**General Questions:**

1. Was there a maximum number of days that participants wore the Actigraphs (e.g. 10)?
2. Do we want to attempt to score daytime naps?

**Decisions to make:**

*Data-quality questions*

1. Do we want to set a minimum number of valid hours in a day needed for scoring to take place (e.g. 16 hours)? *(includedaycrit command)*
   1. 16 hours is common (seems to be what Kirk’s lab is using)
   2. Physical activity 16 hours span from 12AM -11:59PM while sleeps are from 12PM – 11:59AM
2. Do we want to impute data for instances of nonwear time?
   1. This is recommended by GGIR to do.

*Sleep scoring questions*

1. What role should the sleep logs play?
   1. Do we want to compare Actigraph-derived values to the sleep logs and flag the ones with large deviations?
   2. Do we want the sleep log to serve as a guider? In other words, do we want GGIR to use the time in bed as the start of the “rest” interval? This allows for the calculation of sleep latency & it impacts sleep efficiency.
      1. Can also use a heuristic algorithm ([Van Hees et al., 2018](https://www.nature.com/articles/s41598-018-31266-z)) to calculate this rest interval without the logs
2. Which algorithm to use for the calculation of “sleep periods” or sustained inactivity bouts (SIB)?

|  |  |  |
| --- | --- | --- |
|  | Sample norms derived in | Algorithm specifics |
| [Van Hees et al. (2015)](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142533) | 4,094 adults aged 60–83 (Whitehall II) | Sleep defined as period of sustained inactivity,  (absence of change in arm angle greater than 5 degrees for 5 minutes or more, during a period recorded as sleep by sleep log)  This is the default algorithm in GGIR |
| [Sadeh et al. (1994)](https://academic.oup.com/sleep/article/17/3/201/2749453?login=false) | 20 adults (mean age 22) and 16 adolescents (mean age 13) | Zero-threshold computation algorithm |

*Physical activity scoring questions*

1. What should be our thresholds for light, moderate, and vigorous physical activity?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Sample norms derived in | Light PA | Moderate PA | Vigorous PA |
| [Hildebrand et al (2014)](https://journals.lww.com/acsm-msse/Fulltext/2014/09000/Age_Group_Comparability_of_Raw_Accelerometer.17.aspx) | 30 adults (18–65 yr) |  | 100.6 mg | 428.8 mg |
| [Hildebrand et al (2016)](https://sci-hub.se/10.1111/sms.12795) | 30 adults (21-61) | 44.8 mg |  |  |
| [Migueles et al (2021)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8150960/) | 59 older adults (70+, mean age 78.7) | 18 mg | 60 mg |  |
| [Fraysse et al. (2020)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7843957/) | 31 older adults (70+, mean age 77) | 42.5 mg | 98.0 mg |  |

* My choice would probably be to use the two Hildebrand papers, as they sample a general adult population and provide a threshold between moderate and vigorous PA

**Questions I am working on:**

1. How is non-wear calculated? Can we use input from the self-report logs for this?
2. Look into physical activity bout detection criteria. What should the extraction durations be?

**To Dos:**

1. Integrate sleep logs into code (if we decide to use them)
2. Better understand calculations behind non-wear time calculations
3. Test GGIR script with more participant data
4. Compare GGIR script with that used in BACH lab (for consistency, if we want that)
5. Create codebook for output values
6. Create aggregation system to analyze multiple participant’s data at a time
   1. Embed this within the AHAB drive
   2. Figure out access to AHAB drive?
7. Begin to process all Actigraphy data in AHAB (~10-20 minutes/person)