SOF Actigraphy Data Documentation

This documentation is for the summary sleep data and circadian rhythm data from the actigraphs worn. Some participants who report being given a watch on the actigraphy checklist form do not have data, which could be due to an actigraph malfunction, participant error, software problem reading file, etc. The reason for not having usable actigraphy data can be found in the variable VXACTRSN.

General Information about the Actigraph and Scoring/Cleaning

The Octagonal Sleep Watch actigraphy, or SleepWatch-O, (Ambulatory Monitoring, Inc, Ardsley, NY) was used to estimate sleep/wake activity. Actigraphs were worn on the nondominant wrist for a minimum of 3 consecutive 24-hour periods, except when bathing or during water sports. The actigraph, which looks like a wristwatch, measures movement using a piezoelectric biomorph-ceramic cantilevered beam, which generates a voltage each time the actigraph is moved. These voltages are gathered continuously and stored in one-minute epochs. Data were collected in the three modes of zero crossings mode (ZCM), proportional integration mode (PIM), and time above threshold mode (TAT). (reference: Motionlogger® User's Guide: Act Millenium, Ambulatory Monitoring, Inc. Ardsley NY.)

Actigraphy data were transferred to the San Francisco Coordinating Center (San Francisco, CA) for centralized processing. Centralized training and certification was required for clinic staff gathering actigraphy data. Action W-2 software was used to score the data. (reference: Action-W User's Guide, Version 2.0. Ambulatory Monitoring, Inc. Ardsley NY.) Sleep scoring algorithms available in this software were used to determine sleep from wake times. The Cole-Kripke algorithm was used for data collected in the ZCM mode and the University of California, San Diego (UCSD) scoring algorithm was used for data collected in the PIM and TAT modes.(references: Cole RJ, Kripke DF, Gruen W, Mullaney DJ, Gillin JC. Automatic sleep/wake identification from wrist activity. Sleep. 1992 Oct;15(5):461-9; Jean-Louis G, Kripke DF, Mason WJ, Elliot JA, Youngstedt SD. Sleep estimation from wrist movement quantified by different actigraphic modalities. Journal of Neuroscience methods 2001;105:185-191.) These algorithms calculate a moving average, which takes into account the activity levels immediately prior to and after the current minute to determine if each timepoint should be coded as sleep or wake. Participants completed a sleep diary which was used in the editing of the data to determine when the participant got into and out of bed and when the actigraph was removed. (reference: Blackwell T, Ancoli-Israel S, Gehrman PR, Schneider JL, Pedula KL, Stone KL. Actigraphy scoring reliability in the study of osteoporotic fractures. Sleep. 2005 Dec 1;28(12):1599-605.)

General Sleep Summary data (Not the Circadian Rhythm variables)

Averaged Over Days:

Women in SOF wore the actigraphs for multiple nights. All data in this file is the average of the data for all nights (1 record per participant). So, for example, the average minutes slept at night is the average of this variable over all nights. Some variables are actually averages of averages, for example, each daytime interval has an average activity level, and this daily average is averaged over all days. Using the average over the days will help reduce the variability per day.

Definition of Intervals:

The time periods the participants wore the actigraphs were divided into "up" intervals, which are defined as the time the participant reported being out-of-bed, and "down" intervals, which are defined as the time period the participant was in-bed. The "up" intervals must be bounded by 2

"down" intervals to be used in the summaries. This is because we only want time periods that represent an entire wake period to be used in the summaries.

The minutes the women removed the actigraph are "bad" epochs. The average minutes per day the women removed the watch in those days that were analyzed is found in variables VXBADDAY and VXBADNT. Very few women removed the actigraph while in-bed. The times the women removed the watches are not included in the analysis.

Even though the data from "bad" epochs are not included in the summaries, we felt if the watch was removed for too long we could not be sure the summary of the remaining non-bad epochs would be representative of the entire period. If the watch was removed for too much time during an interval the data from that day or night was dropped from the overall summary. We set these cutpoints as follows: if the watch was removed over 10% of the time during the day the data was not included from that day in the summary, and if the watch was removed for over 2 hours during a night the data from that night was not used in the summary.

Few women had at least one night time interval deleted from analysis because they removed the watch for over 2 hours and data was considered unusable. This is summarized by the variable VXDROPNT. Women had at least one day removed from the daytime summary (naps, activity, etc) because they removed the watch for over 10% of the day, which is summarized by the VXDROPDY variable.

The variables VXBADDAY and VXBADNT show the average number of bad epochs in the summaries for the days that are included in the analysis. This does not include those intervals that were dropped from the analysis because they had too many bad epochs. The total average bad epochs (including days that were dropped) can be found in VXBADDYT and VXBADNTT.

The variables VXACDAYS and VXNIGHTS show how many days or nights are included in the analysis. The variables VXDAYST and VXNGHTST show how many total days or nights the participant wore the watch, including those days or nights that were dropped from analysis due to too much missing data.

Data Modes:

The actigraph gathers data in 3 modes. Each mode gathers activity data in slightly different ways. There are 3 different versions of each variable, one for each mode. The variable label specifies which mode the data came from, the last letter of the variable name specifies the mode (Z=ZCM, P=PIM, or T=TAT).

ZCM mode (zero crossing mode):

> This mode has been the standard for actigraphy in the past. The Cole-Kripke sleep scoring algorithm is used to differentiate between sleep and wake times (reference: Cole RJ, Kripke DF, Gruen W, Mullaney DJ, Gillen JC. Automatic sleep/wake identification with wrist activity. Sleep (1992) 15: 461-469).

PIM mode (proportional integration mode):

> This mode also goes by the name digital integration mode. This mode has been favored more recently as the mode of choice for analysis. This mode is more sensitive to movement, and is preferred when doing activity analysis. We have found that the PIM mode corresponds better to polysomnography data in our SOF cohort (polysomnography is the gold standard for sleep measurement). The UCSD sleep-scoring algorithm is used to differentiate between sleep and wake (reference: Jean-Louis G, Kripke DF, Mason WJ, Elliot JA, Youngstedt SD. Sleep estimation from wrist movement quantified by different

actigraphic modalities. Journal of Neuroscience methods 2001;105:185-191.). A reference for preferring the PIM mode of the other 2 for the SOF women is : Blackwell T, Redline S, Ancoli-Israel S, Schneider JL, Surovec S, Johnson NL, Cauley JA, Stone KL; Study of Osteoporotic Fractures Research Group. Comparison of sleep parameters from actigraphy and polysomnography in older women: the SOF study. Sleep. 2008 Feb 1;31(2):283-91.

TAT mode (time above threshold mode):

This mode is similar to ZCM, but uses a different crossing point, higher than zero. This mode is not used very often in the literature. This mode also uses the UCSD scoring algorithm.

NOTE: Some participants only had data gathered in ZCM mode, some only in ZCM and PIM mode. These participants have the PIM and TAT versions of variables set to .A=Missing. You can see which participants are missing the data for modes by looking at the variable VXMODES.

General Variables:

These variables are the same across all 3 modes.

VXWID	Actigraph serial number, from teleform data.
VXMODES	Modes with data
VXDAYST	Total number of "up" intervals the participant wore the watch for.
VXACDAYS	Number of "up" intervals in the analysis of out-of-bed data.
VXNGHTST	Total number of "down" intervals the participant wore the watch for.
VXNIGHTS	Number of "down" intervals in the analysis of in-bed data.
VXDURDAY	Average minutes during the "up" interval (out-of-bed).
VXDURNT	Average minutes during the "down" interval (in-bed).
VXBADNTT	Total average number of bad minutes during the "down" interval (in-bed).
VXBADNT	Average # of bad minutes in analysis during the "down" interval (in-bed).
VXBADDYT	Total average number of bad minutes during the "up" interval (out-of-bed).
VXBADDAY	Average number of bad minutes in analysis during the "up" interval (out-of-bed).
VXDROPDY	Number of days dropped from the calculation of the summary variables.
VXDROPNT	Number of nights dropped from the calculation of the summary variables.
VXDAYSVS	Number of days from clinic visit to the start of the actigraphy recording
VXDAYSVE	Number of days from clinic visit to the end of the actigraphy recording

Note: as part of our data cleaning procedures we delete the first day's data. We start saving data at the beginning of the first down interval (when participants got in-bed on the first day they wore the watch). This was done to let participants get accustomed to wearing the watch. So, the start date may be 1 day later than participants were given the watch if they got in-bed the first night after midnight.

At visit 8, a few participants have negative values for V8DAYSVS and V8DAYSVE because actigraphy was collected before the participant came in for the clinic visit. Also at visit 8, a few participants have a value of .W (weird value) for these 2 variables because the participant had data from the clinic visit gathered at 2 different dates.

Daytime (out-of-bed) Data:

NOTE: A few participants do not have any daytime data (no "up" intervals.) This is either because the participant removed the watch over 10% of the time every day or because they only have 1 night's worth of data, so there is not 2 "down" intervals to bound the "up" interval (not a complete day of data). Those without an up interval are those with VXDAYST=0 (no days).

Those with daytime data, but none is usable have VXDAYST>0 but VXACDAYS=0. We did not include days where the woman removed the watch more than 10% of the day in our calculation of the average duration, total nap time, mean and median activity level, mean duration of sleep episodes, and number of long sleep episodes. We did this because we could not be certain that the participant was really awake. You can see how many days were dropped from the summary in the variable VXDROPDY. The up interval variables are set to A=missing if they only have 1 night's worth of data, and .N=unable to evaluate if they have daytime data but removed the watch for too long to be reliable.

Daytime (out-of-bed) Variables:

VXACDAYS	Number of "up" intervals in the analysis of out-of-bed data.
VXDAYST	Total number of "up" intervals the participant wore the watch for.
VXDURDAY	Mean minutes during the up interval, out-of-bed (daytime).
VXBADDYT	Total average # of bad minutes during the "up" interval (out-of-bed).
VXBADDAY	Average # of bad minutes in analysis during "up" interval (out-of-bed).
VXDROPDY	Number of days dropped from the calculation of VXTNAP2.
VXAMNMP(Z,T)	Overall mean activity score (counts/minute) while out-of-bed (daytime).
VXAMEDMP(Z,T)	Overall median activity score(counts/min) while out-of-bed (daytime).
VXLSEPMP (Z,T)	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).
VXMSEPMP (Z,T)	Mean duration (min) of sleep episodes while out-of-bed (daytime).
VXTNAP2P (Z,T)	Corrected mean minutes scored as sleep, out-of-bed (daytime).

Nighttime (in-bed) Data:

The following Definitions are common variables in the sleep research field:

Sleep efficiency,v1	The percentage of time (0-100) the participant is sleeping while they are in-bed. (VXSEFNM variable)
Sleep efficiency,v2	The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval. This is the standard variable created by the AMI software. If sleep onset never occurs this cannot be calculated. (VXSEFFM)
Sleep onset	The start of the first 20 minute block with >19 minutes of sleep.
Sleep latency	The minutes from the time the participant got in-bed to sleep onset
WASO	Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. This is a measure of sleep fragmentation.

The variables for sleep latency, wake after sleep onset, and sleep efficiency version 2 are set to .S=No sleep onset for a few participants. These variables cannot be calculated if sleep onset never occurs. These variables are the average over all nights the women wore the watch, so if one night cannot be calculated due to no sleep onset it is the average over all nights that could be calculated. You can see how many nights had no sleep onset in VXNOSLP(P,Z,T).

NOTE: All participants have at least one usable night of data. There are some women who had at least on night dropped from the analysis because they removed the watch for over 2 hours. This affects the calculation of the average duration, total sleep time, sleep efficiency, sleep latency, WASO, and long wake episodes. We did this because we could not be certain that the participant was really awake or asleep. You can see how many nights were dropped from the summary in the variable VXDROPNT.

Nighttime (in-bed) Variables:

VXNGHTST	Total number of "down" intervals the participant wore the watch for.
VXNIGHTS	Number of "down" intervals in the analysis of in-bed data.
VXDROPNT	# of nights dropped from the calculation of the summary variables.
VXDURNT	Mean minutes while in-bed (nighttime).
VXBADNTT	Total average #of bad minutes during the "down" interval (in-bed).
VXBADNT	Average # of bad minutes in analysis during "down" interval (in-bed).
VXLWEPMP (Z,T)	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime).
VXNOSLPP (Z,T)	Number of nights with no sleep onset.
VXONSTMP (Z,T)	Time of sleep onset, averaged over all nights, in portions of hours (ex: 11:30 PM would be 23.50)
VXSEFFMP (Z,T)	Mean sleep efficiency % (in-bed).
VXSEFNMP (Z,T)	Re-calculated mean sleep efficiency % (in-bed).
VXSLATMP (Z,T)	Mean sleep latency (in-bed), minutes.
VXSMINMP (Z,T)	Mean minutes scored as sleep, (in-bed).
VXWAKEMP (Z,T)	Wake time averaged over all nights, in portions of hours (ex: 6:15 AM would be 6.25)
VXWASOMP (Z,T)	Mean wake after sleep onset, minutes (in-bed).

Quality of Diaries:

There are 3 variables that summarize how well the diaries the participants kept coincided with the data on the actigraph which range from 1 to 4, with higher scores representing better diary quality. The variable VXQLIBDM is the average quality of the reporting when the participant got in bed, and VXQLOBDM is the average quality of the reporting when the participant got out of bed. These are averages based on the quality scores for each individual night. The scores for the individual nights are: 1=poor (missing the time or seems off by >1 hour); 2=fair (seems to match within 30 to 60 minutes); 3=good (matches well, between 10 – 30 minutes); 4=excellent (< 10 minutes off). An example of this is if the participant reported getting into bed at 9:30 pm, but was already asleep by 9:15 pm. In this case the "in-bed" interval would be started at the time where the activity level began reducing just prior to the sleep onset at 9:15 pm. A score would be given to that point placement of 3. The variable VXQLORMM is a similar variable for watch removals, with the scores for individual days being: 1=poor (missing intervals); 2=fair (seems to match within 15 minutes); 3=good (matches well, between 5 to 15 minutes); 4=excellent (< 5 minutes off). The sleep latency variable (how long it takes to fall asleep) is dependent on the point placement for getting in bed, so quality for getting in-bed is important. Similarly, the point placement of watch removals could be important to the calculation of total napping time and activity during the day. The averages of all point placements are used because we are using the data averaged over all days.

Other Variables to Consider:

- Adjusting by watch ID =VXWID (variable in the main visit file; will create lots of dummy variables, but would adjust for machine differences)
- Adjusting by Trails B hand tremor variable (VXTREM), stroke variable (VXESTRK), Parkinson's (VXEPARK) (variables in the main visit file).
- Adjusting/subsetting by whether the participant reported it as normal sleep pattern on the Actigraphy checklist form (VXNORACT; variable in the main visit file).
- Adjusting/subsetting by diary quality level.

- Rerunning all analyses with the other 2 modes to see if results are similar.

Circadian Rhythm Data:

Overview:

The actigraphs also create a file for each participant, and are in the format of one record per epoch per participant, for the entire time the watch was worn. Each epoch is one minute long. These files are not released, due to the size and number of files. The main data available in these files are the activity of the epoch, whether the epoch was scored as sleeping, and whether the watch was off during that epoch. These files are used in the circadian rhythm variable creation. Circadian rhythms calculated using activity data are sometimes referred to as rest-activity or activity rhythms.

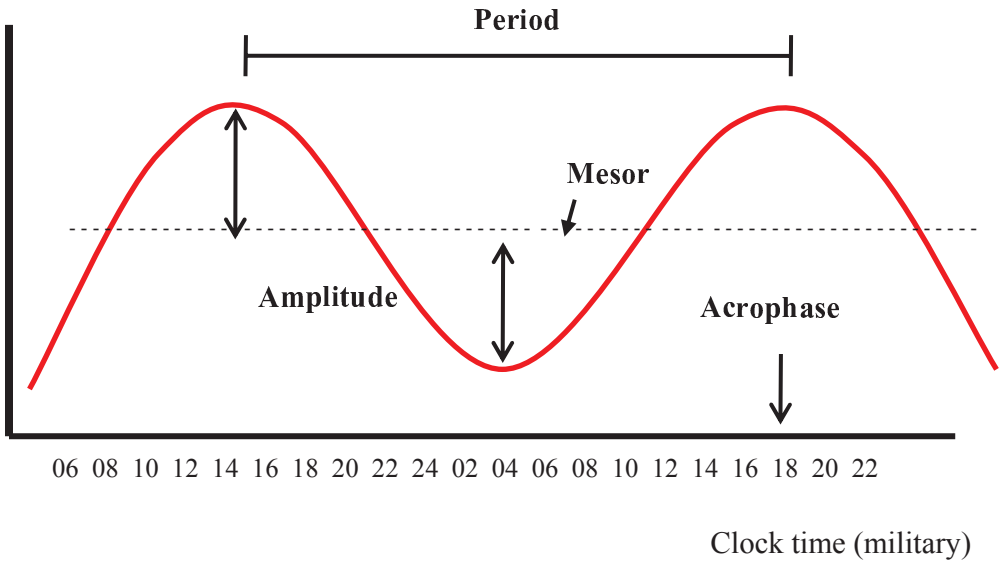
A good reference for some background and basic information on how actigraphy has been used in circadian rhythm research can be found here: Ancoli-Israel S, Cole R, Alessi C, Chambers M, Moorcroft W, Pollak CP. The role of actigraphy in the study of sleep and circadian rhythms. Sleep. 2003 May 1;26(3):342-92.

We have 2 methods for mapping the circadian rhythm to the activity data:

1. The cosinor analysis, which using the cosine curve to estimate the circadian rhythm parameters
2. An extension to the traditional cosine model. This applies a non-linear transformation to the cosine curve, the anti-logistic function. This is sometimes referred to as a 5-parameter extension of the 24h cosine curve.

Cosine Curve:

The cosinor analysis is the most popular method for mapping the circadian rhythm. A cosine curve with a period at or about 24 hours is fit to the activity data using linear regression. The parameters of interest are the acrophase (time of peak of the fitted curve), the amplitude (half of the peak-to-nadir difference in the fitted curve), the mesor (mean of the fitted curve), and the F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity). See figure below.



The formula used is

Activity(t)=mesor + amplitude*cosine([t-φ]*2π/24).

t=time; φ = the time of day of the maximum modeled value for activity.

The parameters are estimated using linear least squares (projection on sine and cosine curves with a 24 hour period) followed by a non-linear transformation of coefficients.

Extension to the 24 hour cosine function:

Activity data often assumes a shape more similar to a squared wave than a cosine curve. This extension to the traditional cosine curve allows for this shape.

This extension has these parameters estimated:

- φ = the time of day of the maximum modeled value for activity (acrophase).
- amp=difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve)
- min=the minimum value of the function
- β is a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
- α is a shape parameter that determines whether the peaks of the curve are wider than the troughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
- The pseudo-F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity).
- We can also calculate the mesor, which is analogous to the mesor of the cosine model. Mesor=min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data.
- Half-deflection point times, to the left and right of phi (acrophase): the times of day at which the curve rises through the half deflection point (through the middle of the peak).

The left half-delection point is also referred to as up-mesor, the right half deflection point as down-mesor.

- Width ratio=the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values.

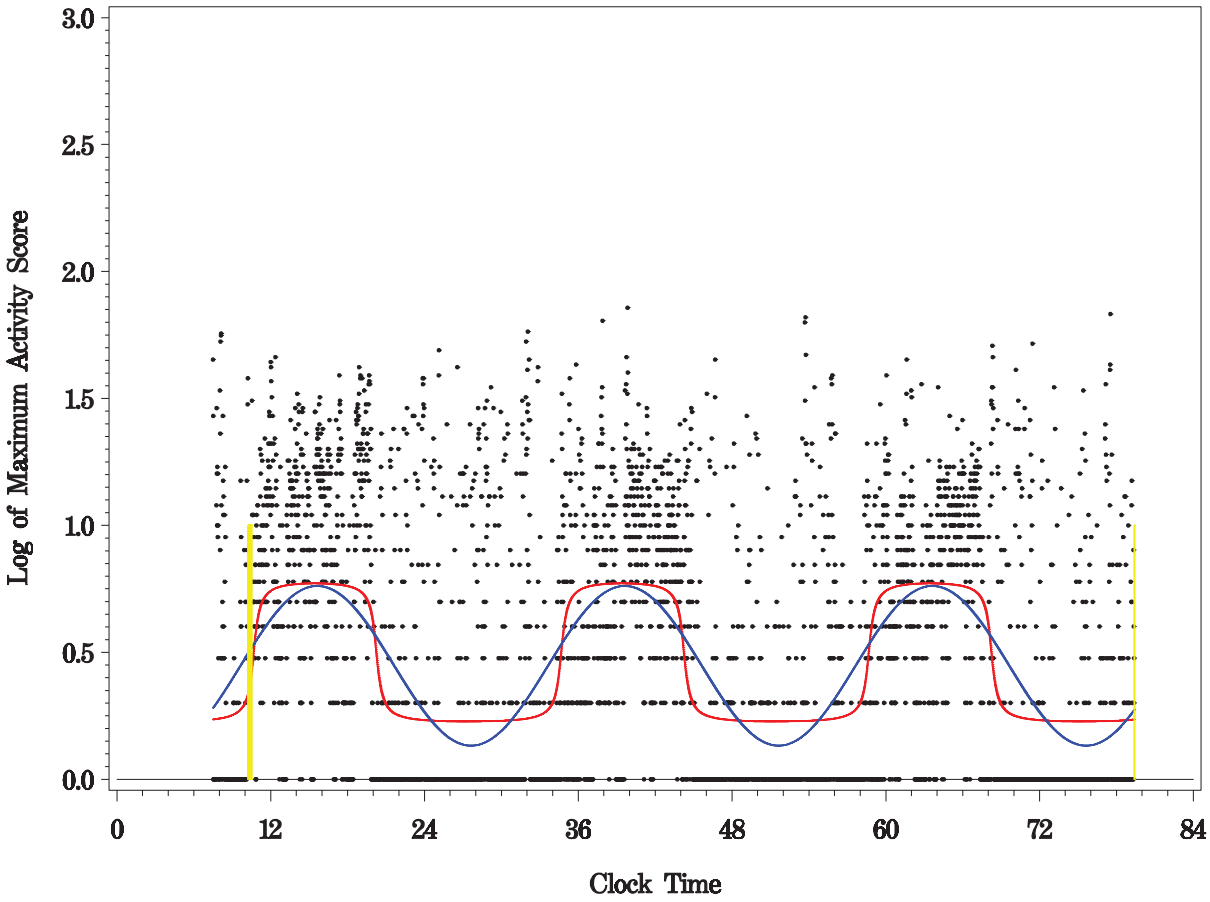
The formula used is:
Let $c(t)=\text{cosine}([t-\varphi]*2\pi/24)$
The anti-logistic-transformed cosine curve is: $l(c(t))=\exp(\beta[c(t)-\alpha])/\{1+\exp(\beta[c(t)-\alpha])\}$
The sigmoidally transformed cosine model for the data is: $\text{Activity}(t)=\text{min}+\text{amp}*l(c(t))$.
t=time

A reference for both models is Marler MR, Gehrman P, Martin JL, Ancoli-Israel S. The sigmoidally transformed cosine curve: a mathematical model for circadian rhythms with symmetric non-sinusoidal shapes. Stat Med. 2005 Dec 28.

The parameters of the extended cosine model were calculated using nonlinear least squares. The starting values used are the results from the linear least squares models for the cosine curve for the minimum, acrophase, and amplitude (2*amplitude from cosine model because amplitude in extended model is from peak to nadir of the fitted curve and the amplitude of the cosine model is half that). The starting value of 0 is used for φ and 2 is used for β. The parameters were estimated with the following constraints (bounds): $0<\beta$; $0 \leq \text{min}$; $-1\leq\alpha\leq1$, $-3<\varphi$ (acrophase)< 27.

Improvement of fit of the extended cosine model compared to the standard cosine model was also tested using a pseudo-F statistic. It is possible for the pseudo-F statistic to be a negative value. In these cases the p-value cannot be calculated so it is set to .W for weird value and there is considered to be no improvement using the extended cosine model compared to the standard cosine model. See Marler reference for details.

See figure below for comparison of cosine model (blue) to extended cosine model (red).



In the cosine curve and extended cosine algorithms, those time points where the watch was removed are deleted from the analysis (set to missing). Circadian rhythm variables were not created for those women with less than 24 hours of data (VXNUMMIN<1440). These circadian rhythm variables are set to missing (.A) for these women.

In some publications using circadian rhythm analysis the cosine curve is fit with activity data in its original scale, and others have log-transformed the data. We represent both methods here (log-transformed data = log10(activity data +1)). Note that the original scale data has a slightly better fit for the PIM and TAT, on average and the log-transformed data has a slightly better fit for the ZCM mode ($p<0.001$ from a signrank test on the F-statistics).

Variable Names for the Circadian Rhythm Model Parameter Estimates

Parameter	Notes	Standard Cosinor Model (variable name)	Extended Cosine Model (variable name)
Acrophase	In portions of hours. For example, if the acrophase is at 1:33 PM, the value would be 13.55	VXACROP(T,Z) VXACROLP (T,Z)	VXPHIPT (T,Z) VXPHILPT (T,Z)
Amplitude	in the units of the activity variables (counts/minute) or log10(counts/minute +1)	VXAMPP (T,Z) VXAMPLP(T,Z)	VXAMPPT(T,Z) VXAMPLPT(T,Z)
Mesor	in the units of the activity variables (counts/minute) or log10(counts/minute +1)	VXMESP(T,Z) VXMESLP(T,Z)	VXMESPT(T,Z) VXMESLPT(T,Z)
F-statistic (fit, rhythmnicity)		VXFVALP(T,Z) VXFVALLP(T,Z)	VXFVPT(T,Z) VXFVLPT(T,Z)
R-square	Value that goes with the F-statistic or pseudo-F statistic	VXRSQP (T,Z) VXRSQLP (T, Z)	VXRSQPT (T, Z) VXRSQLPT (T,Z)
Minimium	in the units of the activity variables (counts/minute) or log10(counts/minute +1)	VXMINP(T,Z) VXMINLP(T,Z)	VXMINPT(T,Z) VXMINLPT(T,Z)
Alpha		--NA--	VXALPPT(T,Z) VXALPLPT(T,Z)
Beta		--NA--	VXBETPT(T,Z) VXBETLPT(T,Z)
Half-deflection time, left (also called up-mesor)	The time of day when there is a switch from low activity to high activity, from below the mesor to above it.	--NA--	VXHTLPT(T,Z) VXHTLLPT(T,Z)
Half-deflection time, right (also called down-mesor)	The time of day when there is a switch from high activity to low activity, from above the mesor to below it.	--NA--	VXHTRPT(T,Z) VXHTRLPT(T,Z)
Width-ratio		--NA--	VXWRPT(T,Z) VXWRLPT(T,Z)
Degrees of Freedom for Error		VXEDFP(T,Z) VXEDFLP(T,Z)	VXEDFPT(T,Z) VXEDFLPT(T,Z)
Degrees of Freedom for Model	It is 2 for all standard cosinor models, 4 for all extended cosine models	VXMDFP(T,Z) VXMDFLP(T,Z)	VXMDFPT(T,Z) VXMDFLPT(T,Z)

p-value pr>F	It is a pseudo-F for the extended cosine model. Most are zero or very close to zero.	VXPRFP(T,Z) VXPRFLP(T,Z)	VXPRFPT(T,Z) VXPRFLPT(T,Z)

Other Circadian Rhythm Variables:
VXBADMIN =Number of "bad" minutes in the entire watch file (those removed from analysis because the watch was off)
VXNUMMIN = Total number of minutes in the entire watch file (this does include those bad minutes from above in the total count)

Comparison of the 2 models: p-value testing whether the extended cosine model is an improvement over the standard cosine model using a pseudo F-statistic:
Psuedo-F statistic for improvement: VXFIMPP, VXFIMPZ, VXFIMPT, VXFIMPLP, VXFIMPLT, VXFIMPLZ
P-value pr>F for improvement: VXPIMPP, VXPIMPZ, VXPIMPT, VXPIMPLP, VXPIMPLT, VXPIMPLZ
Yes/No variable for if the extended model had a statistically significant improvement ($p<0.05$) in fit over the standard cosine model: VXIMPYP, VXIMPYZ, VXIMPYT, VXIMPYLP, VXIMPYLT, VXIMPYLZ

There is further documentation regarging the modes of actigraphy, circadian rhythm data, and references in the documentation fileVXactig_documentation.doc.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMEDMP	PIM:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	PIM	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMEDMT	TAT:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	TAT	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMEDMZ	ZCM:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	ZCM	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMNMP	PIM:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	PIM	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)
VXAMNMT	TAT:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	TAT	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)
VXAMNMZ	ZCM:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	ZCM	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
ACALPZT	ALPHA ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPLPT	ALPHA ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPLTT	ALPHA ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPLZT	ALPHA ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXALPPT	ALPHA ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPTT	ALPHA ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXAMPLPT	AMPLITUDE ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPLTT	AMPLITUDE ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPLZT	AMPLITUDE ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMPPT	AMPLITUDE ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPTT	AMPLITUDE ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPZT	AMPLITUDE ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXBETLPT	BETA ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETLTT	BETA ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXBETLZT	BETA ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETPT	BETA ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETTT	BETA ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETZT	BETA ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXFIMPLP	PSEUDO F FOR IMPR OF EXT TO COS LOG10(PIM)	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFIMPLT	PSEUDO F FOR IMPR OF EXT TO COS LOG10(TAT)	circadian, extended cosine model	all	TAT	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPLZ	PSEUDO F FOR IMPR OF EXT TO COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPP	PSEUDO F FOR IMPR OF EXT TO COS PIM	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPT	PSEUDO F FOR IMPR OF EXT TO COS TAT	circadian, extended cosine model	all	TAT	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPZ	PSEUDO F FOR IMPR OF EXT TO COS ZCM	circadian, extended cosine model	all	ZCM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFVLPT	PSEUDO F FOR ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFVLTT	PSEUDO F FOR ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFVLZT	PSEUDO F FOR ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVPT	PSEUDO F FOR ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVTT	PSEUDO F FOR ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVZT	PSEUDO F FOR ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXHTLLPT	HALFDEFLECTION L ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTLLTT	HALFDEFLECTION L ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLLZT	HALFDEFLECTION L ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLPT	HALFDEFLECTION L ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLTT	HALFDEFLECTION L ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLZT	HALFDEFLECTION L ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTRLPT	HALFDEFLECTION R ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRLTT	HALFDEFLECTION R ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRLZT	HALFDEFLECTION R ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRPT	HALFDEFLECTION R ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRTT	HALFDEFLECTION R ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTRZT	HALFDEFLECTION R ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXIMPYLP	EXT FITS BETTER(P<0.05)THAN COS LOG10(PIM)	circadian, extended cosine model	all	PIM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYLT	EXT FITS BETTER(P<0.05)THAN COS LOG10(TAT)	circadian, extended cosine model	all	TAT	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYLZ	EXT FITS BETTER(P<0.05)THAN COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYP	EXT FITS BETTER(P<0.05)THAN COS PIM	circadian, extended cosine model	all	PIM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYT	EXT FITS BETTER(P<0.05)THAN COS TAT	circadian, extended cosine model	all	TAT	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYZ	EXT FITS BETTER(P<0.05)THAN COS ZCM	circadian, extended cosine model	all	ZCM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMESLPT	MESOR ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESLTT	MESOR ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESLZT	MESOR ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESPT	MESOR ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESTT	MESOR ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMESZT	MESOR ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMINLPT	MINIMUM ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINLTT	MINIMUM ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINLZT	MINIMUM ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINPT	MINIMUM ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINTT	MINIMUM ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINZT	MINIMUM ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXPHILPT	PHI ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXPHILTT	PHI ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHILZT	PHI ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHIPT	PHI ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHITT	PHI ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHIZT	PHI ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPIMPLP	P VALUE FOR IMPR OF EXT TO COS LOG10(PIM)	circadian, extended cosine model	all	PIM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPLT	P VALUE FOR IMPR OF EXT TO COS LOG10(TAT)	circadian, extended cosine model	all	TAT	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXPIMPLZ	P VALUE FOR IMPR OF EXT TO COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPP	P VALUE FOR IMPR OF EXT TO COS PIM	circadian, extended cosine model	all	PIM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPT	P VALUE FOR IMPR OF EXT TO COS TAT	circadian, extended cosine model	all	TAT	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPZ	P VALUE FOR IMPR OF EXT TO COS ZCM	circadian, extended cosine model	all	ZCM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXWRLPT	WIDTHRATIO ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRLTT	WIDTHRATIO ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXWRLZT	WIDTHRATIO ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRPT	WIDTHRATIO ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRTT	WIDTHRATIO ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRZT	WIDTHRATIO ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXACROLP	ACROPHASE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)
VXACROLT	ACROPHASE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)
VXACROLZ	ACROPHASE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXACROP	ACROPHASE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55
VXACROT	ACROPHASE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55
VXACROZ	ACROPHASE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55
VXAMPLP	AMPLITUDE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)
VXAMPLT	AMPLITUDE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMPLZ	AMPLITUDE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)
VXAMPP	AMPLITUDE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)
VXAMPT	AMPLITUDE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)
VXAMPZ	AMPLITUDE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)
VXFVALLP	F VALUE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALLT	F VALUE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALLZ	F VALUE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFVALP	F VALUE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALT	F VALUE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALZ	F VALUE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXMESLP	MESOR LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESLT	MESOR LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESLZ	MESOR LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESP	MESOR LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	mesor=mean activity level. These are in the units of the activity variables (counts/minute)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMEST	MESOR LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	mesor=mean activity level. These are in the units of the activity variables (counts/minute)
VXMESZ	MESOR LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	mesor=mean activity level. These are in the units of the activity variables (counts/minute)
VXMINLP	MINIMUM LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINLT	MINIMUM LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINLZ	MINIMUM LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINP	MINIMUM LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Minimum from fit for the linear cosinor model, calculated using original scale activity data
VXMINT	MINIMUM LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Minimum from fit for the linear cosinor model, calculated using original scale activity data
VXMINZ	MINIMUM LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Minimum from fit for the linear cosinor model, calculated using original scale activity data
ID	SOF ID	information			
VXACDAYS	# INTERVALS IN ANALYSIS FOR OUT OF BED	information	out of bed		Number of “up” intervals in the analysis of out-of-bed data (some may be dropped due to missing/bad data)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXBADDAY	AVG # BAD MIN IN ANALYSIS,OUT OF BED	information	out of bed		Average # per day of bad minutes in analysis during “up” interval (out-of-bed)
VXBADDYT	AVERAGE # OF BAD MINUTES FOR OUT OF BED	information	out of bed		Total average # per day of bad minutes during the “up” interval (out-of-bed)
VXBADMIN	NUMBER OF BAD MINUTES IN FILE	information	all		Number of “bad” minutes in the entire watch file (those removed from analysis because the watch was off)
VXBADNT	AVG # OF BAD MINUTES IN ANALYSIS,IN BED	information	in bed		Average # per day of bad minutes in analysis during “down” interval (in-bed).
VXBADNTT	AVERAGE # OF BAD MINUTES FOR IN BED	information	in bed		Total average # per day of bad minutes during the “down” interval (in-bed).
VXDAYST	TOTAL # INTERVALS PPT WORE WATCH OUT BED	information	out of bed		Total number of “up” intervals the participant wore the watch for.
VXDROPDY	#DAYS DROPPED FROM ANALYSIS, BAD INT>10%	information	out of bed		Number of days dropped from the calculation of the summary variables.
VXDROPNT	#NIGHTS DROPPED FROM ANALYSIS,BAD>2HOURS	information	in bed		# of nights dropped from the calculation of the summary variables.
VXDURDAY	AVG MINUTES DURING OUT OF BED INTERVAL	information	out of bed		Mean minutes during the up interval, out-of-bed (daytime) (average over all days)
VXDURNT	AVERAGE MINUTES DURING IN BED INTERVAL	information	in bed		Mean minutes while in-bed (nighttime) (averaged over all nights)
VXMODES	MODES W\DATA	information			Modes with data
VXNGHTST	# OF INTERVALS PPT WORE WATCH FOR IN BED	information	in bed		Total number of “down” intervals the participant wore the watch for.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXNIGHTS	# OF INTERVALS IN ANALYSIS FOR IN BED	information	in bed		Number of "down" intervals in the analysis of in-bed data. Some may have been dropped due to missing/bad data.
VXNUMMIN	NUMBER OF MINUTES-INCLUDES BAD MIN	information	all		Total number of minutes in the entire watch file (this does include those bad minutes from above in the total count)
VXWID	WATCH SERIAL NUMBER, FROM FORM DATA	information	form		Actigraph serial number, from teleform data.
VXQLIBDM	AVERAGE QUALITY OF REPORTING IN BED	Quality	all		Scorers grading for how well the sleep diary for when ppt got in bed lined up with the data, averaged over all days/nights. By day, 4=excellent (within 10 min), 3=good (within 30 min), 2=fair (within 1 hour), 1=poor(over 1 hour/missing)
VXQLOBDM	AVERAGE QUALITY OF REPORTING OUT OF BED	Quality	all		Scorers grading for how well the sleep diary for when ppt got out of bed lined up with the data, averaged over all days/nights. By day, 4=excellent (within 10 min), 3=good (within 30 min), 2=fair (within 1 hour), 1=poor(over 1 hour/missing)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXQLORMM	AVERAGE QUALITY OF REPORTING REMOVALS	Quality	all		Scorers grading for how well the sleep diary for when ppt removed the actigraph lined up with the data, averaged over all days/nights. By day, 4=excellent (within 5 min), 3=good (within 15 min), 2=fair (within 30min), 1=poor(over 30 min/missing)
VXLSEPMP	PIM:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	PIM	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.
VXLSEPMT	TAT:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	TAT	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.
VXLSEPMZ	ZCM:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	ZCM	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.
VXLWEPMP	PIM:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	PIM	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.
VXLWEPMT	TAT:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	TAT	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXLWEPMZ	ZCM:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	ZCM	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.
VXMSEPMP	PIM:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	PIM	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXMSEPMT	TAT:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	TAT	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXMSEPMZ	ZCM:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	ZCM	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXNOSLPP	PIM:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	PIM	Number of nights with no sleep onset.
VXNOSLPT	TAT:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	TAT	Number of nights with no sleep onset.
VXNOSLPZ	ZCM:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	ZCM	Number of nights with no sleep onset.
VXSEFFMP	PIM:MEAN SLEEP EFFICIENCY %, IN BED	sleep	in bed	PIM	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXSEFFMT	TAT:MEAN SLEEP EFFICIENCY %, IN BED	sleep	in bed	TAT	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights
VXSEFFMZ	ZCM:MEAN SLEEP EFFICIENCY %, IN BED	sleep	in bed	ZCM	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights
VXSEFNMP	PIM:MEAN SLEEP EFF INBED%=(100*SMIN/DUR)	sleep	in bed	PIM	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.
VXSEFNMT	TAT:MEAN SLEEP EFF INBED%=(100*SMIN/DUR)	sleep	in bed	TAT	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXSEFNMZ	ZCM:MEAN SLEEP EFF INBED%=(100*SMIN/DUR)	sleep	in bed	ZCM	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.
VXSLATMP	PIM:MEAN SLEEP LATENCY(MIN), IN BED	sleep	in bed	PIM	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.
VXSLATMT	TAT:MEAN SLEEP LATENCY(MIN), IN BED	sleep	in bed	TAT	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.
VXSLATMZ	ZCM:MEAN SLEEP LATENCY(MIN), IN BED	sleep	in bed	ZCM	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.
VXSMINMP	PIM:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	PIM	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.
VXSMINMT	TAT:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	TAT	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXSMINMZ	ZCM:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	ZCM	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.
VXTNAP2P	PIM:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	PIM	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXTNAP2T	TAT:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	TAT	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXTNAP2Z	ZCM:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	ZCM	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXWASOMP	PIM:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	PIM	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.
VXWASOMT	TAT:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	TAT	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXWASOMZ	ZCM:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	ZCM	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.

There is further documentation regarging the modes of actigraphy, circadian rhythm data, and references in the documentation file VXactig_documentation.doc.					
VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMEDMP	PIM:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	PIM	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMEDMT	TAT:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	TAT	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMEDMZ	ZCM:MEDIAN ACTIV SCR(COUNTS/MIN)OUT BED	activity	out of bed	ZCM	Overall median activity score(counts/min) while out-of-bed (daytime) (average over all days of the median for each day)
VXAMNMP	PIM:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	PIM	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)
VXAMNMT	TAT:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	TAT	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMNMZ	ZCM:AVG ACTIVITY(COUNTS/MIN),OUT OF BED	activity	out of bed	ZCM	Overall mean activity score (counts/minute) while out-of-bed (daytime)(average over all days of the mean per day)
VXACROLP	ACROPHASE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)
VXACROLT	ACROPHASE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)
VXACROLZ	ACROPHASE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	acrophase based on log10 data (log the activity data for each minute, then fit cosinor wave to logged data)
VXACROP	ACROPHASE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55
VXACROT	ACROPHASE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXACROZ	ACROPHASE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Acrophase=time of peak activity. Acrophase variables are in portions of hours. For example, if the acrophase is at 10:33 AM, the value would be 10.55
VXAMPLP	AMPLITUDE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)
VXAMPLT	AMPLITUDE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)
VXAMPLZ	AMPLITUDE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables =log10(counts per minute)
VXAMPP	AMPLITUDE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)
VXAMPT	AMPLITUDE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMPZ	AMPLITUDE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Amplitude =mesor-to-nadir difference.These are in the units of the activity variables (counts/minute)
VXEDFLP	DF ERROR LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Degrees of Freedom for Error of the model
VXEDFLT	DF ERROR LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Degrees of Freedom for Error of the model
VXEDFLZ	DF ERROR LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Degrees of Freedom for Error of the model
VXEDFP	DF ERROR LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Degrees of Freedom for Error of the model
VXEDFT	DF ERROR LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Degrees of Freedom for Error of the model
VXEDFZ	DF ERROR LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Degrees of Freedom for Error of the model
VXFVALLP	F VALUE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFVALLT	F VALUE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALLZ	F VALUE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALP	F VALUE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALT	F VALUE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms
VXFVALZ	F VALUE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	F-statistic which is used as a measure of overall fit (a measure of rhythmnicity), with higher F-statistics indicating stronger circadian rhythms

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMDFLP	DF MODEL LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Degrees of Freedom for Model
VXMDFLT	DF MODEL LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Degrees of Freedom for Model
VXMDFLZ	DF MODEL LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Degrees of Freedom for Model
VXMDFP	DF MODEL LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Degrees of Freedom for Model
VXMDFT	DF MODEL LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Degrees of Freedom for Model

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMDFZ	DF MODEL LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Degrees of Freedom for Model
VXMESLP	MESOR LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESLT	MESOR LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESLZ	MESOR LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	mesor=mean activity level. These are in the units of the activity variables log10(counts per minute)
VXMESP	MESOR LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	mesor=mean activity level. These are in the units of the activity variables (counts/minute)
VXMEST	MESOR LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	mesor=mean activity level. These are in the units of the activity variables (counts/minute)
VXMESZ	MESOR LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	mesor=mean activity level. These are in the units of the activity variables (counts/minute)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMINLP	MINIMUM LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINLT	MINIMUM LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINLZ	MINIMUM LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	Minimum from fit for the linear cosinor model, calculated using log10(activity data +1)
VXMINP	MINIMUM LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	Minimum from fit for the linear cosinor model, calculated using original scale activity data
VXMINT	MINIMUM LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	Minimum from fit for the linear cosinor model, calculated using original scale activity data
VXMINZ	MINIMUM LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	Minimum from fit for the linear cosinor model, calculated using original scale activity data
VXPRFLP	F PVALUE LINEAR COSINE MODEL,LOG10(PIM)	circadian, standard cosine model	all	PIM	P-value for the F statistic pr>F, logged activity data.
VXPRFLT	F PVALUE LINEAR COSINE MODEL,LOG10(TAT)	circadian, standard cosine model	all	TAT	P-value for the F statistic pr>F, logged activity data.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXPRFLZ	F PVALUE LINEAR COSINE MODEL,LOG10(ZCM)	circadian, standard cosine model	all	ZCM	P-value for the F statistic pr>F, logged activity data.
VXPRFP	F PVALUE LINEAR COSINE MODEL,PIM	circadian, standard cosine model	all	PIM	P-value for the F statistic pr>F.
VXPRFT	F PVALUE LINEAR COSINE MODEL,TAT	circadian, standard cosine model	all	TAT	P-value for the F statistic pr>F.
VXPRFZ	F PVALUE LINEAR COSINE MODEL,ZCM	circadian, standard cosine model	all	ZCM	P-value for the F statistic pr>F.
VXALPLPT	ALPHA ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXALPLTT	ALPHA ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPLZT	ALPHA ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXALPPT	ALPHA ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXALPTT	ALPHA ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
ACALPZT	ALPHA ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	α is a shape parameter that determines whether the peaks of the curve are wider than the roughs. When α is large the peaks are narrow and the troughs are wide, and when small the peaks are wide and the troughs are narrow.
VXAMPLPT	AMPLITUDE ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPLTT	AMPLITUDE ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXAMPLZT	AMPLITUDE ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPPT	AMPLITUDE ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPTT	AMPLITUDE ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable
VXAMPZT	AMPLITUDE ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	difference between the minimum and maximum of the function (the peak-to-nadir difference in the fitted curve). These are in units of the activity variable

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXBETLPT	BETA ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETLTT	BETA ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETLZT	BETA ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETPT	BETA ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXBETTT	BETA ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXBETZT	BETA ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	a shape parameter that determines whether the function Activity(t) rises and falls more steeply than the cosine curve. Large values of β produce curves that are nearly square waves.
VXFIMPLP	PSEUDO F FOR IMPR OF EXT TO COS LOG10(PIM)	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPLT	PSEUDO F FOR IMPR OF EXT TO COS LOG10(TAT)	circadian, extended cosine model	all	TAT	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPLZ	PSEUDO F FOR IMPR OF EXT TO COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPP	PSEUDO F FOR IMPR OF EXT TO COS PIM	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFIMPT	PSEUDO F FOR IMPR OF EXT TO COS TAT	circadian, extended cosine model	all	TAT	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFIMPZ	PSEUDO F FOR IMPR OF EXT TO COS ZCM	circadian, extended cosine model	all	ZCM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFVLPT	PSEUDO F FOR ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXFVLTT	PSEUDO F FOR ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVLZT	PSEUDO F FOR ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVPT	PSEUDO F FOR ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXFVTT	PSEUDO F FOR ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXFVZT	PSEUDO F FOR ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	Pseudo F-statistic which is used as a measure of overall fit, with higher F-statistics indicating stronger circadian rhythms (a measure of rhythmicity)
VXHTLLPT	HALFDEFLECTION L ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLLTT	HALFDEFLECTION L ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLLZT	HALFDEFLECTION L ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTLPT	HALFDEFLECTION L ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLTT	HALFDEFLECTION L ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTLZT	HALFDEFLECTION L ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRLPT	HALFDEFLECTION R ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTRLTT	HALFDEFLECTION R ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRLZT	HALFDEFLECTION R ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRPT	HALFDEFLECTION R ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXHTRTT	HALFDEFLECTION R ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXHTRZT	HALFDEFLECTION R ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the times of day at which the curve rises through the half deflection point (through the middle of the peak) to the left of the acrophase, in portions of hours
VXIMPYLP	EXT FITS BETTER(P<0.05)THAN COS LOG10(PIM)	circadian, extended cosine model	all	PIM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYLT	EXT FITS BETTER(P<0.05)THAN COS LOG10(TAT)	circadian, extended cosine model	all	TAT	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYLZ	EXT FITS BETTER(P<0.05)THAN COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYP	EXT FITS BETTER(P<0.05)THAN COS PIM	circadian, extended cosine model	all	PIM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYT	EXT FITS BETTER(P<0.05)THAN COS TAT	circadian, extended cosine model	all	TAT	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve
VXIMPYZ	EXT FITS BETTER(P<0.05)THAN COS ZCM	circadian, extended cosine model	all	ZCM	Yes/no variable: Yes means the extended cosine curve fit the data better than the standard cosine curve

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMESLPT	MESOR ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESLTT	MESOR ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESLZT	MESOR ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESPT	MESOR ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMESTT	MESOR ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMESZT	MESOR ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	min + amp/2. It is important to note that this goes through the middle of the peak and is not necessarily equal to the mean of the data. These are in units of the activity variable.
VXMINLPT	MINIMUM ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINLTT	MINIMUM ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINLZT	MINIMUM ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINPT	MINIMUM ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the minimum value of the extended cosine function. These are in units of the activity variable.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXMINTT	MINIMUM ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the minimum value of the extended cosine function. These are in units of the activity variable.
VXMINZT	MINIMUM ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the minimum value of the extended cosine function. These are in units of the activity variable.
VXPHILPT	PHI ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHILTT	PHI ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHILZT	PHI ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHIPT	PHI ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPHITT	PHI ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the time of day of the maximum modeled value for activity (acrophase), in portions of hours

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXPHIZT	PHI ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the time of day of the maximum modeled value for activity (acrophase), in portions of hours
VXPIMPLP	P VALUE FOR IMPR OF EXT TO COS LOG10(PIM)	circadian, extended cosine model	all	PIM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPLT	P VALUE FOR IMPR OF EXT TO COS LOG10(TAT)	circadian, extended cosine model	all	TAT	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPLZ	P VALUE FOR IMPR OF EXT TO COS LOG10(ZCM)	circadian, extended cosine model	all	ZCM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPP	P VALUE FOR IMPR OF EXT TO COS PIM	circadian, extended cosine model	all	PIM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXPIMPT	P VALUE FOR IMPR OF EXT TO COS TAT	circadian, extended cosine model	all	TAT	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXPIMPZ	P VALUE FOR IMPR OF EXT TO COS ZCM	circadian, extended cosine model	all	ZCM	P value for Psuedo-F statistic for testing improvement of the extended cosine model over the standard cosine model
VXWRLPT	WIDTHRATIO ANTILOGISTIC LOG10(PIM)	circadian, extended cosine model	all	PIM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRLTT	WIDTHRATIO ANTILOGISTIC LOG10(TAT)	circadian, extended cosine model	all	TAT	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRLZT	WIDTHRATIO ANTILOGISTIC LOG10(ZCM)	circadian, extended cosine model	all	ZCM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRPT	WIDTHRATIO ANTILOGISTIC PIM	circadian, extended cosine model	all	PIM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXWRTT	WIDTHRATIO ANTILOGISTIC TAT	circadian, extended cosine model	all	TAT	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
VXWRZT	WIDTHRATIO ANTILOGISTIC ZCM	circadian, extended cosine model	all	ZCM	the fraction of time that the modelled high activity phase is above the midpoint between the minimum and maximum modeled values
AA	AFRICAN AMERICAN COHORT	information			
CLINIC	SOF CLINIC	information			
ID	SOF ID	information			
VXBADDAY	AVG # BAD MIN IN ANALYSIS,OUT OF BED	information	out of bed		Average # per day of bad minutes in analysis during “up” interval (out-of-bed)
VXBADDYT	AVERAGE # OF BAD MINUTES FOR OUT OF BED	information	out of bed		Total average # per day of bad minutes during the “up” interval (out-of-bed)
VXBADNT	AVG # OF BAD MINUTES IN ANALYSIS,IN BED	information	in bed		Average # per day of bad minutes in analysis during “down” interval (in-bed).
VXBADNTT	AVERAGE # OF BAD MINUTES FOR IN BED	information	in bed		Total average # per day of bad minutes during the “down” interval (in-bed).

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXACDAYS	# INTERVALS IN ANALYSIS FOR OUT OF BED	information	out of bed		Number of “up” intervals in the analysis of out-of-bed data (some may be dropped due to missing/bad data)
VXDAYST	TOTAL # INTERVALS PPT WORE WATCH OUT BED	information	out of bed		Total number of “up” intervals the participant wore the watch for.
VXDROPDY	#DAYS DROPPED FROM ANALYSIS, BAD INT>10%	information	out of bed		Number of days dropped from the calculation of the summary variables.
VXDROPNT	#NIGHTS DROPPED FROM ANALYSIS,BAD>2HOURS	information	in bed		# of nights dropped from the calculation of the summary variables.
VXDURDAY	AVG MINUTES DURING OUT OF BED INTERVAL	information	out of bed		Mean minutes during the up interval, out-of-bed (daytime) (average over all days)
VXDURNT	AVERAGE MINUTES DURING IN BED INTERVAL	information	in bed		Mean minutes while in-bed (nighttime) (averaged over all nights)
VXEDATE	END DATE OF ACTIG WEARING	information			End date=the last date we have data for.
VXMODES	MODES W\DATA:ZPT=ALL,ZP=NO T,Z=NO P,T	information			Modes with data: Z=ZCM only, ZP=ZCM, PIM only, ZPT=all modes.
VXNGHTST	# OF INTERVALS PPT WORE WATCH FOR IN BED	information	in bed		Total number of “down” intervals the participant wore the watch for.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXNIGHTS	# OF INTERVALS IN ANALYSIS FOR IN BED	information	in bed		Number of “down” intervals in the analysis of in-bed data. Some may have been dropped due to missing/bad data.
VXSDATE	START DATE OF ACTIG WEARING	information			Start date=the first date we have data for.
VXWID	WATCH SERIAL NUMBER, FROM FORM DATA	information	form		Actigraph serial number, from teleform data.
VXBADMIN	NUMBER OF BAD MINUTES IN FILE	information	all		Number of “bad” minutes in the entire watch file (those removed from analysis because the watch was off)
VXNUMMIN	NUMBER OF MINUTES-INCLUDES BAD MIN	information	all		Total number of minutes in the entire watch file (this does include those bad minutes from above in the total count)
VXQLIBDM	AVERAGE QUALITY OF REPORTING IN BED	Quality	all		Scorers grading for how well the sleep diary for when ppt got in bed lined up with the data, averaged over all days/nights. By day, 4=excellent (within 10 min), 3=good (within 30 min), 2=fair (within 1 hour), 1=poor(over 1 hour/missing)

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXQLOBDM	AVERAGE QUALITY OF REPORTING OUT OF BED	Quality	all		Scorers grading for how well the sleep diary for when ppt got out of bed lined up with the data, averaged over all days/nights. By day, 4=excellent (within 10 min), 3=good (within 30 min), 2=fair (within 1 hour), 1=poor(over 1 hour/missing)
VXQLORMM	AVERAGE QUALITY OF REPORTING REMOVALS	Quality	all		Scorers grading for how well the sleep diary for when ppt removed the actigraph lined up with the data, averaged over all days/nights. By day, 4=excellent (within 5 min), 3=good (within 15 min), 2=fair (within 30min), 1=poor(over 30 min/missing)
VXLSEPMP	PIM:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	PIM	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.
VXLSEPMT	TAT:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	TAT	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXLSEPMZ	ZCM:MEAN#LONG(>=5MIN)SLP EPISODES,OUTBED	sleep	out of bed	ZCM	Mean # of long sleep episodes (>5 minutes sleep at a time) while out-of-bed (daytime).Averaged over all days.
VXLWEPMP	PIM:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	PIM	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.
VXLWEPMT	TAT:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	TAT	Mean number of long wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.
VXLWEPMZ	ZCM:MEAN#LONG(>=5MIN)WAKE EPISODES,INBED	sleep	in bed	ZCM	wake episodes (>5 minutes wake at a time) while in-bed (nighttime). Averaged over all nights.
VXMSEPMP	PIM:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	PIM	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXMSEPMT	TAT:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	TAT	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXMSEPMZ	ZCM:MEAN DUR SLEEP EPISODE(MIN)OUT BED	sleep	out of bed	ZCM	Mean duration of sleep episodes while out-of-bed (daytime). Averaged over all days.
VXNOSLPP	PIM:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	PIM	Number of nights with no sleep onset.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXNOSLPT	TAT:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	TAT	Number of nights with no sleep onset.
VXNOSLPZ	ZCM:# NIGHTS WITH NO SLEEP ONSET	sleep	in bed	ZCM	Number of nights with no sleep onset.
VXSEFFMP	PIM:MEAN SLEEP EFFICIENCY, IN BED	sleep	in bed	PIM	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights
VXSEFFMT	TAT:MEAN SLEEP EFFICIENCY, IN BED	sleep	in bed	TAT	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights
VXSEFFMZ	ZCM:MEAN SLEEP EFFICIENCY, IN BED	sleep	in bed	ZCM	Mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping in between when sleep onset occurs and the last minute scored as sleep during the down interval, averaged over all nights

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXSEFNMP	PIM:MEAN SLEEP EFF INBED=(100*SMIN/DUR)	sleep	in bed	PIM	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.
VXSEFNMT	TAT:MEAN SLEEP EFF INBED=(100*SMIN/DUR)	sleep	in bed	TAT	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.
VXSEFNMZ	ZCM:MEAN SLEEP EFF INBED=(100*SMIN/DUR)	sleep	in bed	ZCM	Re-calculated mean sleep efficiency (in-bed).The percentage of time (0-100) the participant is sleeping while they are in-bed. Averaged over all nights.
VXSLATMP	PIM:MEAN SLEEP LATENCY, IN BED	sleep	in bed	PIM	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXSLATMT	TAT:MEAN SLEEP LATENCY, IN BED	sleep	in bed	TAT	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.
VXSLATMZ	ZCM:MEAN SLEEP LATENCY, IN BED	sleep	in bed	ZCM	Mean sleep latency (in-bed), minutes.The minutes from the time the participant got in-bed to sleep onset. (onset = first 20 continuous min of sleep)Averaged over all nights.
VXSMINMP	PIM:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	PIM	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.
VXSMINMT	TAT:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	TAT	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.
VXSMINMZ	ZCM:MEAN MINUTES SCORED AS SLEEP, IN BED	sleep	in bed	ZCM	Total Sleep Time. Mean minutes scored as sleep, (in-bed). Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXTNAP2P	PIM:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	PIM	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXTNAP2T	TAT:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	TAT	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXTNAP2Z	ZCM:AVG MINS SCORED SLEEP,OUT BED	sleep	out of bed	ZCM	Total Nap Time. Corrected mean minutes scored as sleep, out-of-bed (daytime). Averaged over all days.
VXWASOMP	PIM:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	PIM	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.
VXWASOMT	TAT:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	TAT	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.

VARIABLE NAME	VARIABLE LABEL	CATEGORY	interval	Mode	Description
VXWASOMZ	ZCM:MEAN WAKE AFTR SLEEP ONSET(MIN)INBED	sleep	in bed	ZCM	Mean wake after sleep onset, minutes (in-bed).Wake after sleep onset. Number of minutes scored as wake from sleep onset to the end of the last sleep episode while in-bed. Averaged over all nights.