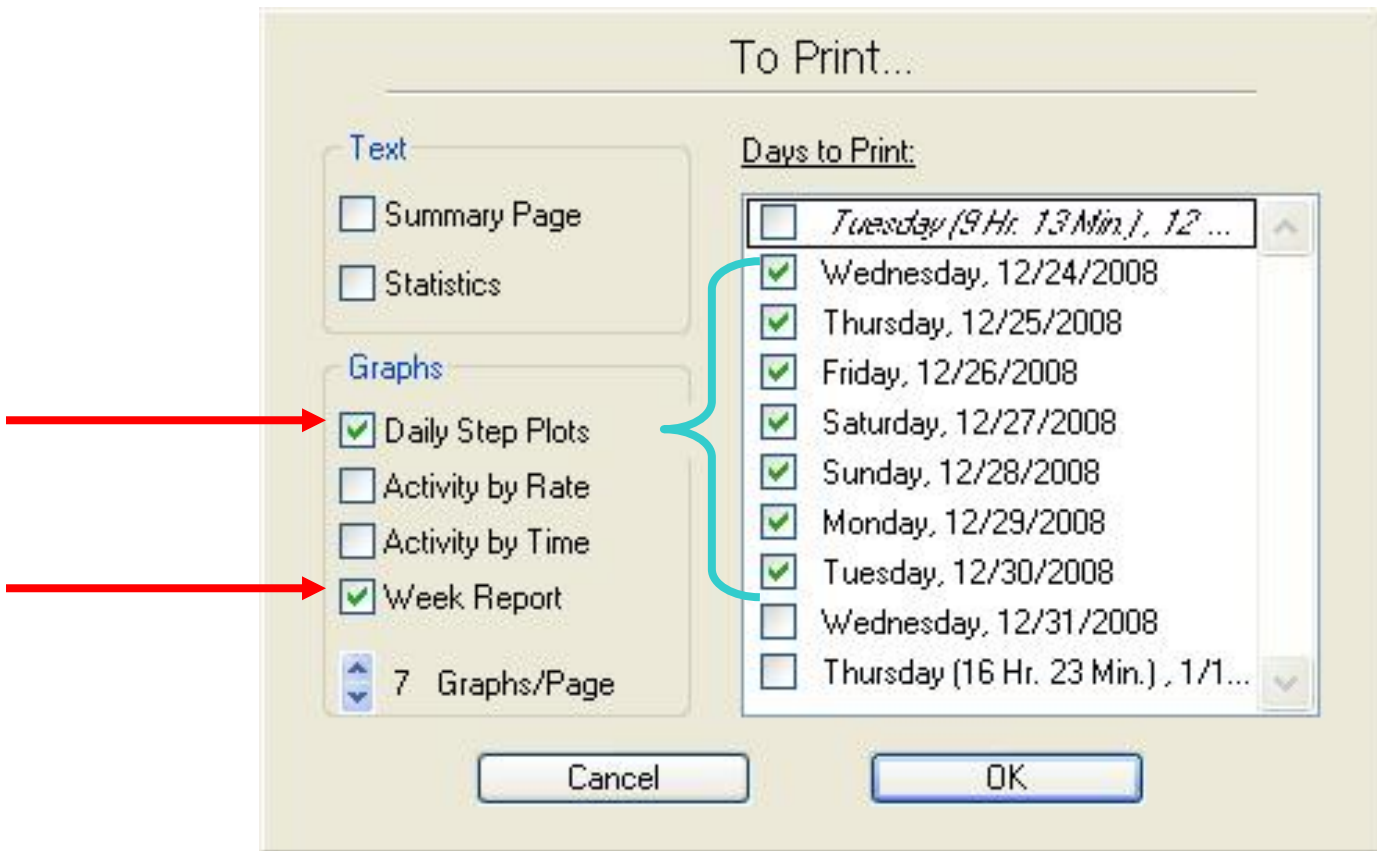1. Open participant file. You will see a screen like this:

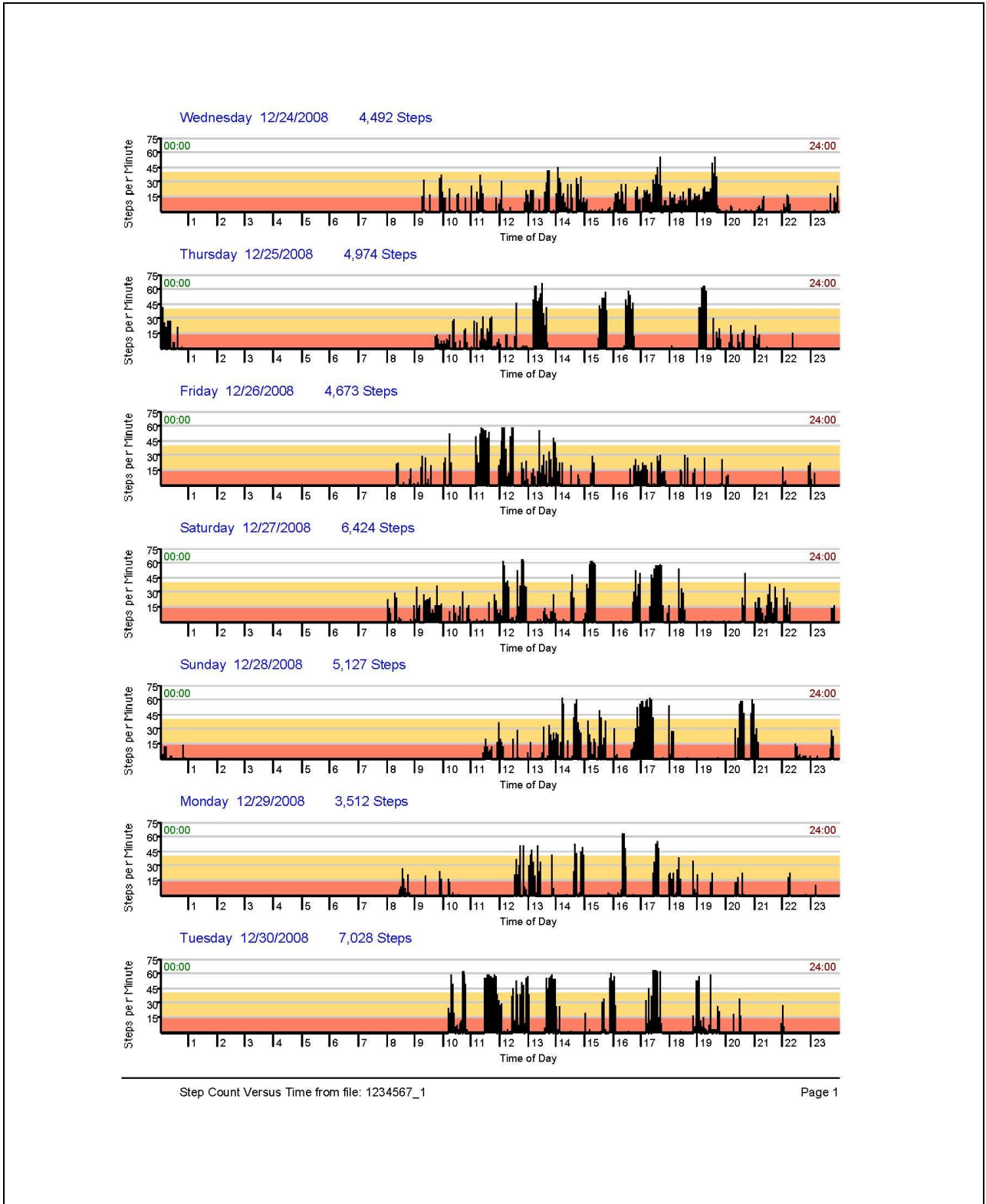Choose print from the File pull-down menu. The following screen will appear:

Make sure each of the 7 FULL days that the participant wore the StepWatch is checked. Choose "Daily Step Plots" and "Week Report" to print the reports that you will be sending to the participant.

60-Month visit: Any day in which the StepWatch was recording for less than 24 hours should be excluded. Also, any day in which there were zero or extremely few steps should be excluded. In general, these days will be automatically excluded, but you should look at the Edit Time screen (tab next to Summary Screen) after you download to check (see section 7.1 in operations manual for specific instructions).

84-Month visit: In general, any day in which the StepWatch was recording for less than 24 hours or any day in which there were zero or extremely few steps will not be checked for printing the Week Report.

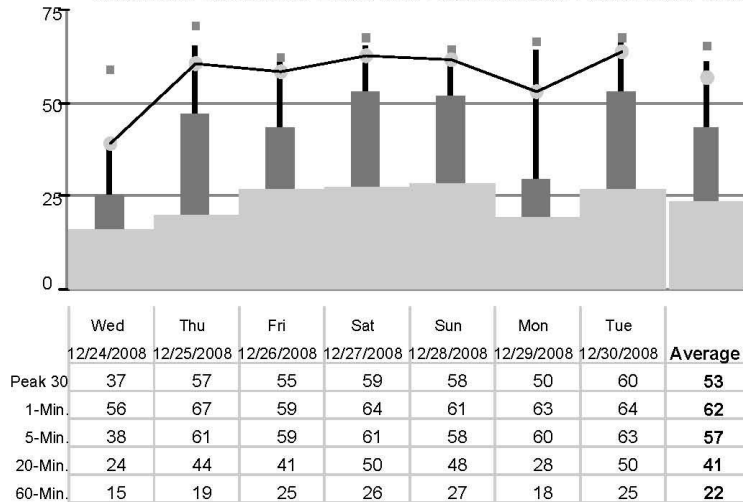Below is an example of a Daily Step Plot report:

Step Count Versus Time from file: 1234567_1   Page 1

Below is an example of a summary report:

Report on Walking Activity from StepWatch Study

File Name: 1234567_1	Activity Category	Mins./Day (on average)	Percent Active Time	Percent All Time
Average Steps per Day (right leg only) **5175**	High (40+ steps/min) Med. (16-40 steps/min) Low (1-15 steps/min) Inactive (0 steps/min)	43 75 155 1165	15.9 % 27.4 % 56.8 % --	3.0 % 5.2 % 10.8 % 81.0 %

Maximum Sustained Effort and Accumulated Peak Effort Chart

	Wed 12/24/2008	Thu 12/25/2008	Fri 12/26/2008	Sat 12/27/2008	Sun 12/28/2008	Mon 12/29/2008	Tue 12/30/2008	**Average**
Peak 30	37	57	55	59	58	50	60	**53**
1-Min.	56	67	59	64	61	63	64	**62**
5-Min.	38	61	59	61	58	60	63	**57**
20-Min.	24	44	41	50	48	28	50	**41**
60-Min.	15	19	25	26	27	18	25	**22**

This chart shows two types of measures. Your Accumulated Peak Effort is the average step rate for highest 30 minutes of the day regardless of when they occurred. Your Sustained Activity Scores (bottom 4 on the legend) are the highest average step rates that occurred in time blocks of 1, 5, 20, and 60 minutes. For example, to get your 5 minute score, we scan across the day with a 5-minute 'window' and take the highest average step rate for any continuous 5-minute period in the day. The higher up on the chart each of the measures reaches, the more intensive the step activity for that day.
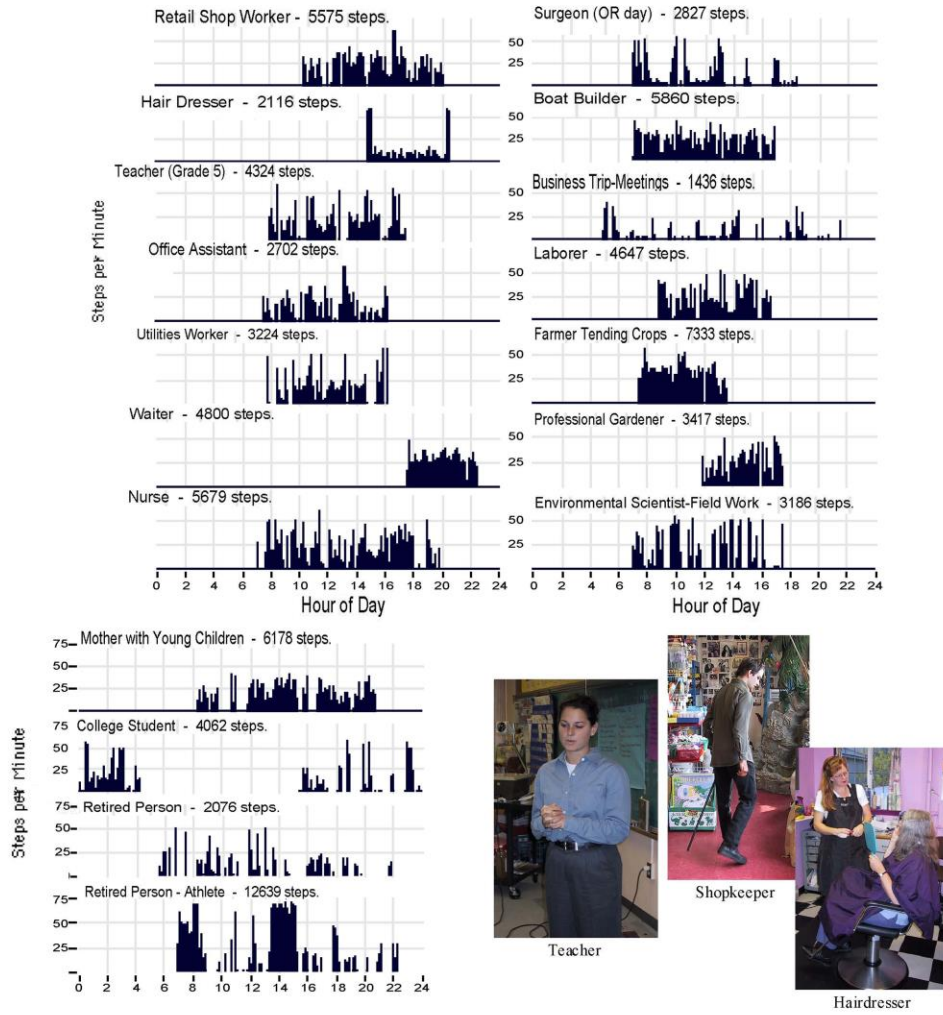
■　<------ Peak Score: Highest Single Minute

●　<------ Accumulated Peak Effort - Best 30 Minutes (non-continuous)

<---- Burst Score: Peak Continuous 5-Minute Burst

<--- Cardiovascular Score: Peak Continuous 20-Minute Effort

<--- Endurance Score: Peak Continuous 60-Minute Effort

1234567_1	Page 1

Below is a sample report with normative data to help the participant understand their report:

Ambulatory Activity by Occupation

Below is the Daily Step Count Benchmarks information that will also be mailed to participants at 84-months:

Daily step count benchmarks

Average Steps per Day (right leg only)	Activity Level
< 2500	Sedentary
2500 – 3750	Low Active
3750 – 5000	Somewhat active
5000 – 6250	Active
> 6250	Highly Active

Developed by C Tudor-Locke and DR Bassett Jr (2004)

Appendix 3 Sample MOST 84-Month Accelerometry Logs

MOST 84-Month Accelerometry Upload Log
University of Alabama at Birmingham

Date of Upload to Gateway: _____

Week Beginning: _____

Week Ending: _____

N	MOSTID	ACROSTIC	Comments/Notes
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
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19			
20			
21			
22			
23			

MOST 84-Month Accelerometry Upload Log
University of Alabama at Birmingham

5/24/11

MOST 84-Month Accelerometry Upload Log
University of Iowa

Date of Upload to Gateway: _____
Week Beginning: _____
Week Ending: _____

N	MOSTID	ACROSTIC	Comments/Notes
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
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20			
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22			
23			

MOST 84-Month Accelerometry Upload Log
University of Iowa

5/24/11