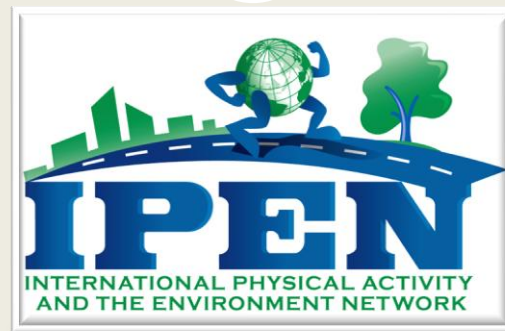


IPEN Adolescent Accelerometer Data Collection Training



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Overview

PART 1: OVERVIEW FOR EVERYONE

- Coordinating Center Roles
- IPEN Adolescent Accelerometer Data Collection Guidelines

PART 2: PRE-DATA COLLECTION TRAINING

- About the Actigraph
- Preparing for data collection
- Charging, Initializing, & Delivering
- Compliance Tips and Prompting
- Tracking

PART 3: POST-DATA COLLECTION TRAINING

- Downloading and Converting Data
- Screening Data
- Electronic tracking
- Data transfer
- Quality Control

PART 4: DATA PROCESSING TRAINING

Coordinating Center Roles



- Provide Training & Materials
 - Training slides and Manual
 - Tracking database
 - Wearing log and instructions
 - http://ipenproject.org/Adol_materials.html
- Accelerometer loans (limited number)
- Quality control
 - Check files and tracking database for first 50 participants
 - Provide ongoing assistance and monitoring
- Will process all accelerometer data in a standard way

IPEN Adolescent Accelerometer Data Collection Guidelines



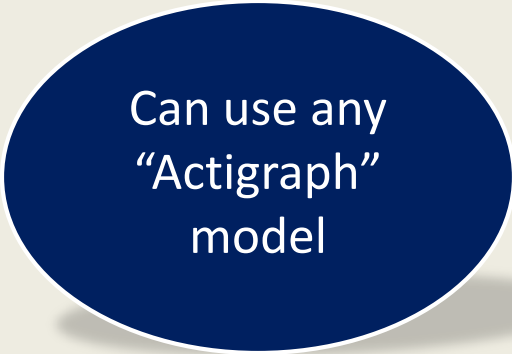
- Accelerometer Model
- Data Filter
- Epoch
- Nonwear definition
- Valid Wearing Day definition
- Valid Wearing Week definition
- Wearing Time and School Schedule Log
- Tracking
- Major holidays and school breaks (summer break)

IPEN Adolescent Accelerometer Data Collection Guidelines



- **Accelerometer Model:**

- Any of the following ActiGraph models are fine: 7164/71256, GT1M, GT3X, GT3X+, wGT3X+ or ActiTrainer
- They are not necessarily interchangeable devices, but we aren't able to require all countries to use the same model
- We will adjust for model type in analyses



Can use any
"Actigraph"
model

A dark blue oval callout with a white border and a subtle drop shadow, containing the text "Can use any 'Actigraph' model".

IPEN Adolescent Accelerometer Data Collection Guidelines



- **Filter:**

- **MUST USE the Low Frequency Extension** with new generation Actigraphs (GT1M, ActiTrainer, GT3X, GT3X+). Doesn't apply to old generation devices.
- Apply during initialization with GT1M & GT3X
- Apply during or post-download with GT3X+

See LFE paper in adults:

Cain KL, Conway TL, Adams MA, Husak LE, Sallis JF.
Comparison of older and newer generations of ActiGraph accelerometers with the normal filter and the low frequency extension. International Journal of Behavioral Nutrition and Physical Activity 2013, 10:51.

<http://www.ijbnpa.org/content/pdf/1479-5868-10-51.pdf>

- The Coordinating Center conducted a model/filter comparison study
- 27 adolescents wore a 7164 and GT3X+ on the same belt for 3 days in free-living environment
- Data are showing that the 7164 and GT3X+Normal filter are not comparable (e.g., 9 min/day less MVPA with the GT3X+)
- Applying the Low Frequency Extension reduces these differences!

IPEN Adolescent Accelerometer Data Collection Guidelines



- **Epoch:**

- Recommendation is to collect data with the shortest epoch your memory/battery will allow (for the GT1M & GT3X)
- Epoch will be applied during or post-download with GT3X+
- **Aggregate data to 30 seconds for IPEN** (for consistency with data already collected)

use 30 second epoch
for pooled data set

IPEN Adolescent Accelerometer Data Collection Guidelines



- Nonwear definition:
 - Recommendation is **60 minutes of consecutive 0's** to define nonwear time for all models

- The Coordinating Center conducted a 'sitting' study to determine a sensitive nonwear definition in youth
- 27 adolescents wore a 7164 and a GT3X+ on the same belt while sitting watching TV for 90 minutes. Observers verified participants stayed seated
- Data are showing that 100% of sedentary time during long sitting bouts would be detected with a 60 minute nonwear definition (7164 and GT3X+LFE) compared to only 89% with 20 minutes and 93% with 30 minutes

IPEN Adolescent Accelerometer Data Collection Guidelines



- Valid Wearing Day definition:
 - Weekday: **10 wearing hours** (commonly used and based on a balance between feasibility and enough data to represent usual daily activity patterns)
 - Weekend: **8 wearing hours** (based on feedback from IPEN Adolescent investigators that this would be necessary to ensure good compliance on the weekends)
- Valid Wearing Week definition:
 - Give participants 7 full wear days (e.g., pick up on 9th day)
 - Use MeterPlus to screen for **5 valid days, including 1 weekend**
 - **Ask for rewear** for however many additional days are needed




Rewears boosted
compliance rates in
the US study from
66% to 86%!

IPEN Adolescent Accelerometer Data Collection Guidelines



- Accelerometer Wearing and School Times Log:

- Participant completes
- 'Due dates' may help with compliance
- Report days worn and times put on and off
 - Helps researcher with screening/processing the data
 - Helps participants with remembering to wear the accelerometer
- Report school start and end times
 - Can use to filter data for in-school and out of school times



Meter Log

Wear the movement meter for seven (7) days in a row, including weekends. In the spaces below, write down the dates, days and times which you wear it. Please also write down the times school starts and ends each day. If you take the device off for more than 30 minutes, such as for swimming, record when they were removed and for what reason. If you are unable to wear the meter for at least 12 hours one day, please wear it on the next day. Thank you!

*Please start wearing your meter on or before _____!
The last full day that your meter will work is _____!*

Day 1

(Circle Day)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Date _____
Time Meter Put On:					am / pm	Time school started:		am / pm
Time Meter Taken Off:					am / pm	Time school ended:		am / pm
Time removed during the day (e.g. 10:30-11am): _____								
Why removed (e.g. swimming): _____								

Day 2

(Circle Day)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Date _____
Time Meter Put On:					am / pm	Time school started:		am / pm
Time Meter Taken Off:					am / pm	Time school ended:		am / pm
Time removed during the day (e.g. 10:30-11am): _____								
Why removed (e.g. swimming): _____								

Day 3

(Circle Day)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Date _____
Time Meter Put On:					am / pm	Time school started:		am / pm
Time Meter Taken Off:					am / pm	Time school ended:		am / pm
Time removed during the day (e.g. 10:30-11am): _____								
Why removed (e.g. swimming): _____								

Day 4

(Circle Day)	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Date _____
Time Meter Put On:					am / pm	Time school started:		am / pm
Time Meter Taken Off:					am / pm	Time school ended:		am / pm
Time removed during the day (e.g. 10:30-11am): _____								
Why removed (e.g. swimming): _____								

IPEN Adolescent Accelerometer Data Collection Guidelines



- **Tracking:**

- **IMPORTANT:** Record researcher days (i.e., drop off days, pick-up days) so they cannot be confused with participant wearing days when processing the data
- Record compliance decisions, data problems, etc.
- Coordinating Center will provide an Access database to track these things

The screenshot shows a web-based data entry interface for the IPEN study. It includes a sidebar with participant details, a central area for recording data problems and time logs, and a right-hand section for daily tracking entries. Each day's entry (DAY 1-8) includes fields for date, time on/off, and reasons for removal or invalid data.

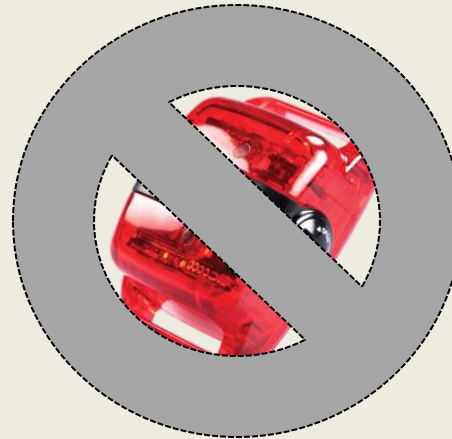
IPEN Adolescent Accelerometer Data Collection Guidelines



- Major holidays and school breaks:
 - Activity patterns tend to be different during major holidays and school breaks (e.g., summer break)
 - Therefore, we will NOT collect data during these time periods



'typical' activity
patterns
(non-holidays,
school sessions)



'atypical' activity
patterns
(major holidays,
summer break)

PART 2: PRE-DATA COLLECTION



- About the Actigraph
- Preparing for Data Collection
- Charging, Initializing, & Delivering
- Compliance Tips and Prompting
- Tracking

How the accelerometer determines PA intensity



- It contains a motion sensor known as an “accelerometer” that monitors the occurrence and degree of motion.
- A signal is produced. The magnitude and duration of the signal depends on the amount of motion.
- The activity signals are filtered to eliminate non-human movement.
- Signals are summed across a user-defined interval called an “epoch”
- Output is a “count” per epoch. Higher count = greater activity intensity

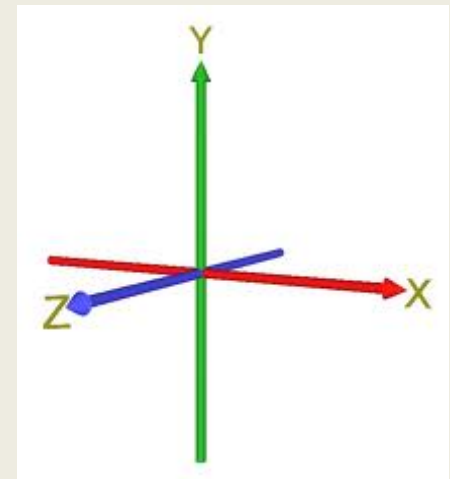
ActiGraph GT3X



- Can collect data in 1, 2, or 3 planes of movement (vertical, horizontal and medial-lateral) – *however, for IPEN we will only use the vertical axis.*
- Must select filter and epoch when initializing
- Water resistant (not waterproof!)
- USB connection for charging, initializing and downloading
- Lithium battery lasts about 20 days before needing to be charged (GT3X, 16MB)
- Minutes spent in different intensity categories (e.g., sedentary, light, moderate)



No longer available from
ActiGraph



ActiGraph GT3X+



Same as the GT3X except...

- Collects raw data and epoch and filter are applied when downloading
- Lithium battery lasts about 30 days before needing to be charged (GT3X+ 512MB, 30 Hz)

Available from Actigraph
for \$250 each

How the accelerometer works: what you tell participants



- It records overall movement, much like a pedometer
- It's harmless – it runs on a battery, like your watch
- There isn't an 'on' and 'off' switch
- You don't need to be an 'active' person for the device to work
- There is no screen to look at
- It can't tell what type of activity you're doing**
- It can't tell where you are, it's not a tracking device**
- I've worn it myself and nobody even noticed**
- It is expensive for researchers, but has no street value**

***might be especially important when talking with teenagers*

How the accelerometer works: DO NOT tell participants



- The accelerometer will tell us how much you exercise, walk, jog, etc.
- Make sure to move a lot while you're wearing the device!
- You live in a walkable neighborhood so we expect the accelerometer to show you'll be walking a lot
- The accelerometer can tell if you're sitting around watching TV, doing yoga, working on your computer, etc.
- It's OK to remove the accelerometer when you're not doing much since we're mostly interested in physical activity

PART 2: PRE-DATA COLLECTION



- About the Actigraph
- Preparing for Data Collection
- Charging, Initializing, & Delivering
- Compliance Tips and Prompting
- Tracking

What do you need?



- Actigraphs
 - Label each device
 - Inventory in database
 - Price = \$250 each
- Charging hub
 - Need a charging schedule and location
 - 7 can charge at a time
 - Price = \$25
- Belts, clips
 - Purchase from Actigraph or make your own
 - ¾" webbing material (www.joann.com) and dual-adjustable side release buckles(www.plastic-buckle.com)
 - Have different sizes
 - Belts should be washed (hand-washed or cold cycle, no tumble drying) after each wear



What do you need?



- Actilife
 - initialize, download and create graphs
 - Price = \$995
 - www.theactigraph.com
- MeterPlus
 - screen for usable data and create variables to analyze
 - Price = \$695
 - www.meterplussoftware.com
- Tracking database
 - 4 functions:
 - Keep inventory of devices
 - Track location and outcomes of every device deployment
 - Data entry for wearing logs
 - Track participant contacts and data collection activities
 - Access database available to download from website

Determining Inventory Needs



- A 7-day wear ties up 1 device for 11-14 days
1 day prep + 1 pre-wear day + 7 day wear + 1-4 post wear days +1 day download/charge
- How many devices do we need for a 4 month data collection period and 250 participants? Answer is **34**

$X = \# \text{ days data collection} / [\text{days used per person}] \quad X = (120/12) = 10$

$Y = X * [\text{loss rate}] \quad Y = (10 * .03) = .30$

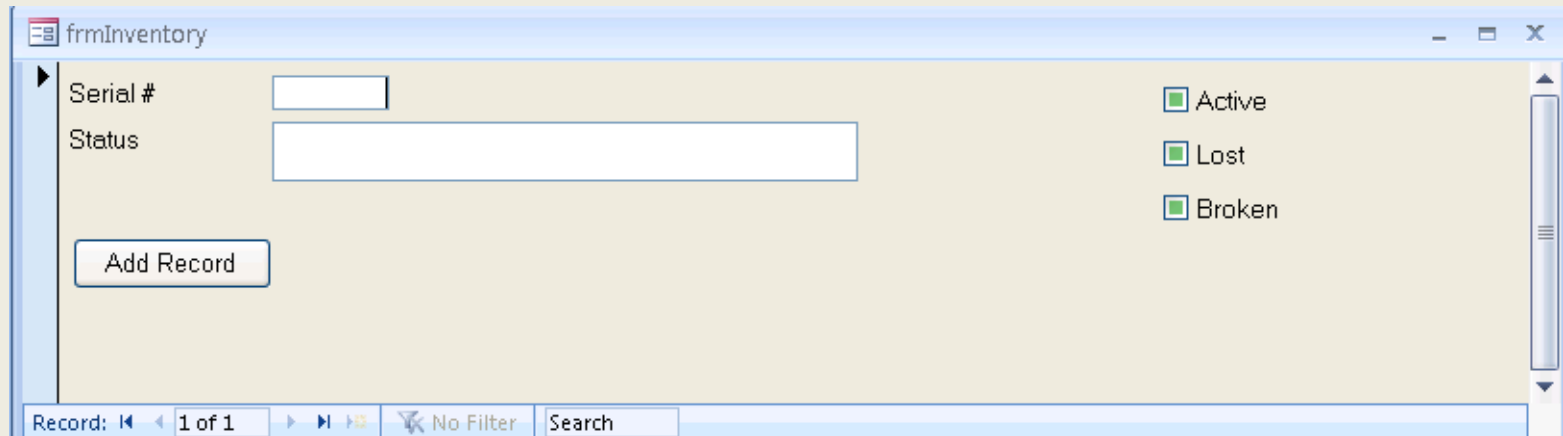
$Z = X - Y \quad Z = (10 - .30) = 9.7$

participants to measure [final sample + re-wears] $250 + (250 * .3) = 325$

Inventory = # of participants to measure / Z **Inventory = (325/9.7) = 33.5**

*Assumptions: 3% loss rate; 30% re-wear rate; average 12 day device time

Device Inventory Form



The screenshot shows a web application window titled "frmInventory". The window contains a form with the following elements:

- Serial #**: A text input field.
- Status**: A larger text input field.
- Add Record**: A button located below the Status field.
- Active**: A checkbox with a green square.
- Lost**: A checkbox with a green square.
- Broken**: A checkbox with a green square.

At the bottom of the window, there is a status bar with the following controls:

- Record: 1 of 1 (with navigation arrows)
- No Filter (with a filter icon)
- Search (with a search icon)

Staffing



- At least a 50% FTE will be needed to manage the equipment initialization and downloading (can include prompt calling)
- At least a 50% FTE is needed for data management (includes data screening, compliance decisions and tracking)
- Data collectors – determine how many you will need based on sample size and length of data collection

PART 2: PRE-DATA COLLECTION



- About the Actigraph
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Stages of Actigraph

1. Charge

Charge devices fully before distributing

2. Initialize

Initialize device to begin collecting data using the Actilife software

3. Download

Download device using Actilife and save file to computer

4. Screen

Screen data file for valid wearing time using the MeterPlus software

5. Enough time?

Decide if enough valid data has been collected

Charging



- Storage capacity exceeds battery life, so getting a unit charged is ALWAYS the primary concern
- Charging (& downloading) is done via a USB 2.0 port
- USB hub to charge up to 7 devices at same time
- Connect USB hub straight to socket if possible. If not, can be connected to computer to charge.
- Full charge takes less than 3 hrs (batt status = >4v). Less than 3.1v and device will NOT have sufficient power to download or initialize.
- LED will
 - FLASH while charging
 - LIT when fully charged
 - FLASH w/ initialized but not yet collecting
 - FLASH TURNS OFF when collecting data



NOTE: The device CAN be put on charge while still collecting data (device will just record zero counts)

Stages of Actigraph

1. Charge

Charge devices fully before distributing

2. Initialize

Initialize device to begin collecting data using the Actilife software

3. Download

Download device using Actilife and save file to computer

4. Screen

Screen data file for valid wearing time using the MeterPlus software

5. Enough time?

Decide if enough valid data has been collected

Initializing



- The **ActiLife** software & drivers must be installed on any computer on which ActiGraph initialization and/or downloading will occur
- Connect device(s) using USB cord
- Select some data collection parameters
- Schedule start date and time of device data collection
Recommendation is to initialize accelerometer to start recording the day **AFTER** expected delivery to participant. This gives the participant a day to get used to the device before data are recorded and reduces the chance that the delivery day will be confused with a valid wearing day.

Memory and Battery Considerations



Raw Data	GT3X+ (256MB)		GT3X+ (512MB)	
	Battery Life (Days)	Memory Limit (Days)	Battery Life (Days)	Memory Limit (Days)
Sample Rate (Hz)				
30	19.0	21.4	31.0	42.7
40	17.5	16.0	27.5	32.0
50	16.0	12.8	24.5	25.6
60	14.0	10.7	22.5	21.4

GT3X+ battery life and memory limit with different sample rates based on 16 hrs Active 8 hrs idle (low power mode).

Raw Data	GT3X+ (256MB)		GT3X+ (512MB)	
	Battery Life (Days)	Memory Limit (Days)	Battery Life (Days)	Memory Limit (Days)
Sample Rate (Hz)				
30	12.5	21.4	21.0	42.7
40	11.5	16.0	19.5	32.0
50	10.5	12.8	18.0	25.6
60	9.5	10.7	16.5	21.4

GT3X+ battery life battery life and memory with different sample rates after a **10 day delay-before-starting**.

3 selections	GT3X (4MB)		GT3X (16MB)	
	Battery Life (Days)	Memory Limit (Days)	Battery Life (Days)	Memory Limit (Days)
Epoch				
1	14	7.8	21	31.4
5	14	39.2	21	156.8
15	14	117.6	21	470.3
30	14	235.1	21	940.6

5 selections	GT3X (4MB)		GT3X (16MB)	
	Battery Life (Days)	Memory Limit (Days)	Battery Life (Days)	Memory Limit (Days)
Epoch				
1	14	5.2	21	20.9
5	14	26.1	21	104.5
15	14	78.4	21	313.5
30	14	156.8	21	627.0

GT3X battery life and memory limit with different selections and epoch lengths

Initializing



ActiLife v6.1.2 - 1 Devices Connected

File Edit Communication Tools Help

Devices Wear Time Validation Data Scoring Sleep Analysis PLM Analysis Graphing Data Comparison Data Vault

Initialize Download Refresh Refresh All Identify

Device	Serial #	Status	Progress	Firmware	Battery	Total Memory	Current Data Recorded	Epoch / Sample Rate	Subject Name	Start Date & Time	Stop Date & Time	Filter	Axis Enabled	Mode(s)	More Info
<input checked="" type="checkbox"/>	GT3X+	NEO1E41110094	ready	02.04.00	4.23V (100%)	512 MB	587.33	30 Hz	AF26	5/22/2012 12:01 AM		N/A	3		More Info...

Check battery status (do not initialize if <4.0v)

Will not initialize or download if <3.2v

With older GT's, select epoch. With newer GT's, select 30 Hz.

Don't set start date too early, will use up battery. Try for the first full day of participant wearing.

Standardize the start time – midnight ensures a full day's worth of data.

Don't set Stop Date!

With older GT's, select Low Freq Extension

Initializing GT3X+

Our testing shows no difference in data with Idle Sleep Mode enabled or disabled

Initialize Device(s)

Initialize Devices

GT3X+

Sample Rate: 30 Hz

Axis 1
Axis 2
Axis 3

Flash LED during delay mode Flash LED during data collection

Idle Sleep Mode ?
Enabled

Approx recording capacity
256 MB: 21D 8H 25M 17S
512 MB: 42D 16H 48M 0S

Device Time: 5/16/2013 10:12:05 AM (local) [Use Atomic Server Time](#) ?

Start Date: Saturday, May 18, 2013 Today

Start Time: 12:00 AM Default

Use Stop Time

Stop Date: Saturday, May 18, 2013

Stop Time: 1:00 AM

Enter Subject Info

1. Select 30 Hz

2. Enable Idle Sleep Mode (ONLY if you need to save battery). Devices will enter a low power state after experiencing 10 seconds of inactivity. Device will check once per second for activity and 'wake up' if needed. Otherwise '0' activity counts will be recorded during sleep mode when the AGD file is created. This saves battery.

3. Select start date and time. Usually first full day of participant wearing (not delivery day)

4. Enter participant Identification number

Initializing GT3X

Initialize Device(s)

Initialize Devices

GT3X

Epoch: 30 sec

of Axis: 3

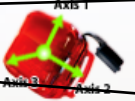
Filter: Low Frequency Extension

Steps Inclinometer

Flash LED during data collection

Max Recording Time

16MB: 637D 3H 43M 30S



Device Time: 5/16/2013 10:41:38 AM (local) [Use Atomic Server Time](#)

Start Date: Saturday, May 18, 2013 Today

Start Time: 12:00 AM Default

Use Stop Time

Stop Date: Saturday, May 18, 2013

Stop Time: 1:00 AM

Enter Subject Info

1. Select 30sec Epochs or shorter if you have enough memory

2. Number of Axis= 3

3. Select Low Frequency Extension

4. Check Steps and Inclinometer (only if you have enough memory – these will likely not be used)

5. Select start date and time. Usually first full day of participant wearing.

6. Enter participants Identification number

Only field that is required
Use File naming convention



Serial Number	*Subject Name	Gender	Height (in)	Weight (lbs)	Date of Birth	Race	Limb	Side	Dominance
MRA1F08120060	HW20060_01234_								

Subject Name Options

Use Serial Number Use Device Info Clear

* Required Information

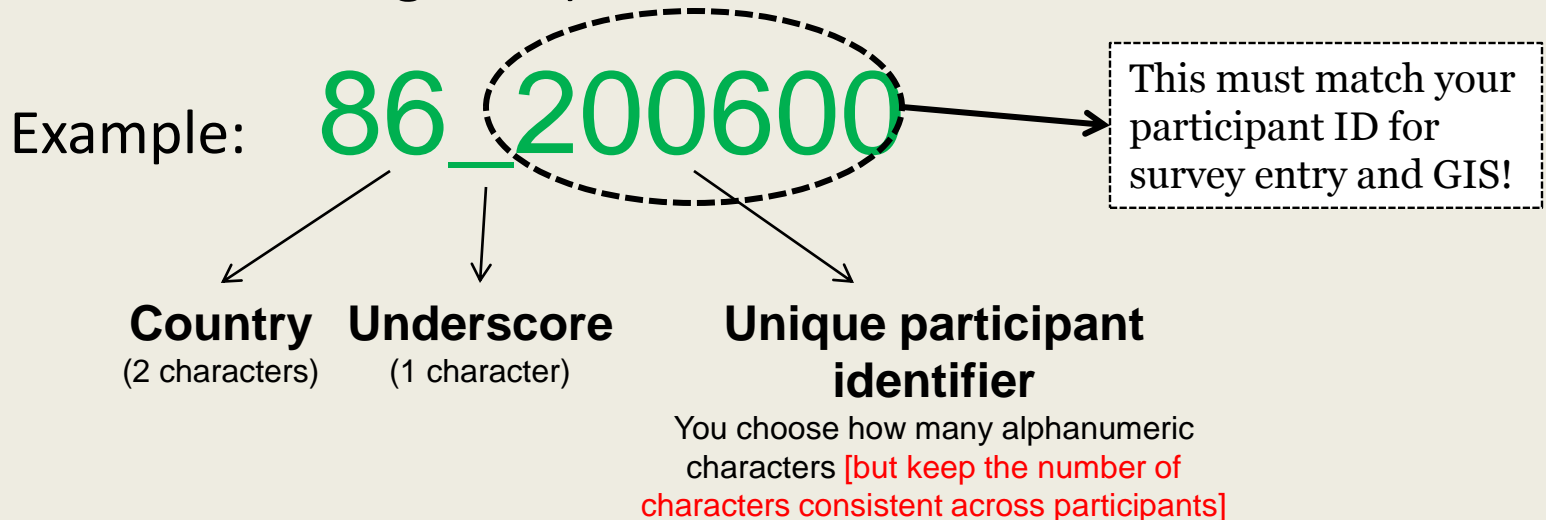
Initialize All Cancel

- The accelerometer filename is the only way the Coordinating Center will be able to identify your files and link to surveys, GIS data, etc.
- If you know your participants before initializing, name the files at this stage. If you do not (i.e., field-based recruitment), name the files when downloading. **DO NOT WAIT UNTIL LATER TO NAME YOUR FILES WITH PARTICIPANT IDs. THIS COULD INTRODUCE ERROR.**

IPEN file naming convention



- IPEN will use a consistent file naming convention to identify all accelerometer files
- It is required that this file name is exactly the same as the ID number used for survey and GIS data. Exactly the same means EXACTLY THE SAME!
- All file names need to begin with your country code (=international calling code) and an underscore



Initializing



ActiLife v6.1.4 - 1 Devices Connected

File Edit Communication Tools Help

Devices Wear Time Validation Data Scoring Sleep Analysis PLM Analysis Graphing Data Comparison

Initialize Download Refresh Refresh All Identify

Device	Serial #	Status	Progress	Firmware	Battery	Total Memory	Current Data Recorded	Epoch / Sample Rate	Subject Name	Start Date & Time	Stop Date & Time	Filter
ActiSleep+	MRA1F08120060	finished intializing		02.04.00	4.22V (100%)	512 MB	0	30 Hz	HW20060_01234_	6/12/2012 8:06 PM		N/A

You're done!

LED light always
flashes prior to
data collection

Logistics for in-person delivery



- Linking Actigraph serial number to participant in the field
 - In field assign serial # to participant ID #
 - Make sure this information is entered into database when return to office
- Assigning drop-off and pick-up visits
 - Pick up scheduled on 8th wearing day (9 days after delivery) IF participant didn't start late or miss any days.
- Data screening in the field
 - Laptops with software
 - Remember, you can't count the day you are screening as a wear day
 - Rewears – use same device? Enough memory/battery?

Delivery of Actigraph: Talking Points



How to wear the meter

- Wear for 7 complete days
- Wear for all waking hours – at least 12 hours every day
- DON'T WEAR TO BED AT NIGHT!!!!!!
- Need to start right away – battery will only last 20 days
- We will ask for a re-wear if don't get enough wearing time
- Go about your normal activities - don't do anything different
- Have a letter for coaches, teachers, etc. if needed
- Need to be in town, staying at your primary residence when wearing

Tips for compliance

- Put next to bed or cell phone where you will see it first thing each morning
- Complete meter log each day as a reminder
- Show Excel graphs of what wearing and non-wearing days look like

Incentives

- Will receive after receiving survey and 7 valid meter days
- Will trade incentive for study materials

How to care for meter

- Valuable for research; no monetary value
- **Don't get meter wet! It is NOT WATERPROOF!**
- Don't let anyone else wear it – it's only for you.

Stay in contact

- Someone from our office will call you the day after tomorrow to check on you
- Call with any questions
- Ask for cell phone and permission to send text messages
- If you miss a day or partial day, add on a day at the end and let us know. If you miss more than one day, call us and we'll let you know what to do

Delivery of Actigraph: Checklist

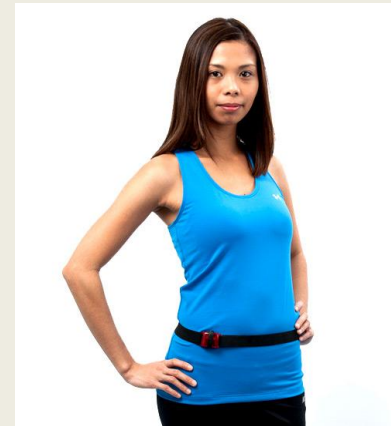


- Make link between device serial number and participant
- Show participant the graphs of compliant and noncompliant data patterns
- Offer to provide personalized graphs to participants when they are done
- Adjust belt to fit participant and show them how to wear it
- Make sure participant can start right away – no travel plans and staying at primary residence for the week. Don't want wearing when staying outside the neighborhood
- Give participant meter log and explain
- Give participant meter instructions and review
- Give participant your contact information
- Make sure all talking points are covered

Attaching the Belt & Wear position



- Suggest several different size belts (30", 40", 50" – ask participant which size they want)
- Take off one half of the buckle, thread through device
- Worn on waist, over right hip, snug fit
- Over or under clothing



PART 2: PRE-DATA COLLECTION



- About the Actigraph
- Preparing for Data Collection
- Charging, Initializing, & Delivering
- Compliance Tips and Prompting
- Tracking

Compliance Elements



- Graphs
- Instruction sheets with dates
- Wearing log
- Calls/Emails/Texts/Mailings– **new studies coming out showing that texting reminders works well!**
- Scheduling and tips for weekend compliance
- Letter to schools and coaches
- Stickers (although adolescents might not think these are “cool”!)
- Incentive (adolescents want money!)



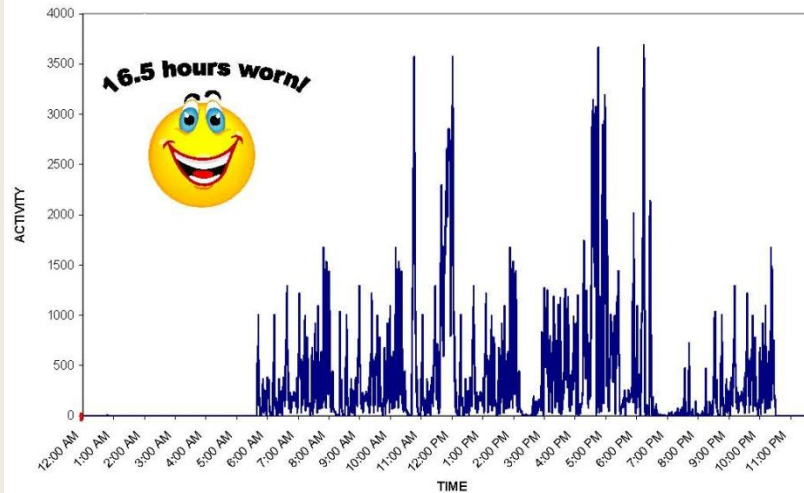
Graphs



USE GRAPHS at device drop off

“We can see if you don’t wear the device for long enough”

“We will need to ask you to wear it again”

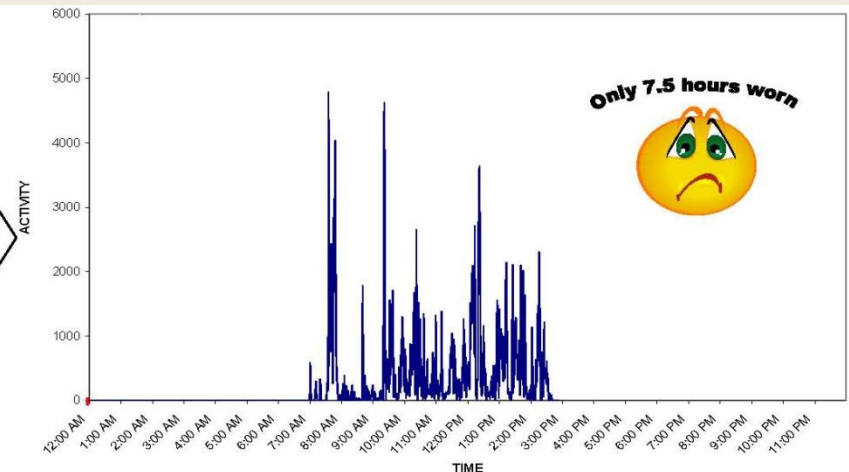


This person did a great job of wearing their meter!

As you can see on the graph, they put it on when they woke up at about 6:00 in the morning, and kept it on until about 10:30 at night.

This person would have to wear the meter again.

They put it on when they woke up at about 7:00 in the morning, but took it off at about 2:30 in the afternoon.



Instructions

- How to wear meter
- Increase valid wearing time expectations
- Provides an end date



How to Wear the Activity Meter

This small activity meter records general movement and allows us to get a better idea of your overall activity level. We will **not** be able to tell what kind of specific activity is happening. At first, the belt may feel slightly awkward, but after a few hours, you will probably get used to it and not notice it as much. It is **extremely** important for our study that you wear the meter properly. If it is not worn properly, we may have to send it back for you to wear again. Please follow these instructions carefully:

- ❖ Wear the meter attached to the belt around your waist, just above your **right** hipbone. You can wear it either underneath or on top of your clothing.
- ❖ Wear the meter so that the star sticker is facing **up**.



- ❖ Wear the meter **snug** against your body. If you have to, you can adjust the belt by pulling the end of the strap to make it tighter. Or, to loosen the belt, push more of the strap through the loop. **Wear the belt tight enough so that the meter does not move when you are being active.**
- ❖ Please **put it on first thing in the morning** -- either just after you get out of bed or just after you shower or take a bath in the morning.
- ❖ **Do not submerge the meter in water** (swimming, bathing, etc.)
- ❖ Keep the activity meter on all day (unless swimming or in the water).
- ❖ At night, **take it off right before you go to bed. You should be wearing the meter for at least 12 hours each day.**
- ❖ Do not let anyone else wear it.

❖ **The meter has a very short battery life.**

❖ **The last full day that it will work is _____.** If you cannot begin wearing it by _____, please call **1-877-440-4832 as soon as possible!**

There is no "ON" or "OFF" switch that you need to worry about turning on or off every day. The activity meter runs on a battery and is programmed to run continuously without you needing to turn it on. Please do not try to open the activity meter.

Log



- Provides a daily assignment that might serve as a wearing reminder
- Can be helpful when processing data
- Will use school start and end times to filter accelerometer data (e.g., MVPA outside of school hours)
- Tracking database will include form for data entry
- Might not have perfect compliance with the log so may be a need to collect school times directly from schools



Meter Log

Wear the movement meter for seven (7) days in a row, including weekends. In the spaces below, write down the dates, days and times which you wear it. Please also write down the times school starts and ends each day. If you take the device off for more than 30 minutes, such as for swimming, record when they were removed and for what reason. If you are unable to wear the meter for *at least* 12 hours one day, please wear it one extra day. Thank you!

Please start wearing your meter on or before _____.
The last full day that your meter will work is _____!

Day 1

(Circle Day) Mon Tues Wed Thurs Fri Sat Sun Date _____

Time Meter Put On:	am / pm	Time school started:	am / pm
Time Meter Taken Off:	am / pm	Time school ended:	am / pm
Time removed during the day (e.g. 10:30-11am): _____			
Why removed (e.g. swimming): _____			

Day 2

(Circle Day) Mon Tues Wed Thurs Fri Sat Sun Date _____

Time Meter Put On:	am / pm	Time school started:	am / pm
Time Meter Taken Off:	am / pm	Time school ended:	am / pm
Time removed during the day (e.g. 10:30-11am): _____			
Why removed (e.g. swimming): _____			

Day 3

(Circle Day) Mon Tues Wed Thurs Fri Sat Sun Date _____

Time Meter Put On:	am / pm	Time school started:	am / pm
Time Meter Taken Off:	am / pm	Time school ended:	am / pm
Time removed during the day (e.g. 10:30-11am): _____			
Why removed (e.g. swimming): _____			

Day 4

(Circle Day) Mon Tues Wed Thurs Fri Sat Sun Date _____

Time Meter Put On:	am / pm	Time school started:	am / pm
Time Meter Taken Off:	am / pm	Time school ended:	am / pm
Time removed during the day (e.g. 10:30-11am): _____			
Why removed (e.g. swimming): _____			

Prompting Material Return



Phone calls

- First calls at the beginning of wearing to remind of criteria and proper wearing (Days 2 & 5)
- Prompt calls weekly after that

Emails/Text Messages

- Use in combination with phone calls

Mailings/Visits

- Can send return mailing materials to encourage sending back, send a reward letter or stop by participants home

DON'T GIVE UP!

Prompt Calls



- Calls made on Days 2 and 5 (*text/email if don't reach participant*)
 - Reminder to wear
 - Check if on schedule
 - Troubleshoot problems or delayed wearing
 - Answer questions
- What to do if participant started late, hasn't started, can't find meter
Considerations:
 - ✦ Battery life
 - ✦ Re-visit schedule
 - ✦ Likelihood of better outcome if do it again
 - ✦ How believable the person is
- What to do if can't reach participant by visit or phone
 - KEEP TRYING! Persistence usually pays off.
 - Leave postage-paid envelopes for them to send meter back to you
 - Stress to them that someone else is waiting to wear the meter
 - Offer reward as LAST resort (we can send you an example)



Call Schedule



Action (MC=meter check-in call; MR=meter reminder call; PC=prompt call)	Length of time before next contact
Make your MC call the day after you expect your participant to receive the meter.	Schedule next call for 3 days later.
Make your MR call to check in again and make sure the participant started wearing the meter.	Schedule next call for 5 days later.
Make your PC ₁ call (first prompt call).	Schedule your next call for 1 week later.
Make your PC ₂ call.	Schedule your next call for 1 week later. If local, offer a home pickup.
Make your PC ₃ call and send an email if possible.	Schedule your next call for 1 week later.
Make your PC ₄ call and mail a return envelope (#1).	Schedule your next call for 1 week later.
Make your PC ₅ call.	Schedule your next call for 1 week later.
Make your PC ₆ call and send an email if possible.	Schedule your next call for 1 week later.
Make your PC ₇ call.	Schedule your next call for 1 week later.
Make your PC ₈ call and mail another return envelope (#2).	Schedule your next call for 2 weeks later.
Make your PC ₉ call.	Schedule your next call for 2 weeks later.
Make your PC ₁₀ call and send an email if possible.	Schedule your next call for 2 weeks later.
Make your PC ₁₁ call.	Schedule your next call for 2 weeks later.
Make your PC ₁₂ call and mail another return envelope.	Schedule your next call for 2 weeks later and continue calling until at least 6 months have passed.
At this point, the meter has been out for at least 6 months and 3 envelopes have been sent. Consult a supervisor about the next steps.	Continue calling if you have had contact with participant and think continued attempts will help. A reward letter is an option but only if nothing else helps. The reward is usually comparable to the incentive they would have received for completing the study.

Scheduling and tips for weekend compliance



- Lower compliance on weekends, so recommend starting toward the end of the week, if feasible, so don't compound the problem with subject fatigue/loss of interest
- Emphasize importance of wearing for complete days on the weekends
- Reminder to put on first thing even if sleep late and to wear right up until bedtime
- Reminder to back on if remove for swimming

Letter for teachers, coaches



Dear School/Activity Personnel,

As health researchers from the University of California, San Diego, we are contacting you to inform you of a research project that one of your students is participating in. This study is called the Accelerometer Comparison in Youth Study.

Approximately 50 children and adolescents between the ages of 5 and 17 are participating in this study throughout the San Diego County. Children who are participating in our research will be wearing a belt with two small movement meters. The meters are similar to a pedometer and are worn around the child's waist. Children are instructed to wear the meters from the time they wake up in the morning, to the time they go to sleep. It is important for our study that children wear the meter the whole day, including time spent at school and in other activities. The study instrument will not affect the child wearing it or other children in any way, and they pose no threat of injury or other harm.

Participating children are aware of these guidelines for wearing the meter, so they are responsible for following directions. If you have any concerns or questions, do not hesitate to contact our office. We cannot share information about our study participants, but can tell you more about the study. Our number is 619-260-5545.

Thank you for your cooperation.

Sincerely,

James F. Sallis, PhD
Distinguished Professor
Department of Family & Preventive Medicine
University of California, San Diego

- Explains accelerometer and study
- May help reduce device removals for school, sports, etc.

Stickers, Incentives



- Stickers of popular music/sports figures wearing ActiGraphs were a hit with young kids... but maybe these are not 'cool' enough for teenagers
- Money on the other hand has worked very well as an incentive for adolescents!



Delivery and Compliance Training



- Data collectors wear Actigraph for several days so they can speak from experience
- Role playing for delivery of Actigraph & compliance
- Provide checklist of talking points but not necessarily scripted
- Emphasize importance of the details (serial numbers, participant IDs, dates)
- Role playing for re-wear requests

PART 2: PRE-DATA COLLECTION



- About the Actigraph
- Preparing for Data Collection
- Charging, Initializing, & Delivering
- Compliance Tips and Prompting
- Tracking

- Meter Tracking
- Meter Inventory
- Contacts

Access Tracking Database



- Two functions: Track devices and track people
 - Device (tracking & inventory) form to track dates, wearing time, history of devices
 - ✦ Queries to track return times, problem units, compliance rates, outstanding units
 - ✦ Used by person initializing and screening meter files
 - ✦ Also includes place to enter information from logs
 - Participant (contacts) form to track visits, phone calls, etc.
 - ✦ Queries to track recruitment numbers and rates, demographics, history of participant in study
 - ✦ Used by person doing recruitment and/or managing and scheduling data collectors
- Tracking some things in 2 places is a good quality control practice

Tracking Outgoing Devices



Tracking Form - Microsoft Access

Home Create External Data Database Tools Acrobat

View Paste Copy Format Painter Font Rich Text Refresh All Save Spelling Delete More Filter Selection Advanced Size to Fit Form Windows Find Replace Go To Select

Tables: Switchboard Items, tblContacts, tblInventory, tblMeters_GPS

Tracking Database Add Record

Participant ID# _____
 Country _____
 City _____
 Stage _____
 Recruiter _____
 Actigraph Serial # _____
 GPS Serial # _____
 Charger Serial # _____
 Last Day (battery or memory) _____

Outgoing

Date Meter Delivered _____
 Date Meter Activated _____
 Date GPS Delivered _____
 Date GPS Activated _____
 Date Charts Prepared _____
 Date Sent Actigraph for Repair _____
 Date Sent to IPEN-CC for consult _____
 Date Sent GPS for Repair _____

Incoming

Date Meter Retrieved _____
 Date Meter Downloaded _____
 Meter Valid Days _____
 Meter Valid Weekend Days _____
 If not enough valid days, valid hours _____
 Rewear Requested _____
 Date GPS Retrieved _____
 Date GPS Downloaded _____
 GPS Valid Days _____
 Drop meter? _____
 Drop GPS? _____

Data Problems

Bad meter data _____
 Bad GPS data _____
 Meter Not Downloaded _____
 GPS Not Downloaded _____
 Meter Never Worn _____
 GPS Never Worn _____
 Worn overnight _____
 Other Meter Data Problems _____
 Other GPS Data Problems _____

Comments

GPS comments

Length of Time Out

Length meter out _____
 Length GPS out _____

Loss

Lost Meter _____
 Lost GPS _____
 Lost Charger _____

Wear Time Log Log _____ Past midnight _____

DAY 1

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 2

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 3

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 4

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 5

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 6

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 7

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 8

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

Track Recruitment and Visits



Participant Information	Next Call or Action	Delivery Visits
Participant ID <input type="text"/>	<input type="button" value="Add Record"/> Next Call Date <input type="text"/>	First Visit <input type="text"/> Second Visit <input type="text"/>
First name <input type="text"/>	Next Call Time <input type="text"/>	Date 1st visit <input type="text"/> Date 2nd visit <input type="text"/>
Last name <input type="text"/>	Next Call or Action Code (final outcome) <input type="text"/>	Time 1st visit <input type="text"/> Time 2nd visit <input type="text"/>
Child name <input type="text"/>	Comment <input type="text"/>	Outcome 1st visit <input type="text"/> Outcome 2nd visit <input type="text"/>
Address <input type="text"/>	Quadrant <input type="text"/>	<input type="text"/>
City <input type="text"/>	<input type="button" value="Click for Data Collection Screen"/>	Third Visit <input type="text"/> Fourth Visit <input type="text"/>
Zip <input type="text"/>		Date 3rd visit <input type="text"/> Date 4th visit <input type="text"/>
Telephone <input type="text"/>		Time 3rd visit <input type="text"/> Time 4th visit <input type="text"/>
Alternate phone <input type="text"/>		Outcome 3rd visit <input type="text"/> Outcome 4th visit <input type="text"/>
Email <input type="text"/>		<input type="text"/>
Race <input type="text"/>	Recruitment Visits	Retrieval and Survey Visits
Parent gender <input type="text"/>	First Visit <input type="text"/> Second Visit <input type="text"/>	First Visit <input type="text"/> Second Visit <input type="text"/>
Child gender <input type="text"/>	Date 1st visit <input type="text"/> Date 2nd visit <input type="text"/>	Date 1st visit <input type="text"/> Date 2nd visit <input type="text"/>
Belt size <input type="text"/>	Time 1st visit <input type="text"/> Time 2nd visit <input type="text"/>	Time 1st visit <input type="text"/> Time 2nd visit <input type="text"/>
Recruiter <input type="text"/>	Outcome 1st visit <input type="text"/> Outcome 2nd visit <input type="text"/>	Outcome 1st visit <input type="text"/> Outcome 2nd visit <input type="text"/>
Data collector <input type="text"/>	Comment <input type="text"/>	Comment <input type="text"/>
Eligibility and Consent	Third Visit <input type="text"/> Fourth Visit <input type="text"/>	Third Visit <input type="text"/> Fourth Visit <input type="text"/>
Between 12 and 17? <input type="text"/>	Date 3rd visit <input type="text"/> Date 4th visit <input type="text"/>	Date 3rd visit <input type="text"/> Date 4th visit <input type="text"/>
Live 3 months? <input type="text"/>	Time 3rd visit <input type="text"/> Time 4th visit <input type="text"/>	Time 3rd visit <input type="text"/> Time 4th visit <input type="text"/>
Disability? <input type="text"/>	Outcome 3rd visit <input type="text"/> Outcome 4th visit <input type="text"/>	Outcome 3rd visit <input type="text"/> Outcome 4th visit <input type="text"/>
Eligible <input type="text"/>	Comment <input type="text"/>	Comment <input type="text"/>
Consent <input type="text"/>	<input type="text"/>	<input type="text"/>
Consent Meter <input type="text"/>		
Consent GPS <input type="text"/>		
Consent date child <input type="text"/>		
Consent date parent <input type="text"/>		
Reason for refusal <input type="text"/>		

Track data collection and prompts



Data Collection			
Outgoing			
Meter serial number	<input type="text"/>		
Date meter delivered	<input type="text"/>		
GPS serial number	<input type="text"/>		
Charger serial number	<input type="text"/>		
Date GPS delivered	<input type="text"/>		
Rewear serial number - Meter	<input type="text"/>		
Rewear serial number - GPS	<input type="text"/>		
Date rewear delivered - Meter	<input type="text"/>		
Date rewear delivered - GPS	<input type="text"/>		
Retrieval			
Date survey retrieved	<input type="text"/>		
Survey complete?	<input type="text"/>		
Date survey entered	<input type="text"/>		
Date Meter received			
Meter valid days	<input type="text"/>		
Need rewear meter?	<input type="text"/>		
Date rewear meter received	<input type="text"/>		
Valid days rewear meter	<input type="text" value="0"/>	<input type="button" value="calculate"/>	
Valid days total meter	<input type="text"/>		
Date GPS received			
GPS valid days	<input type="text"/>		
Need rewear GPS?	<input type="text"/>		
Date rewear GPS received	<input type="text"/>		
Valid days rewear GPS	<input type="text" value="0"/>	<input type="button" value="calculate"/>	
Valid days total GPS	<input type="text"/>		
Incentive			
Date payment sent	<input type="text"/>		
Payment amount	<input type="text"/>		
Lost meter or GPS			
Meter lost	<input type="text"/>		
Meter serial number	<input type="text"/>		
GPS lost	<input type="text"/>		
GPS serial number	<input type="text"/>		
Charger lost	<input type="text"/>		
Charger serial number	<input type="text"/>		
Meter Follow-up Calls			
First Call		Second Call	
1st Call Date	<input type="text"/>	2nd Call Date	<input type="text"/>
1st Call Time	<input type="text"/>	2nd Call Time	<input type="text"/>
1st Call Outcome	<input type="text"/>	2nd Call Outcome	<input type="text"/>
Comment	<input type="text"/>	Comment	<input type="text"/>
Third Call		Fourth Call	
3rd Call Date	<input type="text"/>	4th Call Date	<input type="text"/>
3rd Call Time	<input type="text"/>	4th Call Time	<input type="text"/>
3rd Call Outcome	<input type="text"/>	4th Call Outcome	<input type="text"/>
Comment	<input type="text"/>	Comment	<input type="text"/>
Asking for rewear			
1st Call Date	<input type="text"/>	2nd Call Date	<input type="text"/>
1st Call Time	<input type="text"/>	2nd Call Time	<input type="text"/>
1st Call Outcome	<input type="text"/>	2nd Call Outcome	<input type="text"/>
comments	<input type="text"/>	comments	<input type="text"/>
3rd Call Date	<input type="text"/>		
3rd Call Time	<input type="text"/>		
3rd Call Outcome	<input type="text"/>		
comments	<input type="text"/>		
Rewear Meter Follow-up Calls			
First Call		Second Call	
1st Call Date	<input type="text"/>	2nd Call Date	<input type="text"/>
1st Call Time	<input type="text"/>	2nd Call Time	<input type="text"/>
1st Call Outcome	<input type="text"/>	2nd Call Outcome	<input type="text"/>
Comment	<input type="text"/>	Comment	<input type="text"/>
Third Call		Fourth Call	
3rd Call Date	<input type="text"/>	4th Call Date	<input type="text"/>
3rd Call Time	<input type="text"/>	4th Call Time	<input type="text"/>
3rd Call Outcome	<input type="text"/>	4th Call Outcome	<input type="text"/>
Comment	<input type="text"/>	Comment	<input type="text"/>
<input type="button" value="↑"/>			



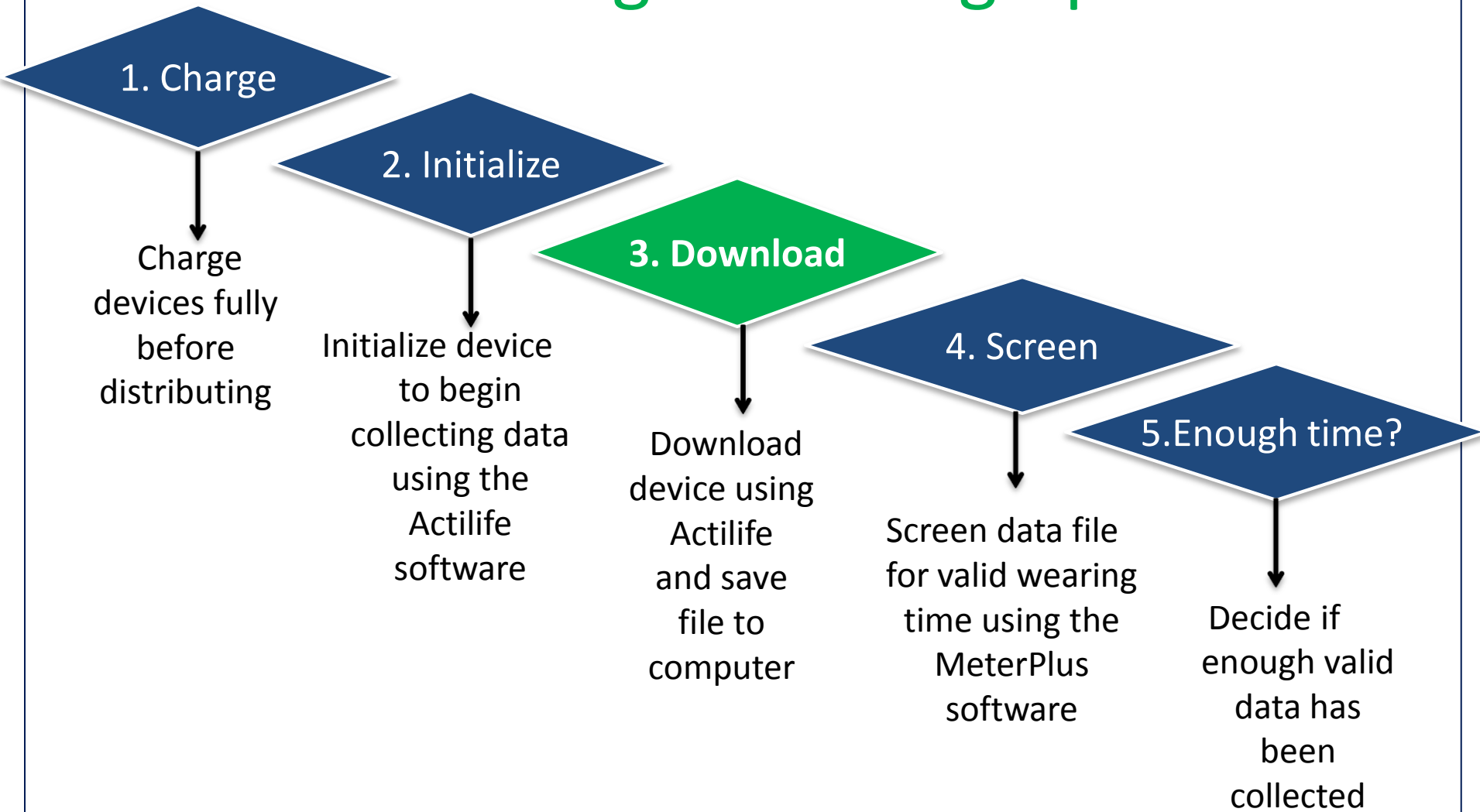
PART 2 COMPLETED!
NEED TO STRETCH? EAT???

PART 3: POST-DATA COLLECTION



- Downloading and Converting Data
- Screening Data
- Electronic Tracking
- Data Transfer
- Quality Control

Stages of Actigraph



Downloading data from GT3X



ActiLife v6.5.2 - 1 Devices Connected

File Edit Communication Tools Help

Devices Wear Time Validation Data Scoring Sleep Analysis PLM Analysis Graphing Data Comparison GPS Data Vault

Initialize **Download** Refresh Refresh All Identify

Device	Serial #	Status	Progress	Firmware	Battery	Total Memory	Current Data Recorded	Epoch / Sample Rate	Subject Name	Start Date & Time	Stop Date & Time
GT3X	MAT2C51090344	finished refreshing		4.4.0	3.81V (53%)	16 MB	5D 8H 14M 0S	60 sec	90344	12/22/2012 12:00 AM	

Download Options

Select Download Location... \\Alrserver\stan\CSA Data\NQLS CSA files\NQLS-S2

Use as Default Download Directory

Download Naming Convention

- <Serial Number> <Download Date>
- <Serial Number> <Start Date>
- <Subject Name> <Download Date>
- <Subject Name> <Start Date>
- Serial Number
- Subject Name
- Prompt for Each Download
- Concatenate Custom Fields

Add biometric and user information

Download All Devices

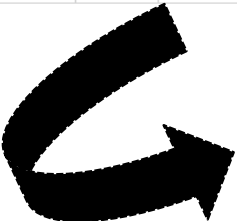
Wireless control for wGT3X+ and wActiSleep devices.

- List, initialize and view cut points.
- Stream raw data in real time. **NEW**
- Download raw data wirelessly. **NEW**

Open ANT Wireless Device Overview

Browse ActiGraph Activity Monitors

Use IPEN file naming convention



Downloading data from GT3X+

ActiLife v6.5.2 - 1 Devices Connected

File Edit Communication Tools Help

Devices Wear Time Validation Data Scoring Sleep Analysis PLM Analysis Graphing Data Comparison GPS Data Vault

Initialize Download Refresh Refresh All Identify

Device	Serial #	Status	Progress	Firmware	Battery	Total Memory	Current Data Recorded	Epoch / Sample Rate	Subject Name	Start Date & Time	Stop & T
GT3X+	NEO1F14120142	finished identifying	<div style="width: 100%;"></div>	02.04.00	4.20V (100%)	512 MB	42D 16H 50M 34S	30 Hz	51010013.0	6/22/2012 12:00 AM	

Download Options

Select Download Location... \\msserver1stan\CSA Data\NQLS CSA files\NQLS-S2

Use as Default Download Directory

Download Naming Convention

- <Serial Number> <Download Date>
- <Serial Number> <Start Date>
- <Subject Name> <Download Date>
- <Subject Name> <Start Date>
- Serial Number
- Subject Name
- Prompt for Each Download
- Concatenate Custom Fields

Add biometric and user information

Create Clinical Report on Download for ActiSleep Monitor(s)

GT3X+ Download Options

Create AGD File

Epoch: 30 seconds

of Axis: 3

Steps Lux Inclinometer Low Frequency Extension

Download All Devices

Use IPEN file naming convention

Create AGD file

Epoch = 30s
3 axis

Check all download options EXCEPT inclinometer

AGD to DAT



ActiLife v6.2.0 - 1 Devices Connected

File Edit Communication Tools Help

Import/Export

- Open AGD File...
- Load Template...
- Remove Template
- Template Editor...
- Exit Alt+F4

Epoch to Epoch

- .DAT -> .AGD
- .CSV -> .AGD
- .AWC -> .AGD
- .AWF -> .AGD
- .AGD -> .DAT**
- .AGD -> .CSV
- .AGD -> Data Table (.CSV)
- .AGD -> MATLAB

Raw to Epoch

- .DAT
- .CSV
- .AGD
- .GT3X

Raw to Raw

- .GT3X -> .CSV

Reintegrate

- .AGD -> .AGD

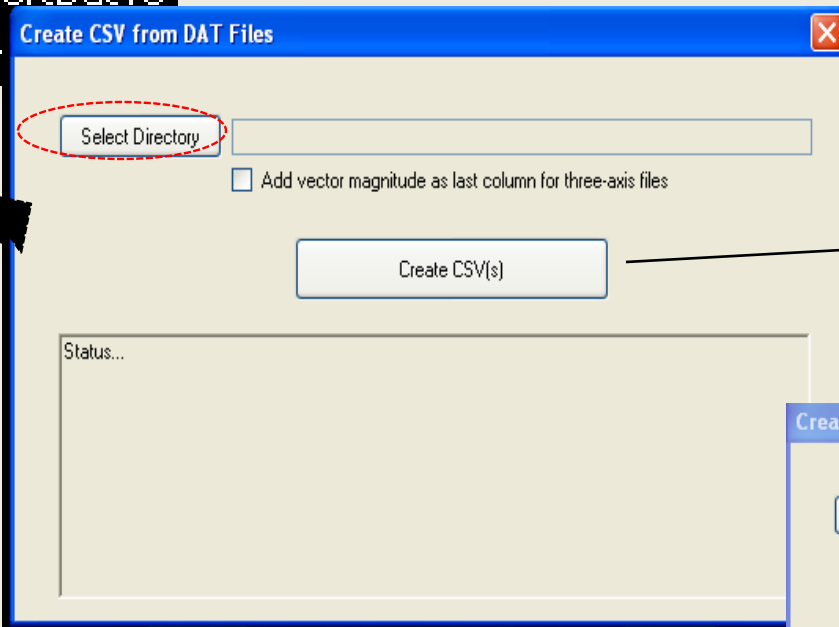
PLM Analysis Graphing Data Comparison Data Vault

Refresh All Identify

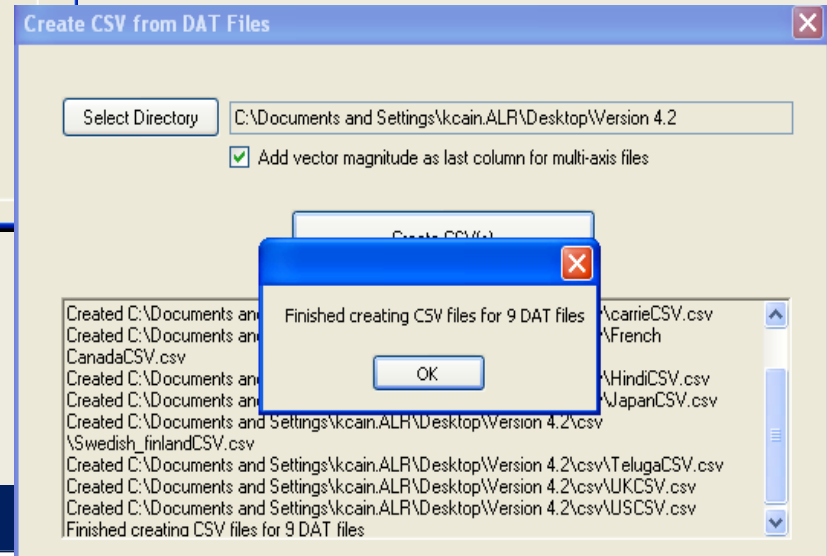
Total Memory	Current Data Recorded	Epoch / Sample Rate	Subject Name	Start Date & Time	Stop Date & Time	Filter	Axis Enabled
512 MB	5134.15	30 Hz	HW20060_01234_	6/12/2012 8:06 PM		N/A	3

Epoch to epoch

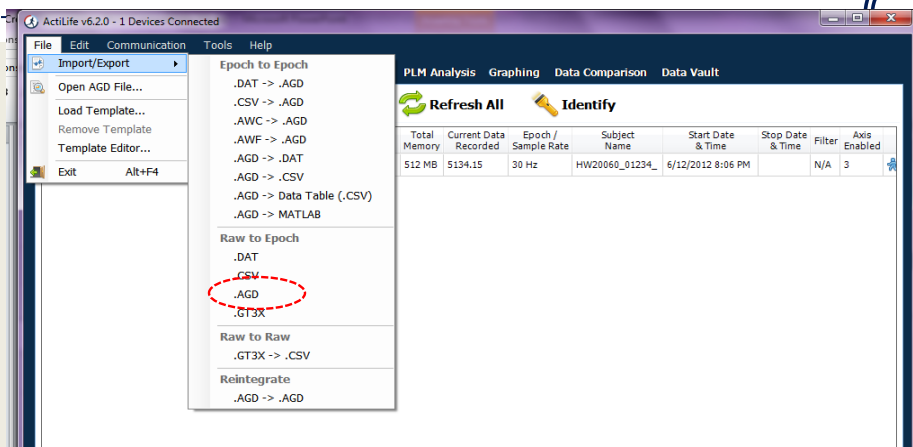
DAT to CSV



After converting an AGD file to DAT use the DAT converter to create a CSV file

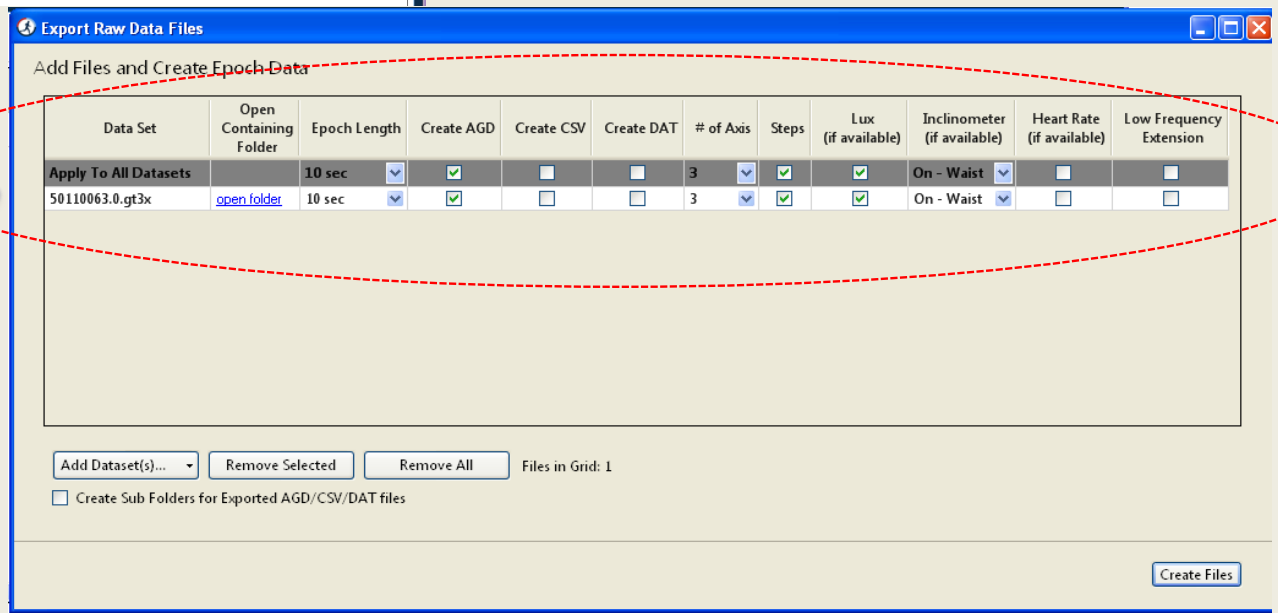


Raw to AGD (GT3X+ only)

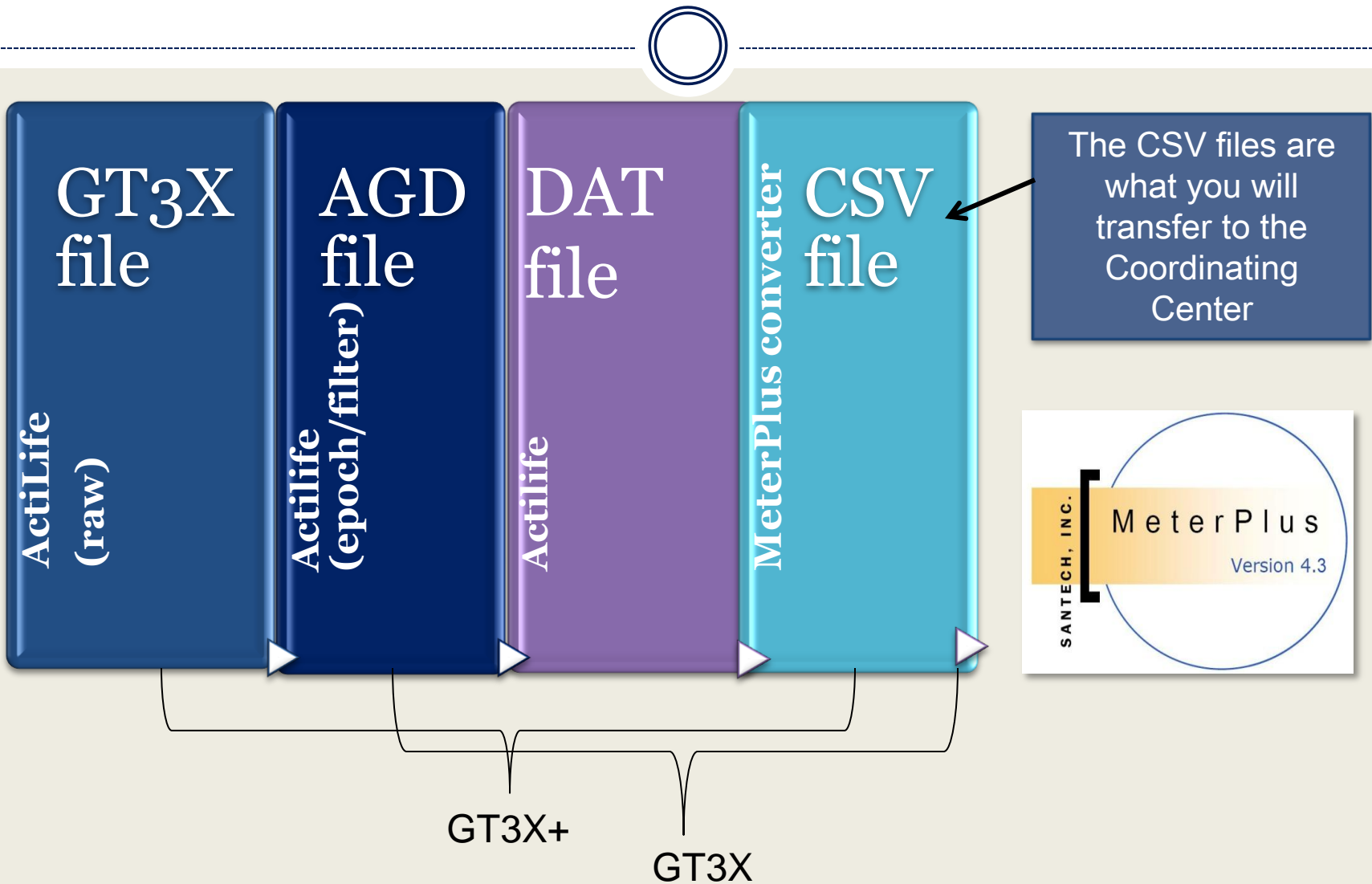


NOTE: you can go back and re-create the AGD file from the raw data file as many times as you want

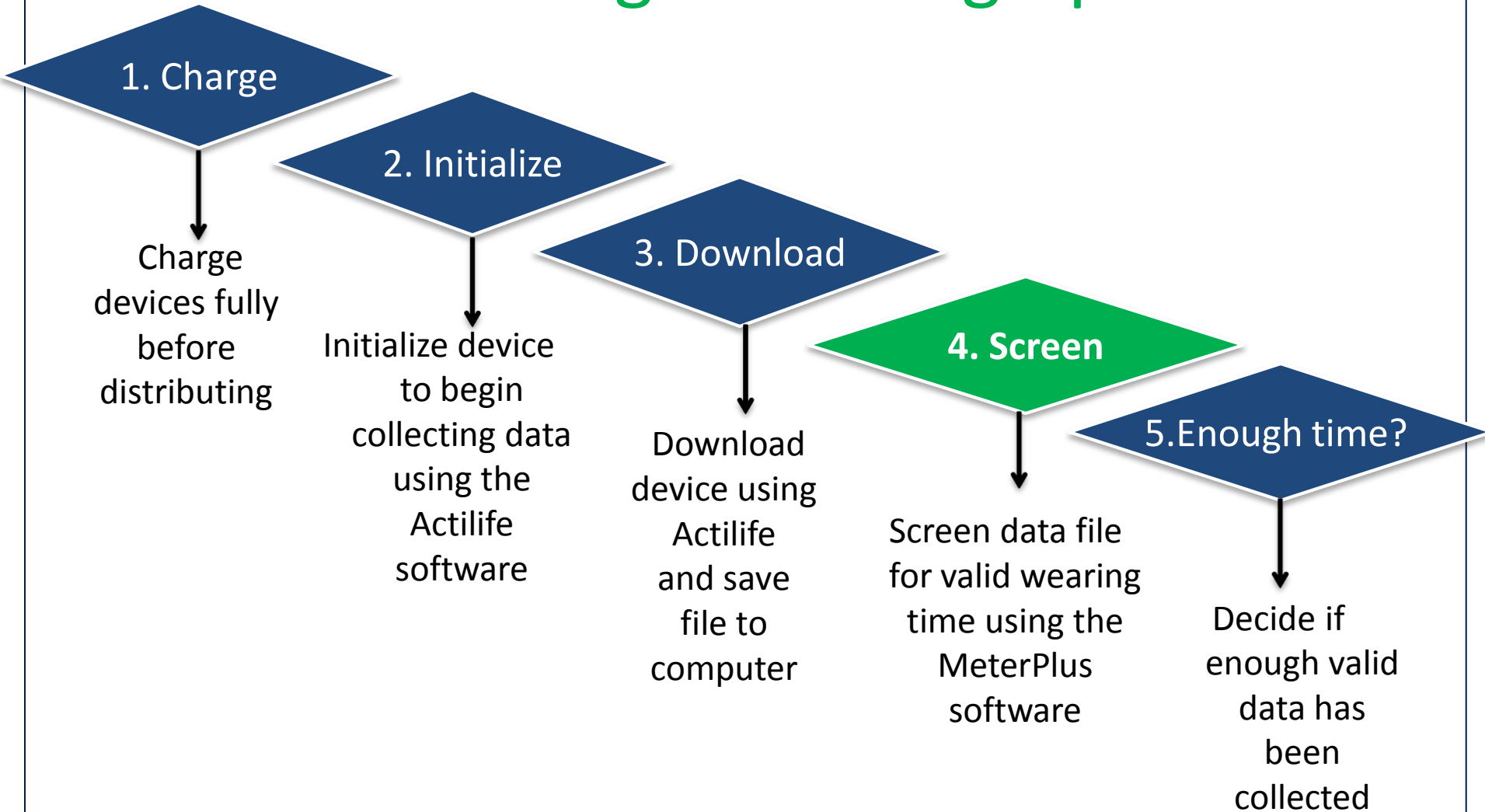
Change in protocol: Mark Inclinometer as "OFF"



File Conversions – Actilife to MeterPlus



Stages of Actigraph



Data screening



- Looking for valid wear time & device malfunction
 - Invalid days and non wear days are not always obvious, screening catches this
- Screen data right away
 - Stop using faulty devices!
 - Ask for rewear quickly if needed
- Need dedicated staff person

Screening data – Program Settings



MeterPlus4.3 (ActiGraph Version) -IPEN.mpo

File Tools Reports Help

No data loaded. Drag and drop a file here.

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
------	-------------	------------	-------------	-----------

Get Total Valid Hours

Save All Save **All Valid Days** Save **Selected Days**

MeterPlus Options

View Data | Score Data | Categories | Filename | Bouts | kCals | Filters

Hours required for a valid day:

MINUTES of consecutive zeros to define non-wearing time:

Meter Start Time for Participant's Time Zone

HH (actual meter start hour in 24 hour time; start minutes are read from the file header)

Same Day Next Day Previous Day

Save Save and Close Exit

Top left cell is **ALWAYS** **MIDNIGHT**

One column is **ALWAYS** 1 epoch (in this case 30s)

Daily Info for Thursday, February 05, 2009

Number of Data Points each Hour: 120

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	178	98	10	2	37	239	58	735	1780	1895	2137	1808	1631	1252				
31	13	0	6	144	0	5	0	70	3	27	6	2	4					
0	876	1309	1697	1897	1975	1602	287	1639	417	238	554	1415	321	383				
85	15	31	2	33	20	5	7	49	59	1	0	0	0	19				
0	16	0	31	4	21	23	52	21	18	1	2	0	8	2				
0	5	0	3	10	0	23	23	11	0	278	0	341	680	1108				
0	1	392	1	4	10	0	2	8	2	0	13	213	485	86				
0	246	10	366	174	366	209	1733	2238	2305	1999	1762	517	311	22				
0	57	0	4	4	10	0	0	4	13	17	0	3	20	0				
215	190	891	300	967	222	424	174	326	599	407	655	297	614	292				
195	213	117	58	223	169	193	39	22	58	6	56	19	243	162				
18	0	77	174	109	4	117	67	0	0	0	13	111	1	10				
0	32	0	240	36	2	3	1384	362	0	0	596	8	671	235				
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

Change Valid Value Valid Invalid

8am

One line is **ALWAYS** 1 hr

9pm

- 1 min epoch: 60 data points per hour (per case)
- 30s epoch: 120 data points/hr
- 15s epoch: 240 data points/hr
- 1s epochs: 3600 data points/hr

Examples of data



- Wearing time that matches documentation of wear dates – SAVE
- Wearing time that is outside of documented wear dates – MAY SAVE OR NOT SAVE
- Non-wearing time that may look like wearing time on the surface (e.g., mail days) – DO NOT SAVE
- Overnight wearing – FLAG/RENAME FILE
- Types of malfunction/Invalid data – FLAG and SEND FOR CONSULT
- Questions/uncertainty – FLAG and SEND FOR CONSULT

Wearing time, matches wear dates -SAVE

Mail day
Wearing days

MeterPlus4.3 (ActiGraph Version) -IPEN.mpo

File Tools Reports Help

S:\IPEN\IPEN DATA\Accelerometer Data\NZ\Reformatted_100812\64_1A2.csv Mode = 0

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
5/7/2008	4	No	Wednesday	Activity
5/8/2008	13	Yes	Thursday	Activity
5/9/2008	15	Yes	Friday	Activity
5/10/2008	15	Yes	Saturday	Activity
5/11/2008	10	Yes	Sunday	Activity
5/12/2008	12	Yes	Monday	Activity
5/13/2008	13	Yes	Tuesday	Activity
5/14/2008	13	Yes	Wednesday	Activity
5/15/2008	10	Yes	Thursday	Activity
5/16/2008	0	No	Friday	Activity
5/17/2008	0	No	Saturday	Activity
5/18/2008	0	No	Sunday	Activity

Wearing time looks straight forward. Use log to match up days AND do a manual check of each wearing day to validate wearing time. What you see in the data overrides what is reported on log (e.g., 8 days may be reported on the log but you see 7 days so it is "7").

933	1A111	22-Nov-08	29-Nov-08
934	1A112	22-Nov-08	27-Nov-08
935	1A114	23-Nov-08	30-Nov-08
936	1A115	23-Nov-08	30-Nov-08
937	1A116	23-Nov-08	2-Dec-08
938	1A117	25-Nov-08	27-Nov-08
939	1A118	23-Nov-08	30-Nov-08
940	1A119	24-Nov-08	1-Dec-08
941	1A12	30-Jun-08	3-Jul-08
942	1A144	9-Jan-08	15-Jan-09
943	1A15	4-Aug-08	12-Aug-08
944	1A19	4-Aug-08	12-Aug-08
945	1A2	8-May-08	15-May-08
946	1A20	14-Jul-08	20-Jul-08

Saving wear time



You select the days to be scored based on documented wear dates and your observations of the data

The screenshot shows the MeterPlus4.3 (ActiGraph Version) - IPEN.mpo application window. The main window displays a table of accelerometer data with columns for Date, Valid Hours, Valid Day?, Day Of Week, and Parameter. A selection of rows from 4/18/2009 to 4/24/2009 is highlighted in blue. An 'OK' dialog box is overlaid on the right, stating '8 days were successfully saved to C:\Documents and Settings\{kcajn\Desktop\CONVERT FOLDER\64_3A263_Activity.mpd'. At the bottom of the main window, there are buttons for 'Get Total Valid Hours', 'Epoch Period (hh:mm:ss) 00:00:60', 'Save All', 'Save All Valid Days', and 'Save Selected Days'. A red arrow points to the 'Save Selected Days' button.

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
4/16/2009	2	No	Thursday	Activity
4/17/2009	2	No	Friday	Activity
4/18/2009	12	Yes	Saturday	Activity
4/19/2009	12	Yes	Sunday	Activity
4/20/2009	16	Yes	Monday	Activity
4/21/2009	16	Yes	Tuesday	Activity
4/22/2009	16	Yes	Wednesday	Activity
4/23/2009	15	Yes	Thursday	Activity
4/24/2009	15	Yes	Friday	Activity
4/25/2009	0	No	Saturday	Activity

Typical wearing day



Daily Info for Thursday, August 22, 2002

Number of Data Points each Hour: 60

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
198	164	344	148	311	108	207	76	14	86	25	68	127	260	95			
20	37	77	211	12	24	0	10	0	4	11	0	0	0	0	0	0	0
6	4	0	5	0	0	8	8	2	0	0	0	0	0	0	0	0	0
87	2	0	195	315	0	11	15	20	19	13	71	49	4	6			
5	0	253	1131	951	182	251	6	1480	831	90	11	0	162	269			
83	0	280	76	86	194	138	28	150	426	12	513	173	246	39			
202	15	195	132	223	382	196	45	101	782	1239	757	1213	3832	704			
0	0	0	0	0	0	0	12	423	469	1133	488	392	197	816			
894	1063	900	386	760	208	537	90	160	265	1079	558	1332	1090	862			
469	873	1338	1963	2133	1079	684	1093	1347	2070	662	334	531	846	1231			
768	159	385	1634	1898	2009	539	2076	2167	2225	310	321	3136	2675	616			
525	772	639	132	149	125	33	49	99	98	490	638	261	126	34			
544	1022	319	239	310	0	15	0	1	26	83	38	0	43	7			
0	0	1	4	0	0	0	0	0	0	127	0	0	0	9			
0	0	28	2	0	0	1	104	0	0	0	0	0	6	0			
0	0	0	0	0	0	236	314	894	584	342	35	419	291	159			

Change Valid Value Valid Invalid

This is a typical wearing day. There are rows of zero counts during sleep and the activity starts at the 7th row, or 7am. There are low counts throughout but they are sporadic and they're not consecutive. This is a very typical pattern and would likely have 13 or 14 valid hours of wear time.

Wearing time, doesn't match wear dates – ONLY SAVE DOCUMENTED WEAR DATES



MeterPlus4.3 (ActiGraph Version) -IPEN.mpo

File Tools Reports Help

S:\IPEN\IPEN DATA\Accelerometer Data\NZ\Reformatted_100812\64_1A25.csv

Mail days

Observed wearing days

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
7/24/2008	3	No	Thursday	Activity
7/25/2008	1	No	Friday	Activity
7/26/2008	5	No	Saturday	Activity
7/27/2008	3	No	Sunday	Activity
7/28/2008	9	No	Monday	Activity
7/29/2008	15	Yes	Tuesday	Activity
7/30/2008	13	Yes	Wednesday	Activity
7/31/2008	14	Yes	Thursday	Activity
8/1/2008	14	Yes	Friday	Activity
8/2/2008	12	Yes	Saturday	Activity
8/3/2008	16	Yes	Sunday	Activity
8/4/2008	3	No	Monday	Activity

Wearing time is NOT straight forward. Use log to match up days AND do a manual check of each day to determine wearing time (double click to open every day with any valid hours). When in doubt, ONLY SAVE DOCUMENTED WEAR DATES

00:00:60 Save All Save All Valid Days

Documented wearing days



	A	B	C	D
1	Identity	StartDateToUse	EndDateToUse	Notes
940	1A119	24-Nov-08	1-Dec-08	
941	1A12	30-Jun-08	3-Jul-08	
942	1A144	9-Jan-08	15-Jan-09	
943	1A15	4-Aug-08	12-Aug-08	
944	1A19	4-Aug-08	12-Aug-08	
945	1A2	8-May-08	15-May-08	
946	1A20	14-Jul-08	20-Jul-08	
947	1A21	13-Jul-08	21-Jul-08	
948	1A23	21-Jul-08	27-Jul-08	
949	1A25	29-Jul-08	3-Aug-08	
950	1A26	2-Aug-08	5-Aug-08	
951	1A28	3-Aug-08	9-Aug-08	
952	1A29	3-Aug-08	10-Aug-08	
953	1A3	9-May-08	15-May-08	
954	1A31	10-Aug-08	18-Aug-08	

Shift worker - SAVE



MeterPlus - default.mpo

File Tools Reports Help

S:\CSA Data\Columbia Training\MeterFiles_Example

Date	Valid Hours	Valid Day?
9/15/2006	7	No
9/16/2006	10	Yes
9/17/2006	11	Yes
9/18/2006	11	Yes
9/19/2006	7	No
9/20/2006	10	Yes
9/21/2006	9	No
9/22/2006	2	No
9/23/2006	0	No
9/24/2006	0	No
9/25/2006	8	No
9/26/2006	4	No
9/27/2006	1	No
9/28/2006	0	No
9/29/2006	0	No

Daily Info for Monday, September 18, 2006

Number of Data Points each Hour: 60

1173	1367	923	1707	2180	3214	2643	2604	2195	2643	2001	1746	2094	2895	2174
649	28	47	145	108	447	764	1042	361	835	383	397	852	1052	1364
0	0	0	0	0	0	0	0	0	0	0	0	0	22	0
0	114	739	190	562	224	423	0	0	0	2	0	0	0	0
13	151	1	18	137	143	28	135	355	17	21	103	67	0	4
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	166	454	133	0	0	0	0	0	0	241	58	358	291	699
16	128	41	84	75	8	37	102	27	646	3588	5051	3511	3061	2796
327	145	726	3070	933	1213	735	638	202	241	304	411	231	92	71
498	25	0	43	31	11	17	31	69	2885	3411	2113	40	452	1185
2199	1324	3842	2168	588	82	0	0	0	0	0	0	0	0	0
569	681	908	434	66	650	209	272	551	210	340	471	514	623	385

Change Valid Value
 Valid
 Invalid

Non-wearing day (mail day)– DO NOT SAVE

MeterPlus4.2 (ActiGraph Version) -default.mpo

File Tools Reports Help

S:\CSA Data\Columbia Training\MeterFiles_E

Daily Info for Tuesday, August 27, 2002

Number of Data Points each Hour: 60

Date	Valid Hours	Valid Day?
8/15/2002	11	Yes
8/16/2002	0	No
8/17/2002	0	No
8/18/2002	12	Yes
8/19/2002	17	Yes
8/20/2002	13	Yes
8/21/2002	15	Yes
8/22/2002	17	Yes
8/23/2002	12	Yes
8/24/2002	2	No
8/25/2002	10	Yes
8/26/2002	6	No
8/27/2002	10	Yes
8/28/2002	5	No

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 13 0 0 0 0 0 0 0 47 94 31 30 23
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
7 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
127 1 0 0 1 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
30 0 56 9 16 65 0 2 2 23 8 14 0 6 14
10 23 11 0 0 16 7 0 0 9 1 0 6 13 0
64 8 13 2 0 110 20 21 11 0 0 0 95 16 13
123 1 0 0 0 0 0 0 0 32 62 10 7 35 27
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 229E
0 0 0 0 0 0 0 0 19 3 15 37 0 0 163 6

Change Valid Value Valid Invalid

Get Total Valid Hours Epoch Period (hh:mm:ss) 00:01:00

This day is found in between wearing days and has 10 valid hours but is NOT wearing time. There are a lot of zero counts and low values. The counts are sporadic and do not follow the typical wear time pattern.

Red flag – 24 valid hours



S:\CSA Data\NQLS CSA files\TEAN Files\bad data\314045013084_1.dat

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
12/30/1899	24	Yes	Saturday	Activity
12/31/1899	24	Yes	Sunday	Activity
1/1/1900	24	Yes	Monday	Activity
1/2/1900	24			
1/3/1900	24			
1/4/1900	24			
1/5/1900	24			
1/6/1900	24			
1/7/1900	24			
1/8/1900	24			
1/9/1900	24			
1/10/1900	24			
1/11/1900	24			
1/12/1900	24			
1/13/1900	24			
1/14/1900	24			
1/15/1900	24			
1/16/1900	24			
1/17/1900	24			
1/18/1900	24			
1/19/1900	24			
1/20/1900	24			
1/21/1900	19			
1/22/1900	n			
1/23/1900	n			
1/24/1900	n			
1/25/1900	n			
1/26/1900	n			
1/27/1900	n			
1/28/1900	n			
1/29/1900	n			
1/30/1900	n			
1/31/1900	n			
2/1/1900	n			
2/2/1900	n			
2/3/1900	n			
2/4/1900	0			
2/5/1900	0			
2/6/1900	0			

Daily Info for Thursday, January 11, 1900

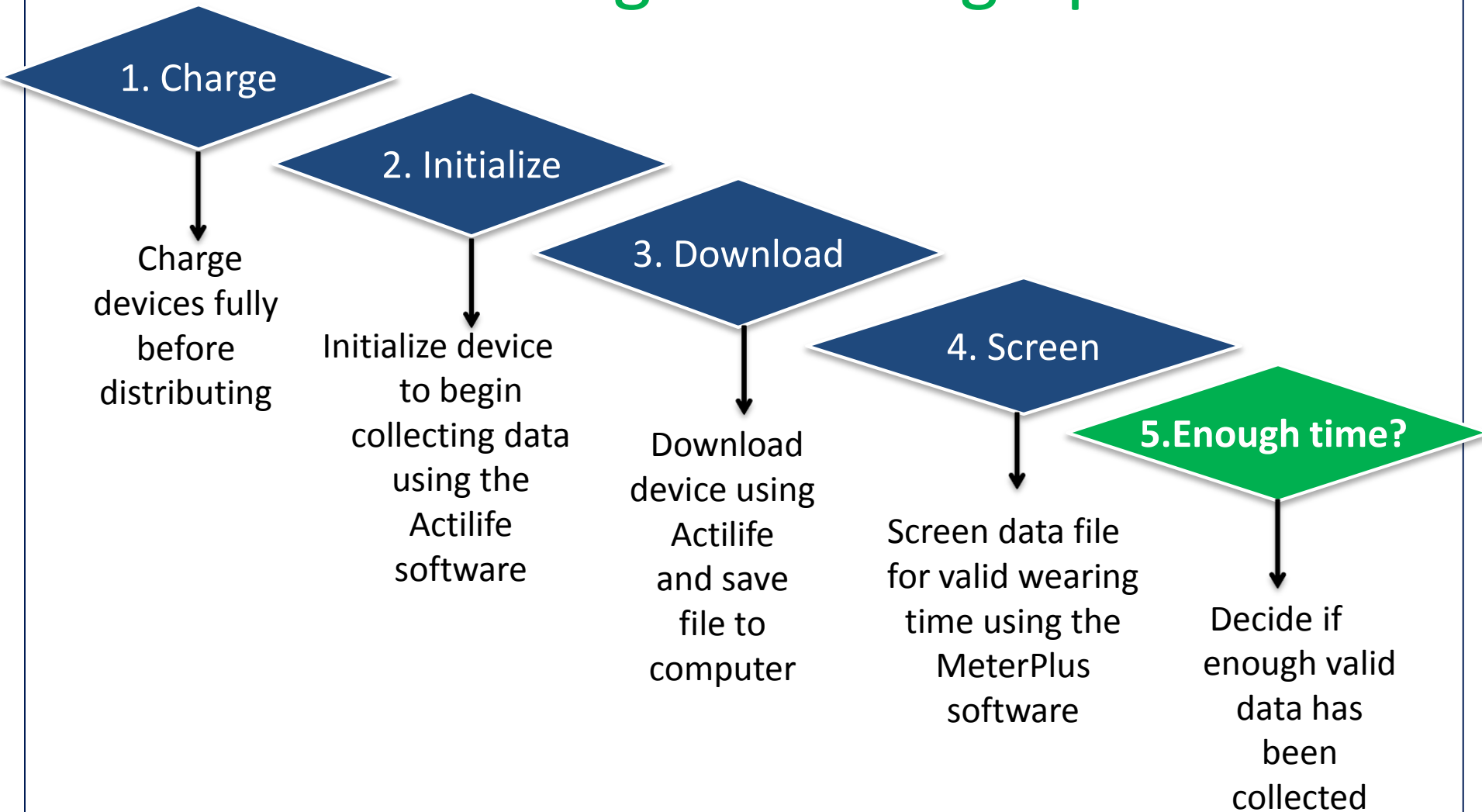
Number of Data Points each Hour: 60

0	14080	16	16	20704	15616	4320	16128	31966	16384	1706	16896	21690	17152	27326
17734	65	16963	17477	17991	18432	0	770	3	768	772	2	1280	520	2
0	9802	19	1024	4386	4	31572	26729	29472	26995	8289	8277	16722	21536	29810
5892	17	13532	0	0	272	0	0	0	528	0	0	0	769	7900
23688	15936	28160	12306	3299	12306	214	12306	6371	3602	3858	7756	1536	3678	16016
1810	1554	2066	2322	2578	2834	3346	3998	6184	3616	7580	1024	1024	4904	2336
15140	16272	8446	12332	3656	2121	2378	2635	2883	16208	2	12324	16272	8446	8492
12097	3935	12257	16304	128	22820	16099	7763	16205	3960	2127	16205	3961	2383	12109
544	8531	15932	2207	29999	14144	6	2888	2115	1887	2136	2409	2666	2923	3007
1060	6227	2403	2659	2915	3144	0	3145	512	3146	1024	3147	1536	15681	15169
579	18947	8002	20483	3971	2852	8067	3876	8067	6948	8067	13348	8067	21796	8067
18435	16963	22019	7231	14992	6144	800	21059	22019	5635	17043	22019	1060	15072	16384
572	17043	22275	4900	8002	18435	20042	20446	14339	16963	22275	8002	18435	8019	591
8067	8740	12163	8996	8067	11044	8067	14116	14396	12944	10496	20995	808	12306	5334
12866	19971	572	12866	19971	12946	19971	548	23619	316	19523	14913	12353	8579	12306
26684	4803	21507	8002	21507	16368	31231	12243	591	21507	12994	21507	13040	32766	21507
13010	21507	13040	32766	21507	10044	4819	21507	8002	21507	16368	31231	12243	591	21507
828	13008	2	21507	7491	3137	12306	10962	16787	0	548	24131	316	20035	24243
8146	28675	3987	1056	12867	28163	12867	28675	11587	15424	9475	12306	10962	15680	768
2322	1554	1810	1042	1298	12674	1612	1357	3141	3395	12306	16606	6726	17920	2650
7759	1024	8015	1536	12306	27868	2124	2381	2638	2895	7750	17920	3678	3678	3678
7503	512	7759	1024	8015	1536	12306	27868	332	0	333	512	334	1024	335
6977	1536	12306	5341	332	0	333	512	334	1024	335	1536	5971	18239	8006
28385	3219	3108	11329	7489	512	7745	1024	8001	1536	12306	9924	12306	25788	2876

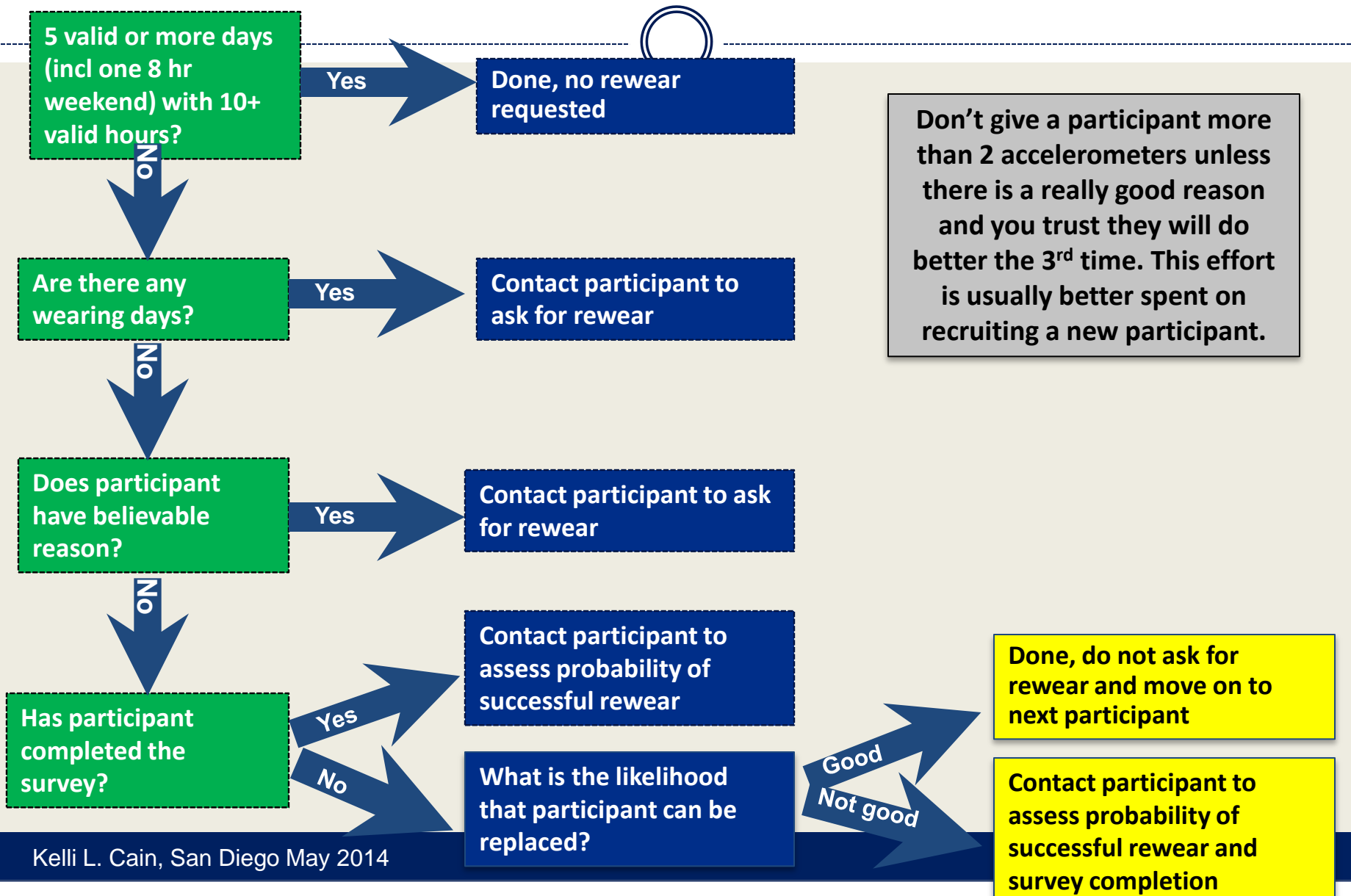
Change Valid Value Valid Invalid Save Change Close

Unlikely pattern

Stages of Actigraph



Rewear Decision



Rewears (sample script in manual)



- Data manager will make decision if rewear is needed
- Ask participant for rewear
 - Reminder that re-wear is part of study requirements
 - Data checked by manager, not your decision
 - Either not enough useable data or equipment malfunction
 - Will ask for number of days to make 7 total (including 2 weekend days)
 - Personal favor, really want to keep them in the study, can pay extra incentive if equipment malfunction
- Rewear delivery
 - Give tips on how can do better this time
 - ✦ Keep on until right before bedtime, put on first thing in the morning, remember to put it back on after swimming, bathing.

PART 3: POST-DATA COLLECTION



- Downloading Data
- Screening Data
- **Electronic Tracking**
- Data Transfer
- Quality Control

Tracking Incoming Devices and Wear Time Screening



Tracking Form - Microsoft Access

Home Create External Data Database Tools Acrobat

View Paste Copy Format Painter Font Rich Text Refresh All Save Spelling Delete More Filter Selection Advanced Size to Fit Form Windows Find Replace Go To Select

Tables: Switchboard Items, tblContacts, tblInventory, tblMeters_GPS

Tracking Database Add Record

Participant ID# _____
 Country _____
 City _____
 Stage _____
 Recruiter _____
 Actigraph Serial # _____
 GPS Serial # _____
 Charger Serial # _____
 Last Day (battery or memory) _____

Outgoing

Date Meter Delivered _____
 Date Meter Activated _____
 Date GPS Delivered _____
 Date GPS Activated _____
 Date Charts Prepared _____
 Date Sent Actigraph for Repair _____
 Date Sent to IPEN-CC for consult _____
 Date Sent GPS for Repair _____

Incoming

Date Meter Retrieved _____
 Date Meter Downloaded _____
 Meter Valid Days _____
 Meter Valid Weekend Days _____
 If not enough valid days, valid hours _____
 Rewear Requested _____
 Date GPS Retrieved _____
 Date GPS Downloaded _____
 GPS Valid Days _____
 Drop meter? _____
 Drop GPS? _____

Data Problems

Bad meter data _____
 Bad GPS data _____
 Meter Not Downloaded _____
 GPS Not Downloaded _____
 Meter Never Worn _____
 GPS Never Worn _____
 Worn overnight _____

Other Meter Data Problems _____

Other GPS Data Problems _____

Comments

GPS comments

Length of Time Out

Length meter out _____
 Length GPS out _____

Loss

Lost Meter _____
 Lost GPS _____
 Lost Charger _____

Wear Time Log Log _____ Past midnight _____

DAY 1

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 2

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 3

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 4

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 5

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 6

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 7

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 8

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____



Tracking Data Problems, Time Out and Device Loss



Tracking Form - Microsoft Access

Home Create External Data Database Tools Acrobat

View Paste Copy Format Painter Font Rich Text Refresh All Save Spelling Delete More Filter Selection Advanced Toggle Filter Sort & Filter Size to Fit Form Windows Switch Replace Find Go To Select

Tables: Switchboard Items, tblContacts, tblInventory, tblMeters_GPS

Tracking Database Add Record

Participant ID# _____
 Country _____
 City _____
 Stage _____
 Recruiter _____
 Actigraph Serial # _____
 GPS Serial # _____
 Charger Serial # _____
 Last Day (battery or memory) _____

Outgoing

Date Meter Delivered _____
 Date Meter Activated _____
 Date GPS Delivered _____
 Date GPS Activated _____
 Date Charts Prepared _____
 Date Sent Actigraph for Repair _____
 Date Sent to IPEN-CC for consult _____
 Date Sent GPS for Repair _____

Incoming

Date Meter Retrieved _____
 Date Meter Downloaded _____
 Meter Valid Days _____
 Meter Valid Weekend Days _____
 If not enough valid days, valid hours _____
 Rewear Requested _____
 Date GPS Retrieved _____
 Date GPS Downloaded _____
 GPS Valid Days _____
 Drop meter? _____
 Drop GPS? _____

Data Problems

Bad meter data _____
 Bad GPS data _____
 Meter Not Downloaded _____
 GPS Not Downloaded _____
 Meter Never Worn _____
 GPS Never Worn _____
 Worn overnight _____
 Other Meter Data Problems _____
 Other GPS Data Problems _____

Comments

GPS comments

Length of Time Out

Length meter out _____
 Length GPS out _____

Loss

Lost Meter _____
 Lost GPS _____
 Lost Charger _____

Wear Time Log Log _____ Past midnight _____

DAY 1

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 2

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 3

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 4

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 5

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 6

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 7

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____

DAY 8

Day _____ Date _____
 Meter Time on: _____ GPS Time on: _____
 Time off: _____ Time off: _____
 Time removed _____
 Reason removed _____
 Valid hours _____ Valid GPS? _____
 Reason for invalid day _____



Log Entry form



Tracking Form - Microsoft Access

Home Create External Data Database Tools Acrobat

View Paste Copy Format Painter Font Rich Text Refresh All Save Spelling Delete More Filter Advanced Selection Sort & Filter Filter Toggle Filter Size to Fit Form Windows Switch Find Go To Replace Select

Tables: Switchboard Items, tblContacts, tblInventory, tblMeters_GPS

Tracking Database Add Record

Participant ID#

Country

City

Stage

Recruiter

Actigraph Serial #

GPS Serial #

Charger Serial #

Last Day (battery or memory)

Outgoing

Date Meter Delivered

Date Meter Activated

Date GPS Delivered

Date GPS Activated

Date Charts Prepared

Date Sent Actigraph for Repair

Date Sent to IPEN-CC for consult

Date Sent GPS for Repair

Incoming

Date Meter Retrieved

Date Meter Downloaded

Meter Valid Days

Meter Valid Weekend Days

If not enough valid days, valid hours

Rewear Requested

Date GPS Retrieved

Date GPS Downloaded

GPS Valid Days

Drop meter?

Drop GPS?

Data Problems

Bad meter data

Bad GPS data

Meter Not Downloaded

GPS Not Downloaded

Meter Never Worn

GPS Never Worn

Worn overnight

Other Meter Data Problems

Other GPS Data Problems

Comments

GPS comments

Length of Time Out

Length meter out

Length GPS out

Loss

Lost Meter

Lost GPS

Lost Charger

Wear Time Log Log Past midnight

DAY 1

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 2

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 3

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 4

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 5

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 6

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 7

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

DAY 8

Day Date

Meter Time on: GPS Time on:

Time off: Time off:

Time removed

Reason removed

Valid hours Valid GPS?

Reason for invalid day

School Times Entry form



> Add Record

Data Problems

- Bad meter data
- Bad GPS data
- Meter Not Downloaded
- GPS Not Downloaded
- Meter Never Worn
- GPS Never Worn
- Worn overnight

Other Meter Data Problems

Other GPS Data Problems

Comments

GPS comments

Length of Time Out

- Length meter out
- Length GPS out

Loss

- Lost Meter
- Lost GPS
- Lost Charger

Wear Time Log Log

DAY 1

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 2

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 3

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 4

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 5

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 6

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 7

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

DAY 8

Day Date

Meter **Time on:** **GPS Time on:**

Time off: **Time off:**

Time removed

Reason removed

Valid hours Valid GPS? Past midnight

Reason for invalid day

School Times Log

DAY 1

Time school started:

Time school ended:

DAY 2

Time school started:

Time school ended:

DAY 3

Time school started:

Time school ended:

DAY 4

Time school started:

Time school ended:

DAY 5

Time school started:

Time school ended:

DAY 6

Time school started:

Time school ended:

DAY 7

Time school started:

Time school ended:

DAY 8


Time school started:

Time school ended:

Track data collection and prompts



Data Collection

Outgoing	Meter Follow-up Calls	Rewear Meter Follow-up Calls
Meter serial number <input type="text"/>	First Call	First Call
Date meter delivered <input type="text"/>	1st Call Date <input type="text"/>	1st Call Date <input type="text"/>
GPS serial number <input type="text"/>	1st Call Time <input type="text"/>	1st Call Time <input type="text"/>
Charger serial number <input type="text"/>	1st Call Outcome <input type="text"/>	1st Call Outcome <input type="text"/>
Date GPS delivered <input type="text"/>	Comment <input type="text"/>	Comment <input type="text"/>
Rewear serial number - Meter <input type="text"/>	Second Call	Second Call
Rewear serial number - GPS <input type="text"/>	2nd Call Date <input type="text"/>	2nd Call Date <input type="text"/>
Date rewear delivered - Meter <input type="text"/>	2nd Call Time <input type="text"/>	2nd Call Time <input type="text"/>
Date rewear delivered - GPS <input type="text"/>	2nd Call Outcome <input type="text"/>	2nd Call Outcome <input type="text"/>
	Comment <input type="text"/>	Comment <input type="text"/>
	Third Call	Third Call
	3rd Call Date <input type="text"/>	3rd Call Date <input type="text"/>
	3rd Call Time <input type="text"/>	3rd Call Time <input type="text"/>
	3rd Call Outcome <input type="text"/>	3rd Call Outcome <input type="text"/>
	Comment <input type="text"/>	Comment <input type="text"/>
	Fourth Call	Fourth Call
	4th Call Date <input type="text"/>	4th Call Date <input type="text"/>
	4th Call Time <input type="text"/>	4th Call Time <input type="text"/>
	4th Call Outcome <input type="text"/>	4th Call Outcome <input type="text"/>
	Comment <input type="text"/>	Comment <input type="text"/>
		
Retrieval	Asking for rewear	
Date survey retrieved <input type="text"/>	1st Call Date <input type="text"/>	2nd Call Date <input type="text"/>
Survey complete? <input type="text"/>	1st Call Time <input type="text"/>	2nd Call Time <input type="text"/>
Date survey entered <input type="text"/>	1st Call Outcome <input type="text"/>	2nd Call Outcome <input type="text"/>
	comments <input type="text"/>	comments <input type="text"/>
Date Meter received <input type="text"/>	3rd Call Date <input type="text"/>	
Meter valid days <input type="text"/>	3rd Call Time <input type="text"/>	
Need rewear meter? <input type="text"/>	3rd Call Outcome <input type="text"/>	
Date rewear meter received <input type="text"/>	comments <input type="text"/>	
Valid days rewear meter <input type="text" value="0"/>		
Valid days total meter <input type="text"/> <input type="button" value="calculate"/>		
Date GPS received <input type="text"/>		
GPS valid days <input type="text"/>		
Need rewear GPS? <input type="text"/>		
Date rewear GPS received <input type="text"/>		
Valid days rewear GPS <input type="text" value="0"/>		
Valid days total GPS <input type="text"/> <input type="button" value="calculate"/>		
Incentive		
Date payment sent <input type="text"/>		
Payment amount <input type="text"/>		
Lost meter or GPS		
Meter lost <input type="text"/>		
Meter serial number <input type="text"/>		
GPS lost <input type="text"/>		
GPS serial number <input type="text"/>		
Charger lost <input type="text"/>		
Charger serial number <input type="text"/>		

Tracking rewear



- Track rewears in participant database
- Remember to add a new record to meter tracking database for all re-wears
 - Stage (1=1st wear and 2=2nd wear)
 - Accelerometer filename also needs to reflect stage (“_2” at the end for rewear)

Data Collection

Outgoing	Meter Follow-up Calls		Rewear Meter Follow-up Calls	
Meter serial number	First Call	Second Call	First Call	Second Call
Date meter delivered	1st Call Date	2nd Call Date	1st Call Date	2nd Call Date
GPS serial number	1st Call Time	2nd Call Time	1st Call Time	2nd Call Time
Charger serial number	1st Call Outcome	2nd Call Outcome	1st Call Outcome	2nd Call Outcome
Date GPS delivered	Comment	Comment	Comment	Comment
Rewear serial number - Meter	Third Call	Fourth Call	Third Call	Fourth Call
Rewear serial number - GPS	3rd Call Date	4th Call Date	3rd Call Date	4th Call Date
Date rewear delivered - Meter	3rd Call Time	4th Call Time	3rd Call Time	4th Call Time
Date rewear delivered - GPS	3rd Call Outcome	4th Call Outcome	3rd Call Outcome	4th Call Outcome
	Comment	Comment	Comment	Comment
Retrieval	Asking for rewear		↑	
Date survey retrieved	1st Call Date	2nd Call Date		
Survey complete?	1st Call Time	2nd Call Time		
Date survey entered	1st Call Outcome	2nd Call Outcome		
	comments	comments		
Date Meter received	3rd Call Date	3rd Call Time		
Meter valid days	3rd Call Outcome	3rd Call Outcome		
Need rewear meter?	comments			
Date rewear meter received				
Valid days rewear meter				
Valid days total meter	calculate			
Date GPS received				
GPS valid days				
Need rewear GPS?				
Date rewear GPS received				
Valid days rewear GPS				
Valid days total GPS	calculate			
Incentive				
Date payment sent				

Tracking Database Add Record

Participant ID#	
Country	
City	
Stage	
Recruiter	
Actigraph Serial #	
GPS Serial #	
Charger Serial #	
Last Day (battery or memory)	

PART 3: POST-DATA COLLECTION



- Downloading Data
- Screening Data
- Electronic Tracking
- Data Transfer
- Quality Control

Data Transfer



- Weekly transfer of all accelerometer files to IPEN-CC
 - Send CSV files that you used for screening (not AGD files)
 - ✦ 30 second epoch
 - ✦ Low Frequency Filter applied
 - Back-up & quality control
- Kelli Cain will be contact (kcain@ucsd.edu)
- Zip software
 - All DAT files in one folder and zipped using WinZip if possible
 - Name folder with “Date”
 - Also send a copy of Tracking Database with meter logs entered
- Dropbox
 - Kelli will send you an invitation to join a folder used only for data transfer for your site

PART 3: POST-DATA COLLECTION



- Downloading Data
- Screening Data
- Electronic Tracking
- Data Transfer
- **Quality Control**

Quality Control



- Actigraph Data Screening Checking
 - Ideally, same person would screen all the data
 - Regular reliability checks should be conducted by managers and investigators
 - IPEN-CC will also check a % of all files and encourage you to also send ambiguous files for consultation
 - ✦ **Nobody becomes an expert in a few months so we encourage and expect to be consulting you about ambiguous files and cases**
- Database Management
 - Recruitment database checked weekly for cases that have fallen between the cracks (next action not coded, dates are mistyped, person not being contacted anymore, etc.)
 - Query of outstanding units prepared weekly and each is reviewed to be sure that appropriate action is being taken to retrieve

Certification



- Certification materials available
- Re-train if necessary and try again
- Can give conditional certification, meaning you will check most of their work until it is acceptable
- For data collectors, role playing is most important piece – can they explain it well, remember all the key points, answer general questions.
- For data managers, technical proficiency, understanding of how to use tracking database and decision-making about valid wearing time are the most important.

PART 3: POST-DATA COLLECTION



- Downloading Data
- Screening Data
- Electronic Tracking
- Data Transfer
- Quality Control
- Data Scoring for your own country

Data Scoring



MeterPlus - default.mpo

File Tools Reports Help

G:\Options... 93023002_3CSV.csv Mode = 1

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
3/9/2010	13	Yes	Tuesday	Activity
3/10/2010	14	Yes	Wednesday	Activity
3/11/2010	14	Yes	Thursday	Activity
3/12/2010	15	Yes	Friday	Activity
3/13/2010	14	Yes	Saturday	Activity
3/14/2010	10	Yes	Sunday	Activity
3/15/2010	15	Yes	Monday	Activity
3/16/2010	4	No	Tuesday	Activity
3/17/2010	5	No	Wednesday	Activity
3/18/2010	0	No	Thursday	Activity
3/9/2010	13	Yes	Tuesday	Steps
3/10/2010	14	Yes	Wednesday	Steps
3/11/2010	14	Yes	Thursday	Steps
3/12/2010	15	Yes	Friday	Steps
3/13/2010	14	Yes	Saturday	Steps
3/14/2010	10	Yes	Sunday	Steps
3/15/2010	15	Yes	Monday	Steps
3/16/2010	3	No	Tuesday	Steps
3/17/2010	5	No	Wednesday	Steps
3/18/2010	0	No	Thursday	Steps

Get Total Valid Hours Epoch Period (hh:mm:ss) 00:00:30 Save All Save Selected Days

Program

MeterPlus Options

View Data | Score Data | Categories | Filename | Bouts | kCals | Filters

Hours required for a valid day: 10

Number of consecutive zeros to make an hour invalid: 30

Value to use for undefined field: NULL

Replace strings of zeros with the following value: -999

(Zeros will only be replaced if there is a string that meets the criteria set above to make an hour invalid.)

Output: Totals for Valid Days Only

- Totals for Valid Days Only
- Totals for Valid and Invalid Days
- Totals and Daily for Valid and Invalid Days
- Daily for Valid Hours Only
- Hourly for Valid and Invalid Days

Parameter: --Select--

- Activity
- Steps
- Heart
- Workout Activity
- Workout Steps
- 2nd Axis
- 3rd Axis

Directory: C:\Docu...

Save Save and Close Exit

The definition of “wearing” is controlled by the user to exclude periods of time when the device was removed.

Non-wearing time within valid days is coded as such during this cleaning process. We use -999.

Select level of output: Summary, Daily, Hourly, for valid days only or all days.

The type of data to be scored is selected here. Activity refers to single plane activity and be analyzed for IPEN.

Browse for location to save cleaned files (MPD)

Saving wear time



You select the days to be scored. We recommend saving ALL wearing time. DO NOT save “drop-off” or “pick-up” day.

The screenshot shows the MeterPlus software interface. The main window displays a table with columns: Date, Valid Hours, Valid Day?, Day Of Week, and Parameter. The data is organized into two sections, one for Activity and one for Steps, covering dates from 3/9/2010 to 3/18/2010. Below the table, there are buttons for 'Get Total Valid Hours', 'Epoch Period (hh:mm:ss) 00:00:30', 'Save All', and 'Save Selected Days'. A red arrow points to the 'Save Selected Days' button. Two dialog boxes are overlaid on the right side, both titled 'MeterPlus', each reporting that 14 days were successfully saved to a specific file path.

Date	Valid Hours	Valid Day?	Day Of Week	Parameter
3/9/2010	13	Yes	Tuesday	Activity
3/10/2010	14	Yes	Wednesday	Activity
3/11/2010	14	Yes	Thursday	Activity
3/12/2010	15	Yes	Friday	Activity
3/13/2010	14	Yes	Saturday	Activity
3/14/2010	10	Yes	Sunday	Activity
3/15/2010	15	Yes	Monday	Activity
3/16/2010	4	No	Tuesday	Activity
3/17/2010	5	No	Wednesday	Activity
3/18/2010	0	No	Thursday	Activity
3/9/2010	13	Yes	Tuesday	Steps
3/10/2010	14	Yes	Wednesday	Steps
3/11/2010	14	Yes	Thursday	Steps
3/12/2010	15	Yes	Friday	Steps
3/13/2010	14	Yes	Saturday	Steps
3/14/2010	10	Yes	Sunday	Steps
3/15/2010	15	Yes	Monday	Steps
3/16/2010	3	No	Tuesday	Steps
3/17/2010	5	No	Wednesday	Steps
3/18/2010	0	No	Thursday	Steps

Dialog Box 1: 14 days were successfully saved to S:\CSA Data\NQLS CSA files\TEAN Files\MPD files Seattle\1193023002_3CSV_Activity.mpd

Dialog Box 2: 14 days were successfully saved to S:\CSA Data\NQLS CSA files\TEAN Files\MPD files Seattle\1193023002_3CSV_Steps.mpd

Buttons: Get Total Valid Hours, Epoch Period (hh:mm:ss) 00:00:30, Save All, Save Selected Days

Pointers



- Scan, take a snapshot of a day (don't get caught up in the minutes, step back and look at the day as a whole)
- Trust your judgment and if in doubt, set file aside to look at later
- Make a schedule and stick to it (e.g., four sessions, 30 files each --- 9-10am, 11-12pm, 2-3pm, 4-5pm)
- Get into a rhythm with the dragging and clicking and keep it up as long as possible (BUT recognize when decision making is slipping and take a break)
- Try not to fall behind, rushing at the end leads to poorer decision making

Combining re-wear files



- Clean each wear file and save wear days
- Open each MPD file in Notepad
- Copy data from 2nd wearing to end of 1st wearing file
- Change number of days in the header
- Save combined file, rename and delete 2nd MPD file

Scoring Data (MPD files)



- There are a few things to configure in MeterPlus before batch scoring your files
 - Cut-points
 - Filename variables
 - Energy Expenditure
 - Bouts
 - Time Filters

Programming cut-points (Tools/Options)



MeterPlus Options

View Data | Score Data | **Categories** | Variables | Bouts | kCals | Filters

Group/Category Name	MinValue	MaxValue
+ NIK (age 6 to 11)		
+ TEAN (age 12 to 16)		
- Adult (age 18 to 64)		
not_wearing	-999	-999
sedentary	0	100
light	101	1952
moderate	1953	5724
hard	5725	9498
very_hard	9499	100000
+ Senior (age 65 to 100)		

Buttons: Add Group | Add Category | Edit | Delete

Create Groups

Edit Category Form

Name:

Age from to

Buttons: OK | Cancel

Add/Edit Cut-points

CutPointForm

Name:

Meter values from to

Buttons: OK | Cancel

Filename variables (Tools/options)

MeterPlus Options

View Data | Score Data | Categories | **Filename** | Bouts | kCals | Filters

Create variables from the file name

Begin parsing for variables after the last character.

Sample file name:
552583642001

Variables

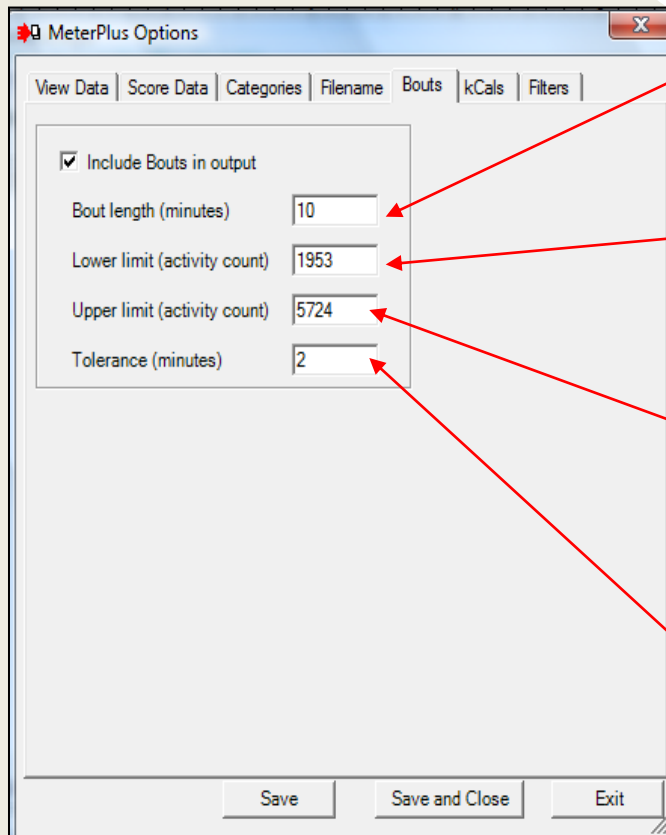
Variable	Character Position
Country	0-2
Walkability	2-3
Tract	3-9
Participant	9-12

Enter sample file name (ADD)

Designate character positions

Name your variables

Settings for bouts (Tools/Options)



10 minute bout

Moderate activity lower threshold cut-point for adults (Freedson) for 60s epoch

Moderate activity upper threshold cut-point for adults (Freedson) for 60s epoch

2 minute interruption allowed (bout forgiveness)

Energy expenditure (Tools/Options)



MeterPlus Options

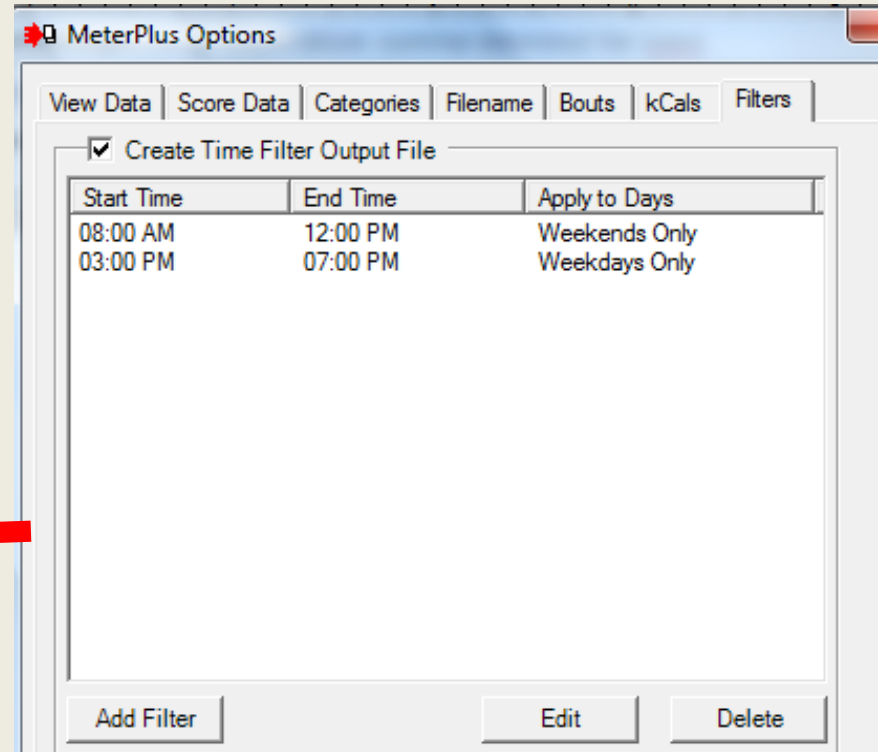
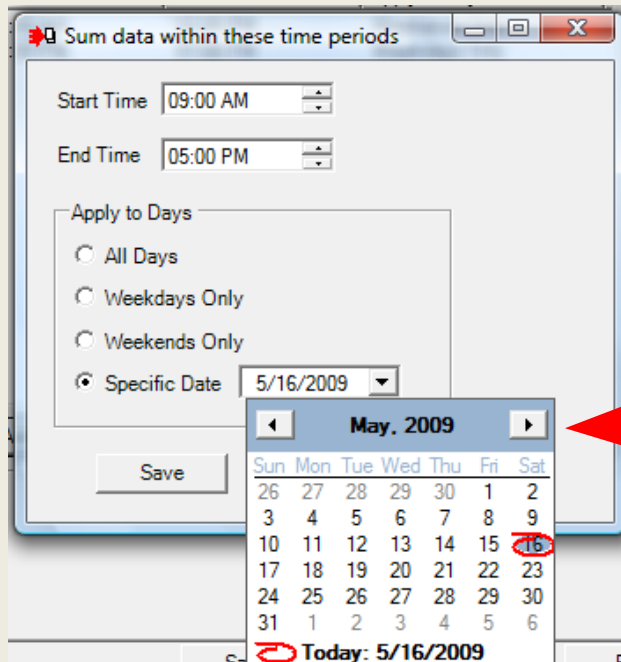
View Data | Score Data | Categories | Variables | Bouts | kCals | Filters

- Include KCals/Day in output
- Work Energy Theorem
 $kCals/min = 0.0000191 * counts/minute * body\ mass\ in\ kg$
- Freedson Equation
 $kCals/min = 0.00094 * counts/minutes + 0.1346 * body\ mass\ in\ kg - 7.37418$
- Combination
Use WET for counts less than 1952 and FE for counts greater than 1952

Choice of 3 algorithms

Time filters (Tools/Options)

Select days of the week & times per day (e.g., after-school hours) to summarize activity.



Age and weight files (Reports/Scoring)

Link to subject age and body weight files to use age-defined cut-points within the same batch (i.e., age-specific scoring) and different body weights for energy expenditure calculations.

Participant Age Data for Scoring

Participant Age Data

Age file for participants: ...
Leave blank if you don't have an age file.

If a participant's age is unknown, use the following category group or specify an age:

Category Group:
Adult (age 18 to 64)
NIK (age 6 to 11)
TEAN (age 12 to 16)
Senior (age 65 to 100)

Participant Weight Data

You have specified to include Kcals in the output so you need to provide the participant's weight for scoring.

Weight file for participants: ...
Leave blank if you don't have a weight file.

If a participant's weight is unknown, use the following weight:

Weight: (in Kg)

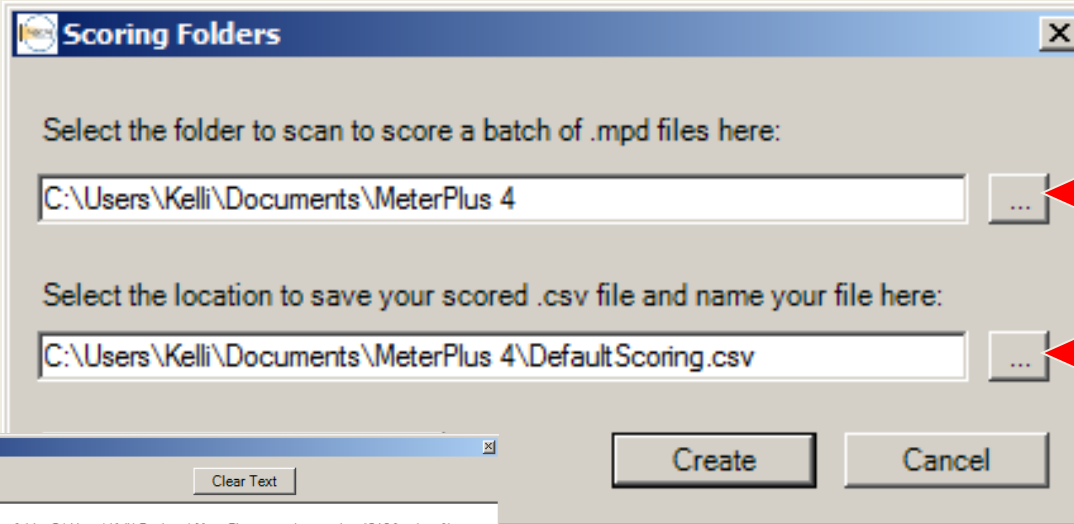
Use subject age to apply different cutpoints within the same batch

OR Select a group of cutpoints to use for your entire sample

Use subject body weight for energy expenditure calculations

OR Select a weight to be used for your entire sample

Batch scoring (Reports/Scoring)



Scoring Folders

Select the folder to scan to score a batch of .mpd files here:

C:\Users\Kelli\Documents\MeterPlus 4

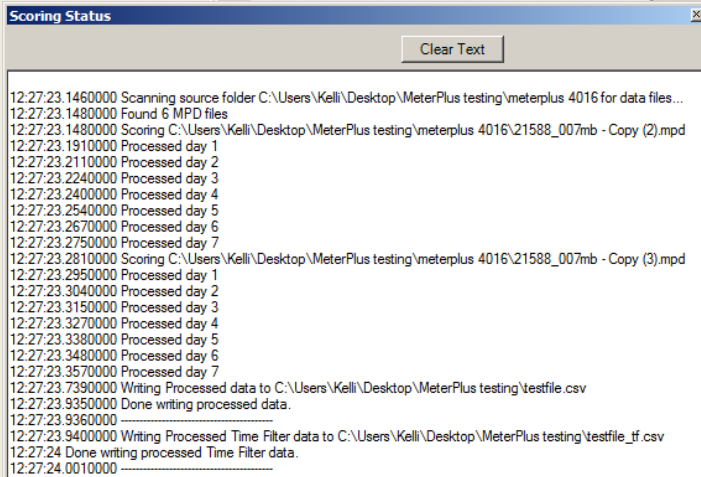
Select the location to save your scored .csv file and name your file here:

C:\Users\Kelli\Documents\MeterPlus 4\DefaultScoring.csv

Create Cancel

Where to find individual files to process

Where to save processed CSV file for entire sample



Scoring Status

Clear Text

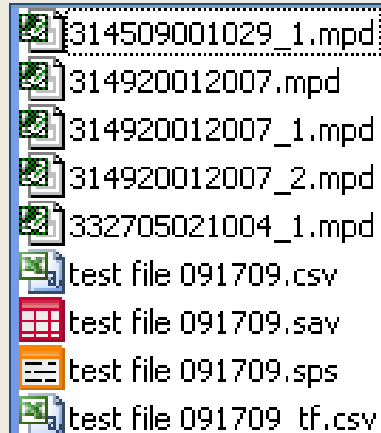
```
12:27:23.1460000 Scanning source folder C:\Users\Kelli\Desktop\MeterPlus testing\meterplus 4016 for data files...
12:27:23.1480000 Found 6 MPD files
12:27:23.1480000 Scoring C:\Users\Kelli\Desktop\MeterPlus testing\meterplus 4016\21588_007mb - Copy (2).mpd
12:27:23.1910000 Processed day 1
12:27:23.2110000 Processed day 2
12:27:23.2240000 Processed day 3
12:27:23.2400000 Processed day 4
12:27:23.2540000 Processed day 5
12:27:23.2670000 Processed day 6
12:27:23.2750000 Processed day 7
12:27:23.2810000 Scoring C:\Users\Kelli\Desktop\MeterPlus testing\meterplus 4016\21588_007mb - Copy (3).mpd
12:27:23.2950000 Processed day 1
12:27:23.3040000 Processed day 2
12:27:23.3150000 Processed day 3
12:27:23.3270000 Processed day 4
12:27:23.3380000 Processed day 5
12:27:23.3480000 Processed day 6
12:27:23.3570000 Processed day 7
12:27:23.7390000 Writing Processed data to C:\Users\Kelli\Desktop\MeterPlus testing\testfile.csv
12:27:23.9350000 Done writing processed data.
12:27:23.9360000
12:27:23.9400000 Writing Processed Time Filter data to C:\Users\Kelli\Desktop\MeterPlus testing\testfile_tf.csv
12:27:24.0010000 Done writing processed Time Filter data.
12:27:24.0010000
```

One step → Create

Output



File type	Description
CSV	Comma-delimited file containing the results of the batch scoring including activity counts, step counts, bouts and energy expenditure.
TF.CSV	Comma-delimited file containing the time-filtered activity variables only
SPS	Syntax file that will import data into SPSS
SAV	SPSS file created after running the SPS syntax or importing into SPSS directly



Activity, Bouts, EE variables



Activity

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SN	city	neighbo	walka	groupid	Filename	Date	TotDays	VldDays	VldHours	TotVdnot_wearin	TotVdsedent	TotVdligh	TotVdmod	Tc
2	50168	1	1	1	0	7310	101107310.DAT	11/12/2003	8	8	102	5434	3585	2404	93
3	51165	5	33	1	0	0210	533100210.dat	11/24/2005	8	8	97	5915	4510	1087	8
4	50293	6	15	4	0	0120	6154100120.dat	1/22/2008	7	7	89	4808	3438	1720	114
5															

Serial number, start date, # valid days & hours, number of epochs in each activity category across all valid days.

Bouts

	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ
1	D1_bout_num	D1_bout_length	D1_bout_avg	D1B1_st_time	D1B1_end_time	D1B2_st_time	D1B2_end_time	D1B3_st_time	D1B3_end_time	D1B4_st_time
2	1	14	14	11/12/2003 13:47	11/12/2003 14:01	NULL	NULL	NULL	NULL	NULL
3	1	10	10	11/24/2005 9:00	11/24/2005 9:10	NULL	NULL	NULL	NULL	NULL
4	4	119	29.75	1/22/2008 0:00	1/22/2008 0:17	1/22/2008 6:59	1/22/2008 8:07	1/22/2008 8:32	1/22/2008 8:55	1/22/2008 9:53
5										
6										

Number of bouts, total and average length of bouts, start and end times of each bout.

Energy Expenditure

	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT
1	Tot_kcal	KCal_mean	KCal_peak	KCal_not_w	KCal_sedentary	KCal_light	KCal_moderate	KCal_hard	KCal_very_hard	D1Date	D1Day	D1vday	D1vh
2	1195.47	149.43	224.58	0	49.81	1145.68	0	0	0	11/12/2003	Wednesday	1	8
3	463.31	57.91	95.95	0	31.55	431.76	0	0	0	11/24/2005	Thursday	1	14
4	863.27	123.32	167.77	0	33.68	829.59	0	0	0	1/22/2008	Tuesday	1	8
5													

Total, mean & peak caloric expenditure, caloric expenditure in each activity category.

Output: Activity variables



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	SN	city	neighbo	walka	group	id	Filename	Date	TotDays	VldDays	VldHours	TotVdnot_wearin	TotVdsedent	TotVdligh	TotVdmod	Tc
2	50168	1	1	1	0	7310	101107310.DAT	11/12/2003	8	8	102	5434	3585	2404	93	
3	51165	5	33	1	0	0210	533100210.dat	11/24/2005	8	8	97	5915	4516	1087	8	
4	50293	6	15	4	0	0120	6154100120.dat	1/22/2008	7	7	89	4808	3438	1720	114	
5																

Start date, number of valid days, number of valid hours, and number of epochs in each activity category across all valid days.

- A. *Date = 1/22/2008* is first day of wearing time that was saved
- B. *VldDays = 7* valid days in file
- C. *VldHours = 89* valid hours
- D. *TotVdNot_wearing = 4808* epochs of not wearing time across the 7 valid days
- E. *TotVdsedentary = 3438* epochs of sedentary activity across the 7 valid days
- F. *TotVdlight = 1720* epochs of light activity across the 7 valid days
- G. *TotVdmoderate = 114* epochs of moderate activity across the 7 valid days

Output: Bouts variables




	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ
1	D1_bout_num	D1_bout_length	D1_bout_avg	D1B1_st_time	D1B1_end_time	D1B2_st_time	D1B2_end_time	D1B3_st_time	D1B3_end_time	D1B4_st_time
2	A 1	B 14	C 14	D 11/12/2003 13:47	E 11/12/2003 14:01	NULL	NULL	NULL	NULL	NULL
3	1	10	10	11/24/2005 9:00	11/24/2005 9:10	NULL	NULL	NULL	NULL	NULL
4	4	119	29.75	1/22/2008 0:00	1/22/2008 0:17	1/22/2008 6:59	1/22/2008 8:07	1/22/2008 8:32	1/22/2008 8:55	1/22/2008 9:53
5										
6										

Number of bouts, total and average length of bouts, start and end times of each bout.

- A. *D1_bout_num* = 1 bout of activity in Day 1 for this subject
- B. *D1_bout_length* = Total bout length in Day 1 is 14 minutes
- C. *D1_bout_avg* = Average bout length in Day 1 is 14 minutes
- D. *D1B1_st_time* = The 1st bout in Day 1 started on 11/12/03 at 13:47
- E. *D1B1_end_time* = The 1st bout in Day 1 ended on 11/12/03 at 14:01

Output: Energy expenditure variables



	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS
1	Tot_kcal	KCal_mean	KCal_peak	KCal_not_w	KCal_sedentary	KCal_light	KCal_moderate	KCal_hard	KCal_very_hard	D1Date	D1Day	D1vday
2	1195.47	149.43	224.58	0	49.81	1145.66	0	0	0	11/12/2003	Wednesday	1
3	463.31	57.91	95.95	0	31.55	431.76	0	0	0	11/24/2005	Thursday	1
4	863.27	123.32	167.77	0	33.68	829.59	0	0	0	1/22/2008	Tuesday	1
5												

Total caloric expenditure, mean caloric expenditure, peak caloric expenditure and caloric expenditure in each activity category.

- A. *Tot_kcal* = 1195.47 calories spent in activity across all valid days
- B. *KCal_mean* = 149.43 calories spent on average across all valid days
- C. *KCal_peak* = 224.58 peak calories spent on a day
- D. *KCal_sedentary* = 49.81 calories spent in sedentary activities across all valid days
- E. *KCal_light* = 1145.66 calories spent in light activities across all valid days
- F. *KCal_moderate* = 0 calories spent in moderate activities across all valid days

Output: Time-filtered variables



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Filename	1Day	1Date	D1T1_st_t	D1T1_end	D1T1_epo	D1T1_not	D1T1_sed	D1T1_ligh	D1T1_mor	D1T1_har	D1T1_very	D1T2_st_t	D1T2_end	D1T2_
2	101107310	Wednesd	11-12-200	07:00 AM	11:00 PM	960	301	609	45	6	NULL	NULL	NULL	NULL	NULL
3	533100210	Thursday	11-24-200	07:00 AM	11:00 PM	960	120	722	118	1	NULL	NULL	NULL	NULL	NULL
4	615410012	Tuesday	01-22-200	07:00 AM	11:00 PM	960	361	427	167	A 6	NULL	NULL	NULL	NULL	NULL
5															
6															
7															
-															

Activity counts during each defined time period, within each activity category, for each day of data.

A. *D1T1_moderate* = 6 epochs of moderate activity occurring during 7am & 11pm on day 1, Tuesday Jan. 22nd