PAST YEAR TOTAL PHYSICAL ACTIVITY QUESTIONNAIRE

COMPREHENSIVE USERS' GUIDE

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Introduction

The Users' Guide for the Past Year Total Physical Activity Questionnaire has been developed to provide practical assistance to users of the self-administered questionnaire. The Guide is a companion to two other documents: the blank PYTPAQ in pdf form and a completed PYTPAQ in pdf form that illustrates how the guidelines are used to code and analyze a 'typical' questionnaire returned by a study participant.

The following guidelines have been developed by the Department of Cancer Epidemiology and Prevention Research, Alberta Health Research. The questionnaire has been used in several research studies conducted by Dr. Friedenreich and has undergone an extensive reliability and validation testing [1].

The guiding principle of the coding guidelines developed here is to enable data to be captured as accurately as possible while minimizing the amount of personal follow-up with the study participants.

The Users' Guide includes the following sections:

OVERVIEW: This section provides a brief description of the purpose and structure of the PYTPAQ.

CODING GUIDELINES: This section provides step-by-step procedures for coding the questionnaires. The guidelines should be reviewed by investigators prior to use and adapted as appropriate.

DEFAULT VALUES FOR MISSING VALUES: A summary of the default values used in research studies at the Alberta Cancer Board/Alberta Health Services. It is important to note that the guidelines were developed for studies that include adult men and women living in a "northern" climate. Accordingly the values included here may not be appropriate for a study being conducted with participants who live in a different climate, for example, a climate with a longer summer and shorter winter.

OCCUPATIONAL CODES: This chart includes the most common occupational and volunteer activities. It serves as a practical tool to use in coding the questionnaires. The MET values are derived from the Physical Activity Compendium 2011 [2].

RECREATION AND LEISURE CODES: This chart includes the most common recreational and leisure activities that have been reported in previous studies conducted in Alberta. It serves as a practical tool to use in coding the questionnaires. The MET values are derived from the Physical Activity Compendium 2011.

PHYSICAL ACTIVITY COMPENDIUM 2011: This chart is derived from the Compendium of Physical Activities first published in 1993 and revised in 2000 and again in 2011 [2-4]

The first column called PAQ Codes refers to the unique codes used in studies in the Department of Cancer Epidemiology and Prevention Research. Investigators could also choose to use the Codes assigned in the Compendium, found in the second column.

GUIDE TO DATA ANALYSIS: This section provides directions on how to calculate and analyze the data from the PYTPAQ. The examples are based on the information from the completed questionnaire that accompanies the Users' Guide.

SUGGESTED CLEANING CHECKS: This section provides a description of suggested checks and verifications which should be performed during data cleaning.

DERIVATION OF VARIABLES FOR ANALYSIS: The statistical analysis program SAS was used within the CEPR department to process the PYTPAQ data. This section provides the SAS code which was used.

Overview

The self-administered Past Year Total Physical Activity Questionnaire (PYTPAQ) is used to estimate an individual's energy expenditure from physical activity during the **preceding 12-month period**. The PYTPAQ was modified from its original format for the purposes of *The Tomorrow Project* [5]. The original instrument, designed by Dr. Christine Friedenreich, is an interviewer-administered questionnaire for capturing total lifetime physical activity [6]. A validation study for the PYTPAQ in the self-administered format has been completed[1].

The PYTPAQ is comprised of four sections, each one concerned with a different **type** of activity: occupational (including paid employment and volunteer activities), transportation (to and from work), household, and recreation (including all exercise and sports activities). Within each broad type of activity, respondents are required to identify specific activities they have engaged in during the past year. For each specific activity, respondents report frequency, duration and physical intensity level (PIL). Physical intensity level is reported on a scale from 1 to 4, with the various levels of the scale defined at the start of each section in the PYTPAQ. A PIL of 1 signifies activities mainly sitting down; a PIL of 2 describes activities done mainly standing that do not increase heart rate or cause sweating; a PIL of 3 describes activities that cause slight increases in heart rate and some light sweating; and a PIL of 4 describes activities that cause heart rate to increase substantially and lead to heavy sweating.

Each reported activity is assigned a unique activity code. Corresponding MET values (a measure of intensity; the metabolic rate for a specific activity relative to resting metabolic rate) are then assigned to each reported activity using the Compendium of Physical Activities [2-4]. Reported values for frequency, duration and assigned intensity (in METs) for each separate activity are multiplied together to yield a single estimate of the metabolic output per week, expressed as MET-hours per week. The total MET-hours/week for each of the four broad types of activity is estimated by summing all of the individual activity MET-hours/week. Finally, the four separate totals for each type of activity are summed to yield an overall estimate of metabolic output per week that reflects an individual's total activity. Duration of activity in hours/week can also be derived by excluding MET values from the calculations just described.

The "Guide to Data Analysis" section describes each section of the PYTPAQ in greater detail and provide sample calculations for some key output variables.

Coding Guidelines

General Coding Guidelines

This section provides general guidelines that could be taken into consideration when coding the questionnaire. The questionnaire is coded by hand and then entered into a software program. In the Department of Cancer Epidemiology and Prevention Research, we have used the software program, Blaise®, however other comparable programs could be used instead.

- Code each questionnaire prior to data entry, according to the instructions provided in the coding sections below.

- Make all marks on questionnaires in red pen.

- If you move an activity to another page, note "To page 5" (for example).

- If you delete an activity, draw a line through the whole row, using a ruler and write 'delete'.

- Read the Comments section at the end of the questionnaire on page 11. If there are activities listed here that were not listed on pages 3-9, enter them as appropriate, if there is sufficient information, or call the participant for more information if warranted.

- Discuss ambiguous entries as a group; new coding guidelines may be developed.

- If a PAQ is returned completely blank, contact the participant. If the person has no activity because of disability, confinement to a wheelchair etc. record that information on the cover.

- Contact the participant when one or more of the following conditions is/are met:

    - One or more missing, ambiguous or questionable information fields, particularly if it may represent significant energy expenditure. Note that in some cases, we will enter data for one field, if a common-sense response is apparent.

    - 2 or more 'blank pages.'

    - A questionnaire is returned completely blank. Attempt to complete the questionnaire by phone.

- If information is corrected after contact with the participant, enter correct information in red on the form, with your initials and the note: "By Phone".

- No follow-up will be done if a PAQ has:
    - One missing or ambiguous field, if a common sense value can be entered.
    - One blank page (we will assume there was nothing relevant to enter.)

Training and Quality Assessment

- When starting to use the PAQ in a new setting, 'group coding' is useful - i.e. each person in a group codes the same set of questionnaires and then the coding decisions are compared and discussed. This practice should be continued until the coding is being done accurately and consistently.
- Training: when a new staff person begins coding, a supervisor checks every form until the 'error' rate is less than 5% (i.e., less than 1 error per 20 forms).
- On-going assessment: A supervisor reviews the coding of all questionnaires prior to telephone follow-up to ensure that phoning is necessary, that all issues have been noted and to assess the quality and consistency of coding.
- Double data entry – a 10% sample of questionnaires is entered twice to evaluate the accuracy of the data entry process.

Specific Coding Guidelines

Watch for questionnaires with a very large number of hours or activities recorded. The general guideline is **14 hours per day maximum per section** and **16 hours per day overall**, averaged over one year. There may be exceptions but these should be confirmed with the participant.

Page 1 – Cover

- A comment is entered to account for a completely blank PAQ or one with very limited data, in the case where the person has indicated that they are physically disabled and have no or very little physical activity.

Page 3 – Employment & Volunteer Activities

- Read the instructions on Page 2 and the top of Page 3 of the questionnaire. Use these guidelines to ensure that Page 3 has been filled in correctly. Ensure that all of the fields are filled in.

- The *Job Title* should indicate either paid employment or a volunteer position. This section would include farmers and students but not homemakers or stay-at-home parents; if these latter two types of activities are listed on this page, move these activities to Page 7 (household section) if they are not already listed there.

- This section is the only one that allows activities done while seated.

- Ensure that the total number of months, days, and hours for each activity and the total numbers for the combined employment activities make sense. Participants sometimes 'double count' their hours of work. If the answer does not make sense or totals more than 14 hours per day, clarify with the participant.

- In addition, ensure that the listed activities make sense. For example, a trucker should have listed 'driving' as an occupation. Watch for balance in the MET levels and if you think the final activity level will be too high or too low for your understanding of the job, refer the questionnaire to a supervisor.

- ***Note: There is an overall 16-hour total daily maximum as a guideline. If necessary, revisit page 3 and consider the 'whole picture' after coding pages 5, 7 and 9. If the hours exceed what common sense would tell you, refer to a supervisor.***

- Bi-weekly is assumed to be every two weeks.

- Note that the Physical Intensity Level (PIL) Guide is only a guideline for assessing the relative intensity levels within activities and for *choosing which code to use when there is a range of possible codes.* Do not change a respondent's self-assessed Physical Intensity Level, other than for the following reasons:

  - If the respondent completes the Physical Intensity Level field with a range of 2 levels (e.g. 3-4), always choose the lower of the values and code accordingly. If a range of more than 2 levels is given, choose the mean level.

  - If the person only records standing/walking activities, but records a PIL of 1, change it to a PIL of 2.

  - Similarly, if the person only lists seated activities, but records a PIL of 2, change it to a PIL of 1.

- Watch for entries of volunteer activities that likely occur less than once a week, e.g., canvassing, bingo, casinos, board meetings etc. Portions of months are recorded as follows:
    - one day per month = .25 days per week
    - two days per month = .5 days per week
    - three days per month = .75 days per week

- If a person enters a frequency of 7, it is reasonable to assume it means 7 times per week unless there is evidence to the contrary. If in doubt, check with the participant.

- Code up to 6 of the Main Physical Activities for each position using the codes from the "Occupational Codes" sheet. If more than 6 activities are listed, refer to a supervisor for a decision on what the main activities would be.

- If an activity is not listed on the sheet, but can be found in the Physical Activity Compendium and you feel it is appropriate, check with a supervisor about adding the activity to the sheet. If the decision is not to add an activity, the *Compendium of Physical Activities* is still a useful reference in choosing a code that is close to a given activity. If there are no jobs listed that are close to what the participant recorded, try to read into what they would do or refer to a supervisor.

- Note that you cannot use the code number assigned to recreation activities for occupational coding and visa versa. If a recreation code needs to be used for an occupational activity, a new *specific* code number needs to be assigned.

- In general, if there is an overall 'blanket' (i.e., general) code for an activity such as coaching, use the 'blanket' code. For example, a coach might record that he/she skates, walks and runs. Code this as a "coaching" activity. Another option is to code each activity separately, but make sure they present the 'whole picture' accurately. For example, coaching hockey should not just include 'skating'; in this case, you may wish to add another activity called "coaching" in order to balance the heavy activity level of just skating. Other examples of times to use 'blanket' codes include bakery worker, custodian, and farmer.

- Watch for entries that have likely over-estimated energy expenditure. For example a volunteer hockey coach may enter 'play hockey' as his only activity, when it is likely that he also stands, walks, kneels etc. Refer to a supervisor for a decision on ways to reduce the activity to a more appropriate level.

- If a person gives one generic activity, e.g. 'helping husband to farm' with 2 PILs, you may wish to assign 2 codes to the activity, assuming that there are 2 codes to choose from, as in the case of farming, that correspond to the different PILs listed.

- **"Carrying**" is a **walking** activity. Use the PIL to choose which code (80 - 87) is most appropriate.

- **"Bending**" or "**lifting**" are **standing** activities. Again, use the PIL to choose which code (50-53) is most appropriate.

- **"Crawling"** is a **walking** activity according to the PIL (Codes 70-72)

- **"Kneeling"** is a **standing** activity according to the PIL (Codes 50-53).

- **"Throwing"** is a **standing** activity according to the PIL (Codes 50-53).

- **"Hauling" or "pulling" are walk and carry** activities according to the PIL (Codes 80-85).

- "**Pulling wrenches"** is a **standing** activity - likely code 52.

- **Walking on the job**: code according to the PIL, using codes 70-72. Most walking will be self assessed as a PIL of 2 or 3 and will be coded as 71. Exceptions with very light or very vigorous walking will be coded as 70 or 72.

- **Sitting while driving:** Code according to the job description rather than the PIL.

    - Code driving of vehicles at work as a **40** when the driving probably involves driving a **car** to **meetings** or as part of **sales** etc.

    - Use code **41** for driving vehicles at work when the occupation likely involves lifting and using a vehicle **heavier than a car. This would include driving heavy equipment at work.**

    - Code 'driving' for a **farmer** as **41** (moderate sitting) unless otherwise specified because it is assumed the farmer is driving a truck or tractor.

    - If the farmer specifies driving a **tractor,** use code **100.**

- Use code **118** when the person specifically states they drive a **heavy truck** (heavier than a pick-up truck) or a **bus.**

- Other decisions:

  - **Babysitting** for grandchildren etc. - code as an occupation when it occurs in a regular pattern (at least once per week). If the activities are just occasional, transfer to the Household page.

  - **Care-giving/assistance of a household family member:** if nursing care is involved, (bathing, dressing, feeding etc.) leave on occupation page. If just assistance with household activities, move to household page. Maximum of 12 hours per day.

  - **Feeding horses** – use code 81 as a walk and carry activity.

  - **Fencing** is a common farming activity. If the person indicates 'building fences', use the **walk and carry codes** (80-85). If the person just records 'fencing' or 'fence repair', use the **standing codes** (50-53).

  - **Grocery shop** (as an occupation) **–** use 'walk and carry' codes 80-85 according to the PIL.

  - **Hammering** – use the carpentry code, 116.

  - **Home aide/personal care aide** – Use code 18 if it includes things like bend, stretch, carry.

  - **Home power tools –** use code 126 for a PIL of 2-3; use code 53 for a PIL of 4.

  - **Home school mom/dad –** not accepted as occupation, therefore move to household page as child care, depending on what they recorded there.

  - **Instructing Tai Chi:** Use Standing Code according to PIL.

  - **"Jumping" as for a soccer coach –** use the standing code according to the PIL.

- **"Maintenance" –** use "Standing Codes" 51-53 according to PIL.

- **Singing** in a choir, **directing** a band, playing a **musical instrument** while standing, or acting in a play in this section – use the **standing** codes and the PIL as a guide. (These are considered either paid or volunteer activities, but are kept on this page, regardless.)

- **'Stairs' or 'climb stairs' or 'climb ladders'** - cross off and rewrite as two separate activities: **walk upstairs** (code 87, MET 8) and **walk downstairs** (code 134, MET 3). This coding will have the effect of lowering the METs for code 87. The rationale is that 'what goes up must come down.' Be careful not to let the 'climb stairs' entry be too much of the total activity, keeping in mind what you know of the nature of the job.

- In the Department of Cancer Epidemiology and Prevention Research, we decided to use the following default values for missing fields. Any other investigator using this questionnaire can decide whether or not to use the following values:

  - **Board meeting:** 1 meeting per month - 3 hours per meeting (Enter as 12 months a year, 0.25 days per week, 3 hours per day.)

  - **Bingo volunteer:** 1 day per month - 4 hours per day (Enter as 12 months a year, 0.25 days per week, 4 hours per day.)

  - **Canvasser:** 1 day per year - 2 hours per day. (Enter as 1 month, 0.25 days per week, 2 hours per day.)

  - **Care giving** of family members: 12 hours if missing - 14 hours maximum.

  - **Casino volunteer: 1** day per year – 4 hours per day (Enter as 1 month, 0.25 days, 4 hours per day.)

  - **Volunteer firefighter:** 12 months per year, 0.5 days per week, 2 hours per day.

  - **Workday:** 8 hours

Page 5 – Walking and Biking to and from employment and volunteer activities

- Read the instructions on Page 4 and the top of Page 5 of the questionnaire. Use these guidelines to ensure that Page 5 has been filled in correctly.

- Note that the duration is recorded in minutes per day. Duration should include both directions. If unclear, confirm with participant, especially if the duration is fairly long.

- Cross-check with page 3 to ensure that there are no entries for jobs that were not listed on page 3.

- Delete entries in which the person seems to indicate that they walk AT work, rather than TO work. Common examples for this include volunteer canvassers and farmers.

- Also cross-reference with the recreation page to ensure that walking or cycling to and from work is not double counted.

- Refer to a supervisor if there are 2 or more hours per day spent walking or biking to work.

- Use the *occupational codes* for "Type of activity", e.g. the codes for walking, running, biking, in-line skating etc., based on the PIL.

- Use a new line if the type of transportation changes over the course of one year. For example a person may bike to work for 4 months, walk for 2 months and drive with a 10 minute walk from their car for 5 months. Each of these modes of transport should be recorded on a separate line.

- In the Department of Cancer Epidemiology and Prevention Research, we decided to use the following default value for missing fields. Any other investigator using this questionnaire can decide whether or not to use the following value:

    - **Walk 1-2 blocks to work**: 5 minutes

Page 7 – Household & Do-It-Yourself Activities

- Read the instructions on Page 6 and the top of Page 7 of the questionnaire. Use these guidelines to ensure that Page 7 has been filled in correctly.

- If the respondent completes the Physical Intensity Level field with a range of 2 levels (e.g. 3-4), always choose the lower of the values. If a range of more than 2 levels is given, choose the mean level.

- Only activities with a PIL of 2, 3 or 4 can be recorded on this page. Seated activities should be deleted.

- If an activity is recorded that is clearly a standing activity, but the person has given it a PIL of 1, change the PIL to 2.

- Ensure that the activities listed on this page are different from the activities on page 3. This check is particularly important for people who report things like care giving and farming – activities that can blend together in their lives.

- Childcare of a person's own children belongs on this page as does occasional babysitting of grandchildren etc. Again, watch for overlap of activities.

- Ensure that the total number of months, days, and hours for each activity and that the total numbers **in combination with the occupational activity on page 3 and recreational activity on page 9 make sense and do not exceed the 16-hour maximum for daily activity.** If the answers do not make sense, or add up to too many hours, refer to a supervisor.

- **Do not code the activities in the Type of Activity column – the column just provides the participants with a way to organize their thoughts**.

- Some household activities are recorded as 'seasonal', for example painting window frames, washing walls. Refer to a supervisor for frequency decision.

- Include feeding the dog/pet/birds etc. in this category.

- Include amateur radio hobby activities on this page.

- Include 'home schooling' on this page.

- "Hobbies", i.e., non-sporting activities like woodworking or gardening or instrument playing done standing should be listed on this page and not on page 9.

- **These default values for missing fields were developed for the Department of Cancer Epidemiology and Prevention Research and can be used by other investigators at their own discretion:**

    - Childcare: 12 hours per day if missing, maximum of 14 hours per day.
    - General housework: Use PIL of 2. No default values for frequency or duration as too variable and needs to be clarified with participant
    - Mow grass: 5 months per year, 1 day per week and 1 hour per day.
    - Laundry: 12 months per year, 1 day per week, 1 hour per day
    - Snow shoveling: 5 months per year, 2 days per month (0.5 days per week) and 0.5 hours per day.
    - Yard work: 7 months per year, 1 day per week and 2 hours per day.

Page 9 – Recreation & Leisure Activities

- Read the instructions on Page 8 and the top of Page 9 of the questionnaire. Use these guidelines to ensure that Page 9 has been filled in correctly.

- Only one activity can be entered on each line in this section. If the person enters up to three activities on one line, separate them and assign the amount of time proportionately. For example, if the person writes "Snow shoeing/cross country skiing *4 months per year*, 1 day per week, 4 hours per time, create 2 entries: 1. Snow shoeing *2 months per year*, 1 day per week, 4 hours per time and 2. Cross country skiing *2 months per year*, 1 day per week, 4 hours per time. Note that only 1 frequency is divided in half but the other frequency and duration are left as entered.

- If there are more than 3 activities listed on one line, use the *Combined Activity* codes, according to the average of the MET levels of the activities, with reference to the PIL.

- Code the Recreation & Leisure Activities that the respondent has listed according to the Recreation and Leisure Codes reference sheet. If an activity is not listed, but can be found in the Physical Activity Compendium and you feel it is appropriate, check with a supervisor about adding the activity to the sheet.

- Note that you cannot use the code number assigned to occupations for recreation activities and vice versa. If an occupation code needs to be used for recreation, a new *specific* code number needs to be assigned.

- The Months per Year column should be left blank if the Frequency information specifies that the activity happens "x days per year".

- If the respondent completes the Physical Intensity Level field with a range of 2 levels (e.g. 3-4), always choose the lower of the values to assign the code. If a range of more than 2 levels is given, choose the mean level.

- Ensure that the total number of months, days, and hours for each activity and that the total numbers for the activities in combination with employment and household activities make sense – if not, clarify with participant. (Keep in mind the guidelines of 14 hours per day maximum for this section and 16 hours per day overall.)

- Use the ***'general'*** code for a given activity if the person does not give enough information to be able to choose a more specific code from that category.

    - For example, for '**golfing**', choose 'golfing general, walking and carrying clubs, code 49' unless the person specifies something like 'golfing using a power cart' or 'golfing pulling clubs'.

    - If '**aerobics**', choose 'aerobics, general', code 1 unless the person specifies high, low or step aerobics.

    - Other common 'general codes' such as **fishing**, general' are highlighted.

    - If a person indicates they take part in a sport that has a competitive level, such as **badminton or soccer or swimming**, use the **general or casual** codes unless the word 'competitive' is recorded.

- When coding an activity that has more than one possible level of activity with ***PILs assigned,*** code the activity according to the Physical Intensity Level (PIL) given by the respondent, rather than by the 'general' code. Specifically, this coding refers to the following categories:

    - Arts and crafts

- Bicycling
- Bicycling, stationary
- Calisthenics
- Horseback riding
- Hunting
- Rowing machines etc.
- Skating, ice
- Skiing, cross country
- Skiing, downhill
- Swimming
- Volleyball
- Walking
- Weight lifting

Other recreation decisions and guidelines

- **Accordion playing and karaoke singing:** Use the very light combined code 169.

- **Air hockey:** code as 137 for ping-pong.

- **Aqua karate**: code as Aquacize, 160.

- **Arts and crafts** codes 201, 202 and 203: Use for *standing* recreational activities such as painting, making metal sculptures etc. (Keep 'around the home/shop' activities like woodworking or hobbies such as amateur radio activities in the Household/Do-it-Yourself category). Note: the arts and crafts codes are only used for activities that must be done **standing.** Do not include activities such as quilting, sewing, crocheting unless the participant states she does one in a standing position.

- **Ball:** Assume it refers to 'softball or baseball'

- **Ball exercise:** Use calisthenics according to the PIL.

- **Bird watching**: Use a slow walking code (145)

- **Bocci ball**: Use lawn bowling, code 103.

- **Bones games** (non-seated): Use children's games, code 27 or consider a combined code.

- **Camping combinations**: If someone writes 'fishing/camping 10 days a year, 4 hours a day', handle as follows. Assign a code for 'fishing' at 10 days a year, 4 hours a day. In addition, add a line for 'camping' and assign a camping code at 10 days a year, 8 hours a day (12 hours maximum for camping minus the 4 hours of fishing). This splitting of the information provided gives the person credit for the camping part. Note: assign a PIL of 2 for the new camping line.

- **Cardio**: Use the "aerobics" code.

- **Climbing stairs:** Follow the same rule as for 'stair master/treadmill'. If the PIL if 3-4 or 4, use code 130. If the PIL is less, assign a walking code.

- **Combined Activity Codes:** Use for activities that include a range of movements that are not easily classified. Very light = MET 2; light = MET 4; moderate = MET 6 and heavy = MET 8.

- **Cross training**: Use circuit training.

- **Cycling** or **bicycling**: are not stationary unless specified.

- **Dancing:** Use code 33 for 'dancing, general' unless the type of dancing is specified.

- **Dog walking:** Use the walking codes according to the PIL. Use 191 for all other playing with animals.

- **Ergometers (**all stationary exercise machines except for treadmill, Stairmaster and Nordic trainers, which have their own codes): An example is the "Gazelle". Use stationary ergometers, codes 83-85, according to the PIL.

- **Exercise:** Use either the Calisthenics codes or Health club exercise general, depending on how long the person exercises for. As a guideline, if the interval is 15 minutes or less, use the Calisthenics codes, according to the PIL.

- **Fly remote planes:** Use a walking code according to the PIL.

- **Foosball:** Use the combined codes, according to the PIL.

- **Gazelle:** Use Stationary Ergometer, according to PIL codes 83-85.

- **Health walker:** use treadmill with same rules according to the PIL.

- **Hockey:** If ice, floor or field is not specified, assume that it is ice hockey, code 61. Include shinny hockey.

- **Home gym or keep fit class**: Use Health Club exercise general, 58.

- **House boating:** Delete unless the person provides enough information to assign another code.

- **Interval training:** Use circuit training.

- **Kite flying:** Use combined code

- **Physiotherapy:** Refer to a supervisor. If enough information is provided, may consider coding with a "combined" code.

- **Playing with children:** Belongs on the household page unless there is a specific sport involved, in which case use Children's games, code 27.

- **Rebounder:** Use trampoline

- **Riding:** Assume it refers to horseback riding.

- **Ringette:** Use ice hockey.

- **Roller blading:** Use the 183 code (MET of 12.5) only if the person indicates a PIL of 4. Otherwise, code as 'skating, roller" code 109 if the person gives a PIL of 2 or 3.

- **Running:** Use code 95 unless a specific speed is recorded.

- **Scrambling:** Use rock climbing.

- **Shopping** as a recreational activity: Code as 145, walking at a slow pace with a PIL of 2.

- **Skiing**: Use Skiing, general, code 110 unless downhill or cross country is specified. Nordic skiing = cross-country.

- **Strollercize**: Use Jogging general code 68

- **Swimming:** Use codes 133-135 according to PIL. Code 136 would be used for competitive swimming and will only be used when competition is specified.

- **Tae Bo:** Use code 3 for high impact aerobics.

- **Telemarking:** Use downhill skiing code, according to the PIL.

- **Treadmill or Stairmaster**, use the 130 code (MET of 9) only if the person indicates a PIL of 3 - 4 or 4. Otherwise, code as a 'walking' activity according to the PIL, i.e., treadmill with PIL of 2 is 145 and treadmill with PIL of 3 is 146.

- **Tubing:** Use Combined light 170

- **Vacationing:** Do not code unless the person provides enough information to assign a walking code.

- **Water slides:** Use Combined light 170.

- **Water sports:** Use Combined code according to PIL

- **Winter survival camping** with a high PIL: Use orienteering.

- **Default values for missing fields that were used in the Department of Cancer Epidemiology and Prevention Research that can be used by other investigators at their discretion:**

    - 2 days/season: 2 days per year or 4 days per year depending on 'seasonality' of the activity. If unsure, put in review box

    - Camping: 12 hours per day if missing and maximum.
    - Golf: 5 months per year
    - Golf game (# holes not specified): 3 hours
    - Golf game 9 holes (2 hours)
    - Golf game 18 holes (4 hours)
    - Hiking 'all day': 8 hours
    - Just started: 1 month
    - Occasionally: 1 day per month
    - Weight lifting: 0.5 hours

Page 11 - Tell Us What You Think and Comments

- Enter the number that is circled. If there isn't a number selected, leave the field blank. There is no need to telephone the respondent if this question is blank.

- In general, comments are not entered. If a comment is written that accounts for no or minimal activity, requires a response or may be of interest to the study, show it to a supervisor.

Conversion of minutes to hours

Number of minutes	Proportion of hour
5 minutes	0.08 hours
10	0.17
15	0.25
20	0.33
25	0.42
30	0.50
35	0.58
40	0.67
45	0.75
50	0.83
55	0.92
60	1.0

Default Values for Missing Values

ACTIVITY	DEFAULT VALUE
OCCUPATION/TRANSPORTATION:	
Board meeting	1 meeting per month / 3 hours per meeting
Bingo volunteer	1 day per month/ 4 hours per day
Canvasser (volunteer)	1 day per year / 2 hours per day
Care giving of family members	12 hours
Casino worker (volunteer)	1 day per year / 4 hours per day
Volunteer firefighter	12 months per year, 0.5 days per week, 2 hours per day.
Workday	8 hours
Walk 1-2 blocks to work	5 minutes
HOUSEHOLD	
Childcare	12 hours per day
General housework	Use a PIL of 2 if missing – no default values for months, weeks, days or hours as too variable
Mow grass	5 months per year, 1 day per week, 1 hour per day
Laundry	12 months per year, 1 day per week, 1 hour per day
Yard work	7 months per year, 1 day per week, 2 hours per day
Snow shoveling	5 months per year, 0.5 days per week, 0.5 hours per day
RECREATION/LEISURE	
2 days/season	2 days per year or 4 days per year, depending on 'seasonality' of activity.
Camping	12 hours per day
Golf	5 months per year
Golf game (# holes not specified)	3 hours
Golf game 9 holes	2 hours
Golf game 18 holes	4 hours
'Just started'	1 month
Hiking all day	8 hours
Occasionally	Once per month
Weight lifting	0.5 hours
NOTE:	**Maximum hours per day of activity averaged over the year = 16**
	Maximum hours per section averaged over the year = 14

These values can be substituted for missing data provided they make sense in the context of the other information the participant has provided. If in doubt, contact the participant for clarification.

Occupational Codes

Description of Occupational Activity	Code	Met Level 2011	Physical Intensity Level (PIL)
Aerobics, teaching	171	6.8	3-4
Bakery, general, moderate effort	120	4	3
Bakery, light effort	121	2	2
Basketball, officiating	132	7	4
Bending, light (Use Standing - light)	50	3	1-2
Bending, light/moderate (Use Standing - light/moderate)	51	3	2
Bending, moderate (Use Standing - moderate)	52	3.5	3
Bending, moderate/heavy (Use Standing - moderate/heavy)	53	4.5	4
Bicycling, on the job	5	4	3-4
Bookbinding	150	2.3	2
Building road, hauling debris, driving heavy machinery, **coal mining**, **general**	122	6	3-4
Camping	137	2.5	2
Canoeing	140	3.5	
Carpentry, general, hammering	116	4.3	2-3
Carrying, moderate loads up stairs, moving boxes (16-40 lbs)	11	8	4
Carrying, heavy loads, such as bricks	10	8	4
Carrying, small children	15	3	2-3
Carrying, all other **(Use Walking),** Codes 80, 81, 83,85, 86 or 87 according to PIL			
Child care, sitting/kneeling - dressing, bathing, feeding, occ. lifting, light effort, **general**	16	2	2
Child care, standing- dressing, bathing, grooming, feeding, occ. lifting, light effort	17	3	2
Chop wood, split logs	177	6.3	3-4
Coaching, football, soccer, basketball, baseball, swimming, hockey, teach phys ed, softball officiating	67	4	3
Coal mining, general	173	5.5	
Construction, outside, remodeling	117	4	3-4

Crawling, Use Walking or crawling on the job 70, 71 or 72 according to PIL			
Custodial work, chambermaid, hotel housekeeper, making bed, cleaning bathroom, pushing cart	25	4	2-3
Custodial work, light effort (e.g., cleaning sink and toilet, dusting, vacuuming, light cleaning)	172	2.3	
Custodial work, general cleaning, mop/sweep, moderate effort	26	3.8	3-4
Dancing on job, (in classroom or day care)	119	4.5	3
Elder care, disabled adult, only active periods, **Home aide**	18	4	2-3
Electrical work (also used for Plumbing)	123	3.3	2-3
Farming, driving tractor or harvester, cutting hay, light effort	100	2.8	1-2
Farming, farming, feeding small animals	174	3.5	
Farming, chasing cattle or working cattle (walking or horseback), moderate effort	101	4.8	3
Farming, taking care of animals (grooming, brushing, shearing sheep, assisting with birthing, medical care, branding)	124	4.5	4
Farming, baling hay, cleaning barn, poultry work, forking, vigorous effort	102	7.8	4
Feeding horses (Use Walking – moderately, carrying light objects)	81	4.5	2
Firefighter, (use for active work when responding to fire) **general**	125	8	4
Forestry, sawing, power	151	4.5	3
Forestry, ax chopping, slow	154	5	3-4
Forestry, ax chopping, fast	155	17.5	4
Forestry, general	152	8	4
Furriery	156	4.5	2
Gardening, with heavy power tools, tilling a garden, chain saw	176	5.8	
Gardening, mowing lawn (riding mower), applying fertilizer or seeding a lawn	165	2.5	2
Gardening, walking, applying fertilizer or seeding a lawn	175	3	
Gardening, picking flowers, fruits, vegetables, picking fruit off trees, riding snow blower	166	3	2

Gardening, trimming shrubs or trees, manual cutter	184	4	
Gardening, trimming shrubs or trees, power cutter, using leaf blower, edger	167	3.5	2
Gardening, general, rake lawn, sack grass, leaves	164	4	2-3
Gardening, general, moderate effort	181	3.8	
Gardening, planting trees walking, weeding	168	4.5	2-3
Gardening, planting seedlings, shrubs, stooping, moderatre effort	183	4.3	
Gardening, digging, spading, filling garden, composting, laying sod	169	5	3
Gardening, carrying, loading or stacking wood, loading/unloading or carrying lumber	178	5.5	
Gardening, clearing brush/land, undergrowth, or ground, hauling branches, wheelbarrow chores, vigorous effort	179	6.3	
Gardening, mow lawn general,	163	5.5	3
Gardening, mowing lawn, walk, power mower, moderate or vigorous effort	180	5	
Gardening mowing lawn, hand mower	170	6	3-4
Gym classes, general	162	5.5	3
Hiking	136	6	3-4
Hauling, use Walk and Carry Codes 80, 81,83,85			
Home aide/personal care aide	18	4	2-3
Horseback riding, training horses, **general**	62	5.5	2
Horseback riding, trotting, training horses	63	5.8	3
Horseback riding, galloping, rodeo, training horses	64	7.3	4
Horse grooming	157	7.3	3
Kneeling, light (Use Standing - light)	50	3	1-2
Kneeling, light/moderate (Use Standing - light/moderate)	51	3	2
Kneeling, moderate (Use Standing - moderate)	52	3	3
Kneeling, moderate/heavy (Use Standing - moderate/heavy)	53	4.5	4
Lifting, light (Use Standing - light)	50	3.5	1-2
Lifting, light/moderate (Use Standing - light/moderate)	51	3	2
Lifting, moderate (Use Standing - moderate)	52	3.5	3

Lifting, moderate/heavy (Use Standing - moderate/heavy)	53	4.5	4
Loading/Unloading truck, part of a truck driver's tasks (standing)	115	6.5	1-2
Loading, carrying or stacking wood, loading/unloading or carrying lumber	178	5.5	3
Locksmith	141	3	2-3
Machine tooling, operating lathe, **welding, home power tools**	126	3	2-3
Masonry work, concrete	142	4.3	3-4
Masseur, masseuse (standing)	143	4	2-3
Moving, pushing heavy objects, 75 lbs or more (desks, moving van work, etc.)	20	7.5	4
Personal care aide/home aide	18	4	2-3
Plumbing, (also used for Electrical work)	123	3.3	2-3
Playing with children, only active periods, moderate	110	3.5	2-3
Playing with children, only active periods, vigorous	111	5.8	3-4
Police, riding in a squad car	146	1.3	1
Police, driving a squad car	145	2.5	1
Police, directing traffic	144	2.5	2
Police, making an arrest	147	4	3
Running, with a backpack	89	15	4
Running, general	95	8.3	4
Shoe repair, general	148	2	1-2
Shoveling, digging ditches	30	7.8	4
Shoveling, less than 10 lbs/min, light, shovel snow by hand	31	5	2
Shoveling, 10-15lbs/min, moderate	32	6.5	3
Shoveling, more than 16 lbs/min, heavy	33	8.8	4
Sitting, light office work, lab work, light hand tools, meetings, talking involved, light assembly/repair, typing, keyboarding, computer, driving to meetings, **general**	40	1.3	1
Sitting, moderate, heavy levers, riding mower/forklift, crane operation, driving vehicle, tractor, operating heavy equipment, teaching stretching or yoga	41	2.5	1
Sitting, driving **heavy** truck, bus	118	2.5	1

Snowblower, walking	182	2.5	
Soccer	138	7	3-4
Skating, pro	68	9	4
Skiing, general	139	7	
Standing or lifting or kneeling or bending**,** (bartending, store clerk, filing, xeroxing, assembling, hair dressing) **light**	50	3	1-2
Standing or lifting or kneeling or bending**,** assemble/repair heavy parts, welding, stocking, packing boxes for moving, auto repair, patient care (as in nursing), setting up chairs/furniture, **light/moderate**	51	3	2
Standing or lifting or kneeling or bending**,** assembling at a fast rate, lifting 50 lbs**., moderate**	52	3.5	3
Standing or lifting or kneeling or bending**,** lifting more than 50 lbs, masonry, painting, paper hanging, continuous lifting (10-20 lbs) with limited walking/rest, **moderate/heavy (Home power tools if PIL of 4)**	53	4.5	4
Steel mill, general (i.e. hand rolling, merchant mill rolling)	149	8.3	4
Swimming, general	133	6	3-4
Tailoring, general, machine sewing	127	2.5	2
Tailoring, cutting,	185	2.3	
Tools, using heavy power tools, e.g. pneumatic tools, jackhammers, drills, etc.	60	6.3	3-4
Tools, using heavy tools, not power tools, e.g. shovel, pick, tunnel bar, spade	61	8	4
Walking or crawling on job**,** <2.0 mph, strolling, very slow	70	2	1
Walking or crawling on job**,** <3.0 mph, not carrying anything, moderate	71	3.5	2-3
Walking or crawling on job**,** <3.5 mph, not carrying anything, brisk walking	72	4.3	4
Walking slowly**, carrying** light objects <25 lbs	80	3.5	1
Walking moderately**, carrying** light objects <25 lbs	81	4.5	2
Walking briskly, **carrying** light objects <25 lbs	82	4.8	2-3
Walking or walking downstairs or standing**, carrying** objects about 25-49 lbs, moderate, fencing for farmers & ranchers	83	5	3

Walking or walking downstairs or standing, **carrying** objects about 50-74 lbs.	84	6.5	3-4
Walking or walking downstairs or standing**, carrying** objects about 75-99 lbs, heavy	85	7.5	4
Walking or walking downstairs or standing, **carrying** objects about 100 lbs and over	86	8.5	4
Walking, upstairs, **climbing** up a ladder	87	8	4
Walking, downstairs	134	3.5	2
Walking, military pace, marching rapidly	88	8	4
Walking, pushing a wheelchair	186	3.5	
Water polo	153	10	4
Working out (as part of job, e.g., police)	135	5.5	3-4
Wrestling	159	6	3
Volunteer, cleaning church etc.	131	3.3	2-3
Volunteer, preparing food at church etc.	129	2	2
Volunteer, serving food at church etc.	128	2.5	2
Volunteer, washing dishes/cleaning kitchen at church etc.	130	3.3	2

Recreational and Leisure Codes

Description of Exercise/Sports Activity	Code	MET Value 2011*
Aerobics, general, cardio	1	7.3
Aerobics, jazzercize, slimnastics	198	6
Aerobics, low impact	2	5
Aerobics, high impact, Tae Bo	3	7.3
Aerobics, step 6-8" step	196	7.5
Aerobics, step 10-12" step	197	9.5
Animals, run/play (not walk dog)	191	4
Aquacize, water calisthenics, water aerobics	160	5.5
Archery (non-hunting)	4	4.3
Arts and crafts, standing, **light** **PIL2**	201	2.5
Arts and crafts, standing, **moderate** **PIL3**	202	3.3
Arts and crafts, standing, **vigorous** **PIL4**	203	3.5
Backpacking	5	7
Badminton, general, social, singles and doubles	6	5.5
Badminton, competitive	7	7
Basketball, game	8	8
Basketball, nongame, general	9	6
Basketball, shooting baskets	10	4.5
Basketball, wheelchair	11	7.8
Baton twirling, playing instrument in marching band	207	4
Bicycling, mountain, general	210	8.5
Bicycling, general	211	7.5
Bicycling, light **PIL2**	12	4
Bicycling, moderate effort **PIL3**	13	8
Bicycling, vigorous effort **PIL4**	14	10
Bicycling, stationary, general **PIL2**	15	7
Bicycling, stationary, (101-160 watts) moderate effort **PIL3**	16	8.8
Bicycling, stationary, vigorous effort **PIL4**	17	11
Bicycling, stationary, RPM/Spin bike class	223	8.5
Billiards	18	2.5
Boating, power	167	2.5
Bootcamp, army type exercise	221	5
Bowling	19	3
Boxing, in ring, general	20	12.8

Boxing, punching bag	21	5.5
Boxing, sparring	22	7.8
Broomball	182	7
Calisthenics, light or moderate (home exercise, going up and down from floor, general, ball exercises) **PIL 2-3**	23	3.5
Calisthenics, heavy or vigorous (pushups, pullups, situps, jumping jacks) **PIL3- 4**	24	8
Camping	189	2.5
Canoeing, rowing for pleasure, general	199	3.5
Canoeing, on camping trip	25	4
Canoeing, rowing, in competition, or crew or sculling	26	12
Cheerleading	209	6
Children's games (hopscotch, 4-square, dodgeball, playground apparatus, t-ball, tetherball, marbles, jacks, arcade games)	27	5.8
Circuit training, general with aerobics & some min rest, circuit, curves, interval	28	8
Coaching (football, soccer, basketball, baseball, swimming, etc.)	29	4
Combined, uncoded activity, **v. light PIL2**	169	2
Combined, uncoded activity, **light PIL2**	170	4
Combined, uncoded activity, **mod. PIL3**	171	6
Combined, uncoded activity**, heavy PIL4**	172	8
Cricket (batting, bowling)	30	4.8
Croquet	31	3.3
Curling, floor curling	32	4
Curves ™	222	3.5
Dancing, general, (Greek, Middle Eastern, Flamenco, belly, swing)	33	4.5
Dancing, slow (ballroom dancing such as foxtrot, waltz)	34	3
Dancing, fast (disco, folk, square, line, Irish step, polka, country)	35	7.8
Dancing, (ballet or modern, jazz, tap, twist, jitterbug)	192	5
Darts, wall or lawn	36	2.5
Deepwater running or water jogging	161	9.8
Diving	37	3
Drag racing, pushing or driving a car	38	6

Elliptical trainer, moderate effort	212	5
Fencing	39	6
Fishing, sitting (fishing from a boat)	40	2
Fishing, general	195	3.5
Fishing, standing (fishing standing from a riverbank)	41	3.5
Fishing walking (fishing from a riverbank and walking)	42	4
Fishing, in stream (in waders)	43	6
Fishing, ice	200	2
Football, competitive	44	8
Football, touch, flag, general	45	8
Football / baseball, playing catch	46	2.5
Frisbee playing, general	**47**	**3**
Frisbee, ultimate	48	8
Golf, general	214	4.8
Golf, walking and carrying clubs	49	4.3
Golf, walking and pulling clubs	50	5.3
Golf, miniature, driving range	51	3
Golf, using power cart	53	3.5
Gymnastics, general	54	3.8
Gym classes, general	162	5.5
Hacky Sack	188	4
Handball, general	55	12
Hang gliding	57	3.5
Health club, exercise, general	58	5.5
Hiking, cross country	59	6
Hiking, through fields and hillsides	216	5.3
Hockey, field, hand	60	7.8
Hockey, floor	186	7.8
Hockey, ice, Ringette	61	8
Horseback riding, **PIL2**	62	5.5
Horseback riding, trotting **PIL3**	63	5.8
Horseback riding, rodeo, galloping **PIL4**	64	7.3
Horseshoe pitching	180	3
Hunting, light effort, pistol shooting, trap shooting **PIL2**	65	2.5
Hunting, moderate effort **PIL3**	66	5
Hunting, heavy effort **PIL4**	67	6
Jogging, general**,** strollercize	68	7

Jogging / walking combination (jogging less than 10 minutes)	69	10.3
Judo, jujitsu, karate, kick boxing, tae kwon do	70	10.3
Kayaking	71	5
Kettlebell workout, interval or continuous	228	9.8
Kickball	72	7
Lacrosse	73	8
Majorette, drum major in marching band	208	3.5
Moto-cross	74	4
Motor cycling	166	2.8
Orienteering, winter survival camping	75	9
Paddleball, competitive	76	10
Paddleball, casual, general, pickleball	**77**	**6**
Paddleboat	78	4
Paddle Board, standing	229	6
Pilates	205	3
Polo	79	8
Quading , off roading, ATV, dirt bike	187	2.5
Racketball, competitive	80	10
Racketball, general, casual	81	7
Rock or mountain climbing	82	8
Rock climbing, rappelling	215	5
Rollerblading, in-line skating **PIL4**	183	7.5
(For PIL2 or 3, use skating, roller code)		
Rope jumping, moderate, general	194	11.8
Rowing, stationary ergometer, glider, general	213	6
Rowing, stationary ergometer, glider, light effort **PIL2**	83	4.8
Rowing, stationary ergometer, glider,moderate effort, **PIL3**	84	6
Rowing, stationary ergometer, glider, elliptical trainer, vigorous effort **PIL4**	85	8.5
Rugby	86	8.3
Running (12 minutes/mile)	87	8.3
Running (11.5 minutes/mile)	88	9
Running (10 minutes/mile)	89	9.8
Running (9 minutes/mile)	90	1.05
Running (8 minutes/mile)	91	11.5
Running (7 minutes/mile)	92	12.3
Running (6 minutes/mile)	93	14.5

Running, cross country	94	9
Running, general	95	8
Running, up stairs	96	15
Running on a track, team practice	97	10
Running, training, pushing a wheelchair	98	8
Sailing, boat and board sailing, windsurfing, ice sailing, general	100	3
Sailing, in competition	101	4.5
Scuba diving, general	102	7
Shuffleboard, lawn bowling, bocci ball	103	3
Skateboarding	104	5
Skating, ice (slow, less than 9mph) **PIL2**	105	5.5
Skating, ice, moderate **PIL3**	106	7
Skating, ice (fast, > 9mph) **PIL4**	107	9
Skating, speed, competitive	108	13.3
Skating, roller **o**r rollerblading, light or moderate **(PIL 2 or 3)**	109	7
Skiing, general	110	7
Skiing, cross-country (slow or light effort, ski walking) **PIL2**	111	6.8
Skiing, cross-country (moderate speed and effort) **PIL3**	112	9
Skiing cross-country (vigorous effort, brisk speed) **PIL4**	113	12.5
Skiing, cross-country (racing)	114	15
Skiing, downhill (light effort) **PIL2**	115	4.3
Skiing downhill or snowboarding (moderate effort) **PIL3**	116	5.3
Skiing, downhill (vigorous effort, racing) **PIL4**	117	8
Ski jumping (climb up/carry skis)	118	7
Ski machine, general (e.g., Nordic trainer)	119	6.8
Sky diving	120	3.5
Sledding, tobogganing, bobsledding, luge	121	7
Snorkeling	122	5
Snow shoeing	123	5.3
Snowmobiling	165	3.5
Soccer, competitive	124	10
Soccer, casual, general	125	7
Softball or baseball, fast or slow pitch, general	126	5

Softball, officiating	127	4
Softball, pitching	128	6
Squash	129	12
Stair-treadmill ergometer, vigorous, healthwalker, stairclimber **PIL4 or 3-4**	130	9
(For PIL 2 or 3, use walking code)		
Stretching mild, deep breathing	131	2.3
Surfing, body or board	132	3
Swimming, leisurely, **PIL2**	133	6
Swimming, moderate **PIL3**	134	5.8
Swimming, vigorous effort **PIL4**	135	9.8
Swimming, synchronized	193	8
Swimming, front crawl, fast (75 yds/min), vigorous effort or butterfly	136	13.8
Swimming, breast stroke, genral, training	232	10.3
Swimming, treading water, moderate effort	217	3.5
Table tennis, ping pong, air hockey	137	4
Tai Chi	181	3
Tennis, general	138	7.3
Tennis, doubles	139	6
Tennis, singles	140	8
Track and field, hammer throw, shot, discus	163	4
T&F, high jump, long jump, triple jump, javelin, pole vault	184	6
Track & field, hurdles	185	10
Trampoline, rebounder	141	3.5
Video game, active (e.g. WiiFit) light (e.g. Yoga) **PIL 2**	218	2.3
Video game, active (e.g. WiiFit) moderate (e.g. aerobic, resistance) **PIL3**	219	3.8
Video game, active (e.g. WiiFit) vigorous (e.g. dancing) **PIL4**	220	7.2
Video exercise workout, light (e.g. Yoga) **PIL2**	224	2.3
Video exercise workout, moderate **PIL3**	225	4
Video exercise workout, vigorous **PIL4**	226	6
Volleyball, competitive, in gym **PIL4**	142	6
Volleyball, non-competitive, 6-9 member team, general **PIL 2-3**	143	3
Volleyball, beach	144	8
Walking, slow pace **PIL 2**	145	2.8
Walking, moderate pace **PIL3**	146	3

Walking, brisk pace, power walking **PIL 4**	147	4.3
Walking, race walking, speed walking	148	6.5
Walking, uphill and carrying load <10 lbs (4.5 kg)	149	6.5
Walking, uphill and carrying load 10-20 lbs (4.5-9 kg)	150	7.3
Walking, uphill and carrying load 21-42 lbs (9.5-19 kg)	151	8.3
Walking, uphill and carrying load >42 lbs (20kg)	152	9
Walking, upstairs **PIL 4** **For PIL of 2-3, use walking codes**	164	8
Walking, pushing a stroller with child	233	4
Wallyball, general	204	7
Water polo	153	10
Water volleyball	154	3
Water skiing, jet skiing	155	6
Weight lifting, light or moderate (free weights, nautilus or universal-type), light workout, general **PIL2-3**	156	5
Weight lifting, vigorous (free weights, nautilus or universal-type), power lifting or body building **PIL4**	157	6
Whitewater rafting, kayaking or canoeing	158	5
Wrestling	159	6
Yoga, Hatha	227	2.5
Yoga, Power	206	4
Zumba, American mix	230	6.5
Zumba, Merengue, Salsa	231	7.3

- From 2011 Compendium of Physical Activity

Physical Activity Compendium 2011

2011 Compendium of Physical Activities				
PAQ CODES	**COMPENDIUM CODE**	**METS 2011**	**MAJOR HEADING**	**SPECIFIC ACTIVITY**
	01003	14.0	bicycling	bicycling, mountain, uphill, vigorous
	01004	16.0	bicycling	bicycling, mountain, competitive, racing
	01008	8.5	bicycling	bicycling, BMX
210	01009	8.5	bicycling	bicycling, mountain, general
O-5, 12	01010	4.0	bicycling	bicycling, <10 mph, leisure, to work or for pleasure (Taylor Code 115)
	01011	6.8	bicycling	bicycling, to/from work, self selected pace
	01013	5.8	bicycling	bicycling, on dirt or farm road, moderate pace
211	01015	7.5	bicycling	bicycling, general
	01018	3.5	bicycling	bicycling, leisure, 5.5 mph
	01019	5.8	bicycling	bicycling, leisure, 9.4 mph
	01020	6.8	bicycling	bicycling, 10-11.9 mph, leisure, slow, light effort
13	01030	8.0	bicycling	bicycling, 12-13.9 mph, leisure, moderate effort
14	01040	10.0	bicycling	bicycling, 14-15.9 mph, racing or leisure, fast, vigorous effort
	01050	12.0	bicycling	bicycling, 16-19 mph, racing/not drafting or > 19 mph drafting, very fast, racing general
	01060	15.8	bicycling	bicycling, > 20 mph, racing, not drafting
	01065	8.5	bicycling	bicycling, 12 mph, seated, hands on brake hoods or bar drops, 80 rpm
	01066	9.0	bicycling	bicycling, 12 mph, standing, hands on brake hoods, 60 rpm
	01070	5.0	bicycling	unicycling
218	02001	2.3	conditioning exercise	activity promoting video game (e.g., Wii Fit), light effort (e.g., balance, yoga)
219	02003	3.8	conditioning exercise	activity promoting video game (e.g., Wii Fit), moderate effort (e.g., aerobic, resistance)
220	02005	7.2	conditioning exercise	activity promoting video/arcade game (e.g., Exergaming, Dance Dance Revolution), vigorous effort
221	02008	5.0	conditioning exercise	army type obstacle course exercise, boot camp training program
15	02010	7.0	conditioning	bicycling, stationary, general

			exercise	
	02011	3.5	conditioning exercise	bicycling, stationary, 30-50 watts, very light to light effort
	02012	6.8	conditioning exercise	bicycling, stationary, 90-100 watts, moderate to vigorous effort
16	02013	8.8	conditioning exercise	bicycling, stationary, 101-160 watts, vigorous effort
17	02014	11.0	conditioning exercise	bicycling, stationary, 161-200 watts, vigorous effort
	02015	14.0	conditioning exercise	bicycling, stationary, 201-270 watts, very vigorous effort
	02017	4.8	conditioning exercise	bicycling, stationary, 51-89 watts, light-to-moderate effort
223	02019	8.5	conditioning exercise	bicycling, stationary, RPM/Spin bike class
24	02020	8.0	conditioning exercise	calisthenics (e.g., push ups, sit ups, pull-ups, jumping jacks), vigorous effort
	02022	3.8	conditioning exercise	calisthenics (e.g., push ups, sit ups, pull-ups, lunges), moderate effort
	02024	2.8	conditioning exercise	calisthenics (e.g., situps, abdominal crunches), light effort
23	02030	3.5	conditioning exercise	calisthenics, light or moderate effort, general (e.g., back exercises), going up & down from floor (Taylor Code 150)
	02035	4.3	conditioning exercise	circuit training, moderate effort
28	02040	8.0	conditioning exercise	circuit training, including kettlebells, some aerobic movement with minimal rest, general, vigorous intensity
222	02045	3.5	conditioning exercise	Curves™ exercise routines in women
212	02048	5.0	conditioning exercise	Elliptical trainer, moderate effort
157	02050	6.0	conditioning exercise	resistance training (weight lifting, free weight, nautilus or universal), power lifting or body building, vigorous effort (Taylor Code 210)
156	02052	5.0	conditioning exercise	resistance (weight) training, squats , slow or explosive effort
	02054	3.5	conditioning exercise	resistance (weight) training, multiple exercises, 8-15 repetitions at varied resistance

O-135, O-162, 58, 162	02060	5.5	conditioning exercise	health club exercise, general (Taylor Code 160)
	02061	5.0	conditioning exercise	health club exercise classes, general, gym/weight training combined in one visit
	02062	7.8	conditioning exercise	health club exercise, conditioning classes
	02064	3.8	conditioning exercise	home exercise, general
130	02065	9.0	conditioning exercise	stair-treadmill ergometer, general
	02068	12.3	conditioning exercise	rope skipping, general
213	02070	6.0	conditioning exercise	rowing, stationary ergometer, general, vigorous effort
83	02071	4.8	conditioning exercise	rowing, stationary, general, moderate effort
84	02072	7.0	conditioning exercise	rowing, stationary, 100 watts, moderate effort
85	02073	8.5	conditioning exercise	rowing, stationary, 150 watts, vigorous effort
	02074	12.0	conditioning exercise	rowing, stationary, 200 watts, very vigorous effort
119	02080	6.8	conditioning exercise	ski machine, general
	02085	11.0	conditioning exercise	slide board exercise, general
198	02090	6.0	conditioning exercise	slimnastics, jazzercise
131	02101	2.3	conditioning exercise	stretching, mild
205	02105	3.0	conditioning exercise	pilates, general
O-171	02110	6.8	conditioning exercise	teaching exercise class (e.g., aerobic, water)
	02112	2.8	conditioning exercise	therapeutic exercise ball, Fitball exercise
	02115	2.8	conditioning exercise	upper body exercise, arm ergometer
	02117	4.3	conditioning exercise	upper body exercise, stationary bicycle - Airdyne (arms only) 40 rpm, moderate
160	02120	5.3	conditioning exercise	water aerobics, water calisthenics, water exercise

	02135	1.3	conditioning exercise	whirlpool, sitting
	02140	2.3	conditioning exercise	video exercise workouts, TV conditioning programs (e.g., yoga, stretching), light effort
	02143	4.0	conditioning exercise	video exercise workouts, TV conditioning programs (e.g., cardio-resistance), moderate effort
	02146	6.0	conditioning exercise	video exercise workouts, TV conditioning programs (e.g., cardio-resistance), vigorous effort
227	02150	2.5	conditioning exercise	yoga, Hatha
206	02160	4.0	conditioning exercise	yoga, Power
	02170	2.0	conditioning exercise	yoga, Nadisodhana
	02180	3.3	conditioning exercise	yoga, Surya Namaskar
	02200	5.3	conditioning exercise	native New Zealander physical activities (e.g., Haka Powhiri, Moteatea, Waita Tira, Whakawatea, etc.), general, moderate effort
	02205	6.8	conditioning exercise	native New Zealander physical activities (e.g., Haka, Taiahab), general, vigorous effort
192	03010	5.0	dancing	ballet, modern, or jazz, general, rehearsal or class
	03012	6.8	dancing	ballet, modern, or jazz, performance, vigorous effort
	03014	4.8	dancing	tap
1	03015	7.3	dancing	aerobic, general
196	03016	7.5	dancing	aerobic, step, with 6 - 8 inch step
197	03017	9.5	dancing	aerobic, step, with 10 - 12 inch step
	03018	5.5	dancing	aerobic, step, with 4-inch step
	03019	8.5	dancing	bench step class, general
2	03020	5.0	dancing	aerobic, low impact
3	03021	7.3	dancing	aerobic, high impact
	03022	10.0	dancing	aerobic dance wearing 10-15 lb weights
O-119,33	03025	4.5	dancing	ethnic or cultural dancing (e.g., Greek, Middle Eastern, hula, salsa, merengue, bamba y plena, flamenco, belly, and swing)
	03030	5.5	dancing	ballroom, fast (Taylor Code 125)

35	03031	7.8	dancing	general dancing (e.g., disco, folk, Irish step dancing, line dancing, polka, contra, country)
	03038	11.3	dancing	ballroom dancing, competitive, general
34	03040	3.0	dancing	ballroom, slow (e.g., waltz, foxtrot, slow dancing, samba, tango, 19th century dance, mambo, cha cha)
	03050	5.5	dancing	Anishinaabe Jingle Dancing
	03060	3.5	dancing	Caribbean dance (Abakua, Beguine, Bellair, Bongo, Brukin's, Caribbean Quadrills, Dinki Mini, Gere, Gumbay, Ibo, Jonkonnu, Kumina, Oreisha, Jambu)
195	04001	3.5	fishing and hunting	fishing, general
	04005	4.5	fishing and hunting	fishing, crab fishing
	04007	4.0	fishing and hunting	fishing, catching fish with hands
	04010	4.3	fishing and hunting	fishing related, digging worms, with shovel
42	04020	4.0	fishing and hunting	fishing from river bank and walking
40	04030	2.0	fishing and hunting	fishing from boat or canoe, sitting
41	04040	3.5	fishing and hunting	fishing from river bank, standing (Taylor Code 660)
43	04050	6.0	fishing and hunting	fishing in stream, in waders (Taylor Code 670)
200	04060	2.0	fishing and hunting	fishing, ice, sitting
	04061	1.8	fishing and hunting	fishing, jog or line, standing, general
	04062	3.5	fishing and hunting	fishing, dip net, setting net and retrieving fish, general
	04063	3.8	fishing and hunting	fishing, set net, setting net and retrieving fish, general
	04064	3.0	fishing and hunting	fishing, fishing wheel, setting net and retrieving fish, general
	04065	2.3	fishing and hunting	fishing with a spear, standing
65	04070	2.5	fishing and hunting	hunting, bow and arrow, or crossbow
67	04080	6.0	fishing and	hunting, deer, elk, large game (Taylor Code

			hunting	170)
	04081	11.3	fishing and hunting	hunting large game, dragging carcass
	04083	4.0	fishing and hunting	hunting large marine animals
	04085	2.5	fishing and hunting	hunting large game, from a hunting stand, limited walking
	04086	2.0	fishing and hunting	hunting large game from a car, plane, or boat
65	04090	2.5	fishing and hunting	hunting, duck, wading
	04095	3.0	fishing and hunting	hunting, flying fox, squirrel
66	04100	5.0	fishing and hunting	hunting, general
67	04110	6.0	fishing and hunting	hunting, pheasants or grouse (Taylor Code 680)
	04115	3.3	fishing and hunting	hunting, birds
66	04120	5.0	fishing and hunting	hunting, rabbit, squirrel, prairie chick, raccoon, small game (Taylor Code 690)
	04123	3.3	fishing and hunting	hunting, pigs, wild
	04124	2.0	fishing and hunting	trapping game, general
	04125	9.5	fishing and hunting	hunting, hiking with hunting gear
65	04130	2.5	fishing and hunting	pistol shooting or trap shooting, standing
	04140	2.3	fishing and hunting	rifle exercises, shooting, lying down
	04145	2.5	fishing and hunting	rifle exercises, shooting, kneeling or standing
	05010	3.3	home activities	cleaning, sweeping carpet or floors, general
	05011	2.3	home activities	cleaning, sweeping, slow, light effort
	05012	3.8	home activities	cleaning, sweeping, slow, moderate effort
	05020	3.5	home activities	cleaning, heavy or major (e.g. wash car, wash windows, clean garage), moderate effort
	05021	3.5	home	cleaning, mopping, standing, moderate

			activities	effort
	05022	3.2	home activities	cleaning windows, washing windows, general
	05023	2.5	home activities	mopping, standing, light effort
	05024	4.5	home activities	polishing floors, standing, walking slowly, using electric polishing machine
	05025	2.8	home activities	multiple household tasks all at once, light effort
	05026	3.5	home activities	multiple household tasks all at once, moderate effort
	05027	4.3	home activities	multiple household tasks all at once, vigorous effort
	05030	3.3	home activities	cleaning, house or cabin, general, moderate effort
	05032	2.3	home activities	dusting or polishing furniture, general
	05035	3.3	home activities	kitchen activity, general, (e.g., cooking, washing dishes, cleaning up), moderate effort
	05040	2.5	home activities	cleaning, general (straightening up, changing linen, carrying out trash, light effort
	05041	1.8	home activities	wash dishes, standing or in general (not broken into stand/walk components)
	05042	2.5	home activities	wash dishes, clearing dishes from table, walking, light effort
	05043	3.3	home activities	vacuuming, general, moderate effort
	05044	3.0	home activities	butchering animals, small
	05045	6.0	home activities	butchering animal, large, vigorous effort
	05046	2.3	home activities	cutting and smoking fish, drying fish or meat
	05048	4.0	home activities	tanning hides, general
	05049	3.5	home activities	cooking or food preparation, moderate effort
	05050	2.0	home activities	cooking or food preparation - standing or sitting or in general (not broken into stand/walk components), manual appliances, light effort

	05051	2.5	home activities	serving food, setting table, implied walking or standing
	05052	2.5	home activities	cooking or food preparation, walking
	05053	2.5	home activities	feeding household animals
	05055	2.5	home activities	putting away groceries (e.g. carrying groceries, shopping without a grocery cart), carrying packages
	05056	7.5	home activities	carrying groceries upstairs
	05057	3.0	home activities	cooking Indian bread on an outside stove
	05060	2.3	home activities	food shopping with or without a grocery cart, standing or walking
	05065	2.3	home activities	non-food shopping, with or without a cart, standing or walking
	05070	1.8	home activities	ironing
	05080	1.3	home activities	knitting, sewing, light effort, wrapping presents, sitting
	05082	2.8	home activities	sewing with a machine
	05090	2.0	home activities	laundry, fold or hang clothes, put clothes in washer or dryer, packing suitcase, washing clothes by hand, implied standing, light effort
	05092	4.0	home activities	laundry, hanging wash, washing clothes by hand, moderate effort
	05095	2.3	home activities	laundry, putting away clothes, gathering clothes to pack, putting away laundry, implied walking
	05100	3.3	home activities	making bed, changing linens
	05110	5.0	home activities	maple syruping/sugar bushing (including carrying buckets, carrying wood)
	05120	5.8	home activities	moving furniture, household items, carrying boxes
	05121	5.0	home activities	moving, lifting light loads
	05125	4.8	home activities	organizing room
	05130	3.5	home	scrubbing floors, on hands and knees,

			activities	scrubbing bathroom, bathtub, moderate effort
	05131	2.0	home activities	scrubbing floors, on hands and knees, scrubbing bathroom, bathtub, light effort
	05132	6.5	home activities	scrubbing floors, on hands and knees, scrubbing bathroom, bathtub, vigorous effort
	05140	4.0	home activities	sweeping garage, sidewalk or outside of house
	05146	3.5	home activities	standing, packing/unpacking boxes, occasional lifting of lightweight household items, loading or unloading items in car, moderate effort
	05147	3.0	home activities	implied walking, putting away household items, moderate effort
	05148	2.5	home activities	watering plants
	05149	2.5	home activities	building a fire inside
	05150	9.0	home activities	moving household items upstairs, carrying boxes or furniture
	05160	2.0	home activities	standing, light effort tasks (pump gas, change light bulb, etc.)
	05165	3.5	home activities	walking, moderate effort tasks, non-cleaning (readying to leave, shut/lock doors, close windows, etc.)
	05170	2.2	home activities	sitting, playing with child(ren), light effort, only active periods
	05171	2.8	home activities	standing, playing with child(ren) light effort, only active periods
O-110	05175	3.5	home activities	walking/running, playing with child(ren), moderate effort, only active periods
O-111	05180	5.8	home activities	walking/running, playing with child(ren), vigorous effort, only active periods
O-15	05181	3.0	home activities	walking and carrying small child, child weighing 15 lbs or more
	05182	2.3	home activities	walking and carrying small child, child weighing less than 15 lbs
	05183	2.0	home activities	standing, holding child
	05184	2.5	home activities	child care, infant, general
O-16	05185	2.0	home	child care, sitting/kneeling (e.g., dressing,

			activities	bathing, grooming, feeding, occasional lifting of child), light effort, general
O-17	05186	3.0	home activities	child care, standing (e.g., dressing, bathing, grooming, feeding, occasional lifting of child), moderate effort
	05188	1.5	home activities	reclining with baby
	05189	2.0	home activities	breastfeeding, sitting or reclining
	05190	2.5	home activities	sit, playing with animals, light effort, only active periods
	05191	2.8	home activities	stand, playing with animals, light effort, only active periods
	05192	3.0	home activities	walk/run, playing with animals, general, light effort, only active periods
191	05193	4.0	home activities	walk/run, playing with animals, moderate effort, only active periods
	05194	5.0	home activities	walk/run, playing with animals, vigorous effort, only active periods
	05195	3.5	home activities	standing, bathing dog
	05197	2.3	home activities	animal care, household animals, general
O-18	05200	4.0	home activities	elder care, disabled adult, bathing, dressing, moving into and out of bed, only active periods
	05205	2.3	home activities	elder care, disabled adult, feeding, combing hair, light effort, only active periods
	06010	3.0	home repair	airplane repair
	06020	4.0	home repair	automobile body work
	06030	3.3	home repair	automobile repair, light or moderate effort
	06040	3.0	home repair	carpentry, general, workshop (Taylor Code 620)
	06050	6.0	home repair	carpentry, outside house, installing rain gutters (Taylor Code 640),carpentry, outside house, building a fence
	06052	3.8	home repair	carpentry, outside house, building a fence
	06060	3.3	home repair	carpentry, finishing or refinishing cabinets or furniture
	06070	6.0	home repair	carpentry, sawing hardwood
	06072	4.0	home repair	carpentry, home remodeling tasks, moderate effort

	06074	2.3	home repair	carpentry, home remodeling tasks, light effort
	06080	5.0	home repair	caulking, chinking log cabin
	06090	4.5	home repair	caulking, except log cabin
	06100	5.0	home repair	cleaning gutters
	06110	5.0	home repair	excavating garage
	06120	5.0	home repair	hanging storm windows
	06122	5.0	home repair	hanging sheet rock inside house
	06124	3.0	home repair	hammering nails
	06126	2.5	home repair	home repair, general, light effort
	06127	4.5	home repair	home repair, general, moderate effort
	06128	6.0	home repair	home repair, general, vigorous effort
	06130	4.5	home repair	laying or removing carpet
	06140	3.8	home repair	laying tile or linoleum,repairing appliances
	06144	3.0	home repair	repairing appliances
	06150	5.0	home repair	painting, outside home (Taylor Code 650)
	06160	3.3	home repair	painting inside house,wallpapering, scraping paint
	06165	4.5	home repair	painting, (Taylor Code 630)
	06167	3.0	home repair	plumbing, general
	06170	3.0	home repair	put on and removal of tarp - sailboat
	06180	6.0	home repair	roofing
	06190	4.5	home repair	sanding floors with a power sander
	06200	4.5	home repair	scraping and painting sailboat or powerboat
	06205	2.0	home repair	sharpening tools
	06210	5.0	home repair	spreading dirt with a shovel
	06220	4.5	home repair	washing and waxing hull of sailboat or airplane
	06225	2.0	home repair	washing and waxing car
	06230	4.5	home repair	washing fence, painting fence, moderate effort
	06240	3.3	home repair	wiring, tapping-splicing
	07010	1.0	inactivity quiet/light	lying quietly and watching television
	07011	1.3	inactivity quiet/light	lying quietly, doing nothing, lying in bed awake, listening to music (not talking or reading)
	07020	1.3	inactivity quiet/light	sitting quietly and watching television
	07021	1.3	inactivity quiet/light	sitting quietly, general

	07022	1.5	inactivity quiet/light	sitting quietly, fidgeting, general, fidgeting hands
	07023	1.8	inactivity quiet/light	sitting, fidgeting feet
	07024	1.3	inactivity quiet/light	sitting, smoking
	07025	1.5	inactivity quiet/light	sitting, listening to music (not talking or reading) or watching a movie in a theater
	07026	1.3	inactivity quiet/light	sitting at a desk, resting head in hands
	07030	0.95	inactivity quiet/light	sleeping
	07040	1.3	inactivity quiet/light	standing quietly, standing in a line
	07041	1.8	inactivity quiet/light	standing, fidgeting
	07050	1.3	inactivity quiet/light	reclining, writing
	07060	1.3	inactivity quiet/light	reclining, talking or talking on phone
	07070	1.3	inactivity quiet/light	reclining, reading
	07075	1.0	inactivity quiet/light	meditating
	08009	3.3	lawn and garden	carrying, loading or stacking wood, loading/unloading or carrying lumber, light-to-moderate effort
O-178	08010	5.5	lawn and garden	carrying, loading or stacking wood, loading/unloading or carrying lumber
	08019	4.5	lawn and garden	chopping wood, splitting logs, moderate effort
O-177	08020	6.3	lawn and garden	chopping wood, splitting logs, vigorous effort
	08025	3.5	lawn and garden	clearing light brush, thinning garden, moderate effort
O-179	08030	6.3	lawn and garden	clearing brush/land, undergrowth, or ground, hauling branches, wheelbarrow chores, vigorous effort
	08040	5.0	lawn and garden	digging sandbox, shoveling sand
	08045	3.5	lawn and garden	digging, spading, filling garden, composting, light-to-moderate effort
O-169	08050	5.0	lawn and	digging, spading, filling garden,

			garden	compositing, (Taylor Code 590)
	08052	7.8	lawn and garden	digging, spading, filling garden, composting, vigorous effort
	08055	2.8	lawn and garden	driving tractor
	08057	8.3	lawn and garden	felling trees, large size
	08058	5.3	lawn and garden	felling trees, small-medium size
O-176	08060	5.8	lawn and garden	gardening with heavy power tools, tilling a garden, chain saw
	08065	2.3	lawn and garden	gardening, using containers, older adults > 60 years
	08070	4.0	lawn and garden	irrigation channels, opening and closing ports
	08080	6.3	lawn and garden	laying crushed rock
O-169	08090	5.0	lawn and garden	laying sod
O-163	08095	5.5	lawn and garden	mowing lawn, general
O-165	08100	2.5	lawn and garden	mowing lawn, riding mower (Taylor Code 550)
O-170	08110	6.0	lawn and garden	mowing lawn, walk, hand mower (Taylor Code 570)
O-180	08120	5.0	lawn and garden	mowing lawn, walk, power mower, moderate or vigorous effort
	08125	4.5	lawn and garden	mowing lawn, power mower, light or moderate effort (Taylor Code 590)
O-182	08130	2.5	lawn and garden	operating snow blower, walking
	08135	2.0	lawn and garden	planting, potting, transplanting seedlings or plants, light effort
O-183	08140	4.3	lawn and garden	planting seedlings, shrub, stooping, moderate effort
	08145	4.3	lawn and garden	planting crops or garden, stooping, moderate effort
O-168	08150	4.5	lawn and garden	planting trees
	08160	3.8	lawn and garden	raking lawn or leaves, moderate effort
O-164	08165	4.0	lawn and garden	raking lawn (Taylor Code 600)

	08170	4.0	lawn and garden	raking roof with snow rake
O-166	08180	3.0	lawn and garden	riding snow blower
O-164	08190	4.0	lawn and garden	sacking grass, leaves
	08192	5.5	lawn and garden	shoveling dirt or mud
	08195	5.3	lawn and garden	shoveling snow, by hand, moderate effort
O-170	08200	6.0	lawn and garden	shovelling snow, by hand (Taylor Code 610)
	08202	7.5	lawn and garden	shoveling snow, by hand, vigorous effort
O-184	08210	4.0	lawn and garden	trimming shrubs or trees, manual cutter
O-167	08215	3.5	lawn and garden	trimming shrubs or trees, power cutter, using leaf blower, edge, moderate effort
O-175	08220	3.0	lawn and garden	walking, applying fertilizer or seeding a lawn, push applicator
	08230	1.5	lawn and garden	watering lawn or garden, standing or walking
	08239	3.5	lawn and garden	weeding, cultivating garden, light-to-moderate effort
O -168	08240	4.5	lawn and garden	weeding, cultivating garden (Taylor Code 580)
	08241	5.0	lawn and garden	weeding, cultivating garden, using a hoe, moderate-to-vigorous effort
O-181	08245	3.8	lawn and garden	gardening, general, moderate effort
O-166	08246	3.5	lawn and garden	picking fruit off trees, picking fruits/vegetables, moderate effort
	08248	4.5	lawn and garden	picking fruit off trees, gleaning fruits, picking fruits/vegetables, climbing ladder to pick fruit, vigorous effort
	08250	3.3	lawn and garden	implied walking/standing - picking up yard, light, picking flowers or vegetables
	08251	3.0	lawn and garden	walking, gathering gardening tools
	08255	5.5	lawn and garden	wheelbarrow, pushing garden cart or wheelbarrow
	08260	3.0	lawn and garden	yard work, general, light effort

	08261	4.0	lawn and garden	yard work, general, moderate effort
	08262	6.0	lawn and garden	yard work, general, vigorous effort
	09000	1.5	miscellaneous	board game playing, sitting
	09005	2.5	miscellaneous	casino gambling, standing
	09010	1.5	miscellaneous	card playing, sitting
	09013	1.5	miscellaneous	chess game, sitting
	09015	1.5	miscellaneous	copying documents, standing
	09020	1.8	miscellaneous	drawing, writing, painting, standing
	09025	1.0	miscellaneous	laughing, sitting
	09030	1.3	miscellaneous	sitting, reading, book, newspaper, etc.
	09040	1.3	miscellaneous	sitting, writing, desk work, typing
	09045	1.0	miscellaneous	sitting, playing traditional video game, computer game
	09050	1.8	miscellaneous	standing, talking in person, on the phone, computer, or text messaging, light effort
	09055	1.5	miscellaneous	sitting, talking in person, on the phone, computer, or text messaging, light effort
	09060	1.3	miscellaneous	sitting, studying, general, including reading and/or writing, light effort
	09065	1.8	miscellaneous	sitting, in class, general, including note-taking or class discussion
	09070	1.8	miscellaneous	standing, reading
	09071	2.5	miscellaneous	standing, miscellaneous
	09075	1.8	miscellaneous	sitting, arts and crafts, carving wood, weaving, spinning wool, light effort
	09080	3.0	miscellaneous	sitting, arts and crafts, carving wood, weaving, spinning wool, moderate effort
201	09085	2.5	miscellaneous	standing, arts and crafts, sand painting, carving, weaving, light effort
202	09090	3.3	miscellaneous	standing, arts and crafts, sand painting, carving, weaving, moderate effort
203	09095	3.5	miscellaneous	standing, arts and crafts, sand painting, carving, weaving, vigorous effort
	09100	1.8	miscellaneous	retreat/family reunion activities involving sitting, relaxing, talking, eating
	09101	3.0	miscellaneous	retreat/family reunion activities involving playing games with children
	09105	2.0	miscellaneous	touring/traveling/vacation involving riding in a vehicle
	09106	3.5	miscellaneous	touring/traveling/vacation involving walking

O-137, 189	09110	2.5	miscellaneous	camping involving standing, walking, sitting, light-to-moderate effort
	09115	1.5	miscellaneous	sitting at a sporting event, spectator
	10010	1.8	music playing	accordion, sitting
	10020	2.3	music playing	cello, sitting
	10030	2.3	music playing	conducting orchestra, standing
	10035	2.5	music playing	double bass, standing
	10040	3.8	music playing	drums, sitting
	10045	3.0	music playing	drumming (e.g., bongo, conga, benbe), moderate, sitting
	10050	2.0	music playing	flute, sitting
	10060	1.8	music playing	horn, standing
	10070	2.3	music playing	piano, sitting
	10074	2.0	music playing	playing musical instruments, general
	10077	2.0	music playing	organ, sitting
	10080	3.5	music playing	trombone, standing
	10090	1.8	music playing	trumpet, standing
	10100	2.5	music playing	violin, sitting
	10110	1.8	music playing	woodwind, sitting
	10120	2.0	music playing	guitar, classical, folk, sitting
	10125	3.0	music playing	guitar, rock and roll band, standing
207	10130	4.0	music playing	marching band, baton twirling, walking, moderate pace, general
	10131	5.5	music playing	marching band, playing an instrument, walking, brisk pace, general
208	10135	3.5	music playing	marching band, drum major, walking
	11003	2.3	occupation	active workstation, treadmill desk, walking
	11006	3.0	occupation	airline flight attendant
O-120	11010	4.0	occupation	bakery, general, moderate effort
O-121	11015	2.0	occupation	bakery, light effort
O-150	11020	2.3	occupation	bookbinding
O-122	11030	6.0	occupation	building road, driving heavy machinery
	11035	2.0	occupation	building road, directing traffic, standing
	11038	2.5	occupation	carpentry, general, light effort
O-116	11040	4.3	occupation	carpentry, general, moderate effort
	11042	7.0	occupation	carpentry, general, heavy or vigorous effort
O-10	11050	8.0	occupation	carrying heavy loads (e.g., bricks, tools)
O-11	11060	8.0	occupation	carrying moderate loads up stairs, moving boxes 25-49 lbs
O-25	11070	4.0	occupation	chambermaid, hotel housekeeper, making bed, cleaning bathroom, pushing cart

	11080	5.3	occupation	coal mining, drilling coal, rock
	11090	5.0	occupation	coal mining, erecting supports
O-173	11100	5.5	occupation	coal mining, general
	11110	6.3	occupation	coal mining, shoveling coal
	11115	2.5	occupation	cook, chef
O-117	11120	4.0	occupation	construction, outside, remodeling, new structures (e.g., roof repair, miscellaneous)
O-172	11125	2.3	occupation	custodial work, light effort (e.g., cleaning sink and toilet, dusting, vacuuming, light cleaning)
O-26	11126	3.8	occupation	custodial work, moderate effort (e.g., electric buffer, feathering arena floors, mopping, taking out trash, vacuuming)
O-123	11130	3.3	occupation	electrical work (e.g., hook up wire, tapping-splicing)
	11135	1.8	occupation	engineer (e.g., mechanical or electrical)
O-102	11145	7.8	occupation	farming, vigorous effort (e.g., baling hay, cleaning barn)
O-101	11146	4.8	occupation	farming, moderate effort (e.g., feeding animals, chasing cattle by walking and/or horseback, spreading manure, harvesting crops)
	11147	2.0	occupation	farming, light effort (e.g., cleaning animal sheds, preparing animal feed)
O-100	11170	2.8	occupation	farming, driving tasks (e.g., driving tractor or harvester)
O-174	11180	3.5	occupation	farming, feeding small animals
	11190	4.3	occupation	farming, feeding cattle, horses
	11191	4.3	occupation	farming, hauling water for animals, general hauling water,farming, general hauling water
O-124	11192	4.5	occupation	farming, taking care of animals (e.g., grooming, brushing, shearing sheep, assisting with birthing, medical care, branding), general
	11195	3.8	occupation	farming, rice, planting, grain milling activities
	11210	3.5	occupation	farming, milking by hand, cleaning pails, moderate effort
	11220	1.3	occupation	farming, milking by machine, light effort
O-125	11240	8.0	occupation	fire fighter, general
	11244	6.8	occupation	fire fighter, rescue victim, automobile accident, using pike pole

	11245	8.0	occupation	fire fighter, raising and climbing ladder with full gear, simulated fire supression
	11246	9.0	occupation	fire fighter, hauling hoses on ground, carrying/hoisting equipment, breaking down walls etc., wearing full gear
	11247	3.5	occupation	fishing, commercial, light effort
	11248	5.0	occupation	fishing, commercial, moderate effort
	11249	7.0	occupation	fishing, commercial, vigorous effort
O-155	11250	17.5	occupation	forestry, ax chopping, very fast, 1.25 kg axe, 51 blows/min, extremely vigorous effort
O-154	11260	5.0	occupation	forestry, ax chopping, slow, 1.25 kg axe, 19 blows/min, moderate effort
	11262	8.0	occupation	forestry, ax chopping, fast, 1.25 kg axe, 35 blows/min, vigorous effort
O-151	11264	4.5	occupation	forestry, moderate effort (e.g., sawing wood with power saw, weeding, hoeing)
O-152	11266	8.0	occupation	forestry, vigorous effort (e.g., barking, felling, or trimming trees, carrying or stacking logs, planting seeds, sawing lumber by hand)
O-156	11370	4.5	occupation	furriery
	11375	4.0	occupation	garbage collector, walking, dumping bins into truck
	11378	1.8	occupation	hairstylist (e.g., plaiting hair, manicure, make-up artist)
O-157	11380	7.3	occupation	horse grooming, including feeding, cleaning stalls, bathing, brushing, clipping, longeing and exercising horses
	11381	4.3	occupation	horse, feeding, watering, cleaning stalls, implied walking and lifting loads
O-64, 64	11390	7.3	occupation	horse racing, galloping
	11400	5.8	occupation	horse racing, trotting
	11410	3.8	occupation	horse racing, walking
	11413	3.0	occupation	kitchen maid
	11415	4.0	occupation	lawn keeper, yard work, general
	11418	3.3	occupation	laundry worker
O-141	11420	3.0	occupation	locksmith
O-126	11430	3.0	occupation	machine tooling (e.g., machining, working sheet metal, machine fitter, operating lathe, welding) light-to-moderate effort
	11450	5.0	occupation	Machine tooling, operating punch press,

				moderate effort
	11472	1.8	occupation	manager, property
	11475	2.8	occupation	manual or unskilled labor, general, light effort
	11476	4.5	occupation	manual or unskilled labor, general, moderate effort
	11477	6.5	occupation	manual or unskilled labor, general, vigorous effort
O-142	11480	4.3	occupation	masonry, concrete, moderate effort
	11482	2.5	occupation	masonry, concrete, light effort
O-143	11485	4.0	occupation	massage therapist, standing
O-20	11490	7.5	occupation	moving, carrying or pushing heavy objects, 75 lbs or more, only active time (e.g., desks, moving van work)
	11495	12.0	occupation	skindiving or SCUBA diving as a frogman, Navy Seal
O-41	11500	2.5	occupation	operating heavy duty equipment, automated, not driving
	11510	4.5	occupation	orange grove work, picking fruit
	11514	3.3	occupation	painting,house, furniture, moderate effort
	11516	3.0	occupation	plumbing activities
	11520	2.0	occupation	printing, paper industry worker, standing
O-144	11525	2.5	occupation	police, directing traffic, standing
O-145	11526	2.5	occupation	police, driving a squad car, sitting
O-146	11527	1.3	occupation	police, riding in a squad car, sitting
O-147	11528	4.0	occupation	police, making an arrest, standing
	11529	2.3	occupation	postal carrier, walking to deliver mail
O-148	11530	2.0	occupation	shoe repair, general
O-30	11540	7.8	occupation	shoveling, digging ditches
O-33	11550	8.8	occupation	shoveling, more than 16 lbs/minute, deep digging, vigorous effort
O-31	11560	5.0	occupation	shoveling, less than 10 lbs/minute, moderate effort
O-32	11570	6.5	occupation	shoveling, 10 to 15 lbs/minute, vigorous effort
O-40	11580	1.5	occupation	sitting tasks, light effort (e.g., office work, chemistry lab work, computer work, light assembly repair, watch repair, reading, desk work)
O-40	11585	1.5	occupation	sitting meetings, light effort, general, and/or with talking involved (e.g., eating at a business meeting)

O-41	11590	2.5	occupation	sitting tasks, moderate effort (e.g., pushing heavy levers, riding mower/forklift, crane operation)
	11593	2.8	occupation	sitting, teaching stretching or yoga, or light effort exercise class
O-50	11600	3.0	occupation	standing tasks, light effort (e.g., bartending, store clerk, assembling, filing, duplicating, librarian, putting up a Christmas tree, standing and talking at work, changing clothes when teaching physical education, standing)
O-51	11610	3.0	occupation	standing, light/moderate effort (e.g., assemble/repair heavy parts, welding,stocking parts,auto repair,standing, packing boxes, nursing patient care)
O-53	11615	4.5	occupation	standing, moderate effort, lifting items continuously, 10 – 20 lbs, with limited walking or resting
O-52	11620	3.5	occupation	standing, moderate effort, intermittent lifting 50 lbs, hitch/twisting ropes
O-53	11630	4.5	occupation	standing, moderate/heavy tasks (e.g., lifting more than 50 lbs, masonry, painting, paper hanging)
	11708	5.3	occupation	steel mill, moderate effort (e.g., fettling, forging, tipping molds)
O-149	11710	8.3	occupation	steel mill, vigorous effort (e.g., hand rolling, merchant mill rolling, removing slag, tending furnace)
O-185	11720	2.3	occupation	tailoring, cutting fabric
O-127	11730	2.5	occupation	tailoring, general
	11740	1.8	occupation	tailoring, hand sewing
O-127	11750	2.5	occupation	tailoring, machine sewing
	11760	3.5	occupation	tailoring, pressing
	11763	2.0	occupation	tailoring, weaving, light effort (e.g., finishing operations, washing, dyeing, inspecting cloth, counting yards, paperwork)
	11765	4.0	occupation	tailoring, weaving, moderate effort (e.g., spinning and weaving operations, delivering boxes of yam to spinners, loading of warp bean, pinwinding, conewinding, warping, cloth cutting)

O-115	11766	6.5	occupation	truck driving, loading and unloading truck, tying down load, standing, walking and carrying heavy loads
	11767	2.0	occupation	truck, driving delivery truck, taxi, shuttlebus, school bus
O-40	11770	1.3	occupation	typing, electric, manual or computer
O-60	11780	6.3	occupation	using heavy power tools such as pneumatic tools (e.g., jackhammers, drills)
O-61	11790	8.0	occupation	using heavy tools (not power) such as shovel, pick, tunnel bar, spade
O-70	11791	2.0	occupation	walking on job, less than 2.0 mph, very slow speed, in office or lab area
O-71	11792	3.5	occupation	walking on job, 3.0 mph, in office, moderate speed, not carrying anything
O-72	11793	4.3	occupation	walking on job, 3.5 mph, in office, brisk speed, not carrying anything
O-80	11795	3.5	occupation	walking on job, 2.5 mph, slow speed and carrying light objects less than 25 lbs
	11796	3.0	occupation	walking, gathering things at work, ready to leave
	11797	3.8	occupation	walking, 2.5 mph, slow speed, carrying heavy objects more than 25 lbs
O-81	11800	4.5	occupation	walking, 3.0 mph, moderately and carrying light objects less than 25 lbs
O-186	11805	3.5	occupation	walking, pushing a wheelchair
O-82	11810	4.8	occupation	walking, 3.5 mph, briskly and carrying objects less than 25 lbs
O-83	11820	5.0	occupation	walking or walk downstairs or standing, carrying objects about 25 to 49 lbs
O-84	11830	6.5	occupation	walking or walk downstairs or standing, carrying objects about 50 to 74 lbs
O-85	11840	7.5	occupation	walking or walk downstairs or standing, carrying objects about 75 to 99 lbs
O-86	11850	8.5	occupation	walking or walk downstairs or standing, carrying objects about 100 lbs or more
	11870	3.0	occupation	working in scene shop, theater actor, backstage employee
69	12010	6.0	running	jog/walk combination (jogging component of less than 10 minutes) (Taylor Code 180)
68	12020	7.0	running	jogging, general
	12025	8.0	running	jogging, in place
	12027	4.5	running	jogging, on a mini-tramp
	12029	6.0	running	Running, 4 mph (15 min/mile)

O-95, 87	12030	8.3	running	running, 5 mph (12 min/mile)
88	12040	9.0	running	running, 5.2 mph (11.5 min/mile)
89	12050	9.8	running	running, 6 mph (10 min/mile)
90	12060	10.5	running	running, 6.7 mph (9 min/mile)
	12070	11.0	running	running, 7 mph (8.5 min/mile)
91	12080	11.5	running	running, 7.5 mph (8 min/mile)
	12090	11.8	running	running, 8 mph (7.5 min/mile)
92	12100	12.3	running	running, 8.6 mph (7 min/mile)
	12110	12.8	running	running, 9 mph (6.5 min/mile)
93	12120	14.5	running	running, 10 mph (6 min/mile)
	12130	16.0	running	running, 11 mph (5.5 min/mile)
	12132	19.0	running	running, 12 mph (5 min/mile)
	12134	19.8	running	running, 13 mph (4.6 min/mile)
	12135	23.0	running	running, 14 mph (4.3 min/mile)
94	12140	9.0	running	running, cross country
95	12150	8.0	running	running, (Taylor code 200)
O-89,96	12170	15.0	running	running, stairs, up
97	12180	10.0	running	running, on a track, team practice
98	12190	8.0	running	running, training, pushing a wheelchair or baby carrier
	12200	13.3	running	running, marathon
	13000	2.3	self care	getting ready for bed, general, standing
	13009	1.8	self care	sitting on toilet, eliminating while standing or squating
	13010	1.5	self care	bathing, sitting
	13020	2.5	self care	dressing, undressing, standing or sitting
	13030	1.5	self care	eating, sitting
	13035	2.0	self care	talking and eating or eating only, standing
	13036	1.5	self care	taking medication, sitting or standing
	13040	2.0	self care	grooming, washing hands, shaving, brushing teeth, putting on make-up, sitting or standing
	13045	2.5	self care	hairstyling, standing
	13046	1.3	self care	having hair or nails done by someone else, sitting
	13050	2.0	self care	showering, toweling off, standing
	14010	2.8	sexual activity	active, vigorous effort
	14020	1.8	sexual activity	general, moderate effort
	14030	1.3	sexual activity	passive, light effort, kissing, hugging
	15000	5.5	sports	Alaska Native Games, Eskimo Olympics, general

4	15010	4.3	sports	archery, non-hunting
7	15020	7.0	sports	badminton, competitive (Taylor Code 450)
6	15030	5.5	sports	badminton, social singles and doubles, general
8	15040	8.0	sports	basketball, game (Taylor Code 490)
9	15050	6.0	sports	basketball, non-game, general (Taylor Code 480)
	15055	6.5	sports	basketball, general
O-132	15060	7.0	sports	basketball, officiating (Taylor Code 500)
10	15070	4.5	sports	basketball, shooting baskets
	15072	9.3	sports	basketball, drills, practice
11	15075	7.8	sports	basketball, wheelchair
18	15080	2.5	sports	billiards
19	15090	3.0	sports	bowling (Taylor Code 390)
	15092	3.8	sports	bowling, indoor, bowling alley
20	15100	12.8	sports	boxing, in ring, general
21	15110	5.5	sports	boxing, punching bag
22	15120	7.8	sports	boxing, sparring
182	15130	7.0	sports	broomball
27	15135	5.8	sports	children's games, adults playing (e.g., hopscotch, 4-square, dodgeball, playground apparatus, t-ball, tetherball, marbles, arcade games), moderate effort
209	15138	6.0	sports	cheerleading, gymnastic moves, competitive
29	15140	4.0	sports	coaching, football, soccer, basketball, baseball, swimming, etc.
	15142	8.0	sports	coaching, actively playing sport with players
30	15150	4.8	sports	cricket, batting, bowling, fielding
31	15160	3.3	sports	croquet
32	15170	4.0	sports	curling
36	15180	2.5	sports	darts, wall or lawn
38	15190	6.0	sports	drag racing, pushing or driving a car
	15192	8.5	sports	auto racing, open wheel
39	15200	6.0	sports	fencing
44	15210	8.0	sports	football, competitive
45	15230	8.0	sports	football, touch, flag, general (Taylor Code 510)
	15232	4.0	sports	football, touch, flag, light effort
46	15235	2.5	sports	football or baseball, playing catch
47	15240	3.0	sports	frisbee playing, general

48	15250	8.0	sports	frisbee, ultimate
214	15255	4.8	sports	golf, general
49	15265	4.3	sports	golf, walking, carrying clubs
51	15270	3.0	sports	golf, miniature, driving range
50	15285	5.3	sports	golf, walking, pulling clubs
53	15290	3.5	sports	golf, using power cart (Taylor Code 070)
54	15300	3.8	sports	gymnastics, general
188	15310	4.0	sports	hacky sack
55	15320	12.0	sports	handball, general (Taylor Code 520)
	15330	8.0	sports	handball, team
	15335	4.0	sports	high ropes course, multiple elements
57	15340	3.5	sports	hang gliding
60, 186	15350	7.8	sports	hockey, field
61	15360	8.0	sports	hockey, ice, general
	15362	10.0	sports	hockey, ice, competitive
O-62, 62	15370	5.5	sports	horseback riding, general
	15375	4.3	sports	horse chores, feeding, watering, cleaning stalls, implied walking and lifting loads
	15380	4.5	sports	saddling, cleaning, grooming, harnessing and unharnessing horse
O-63, 63	15390	5.8	sports	horseback riding, trotting
	15395	7.3	sports	horseback riding, canter or gallop
	15400	3.8	sports	horseback riding,walking
	15402	9.0	sports	horseback riding, jumping
	15408	1.8	sports	horse cart, driving, standing or sitting
180	15410	3.0	sports	horseshoe pitching, quoits
	15420	12.0	sports	jai alai
	15425	5.3	sports	martial arts, different types, slower pace, novice performers, practice
70	15430	10.3	sports	martial arts, different types, moderate pace (e.g., judo, jujitsu, karate, kick boxing, tae kwan do, tai-bo, Muay Thai boxing)
	15440	4.0	sports	juggling
72	15450	7.0	sports	kickball
73	15460	8.0	sports	lacrosse
	15465	3.3	sports	lawn bowling, bocce ball, outdoor
74	15470	4.0	sports	moto-cross, off-road motor sports, all-terrain vehicle, general
	15480	9.0	sports	orienteering
76	15490	10.0	sports	paddleball, competitive

77	15500	6.0	sports	paddleball, casual, general (Taylor Code 460)
79	15510	8.0	sports	polo, on horseback
80	15520	10.0	sports	racquetball, competitive
81	15530	7.0	sports	racquetball, general (Taylor Code 470)
82	15533	8.0	sports	rock or mountain climbing (Taylor Code 470) (Formerly code = 17120)
	15535	7.5	sports	rock climbing, ascending rock, high difficulty
	15537	5.8	sports	rock climbing, ascending or traversing rock, low-to-moderate difficulty
215	15540	5.0	sports	rock climbing, rappelling
	15542	4.0	sports	rodeo sports, general, light effort
	15544	5.5	sports	rodeo sports, general, moderate effort
	15546	7.0	sports	rodeo sports, general, vigorous effort
	15550	12.3	sports	rope jumping, fast pace, 120-160 skips/min
194	15551	11.8	sports	rope jumping, moderate pace, 100-120 skips/min, general, 2 foot skip, plain bounce
	15552	8.8	sports	rope jumping, slow pace, < 100 skips/min, 2 foot skip, rhythm bounce
86	15560	8.3	sports	rugby, union, team, competitive
	15562	6.3	sports	rugby, touch, non-competitive
103	15570	3.0	sports	shuffleboard
104	15580	5.0	sports	skateboarding, general, moderate effort
	15582	6.0	sports	skateboarding, competitive, vigorous effort
109	15590	7.0	sports	skating, roller (Taylor Code 360)
183	15591	7.5	sports	rollerblading, in-line skating, 14.4 km/h (9.0 mph), recreational pace
	15592	9.8	sports	rollerblading, in-line skating, 17.7 km/h (11.0 mph), moderate pace, exercise training
	15593	12.3	sports	rollerblading, in-line skating, 21.0 to 21.7 km/h (13.0 to 13.6 mph), fast pace, exercise training
	15594	14.0	sports	rollerblading, in-line skating, 24.0 km/h (15.0 mph), maximal effort
120	15600	3.5	sports	skydiving, base jumping, bungee jumping
124	15605	10.0	sports	soccer, competitive
O-138, 125	15610	7.0	sports	soccer, casual, general (Taylor Code 540)

126	15620	5.0	sports	softball or baseball, fast or slow pitch, general (Taylor Code 440)
	15625	4.0	sports	softball, practice
O-67, 127	15630	4.0	sports	softball, officiating
128	15640	6.0	sports	softball,pitching
	15645	3.3	sports	sports spectator, very excited, emotional, physically moving
129	15650	12.0	sports	squash (Taylor Code 530)
	15652	7.3	sports	squash, general
137	15660	4.0	sports	table tennis, ping pong (Taylor Code 410)
181	15670	3.0	sports	tai chi, qi gong, general
	15672	1.5	sports	tai chi, qi gong, sitting, light effort
138	15675	7.3	sports	tennis, general
139	15680	6.0	sports	tennis, doubles (Taylor Code 430)
	15685	4.5	sports	tennis, doubles
140	15690	8.0	sports	tennis, singles (Taylor Code 420)
	15695	5.0	sports	tennis, hitting balls, non-game play, moderate effort
141	15700	3.5	sports	trampoline, recreational
	15702	4.5	sports	trampoline, competitive
	15710	4.0	sports	volleyball (Taylor Code 400)
142	15711	6.0	sports	volleyball, competitive, in gymnasium
143	15720	3.0	sports	volleyball, non-competitive, 6 - 9 member team, general
144	15725	8.0	sports	volleyball, beach, in sand
O-159, 159	15730	6.0	sports	wrestling (one match = 5 minutes)
204	15731	7.0	sports	wallyball, general
163	15732	4.0	sports	track and field (e.g., shot, discus, hammer throw)
184	15733	6.0	sports	track and field (e.g., high jump, long jump, triple jump, javelin, pole vault)
185	15734	10.0	sports	track and field (e.g., steeplechase, hurdles)
	16010	2.5	transportation	automobile or light truck (not a semi) driving
	16015	1.3	transportation	riding in a car or truck
	16016	1.3	transportation	riding in a bus or train
	16020	1.8	transportation	flying airplane or helicopter
166	16030	2.8	transportation	motor scooter, motorcycle
	16035	6.3	transportation	pulling rickshaw
	16040	6.0	transportation	pushing plane in and out of hangar

O-118,187	16050	2.5	transportation	truck, semi, tractor, > 1 ton, or bus, driving
	16060	3.5	transportation	walking for transportation, 2.8-3.2 mph, level, moderate pace, firm surface
5	17010	7.0	walking	backpacking (Taylor Code 050)
	17012	7.8	walking	backpacking, hiking or organized walking with a daypack
	17020	5.0	walking	carrying 15 pound load (e.g. suitcase), level ground or downstairs
	17021	2.3	walking	carrying 15 lb child, slow walking
	17025	8.3	walking	carrying load upstairs, general
	17026	5.0	walking	carrying 1 to 15 lb load, upstairs
	17027	6.0	walking	carrying 16 to 24 lb load, upstairs
	17028	8.0	walking	carrying 25 to 49 lb load, upstairs
	17029	10.0	walking	carrying 50 to 74 lb load, upstairs
	17030	12.0	walking	carrying > 74 lb load, upstairs
	17031	3.5	walking	loading /unloading a car, implied walking
	17033	6.3	walking	climbing hills, no load
149	17035	6.5	walking	climbing hills with 0 to 9 lb load
150	17040	7.3	walking	climbing hills with 10 to 20 lb load
151	17050	8.3	walking	climbing hills with 21 to 42 lb load
152	17060	9.0	walking	climbing hills with 42+ lb load
O-134	17070	3.5	walking	descending stairs
O-136, 59	17080	6.0	walking	hiking, cross country (Taylor Code 040)
216	17082	5.3	walking	hiking or walking at a normal pace through fields and hillsides
	17085	2.5	walking	bird watching, slow walk
	17088	4.5	walking	marching, moderate speed, military, no pack
O-88	17090	8.0	walking	marching rapidly, military, no pack
233	17100	4.0	walking	pushing or pulling stroller with child or walking with children, 2.5 to 3.1 mph
O-81	17105	3.8	walking	pushing a wheelchair, non-occupational
148	17110	6.5	walking	race walking
O-87, 164	17130	8.0	walking	stair climbing, using or climbing up ladder (Taylor Code 030)
	17133	4.0	walking	stair climbing, slow pace
	17134	8.8	walking	stair climbing, fast pace
	17140	5.0	walking	using crutches
	17150	2.0	walking	walking, household
	17151	2.0	walking	walking, less than 2.0 mph, level, strolling,

				very slow
145	17152	2.8	walking	walking, 2.0 mph, level, slow pace, firm surface
	17160	3.5	walking	walking for pleasure (Taylor Code 010)
	17161	2.5	walking	walking from house to car or bus, from car or bus to go places, from car or bus to and from the worksite
	17162	2.5	walking	walking to neighbor's house or family's house for social reasons
146	17165	3.0	walking	walking the dog
	17170	3.0	walking	walking, 2.5 mph, level, firm surface
	17180	3.3	walking	walking, 2.5 mph, downhill
	17190	3.5	walking	walking, 2.8 to 3.2 mph, level, moderate pace, firm surface
147	17200	4.3	walking	walking, 3.5 mph, level, brisk, firm surface, walking for exercise
	17210	5.3	walking	walking, 2.9 to 3.5 mph, uphill, 1 to 5% grade
	17211	8.0	walking	walking, 2.9 to 3.5 mph, uphill, 6% to 15% grade
	17220	5.0	walking	walking, 4.0 mph, level, firm surface, very brisk pace
	17230	7.0	walking	walking, 4.5 mph, level, firm surface, very, very brisk
	17231	8.3	walking	walking, 5.0 mph, level, firm surface
	17235	9.8	walking	walking, 5.0 mph, uphill, 3% grade
	17250	3.5	walking	walking, for pleasure, work break
	17260	4.8	walking	walking, grass track
	17262	4.5	walking	walking, normal pace, plowed field or sand
	17270	4.0	walking	walking, to work or class (Taylor Code 015)
	17280	2.5	walking	walking, to and from an outhouse
	17302	4.8	walking	walking, for exercise, 3.5 to 4 mph, with ski poles, Nordic walking, level, moderate pace
	17305	9.5	walking	walking, for exercise, 5.0 mph, with ski poles, Nordic walking, level, fast pace
	17310	6.8	walking	walking, for exercise, with ski poles, Nordic walking, uphill
	17320	6.0	walking	walking, backwards, 3.5 mph, level
	17325	8.0	walking	walking, backwards, 3.5 mph, uphill, 5% grade
167	18010	2.5	water	boating, power, driving

			activities	
	18012	1.3	water activities	boating, power, passenger, light
	18020	4.0	water activities	canoeing, on camping trip (Taylor Code 270)
	18025	3.3	water activities	canoeing, harvesting wild rice, knocking rice off the stalks
	18030	7.0	water activities	canoeing, portaging
	18040	2.8	water activities	canoeing, rowing, 2.0-3.9 mph, light effort
	18050	5.8	water activities	canoeing, rowing, 4.0-5.9 mph, moderate effort
	18060	12.5	water activities	canoeing, rowing, kayaking, competition, >6 mph, vigorous effort
O-140, 199	18070	3.5	water activities	canoeing, rowing, for pleasure, general (Taylor Code 250)
26	18080	12.0	water activities	canoeing, rowing, in competition, or crew or sculling (Taylor Code 260)
37	18090	3.0	water activities	diving, springboard or platform
71	18100	5.0	water activities	kayaking, moderate effort
78	18110	4.0	water activities	paddle boat
100	18120	3.0	water activities	sailing, boat and board sailing, windsurfing, ice sailing, general (Taylor Code 235)
101	18130	4.5	water activities	sailing, in competition
100	18140	3.3	water activities	sailing, Sunfish/Laser/Hobby Cat, Keel boats, ocean sailing, yachting, leisure
155	18150	6.0	water activities	skiing, water or wakeboarding (Taylor Code 220)
	18160	7.0	water activities	jet skiing, driving, in water
	18180	15.8	water activities	skindiving, fast
	18190	11.8	water activities	skindiving, moderate
102	18200	7.0	water activities	skindiving, scuba diving, general (Taylor Code 310)
122	18210	5.0	water activities	snorkeling (Taylor Code 310)

132	18220	3.0	water activities	surfing, body or board, general
	18222	5.0	water activities	surfing, body or board, competitive
229	18225	6.0	water activities	paddle boarding, standing
135	18230	9.8	water activities	swimming laps, freestyle, fast, vigorous effort
134	18240	5.8	water activities	swimming laps, freestyle, front crawl, slow, light or moderate effort
	18250	9.5	water activities	swimming, backstroke, general, training or competition
	18255	4.8	water activities	swimming, backstroke, recreational
232	18260	10.3	water activities	swimming, breaststroke, general, training or competition
	18265	5.3	water activities	swimming, breaststroke, recreational
136	18270	13.8	water activities	swimming, butterfly, general
	18280	10.0	water activities	swimming, crawl, fast speed, ~75 yards/minute, vigorous effort
	18290	8.3	water activities	swimming, crawl, medium speed, ~50 yards/minute, vigorous effort
133	18300	6.0	water activities	swimming, lake, ocean, river (Taylor Codes 280, 295)
133	18310	6.0	water activities	swimming, leisurely, not lap swimming, general
	18320	7.0	water activities	swimming, sidestroke, general
193	18330	8.0	water activities	swimming, synchronized
135	18340	9.8	water activities	swimming, treading water, fast, vigorous effort
217	18350	3.5	water activities	swimming, treading water, moderate effort, general
	18352	2.3	water activities	tubing, floating on a river, general
160	18355	5.5	water activities	water aerobics, water calisthenics
O-153,153	18360	10.0	water activities	water polo
154	18365	3.0	water	water volleyball

			activities	
161	18366	9.8	water activities	water jogging
	18367	2.5	water activities	water walking, light effort, slow pace
	18368	4.5	water activities	water walking, moderate effort, moderate pace
	18369	6.8	water activities	water walking, vigorous effort, brisk pace
158	18370	5.0	water activities	whitewater rafting, kayaking, or canoeing
	18380	5.0	water activities	windsurfing, not pumping for speed
	18385	11.0	water activities	windsurfing or kitesurfing, crossing trial
	18390	13.5	water activities	windsurfing, competition, pumping for speed
	19005	7.5	winter activities	dog sledding, mushing
	19006	2.5	winter activities	dog sledding, passenger
	19010	6.0	winter activities	moving ice house, set up/drill holes
	19011	2.0	winter activities	ice fishing, sitting
	19018	14.0	winter activities	skating, ice dancing
105	19020	5.5	winter activities	skating, ice, 9 mph or less
106	19030	7.0	winter activities	skating, ice, general (Taylor Code 360)
O-68, 107	19040	9.0	winter activities	skating, ice, rapidly, more than 9 mph, not competitive
108	19050	13.3	winter activities	skating, speed, competitive
118	19060	7.0	winter activities	ski jumping, climb up carrying skis
O-139, 110	19075	7.0	winter activities	skiing, general
111	19080	6.8	winter activities	skiing, cross country, 2.5 mph, slow or light effort, ski walking
112	19090	9.0	winter activities	skiing, cross country, 4.0-4.9 mph, moderate speed and effort, general

113	19100	12.5	winter activities	skiing, cross country, 5.0-7.9 mph, brisk speed, vigorous effort
114	19110	15.0	winter activities	skiing, cross country, >8.0 mph, elite skier, racing
	19130	15.5	winter activities	skiing, cross country, hard snow, uphill, maximum, snow mountaineering
	19135	13.3	winter activities	skiing, cross-country, skating
	19140	13.5	winter activities	skiing, cross-country, biathlon, skating technique
115	19150	4.3	winter activities	skiing, downhill, alpine or snowboarding, light effort, active time only
116	19160	5.3	winter activities	skiing, downhill, alpine or snowboarding, moderate effort, general, active time only
117	19170	8.0	winter activities	skiing, downhill, vigorous effort, racing
	19175	12.5	winter activities	skiing, roller, elite racers
121	19180	7.0	winter activities	sledding, tobogganing, bobsledding, luge (Taylor Code 370)
123	19190	5.3	winter activities	snow shoeing, moderate effort
	19192	10.0	winter activities	snow shoeing, vigorous effort
165	19200	3.5	winter activities	snowmobiling, driving, moderate
	19202	2.0	winter activities	snowmobiling, passenger
	19252	5.3	winter activities	snow shoveling, by hand, moderate effort
	19254	7.5	winter activities	snow shoveling, by hand, vigorous effort
	19260	2.5	winter activities	snow blower, walking and pushing
	20000	1.3	religious activities	sitting in church, in service, attending a ceremony, sitting quietly
	20001	2.0	religious activities	sitting, playing an instrument at church
	20005	1.8	religious activities	sitting in church, talking or singing, attending a ceremony, sitting, active participation
	20010	1.3	religious activities	sitting, reading religious materials at home

	20015	1.3	religious activities	standing quietly in church, attending a ceremony
	20020	2.0	religious activities	standing, singing in church, attending a ceremony, standing, active participation
	20025	1.3	religious activities	kneeling in church or at home, praying
	20030	1.8	religious activities	standing, talking in church
	20035	2.0	religious activities	walking in church
	20036	2.0	religious activities	walking, less than 2.0 mph, very slow
	20037	3.5	religious activities	walking, 3.0 mph, moderate speed, not carrying anything
	20038	4.3	religious activities	walking, 3.5 mph, brisk speed, not carrying anything
	20039	2.0	religious activities	walk/stand combination for religious purposes, usher
	20040	5.0	religious activities	praise with dance or run, spiritual dancing in church
O-128	20045	2.5	religious activities	serving food at church
O-129	20046	2.0	religious activities	preparing food at church
O-130	20047	3.3	religious activities	washing dishes, cleaning kitchen at church
	20050	1.5	religious activities	eating at church
	20055	2.0	religious activities	eating/talking at church or standing eating, American Indian Feast days
O-131	20060	3.3	religious activities	cleaning church
	20061	4.0	religious activities	general yard work at church
O-52	20065	3.5	religious activities	standing, moderate effort (e.g., lifting heavy objects, assembling at fast rate)
	20095	4.5	religious activities	Standing, moderate-to-heavy effort, manual labor, lifting ≥ 50 lbs, heavy maintenance
	20100	1.3	religious activities	typing, electric, manual, or computer
	21000	1.5	volunteer activities	sitting, meeting, general, and/or with talking involved

	21005	1.5	volunteer activities	sitting, light office work, in general
	21010	2.5	volunteer activities	sitting, moderate work
	21015	2.3	volunteer activities	standing, light work (filing, talking, assembling)
	21016	2.0	volunteer activities	sitting, child care, only active periods
O-17	21017	3.0	volunteer activities	standing, child care, only active periods
O-110	21018	3.5	volunteer activities	walk/run play with children, moderate, only active periods
O-111	21019	5.8	volunteer activities	walk/run play with children, vigorous, only active periods
O-51	21020	3.0	volunteer activities	standing, light/moderate work (e.g., pack boxes, assemble/repair, set up chairs/furniture)
O-52	21025	3.5	volunteer activities	standing, moderate (lifting 50 lbs., assembling at fast rate)
O-53	21030	4.5	volunteer activities	standing, moderate/heavy work
O-40	21035	1.3	volunteer activities	typing, electric, manual, or computer
O-70	21040	2.0	volunteer activities	walking, less than 2.0 mph, very slow
O-71	21045	3.5	volunteer activities	walking, 3.0 mph, moderate speed, not carrying anything
O-72	21050	4.3	volunteer activities	walking, 3.5 mph, brisk speed, not carrying anything
O-80	21055	3.5	volunteer activities	walking, 2.5 mph slowly and carrying objects less than 25 lbs
O-81	21060	4.5	volunteer activities	walking, 3.0 mph moderately and carrying objects less than 25 lbs, pushing something
	21065	4.8	volunteer activities	walking, 3.5 mph, briskly and carrying objects less than 25 lbs
	21070	3.0	volunteer activities	walk/stand combination, for volunteer purposes

Guide to Data Analysis

This section describes each section of the PYTPAQ in detail and provides sample calculations for key output variables.

Sample calculations are based on the sample PYTPAQ that accompanies this document (Appendix 1).

Employment and Volunteer Activities

This section includes all jobs done for pay or on a volunteer basis. Participants record job title, types of activities performed for each job (the directions ask for three main activities), months per year that each job was done, the number of days per week a person performed that job during the year, hours per day worked, and a subjective PIL of the job.

For each activity with a range of physical intensity, e.g. "walking and carrying", the PIL is used to choose the most appropriate activity code (see PYTPAQ Occupational Codes). These activity codes are cross-referenced with the Compendium of Physical Activities to determine the MET value for each activity. Mean sedentary and non-sedentary MET values for each job are calculated by averaging the MET values for sedentary and non-sedentary activities respectively, where MET values ≤1.5 are considered sedentary, and MET values > 1.5 are considered non-sedentary. Note that time within a job is assumed to be split equally between activities.

Output variables and sample calculations:

- **Occupational sedentary hours/week (OC_Sed_Time)**
  Average weekly time spent doing employment and volunteer activities, where MET values are <=1.5.
  = Sum of [(Months per year * Days per week * Hours per day * 4.348 weeks per month *(# sedentary activities within job/ total # activities within job))/ 52.177 weeks per year], for each job

  Example from sample PYTPAQ:

  OC_Sed_time (job #1, line 1)

  = (9 mths/yr * 5 d/wk * 7.5 hrs/d * 4.348 wks/mth *(1 sedentary activity/ 3 total activities)) / 52.177 wks/yr = 9.375 hrs/wk

  OC_Sed_time (job #2, line 2) = 0.000 hrs/wk

  OC_Sed_time (job #3, line 3) = 0.000 hrs/wk

  OC_Sed_time = (9.375 + 0.000 + 0.000) hrs/wk

  = **9.375 hrs/wk**

- **Occupational non-sedentary hours/week (OC_NonSed_Time)**
  Average weekly time spent doing employment and volunteer activities, where MET values are >1.5.
  = Sum of [(Months per year * Days per week * Hours per day * 4.348 weeks per month *(# non-sedentary activities within job/ total # activities within job))/ 52.177 weeks per year], for each job

  Example from sample PYTPAQ:

  OC_NonSed_time (job #1, line 1)

  = (9 mths/yr * 5 d/wk * 7.5 hrs/d * 4.348 wks/mth *(2 non-sedentary activities within job/ 3 total activities within job)) / 52.177 wks/yr = 18.750 hrs/wk

  OC_NonSed_time (job #2, line 2) = 0.042 hrs/wk

  OC_NonSed_time (job #3, line 3) = 1.000 hrs/wk

  OC_NonSed_time = (18.750 + 0.042 + 1.000) hrs/wk

  = **19.791 hrs/wk**

- **Occupational sedentary MET hours/week (OC_Sed_mets)**
  Average weekly metabolic output from employment and volunteer activities.
  = Sum of [Mean MET value of sedentary activities * number of sedentary activities/ total # activities within a job)* Months per year * Days per week * Hours per day * 4.348 weeks per month) / 52.177 weeks per year], for each job

  Example from sample PYTPAQ:

  OC_Sed_METS (job #1, line 1) = [1.5 METs * 1 sedentary activity/ 3 total activities] * (9 mths/yr * 5 d/wk *7.5 hrs/d * 4.348 wks/mth) / 52.177 wks/yr

  = 1.5 METs * 9.375 hrs/wk = 14.062 MET hrs/wk

  OC_Sed_METS (job #2, line 2) = no non-sedentary activities = 0.000 MET hrs/wk

  OC_Sed_METS (job #3, line 3) = no non-sedentary activities = 0.000 MET hrs/wk

  OC_Sed_METS= (14.062 + 0.000 + 0.000) MET hrs/wk

  = **14.062 MET hrs/wk**

- **Occupational non-sedentary MET hours/week (OC_Sed_mets)**
  Average weekly metabolic output from employment and volunteer activities.

= Sum of [Mean MET value of non-sedentary activities * # non-sedentary activities/ total # activities within a job)* Months per year * Days per week * Hours per day * 4.348 weeks per month) / 52.177 weeks per year], for each job

Example from sample PYTPAQ:

OC_NonSed_METS (job #1, line 1) = [((3.5 METs + 3 METs)/2 activities)* 2 non-sedentary activities/ 3 total activities] * (9 mths/yr * 5 d/wk *7.5 hrs/d * 4.348 wks/mth) / 52.177 wks/yr + [3.5 METs / 3 activities] * (9 mths/yr * 5 d/wk *7.5 hrs/d * 4.348 wks/mth) / 52.177 wks/yr

= 3.25 METs * 18.750 hrs/wk = 60.937 MET hrs/wk

OC_Non Sed_METS (job #2, line 2) = 3.5 METs * 0.042 hrs/wk = 0.147 MET hrs/wk

OC_NonSed_METS (job #3, line 3) = 4.0 METs* 1.000 hrs/wk = 4.000 MET hrs/wk

OC_NonSed_METS = (60.937 + 0.147 + 4.000) MET hrs/wk

= **65.085 MET hrs/wk**

Transportation

Transportation is the time spent walking, biking, in-line skating etc. to work, but does not include recreational walking, cycling, in-line skating etc. Transportation to work uses the relevant activity codes from the Recreation/Leisure section, e.g. walking, cycling, in-line skating etc., chosen according to the self-reported PIL. These codes are then cross-referenced with the Compendium of Physical Activities to determine MET values for each activity.

Output variables and sample calculations:

- **Transportation hours/week (WBtime)**
  Average weekly time spent traveling to and from work/volunteering.
  = Sum of [(Months per year * Days per week * (Minutes per day / 60 Minutes per Hour) * 4.348 weeks per month) / 52.177 weeks per year], for each activity

  Example from sample PYTPAQ:

  WBtime = (4 mths/yr * 2 d/wk * (20 min/d / 60 min/hr) * 4.348 wks/mth) * 1 yr/52.177 wks

  = **0.222 hrs/wk**

- **Transportation MET hours/week (WBmets)**
  Average weekly metabolic output from traveling to and from work/volunteering.

= Sum of [(MET value * Months per year * Days per week * (Minutes per day / 60 Minutes per Hour) * 4.348 weeks per month) / 52.177 weeks per year], for each activity

Example from sample PYTPAQ:

WBmets = 2.5 METs * (4 mths/yr * 2 d/wk * (20 min/d / 60 min/hr) * 4.348 wks/mth) * 1 yr/52.177 wks

= **0.555 MET hrs/wk**

Household and Do-It-Yourself Activities

Household activities include housework, yard work and do-it-yourself projects (i.e. home repairs and renovations). Household activities performed while seated are not 'active' enough to be considered. The various household activities reported by respondents are not assigned specific MET values from the Compendium. Rather, the PIL reported by the participant is used to assign a MET value for calculating the household MET hours/week. PILs of 2, 3, and 4 correspond to METs of 2.5, 3.5 and 4.5 since these levels correspond to the average energy expenditure for light, moderate and heavy household and do-it-yourself activities.

Output variables and sample calculations:

- **Household hours/week (HHtime)**
  Average weekly time spent performing household and do-it-yourself activities.
  = Sum of [(Months per year * Days per week * Hours per day * 4.348 weeks per month) / 52.177 weeks per year], for each activity

  Example from sample PYTPAQ:
  HHtime (activity #1, line 1) = 11 mths/yr * 7 d/wk * 2.5 hrs/d * 4.348 wks/mth * 1 yr/52.177 wks = 16.041 hrs/wk

  HHtime (activity #2, line 2) = 0.917 hrs/wk

  HHtime (activity #3, line 3) = 0.333 hrs/wk

  HHtime (activity #4, line 4) = 0.083 hrs/wk

  HHtime

  = **17.374 hrs/wk**

- **Household MET hours/week (HHmets)**
  Average weekly metabolic output from household and do-it-yourself activities.
  = Sum of [(MET value based on self-reported PIL * Months per year * Days per week * Hours per day * 4.348 weeks per month) / 52.177 weeks per year], for each activity

Example from sample PYTPAQ:

HHmets (activity #1, line 1)

= 2.5 METs * 11 mths/yr * 7 d/wk * 2.5 hrs/d * 4.348 wks/mth * 1 yr/52.177 wks = 40.073MET hrs/wk

HHmets (activity #2, line 2)

= 3.5 METs * 0.916 hrs/wk = 3.206 MET hrs/wk

HHmets (activity #3, line 3)

= 3.5 METs * 0.333 hrs/wk = 1.166 MET hrs/wk

HHmets (activity #4, line 4)

= 3.5 METs * 0.083 hrs/wk = 0.291 MET hrs/wk

HHmets

= **44.736 MET hrs/wk**

Recreation and Leisure Activities

This section includes outdoor and indoor sports and exercise activities. Participants record the type, frequency, duration and PIL of each activity. Unlike other sections in the questionnaire, frequency can be reported as days per week, days per month, or days per year. The PIL is used to determine the most appropriate code for each activity (see PYTPAQ Recreation and Leisure Codes). These codes are then cross-referenced with the Compendium of Physical Activities to determine MET values for each activity.

Output variables and sample calculations:

- **Leisure hours/week (RECtime)**
  Average weekly time spent performing recreation and leisure activities.
  = Sum of [(Months per year * **Days per week** * Hours per day * 4.348 weeks per month) / 52.177 weeks per year], for each activity ***or***

  = Sum of [(Months per year * **Days per month** * Hours per day / 52.177 weeks per year], for each activity ***or***

  = Sum of [**Days per year** * Hours per day / 52.177 weeks per year], for each activity

Example from sample PYTPAQ:

RECtime (activity #1, line 1)

= (11 mths/yr * 2 d/wk * 0.75 hrs/d * 4.348 wks/mth) / 52 wks/yr = 1.374 hrs/wk

RECtime (activity #2, line 2) = 0.333 hrs/wk

RECtime (activity #3, line 3) = 0.385 hrs/wk

RECtime (activity #4, line 4) = 0.692 hrs/wk

RECtime (activity #5, line 5) = 0.4996 hrs/wk

RECtime

= **3.284 hrs/wk**

- **Leisure MET hours/week (RECmets)**
  Average weekly metabolic output from recreation and leisure activities.
  = Sum of [(MET value * Months per year * **Days per week** * Hours per day * 4.33 weeks per month) / 52 weeks per year], for each activity ***or***

  = Sum of [(MET value * Months per year * **Days per month** * Hours per day / 52 weeks per year], for each activity ***or***

  = Sum of [MET value * **Days per year** * Hours per day / 52 weeks per year], for each activity

  Example from sample PYTPAQ:

  RECmets (activity #1, line 1) = (6.5 METs * 11 mths/yr * 2 d/wk * 0.75 hrs/d * 4.348 wks/mth) / 52.177 wks/yr = 8.931 MET hrs/wk

  RECmets (activity #2, line 2) = 8.0 METs * 0.333 hrs/wk = 2.664 MET hrs/wk

  RECmets (activity #3, line 3) = 3.0 METs * 0.385 hrs/wk = 1.155 MET hrs/wk

  RECmets (activity #4, line 4) = 3.5 METs * 0.692 hrs/wk = 2.422 MET hrs/wk

  RECmets (activity #5, line 5) = 3.0 METs * 0.4996 hrs/wk = 1.499 MET hrs/wk

  RECmets

  = **16.671 MET hrs/wk**

Total Non-Sedentary Activity

The non-sedentary hours/week and MET hours/week for each subsection are summed to derive two final variables:

- **Total non-sedentary hours/week (Total_NonSed_Time)**
  Sum of average weekly time spent active in the four categories above.

  Example from sample PYTPAQ:

  Total_NonSed_Time = (19.791 + 0.222 + 17.374 + 3.284) hrs/wk

  = **40.671 hrs/wk**

- **Total non-sedentary MET hours/week (Total_NonSed_Mets)**
  Sum of metabolic output of average weekly time spent active in the four categories above.

  Example from sample PYTPAQ:

  Total_NonSed_Mets = (65.085 + 0.555 + 44.736 + 16.671) MET hrs/wk

  = **127.047 MET hrs/wk**

Total Activity

The hours/week and MET hours/week for each subsection are summed to derive two final variables. (Note that this was not calculated in the SAS code provided.)

- **Total hours/week (Total _Time)**
  Sum of average weekly time spent active in the four categories above.

  Example from sample PYTPAQ:

  Total_ Time = (9.375 + 19.791 + 0.222 + 17.374 + 3.284) hrs/wk

  = **50.546 hrs/wk**

- **Total MET hours/week (Total_ Mets)**
  Sum of metabolic output of average weekly time spent active in the four categories above.

  Example from sample PYTPAQ:

  Total_ Mets = (14.062 + 65.085 + 0.555 + 44.736 + 16.671) MET hrs/wk

  = **141.109 MET hrs/wk**

Total Hours Spent at Low, Medium and High Intensity Activities

The sum of time spent at low (<3 MET), medium (3-6 MET) and high (>6 MET) intensity activities for all categories, i.e. occupational, household, transportation and recreational activities was estimated in three variables, according to intensity level. Note: This was not calculated within SAS code provided, but description was retained in this document for users interested in calculating these values.

- **Total low intensity hours per week (Tot_low)**
  Sum of average weekly time spent in low intensity activity.

  Example from sample PYTPAQ:

  Tot_low = 1/3 of OC line 1 + WB line 2 + HH line 1

  =(9.375 + 0.222 + 16.041) hrs/wk

  = **25.638 hrs/wk**

- **Total medium intensity hours per week (Tot_med)**
  Sum of average weekly time spent in medium intensity activity.

  Example from sample PYTPAQ:

  Tot_med = 2/3 of OC line 1 + OC line 2 + OC line 3 + HH line 2 + HH line 3 + HH line 4 + REC line 3 + REC line 4 + REC line 5

  =(18.75 + 0.042 + 1.000 + 0.917 + 0.333 + 0.083 + 0.385 + 0.692 + 0.4996) hrs/wk

  = **22.702 hrs/wk**

- **Total high intensity hours per week (Tot_high)**
  Sum of average weekly time spent in high intensity activity.

  Example from sample PYTPAQ:

  Tot_high =REC line 1 + REC line 2

  = (1.374 + 0.333) hrs/wk

  = **1.707 hrs/wk**

Table 1: Summary of Derivations for Past Year Physical Activity Assessment using the PYTPAQ

Variable Name	Description	Derivation	Units
OC_Sed_time	Average weekly time spent doing sedentary employment and volunteer activities	$\Sigma_{\text{across all jobs}}$ [months/year * days/week * hours/day * 4.348 weeks/month * (# sedentary activities within a job/ # activities within a job)* 1 year/52.177 weeks] Note that MET values ≤ 1.5 are considered sedentary, while values >1.5 are considered non-sedentary.	Hours per week
OC_Sed_mets	Average weekly metabolic output from sedentary employment and volunteer activities	$\Sigma_{\text{across all jobs}}$ [Mean MET value of sedentary activities for one job (# sedentary activities/ total # activities within a job)* months/year * days/week * hours/day * 4.348 weeks/month *1 year/52.177 weeks]	MET hours per week
OC_NonSed_time	Average weekly time spent doing non-sedentary employment and volunteer activities	$\Sigma_{\text{across all jobs}}$ [months/year * days/week * hours/day * 4.348 weeks/month * (# non-sedentary activities within a job/ # activities within a job)* 1 year/52.177 weeks]	Hours per week
OC_NonSed_mets	Average weekly metabolic output from non-sedentary employment and volunteer activities	$\Sigma_{\text{across all jobs}}$ [Mean MET value of non-sedentary activities for one job (# non-sedentary activities/ total # activities within a job)* months/year * days/week * hours/day * 4.348 weeks/month *1 year/52.177 weeks]	MET hours per week
WBtime	Average weekly time spent traveling to and from work/volunteering	$\Sigma_{\text{across all transport activities}}$ [months/year * days/week * (minutes/day / 60 minutes/hour) * 4.348 weeks/month * 1 year/52.177 weeks]	Hours per week
WBmets	Average weekly metabolic output from traveling to and from work / volunteering	$\Sigma_{\text{across all transport activities}}$ [MET value * hours/week]	MET hours per week
HHtime	Average weekly time spent performing household and do-it-yourself activities	$\Sigma_{\text{across all household activities}}$ [months/year * days/week * hours/day * 4.348 weeks/month * 1 year/52.177 weeks]	Hours per week
HHmets	Average weekly metabolic output from household and do-	$\Sigma_{\text{across all household activities}}$ [MET value based on self-reported intensity * hours/week]	MET hours

	it-yourself activities		per week
RECtime	Average weekly time spent performing recreation and leisure activities	$\Sigma_{\text{across all recreational activities}}$ [months/year * **days/week** * hours/day * 4.348 weeks/month * 1 year/52.177 weeks], or $\Sigma_{\text{across all recreational activities}}$ [months/year * **days/month** * hours/day * 1 year/52.177 weeks], or $\Sigma_{\text{across all recreational activities}}$ [**days/year** * hours/day * 1 year/52.177 weeks]	Hours per week
RECmets	Average weekly metabolic output from recreation and leisure activities	$\Sigma_{\text{across all recreational activities}}$ [MET value * hours/week]	MET hours per week
Total_NonSed_Time	Total average weekly time spent performing non-sedentary activities	Σ [Occupational non-sedentary , Transportation, Household, Recreational hours/week]	Hours per week
Total_NonSed_METS	Total average weekly metabolic output from non-sedentary activities	Σ [Occupational non-sedentary, Transportation, Household, Recreational MET hours/week]	MET hours per week
Total_time	Total average weekly time spent performing all activities	Σ [Occupational, Transportation, Household, Recreational hours/week]	Hours per week
Total_mets	Total average weekly metabolic output from all activities	Σ [Occupational, Transportation, Household, Recreational MET hours/week]	MET hours per week
Tot_low	Sum of average weekly time spent in low intensity activity	Σ [$\text{Occupational}_{<3\text{METs}}$, $\text{Transportation}_{<3\text{METs}}$, $\text{Household}_{<3\text{METs}}$, $\text{Recreational}_{<3\text{METs}}$ hours/week]	Hours per week
Tot_med	Sum of average weekly time spent in medium intensity activity	Σ [$\text{Occupational}_{3\text{-}6\text{ METs}}$, $\text{Transportation}_{3\text{-}6\text{ METs}}$, $\text{Household}_{3\text{-}6\text{ METs}}$, $\text{Recreational}_{3\text{-}6\text{ METs}}$ hours/week]	Hours per week
Tot_high	Sum of average weekly time spent in high intensity activity	Σ [$\text{Occupational}_{>6\text{ METs}}$, $\text{Transportation}_{>6\text{ METs}}$, $\text{Household}_{>6\text{ METs}}$, $\text{Recreational}_{>6\text{ METs}}$ hours/week]	Hours per week

Suggested Cleaning Checks

These suggested checks are based on experience using the PYTPAQ within the CEPR department. Future users may add or remove as necessary. Description is organized according to the SAS code supplied in the following section.

In "Part 1 (of SAS code), Data import and range" check:

-Checks of participant IDs: no duplicates, all are in tracking DB, all participants enrolled in study

-logic checks of raw variables (completeness ranges), including checking that:

-months/year are missing or between 0-12

-days/week are missing or between 0-7

-days/month are missing or between 0-31

-days/year are missing or between 0-365

-hours/day are missing or between 0-24

-that for any activity (eg household activity 2), if any of activity code, hours/day (or min/day, as appropriate), days/week, months/year, and PIL are complete, they are all complete for that activity

-that all participants in PAQ tables were all actually randomized

In "Part 2: MET conversion":

-transportation (walk/bike) activities are manually checked to ensure that they are indeed walking & biking, and that their corresponding MET values are <=1.5

-each activity code within the walk-bike, occupational, and recreational sections is checked to make sure it has a corresponding MET value

In "Part 3: Create derived variables":

-total hours and METS are calculated for each activity type & overall

In "Part 4: Check for Derived outliers":

-a histogram is generated to check for extreme outliers/ implausible values

-means & standard deviations for these variables are compared previous PAQ results, to ensure outputs are reasonable

-participants who reported >14 hrs/day for any single activity type, or >16 hrs/day total put in data set for further investigation

Derivation of Variables for Analysis

Overview

A brief overview of SAS code is provided, to facilitate the reader finding sections of interest within code. Then, full SAS code is provided. Note that input and output file names are provided based on SAS data set & library names used within the included SAS code, and will need to be modified by future users according to their data storage procedures.

Please note that definitions for the raw SAS variable names references in this code are provided in a data dictionary from the Alberta Moving Breast Cancer Study (AMBER Study) (Appendix 2). SAS variable names for derived variables correspond to those in Table 1 of this document, p 80-81.

Description:

Section 1:

- Connect to database, set up library

Section 2:

- Collect non-derived variable (studyIDs, locations, and randomization groups)
- Check that studyIDs are unique values
- Creates working data sets for modification
- Adds participants who may not be in cohort to data set of errors ("work.errors")

Section 3:

- Check ranges of raw variables:
    - 0<=days per week <= 7
    - 0<=hours per day <=24
    - 0<=months per year <=12
    - 0<=min per day <=1440
    - PIL=1,2,3,or 4 or missing

- that if one of "days/week, hr/day,mo/yr,pil, or activity code" is completed, all fields are completed
- that all participants included in table were actually randomized in study

o Outputs any abnormalities to a data set called "work.errors" with variables:

- VarName (variable name)
- Value (value of variable)
- Reason (reason it is abnormal)
- studyID (4 digit study ID)
- time (BLN or EOS)

*Input files: PAQ_BLN_v2 from the storage database *Output files: work.Errors
work.PAQ_BLN (or PAQ_EOS, etc);

****
**** Part 2: Activity codes & MET conversion **********
**********;
*Description:
-Section 1: Transportation
-check that activity codes correspond to activities that are actually walking or biking
-adds columns to data set converting activity codes to MET values for each transportation activity
-check that if activity code is complete, a MET value is assigned

-Section 2: Recreation
-adds columns to data set converting activity codes to MET values for each recreation activity
-check that if activity code is complete, a MET value is assigned

-Section 3: Occupational
-adds columns to data set converting activity codes to MET values for each occupational activity. (Note that up to 3 activities are allowed within one occupation, so up to 3 MET values are assigned)
-check that if activity code is complete, a MET value is assigned

-Section 4: Household
-adds columns to data set indicating MET value for each activity, based on PIL.
-check that if PIL complete, a MET value is assigned

*Inputs: work.PAQ_BLN
*Outputs:
Additional rows within to the work.Errors data set
Additional MET value columns within the work.PAQ_BLN data set

****
**** Part 3: Create Derived Variables **********
**********;
*Sections of part 3 are:
Section 1: -Calculate derived household variables: Household Hrs/week & MET Hrs/week

Section 2: -Calculate derived transportation (aka Walk/ bike, or "WB") variables: Transportation Hrs/week & MET Hrs/week

Section 3: -Calculate derived occupational variables: Non-sedentary occupational hrs/week, sedentary occupational hrs/week, non-sedentary occupational mets/week, and sedentary occupational mets/week

Section 4: -Calculate derived recreational variables: Recreational hrs/week and recreational mets/week

Section 5: Combine derived variables into one data set

Note: Derived variables at each time point are (BLN are provided here as an example, but would be the same for other time points):

SEDENTARY OCCUPATIONAL ACTIVITY:
-OC_Sed_timeBLN= sedentary occupational activity at BLN (hours/week)
-OC_Sed_metsBLN= sedentary occupational activity at BLN (MET hours/week)

NON-SEDENTARY OCCUPATIONAL ACTIVITY:
-OC_NonSed_timeBLN= non-sedentary occupational activity at BLN (hours/week)
-OC_NonSed_metsBLN= non-sedentary occupational activity at BLN (MET hours/week)
-fulltime_BLN --> indicator variable taking value 1 if participant works >= 35 hrs/week, or 0 if < 35hrs/week

HOUSEHOLD ACTIVITY:
-HHtimeBLN= household activity at BLN (hours/week)
-HHmetsBLN= household activity at BLN (MET hours/week)

RECREATIONAL ACTIVITY:
-RECtimeBLN= recreational activity at BLN (hours/week)

-RECmetsBLN= recreational activity at BLN (MET hours/week)

TRANSPORTATION (WALK/BIKE) ACTIVITY:
-WBtimeBLN= transportation activity at BLN (hours/week)
-WBmetsBLN= transportation activity at BLN (MET hours/week)

*Inputs: work.PAQ_BLN
work.Errors
*Outputs: Additional rows within work.Errors
work.Derived_BLN (or Derived_EOS, etc) -- a data set of derived variables

****
**** Part 4: Check for derived outliers **********
**********;

*Description:
Section 1:
-calculate grand total reported hours, & grand total mets, total non-sedentary reported hours, and total (sedentary + non sedentary) occupational hours
-Examine Histograms of all derived variables
-Calculate mean, median, and SD of derived variables for comparison to my previous derived variables, to make sure I haven't made calculation errors in writing this code

Section 2:
-Flag participants who reported >=14hrs/day per section of activity or >=16hrs/day total, add to work.errors data set

*Inputs: "Derived_BLN" (or other "derived_EOS", etc, created in Part 3)

*Outputs:
-Additional rows within to file "work.Errors"
-Derived_BLN2, a data set similar to Derived_BLN with additional columns of total time/ MET variables

****
**** Part 5: Save data sets to permanent locations **********
**********;
*Description:
Section 1: This section should be run after "first round" of cleaning
-Saves data set of errors to K drive for examination/ correction by study staff
-saves data set of derived variables to K drive for later reference. (Not saved to SQL because this is not the "final" data set.)

Section 2: This section should be run after "second round" of cleaning
-Saves data set of outstanding/ errors to K drive for examination/correction
-Saves "final" data set of derived variables to AMBER_Stats SQL database

Inputs: work.Errors
work.Derived_BLN & work.Derived_BLN2

Outputs:
Section 1:
Errors data set: "/your_location/Cleaning and derived variables--pre-cleaning/PAQ_PreCleaning_Errors_Dec2015.xls"
Derived variables data set: "Derived_BLN" in "/your_location/Cleaning and derived variables--pre-cleaning"

Section 2:
Errors data set: "/your_location/Cleaning and derived variables--post-cleaning/PAQ_PostCleaning_Errors_Dec2015.xls"
Derived variables data set: "PAQ_derived_BLN_v2" in permenant database

SAS Code

```
*Title: PAQ Complete cleaning file;
*Author: Rachel O'Reilly
*Created: Based on BETA PAQ & previous AMBER Cleaning;
*Last updated: Jan 1, 2016;
*Project: AMBER Study;
*Software: SAS 9.2, linux platform
*Description:
```

This is a complete data cleaning program for the PAQ. MET values and activity codes corresponding to the year 2011 compendium of physical activities are used.

Overall:
Data is checked for ranges and completeness, derived variables are created, and derived variables are checked, and a data set of errors, and a data set of derived variables are saved.

Please note that this code should be run once (an initial check for errors), then errors should be corrected in Blaise or SQL, and this code should be run again on the cleaned data to ensure there are no outstanding errors that weren't caught the first round. (Of course, the input data set & results location specified in part 1, and output data sets in Part 5 should be changed for each of the two runs of this code.)

Program is parts, sections, and subsections (in order of hierarchy).

List of Contents:
Part 1: Data import and range check

Part 2: MET conversion
Part 3: Create derived variables
Part 4: Check for derived outliers
Part 5: For first round cleaning: save data set of derived variables & error report to permenant location.For second round cleaning: save data set of derived variables to amber_stats SQL database, and report of outstanding errors to permenant location.

```
************************************************
******** Part 1: Data import & Range check *********
************************************************;
```

Description:

-Section 1: -Connect to database, set up library

-Section 2: -Collect non-derived variable (studyIDs, locations, and randomization groups)
-Check that studyIDs are unique values
-Creates working data sets for modification

-Adds participants who may not be in cohort to data set of errors ("work.errors")

-Section 3: -Check ranges of raw variables:
-0<=days per week <= 7
-0<=hours per day <=24
-0<=months per year <=12
-0<=min per day <=1440
-PIL=1,2,3,or 4 or missing
-that if one of "days/week, hr/day,mo/yr,pil, or activity code" is completed, all fields are completed
-that all participants included in table were actually randomized in study
-outputs any abnormalities to a data set called "work.errors" with variables:
-VarName (variable name)
-Value (value of variable)
-Reason (reason it is abnormal)
-studyID (4 digit study ID)
-time (BLN or EOS)

*Input files: PAQ_BLN_v2 in the AMBER_R database

*Output files: work.Errors
work.PAQ_BLN (or PAQ_EOS, etc);

```
************************************************
****** Part 1.Section 1: Connect to database *******
************************************************;
```

```
%include “Connection_File_For_Your_DB.sas";

libname AMBER; /*your details to connect*/
run;

libname AMBERR ; /*your details to connect*/
run;

libname AM_stats ; /*your details to connect*/
run;

libname Results '/your location/PAQ/Cleaning and derived variables-- pre-cleaning';
run;

%let outloc=/ your location /PAQ/Cleaning and derived variables-- pre-cleaning;

%let outlocPost=/your location /PAQ/Cleaning and derived variables-- post-cleaning;

options mprint;
*************************************************************
**** Part 1. Section 2: Create data set, and check studyIDs *
*************************************************************;

*Set up data;
*The input file (which becomes "work.PAQ_BLN") needs to be changed based on whether this is first or
second round of cleaning. Presently "AmberR.PaQ_BLN_v2" is used, for the first round of cleaning;
data PAQ_BLN;
        set AmberR.PAQ_BLN_v2;
run;

*Create data set in which to store errors discovered during cleaning;
proc sql;
        create table Errors(studyID num, VarName char(40),value num, reason char(60), time char(10));
quit;

* Creating location variable: participant IDs <2000 indicate Calgary, >5000 indicate Edmonton;
* Use macro with option for stage ('BLN'=baseline & 'EOS'=end of exercise intervention) so that code
can be used for multiple time points if needed;

%Macro RandMac(stage);
data paq1_&stage;
set PAQ_&stage;
length time $4;
time="&stage";
if studyID<2000
  then location='CAL';
if studyID>5000
  then location='EDM';
```

```
run;


*Check that study IDs are unique, create data set of duplicates and append to errors data set;

proc sort data=work.paq1_&stage out=paq1_&stage;
by studyID;
run;

data dup_&stage (keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
  set paq1_&stage;
  by studyID;
  if first.studyID and last.studyID then delete;
  varname="StudyID";
  value=StudyID;
  reason="duplicate studyID";
  time="&stage";
run;

proc append base=errors data=dup_&stage;
run;
%Mend RandMac;

%RandMac(BLN);


** Check that participants included are valid ****;
*This macro checks:
        -that all participant IDs in the PAQ file are also in the tracking DB
        -flag participant IDs where their tracking DB status indicates that they might not have become
part of study;

%Macro IDcheck(Stage);
proc sql;
        create table temp as
        select studyID, "StudyID" as Varname, studyID as value, "&stage" as time, "Not in tracking DB"
as reason
        from PAQ_&stage
        where studyID not in (select participantID from AmberR.trackingDB_v1);
quit;

proc append base=errors data=temp;
run;

proc sql;
        create table temp as
```

```
	select PAQ.studyID, "StudyID" as VarName, studyID as value, "&stage" as time, "Current status
of refusal, ineligible, or baseline pending" as reason
	from PAQ_&stage as PAQ, amberR.trackingDB_v1 as tracking
	where PAQ.studyID=tracking.participantID and (upcase(tracking.currentstatus)="REFUSAL" or
upcase(tracking.currentstatus)="INELIGIBLE" or upcase(tracking.currentstatus)="BASELINE PENDING");
quit;

proc append base=errors data=temp;
run;

%Mend IDcheck;

%IDcheck(BLN);

*************************************************************
***** Part 1: Section 3: Check ranges ******************
*************************************************************;

****** Part 1: Section 3A: Household activities ******;
*This section checks:
	-that months/year are between 0-12
	-that days/week are between 0-7
	-that hours/day are between 0-24
	-that PIL values are 2, 3, 4 or missing
	-that if a portion of an activity is complete, all of hours/day, days/week, months/year and PIL are
complete. (Incomplete values are output into "errors" data set.)
;

%Macro HHRange(stage);
	%do i=1 %to 9;
data temp (keep=studyID varname value reason time);
	length varname $40 reason $60 time $10;
	set PAQ_&stage;

	if (Hhold_acts_&i.__hmonths <= 0 and Hhold_acts_&i.__hmonths ne .) or
(Hhold_acts_&i.__hmonths > 12) then do;
   VarName = "Hhold_acts_&i.__hmonths";
   value = Hhold_acts_&i.__hmonths ;
   reason = "out of range";
   time = "&stage";
   output;
end;

	if (Hhold_acts_&i.__hdays <= 0 and Hhold_acts_&i.__hdays ne .) or (Hhold_acts_&i.__hdays > 7)
then do;
   VarName = "Hhold_acts_&i.__hdays";
   value = Hhold_acts_&i.__hdays ;
   reason = "out of range";
```

```
    time = "&stage";
    output;
end;

        if (Hhold_acts_&i.__hhours <= 0 and Hhold_acts_&i.__hhours ne .) or (Hhold_acts_&i.__hhours
> 24) then do;
    VarName = "Hhold_acts_&i.__hhours";
    value = Hhold_acts_&i.__hhours ;
    reason = "out of range";
    time = "&stage";
    output;
end;

if (Hhold_acts_&i.__hpil ne 2) and (Hhold_acts_&i.__hpil ne 3) and (Hhold_acts_&i.__hpil ne 4) and
(Hhold_acts_&i.__hpil ne .) then do;
    VarName = "Hhold_acts_&i.__hpil" ;
    value = Hhold_acts_&i.__hpil ;
    reason = "PIL not equal to 2,3, or 4";
    time= "&stage";
    output;
end;

%let NumMiss=n(Hhold_acts_&i.__hmonths,Hhold_acts_&i.__hdays, Hhold_acts_&i.__hhours,
Hhold_acts_&i.__hpil);
if (&NumMiss ne 0)  and ( &NumMiss ne 4) then do;
if Hhold_acts_&i.__hmonths = . then do;
    VarName =  "Hhold_acts_&i.__hmonths";
    value = Hhold_acts_&i.__hmonths ;
    reason = "missing data for activity &i ";
    time="&stage";
    output;
end;
if Hhold_acts_&i.__hdays = . then do;
    VarName =  "Hhold_acts_&i.__hdays";
    value = Hhold_acts_&i.__hdays ;
    reason = "missing data for activity &i ";
    time= "&stage" ;
    output;
end;
if Hhold_acts_&i.__hhours = . then do;
    VarName =  "Hhold_acts_&i.__hhours" ;
    value = Hhold_acts_&i.__hhours ;
    reason = "missing data for activity &i ";
    time= "&stage";
    output;
end;
if Hhold_acts_&i.__hpil = . then do;
    VarName =  "Hhold_acts_&i.__hpil";
```

```
    value = Hhold_acts_&i.__hpil ;
    reason = "missing data for activity &i ";
    time= "&stage";
    output;
end;
end;

proc append base=errors data=temp;
run;

%end;
%Mend HHRange;

%HHRange(BLN);

****** Part 1: Section 3B: Walk- Bike activities ******;
*This section checks:
        -that months/year are between 0-12
        -that days/week are between 0-7
        -that min/day are between 0-1440
        -that PIL values are 2, 3, 4 or missing
        -that if a portion of an activity is complete, all of activity code, hours/day, days/week,
months/year and PIL are complete. (Incomplete values are output into "errors" data set.)
;
%Macro WBRange(stage);
        %do i=1 %to 8;
data temp (keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;

        if (Walkbike_acts_&i.__WBmonths <= 0 and Walkbike_acts_&i.__WBmonths ne .) or
(Walkbike_acts_&i.__WBmonths > 12) then do;
    VarName = "Walkbike_acts_&i.__WBmonths";
    value = Walkbike_acts_&i.__WBmonths ;
    reason = "out of range";
    time = "&stage";
    output;
end;

        if (Walkbike_acts_&i.__WBdays <= 0 and Walkbike_acts_&i.__WBdays ne .) or
(Walkbike_acts_&i.__WBdays > 7) then do;
    VarName = "Walkbike_acts_&i.__WBdays";
    value = Walkbike_acts_&i.__WBdays ;
    reason = "out of range";
    time = "&stage";
    output;
end;
```

```
        if (Walkbike_acts_&i.__WBmins <= 0 and Walkbike_acts_&i.__WBmins ne .) or
(Walkbike_acts_&i.__WBmins > 1440) then do;
   VarName = "Walkbike_acts_&i.__WBmins";
   value = Walkbike_acts_&i.__WBmins ;
   reason = "out of range";
   time = "&stage";
   output;
end;

if (Walkbike_acts_&i.__WBpil ne 2) and (Walkbike_acts_&i.__WBpil ne 3) and
(Walkbike_acts_&i.__WBpil ne 4) and (Walkbike_acts_&i.__WBpil ne .) then do;
   VarName = "Walkbike_acts_&i.__WBpil" ;
   value = Walkbike_acts_&i.__WBpil ;
   reason = "PIL not equal to 2,3, or 4";
   time= "&stage";
   output;
end;

%let NumMiss=n(Walkbike_acts_&i.__WBmonths,Walkbike_acts_&i.__WBdays,
Walkbike_acts_&i.__WBmins, Walkbike_acts_&i.__WBpil, Walkbike_acts_&i.__WBactcode);
if (&NumMiss ne 0)  and ( &NumMiss ne 5) then do;
if Walkbike_acts_&i.__WBactcode = . then do;
   VarName =  "Walkbike_acts_&i.__WBactcode";
   value = Walkbike_acts_&i.__WBactcode ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Walkbike_acts_&i.__WBmonths = . then do;
   VarName =  "Walkbike_acts_&i.__WBmonths";
   value = Walkbike_acts_&i.__WBmonths ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Walkbike_acts_&i.__WBdays = . then do;
   VarName =  "Walkbike_acts_&i.__WBdays";
   value = Walkbike_acts_&i.__WBdays ;
   reason = "missing data for activity &i ";
   time= "&stage" ;
   output;
end;
if Walkbike_acts_&i.__WBmins = . then do;
   VarName =  "Walkbike_acts_&i.__WBmins" ;
   value = Walkbike_acts_&i.__WBmins ;
   reason = "missing data for activity &i ";
   time= "&stage";
   output;
```

```
end;
if Walkbike_acts_&i.__WBpil=. then do;
   VarName =  "Walkbike_acts_&i.__WBpil";
   value = Walkbike_acts_&i.__WBpil ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
end;

proc append base=errors data=temp;
run;

%end;
%Mend WBRange;

%WBRange(BLN);

****** Part 1: Section 3C: Recreational activities ******;

%Macro RecRange(stage);
        %do i=1 %to 9;
data temp (keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;

        if (Recleis_acts_&i.__Rmonths <=0 and Recleis_acts_&i.__Rmonths ne .) or
(Recleis_acts_&i.__Rmonths >12) then do;
   VarName = "Recleis_acts_&i.__Rmonths";
   value = Recleis_acts_&i.__Rmonths ;
   reason = "out of range";
   time = "&stage";
   output;
end;

        if (Walkbike_acts_&i.__WBdays <=0 and Walkbike_acts_&i.__WBdays ne .) or
(Walkbike_acts_&i.__WBdays >7) then do;
   VarName = "Walkbike_acts_&i.__WBdays";
   value = Walkbike_acts_&i.__WBdays ;
   reason = "out of range";
   time = "&stage";
   output;
end;

        if (Recleis_acts_&i.__Rhours <=0 and Recleis_acts_&i.__Rhours ne .) or
(Recleis_acts_&i.__Rhours >24) then do;
   VarName = "Recleis_acts_&i.__Rhours";
   value = Recleis_acts_&i.__Rhours ;
```

```
    reason = "out of range";
    time = "&stage";
    output;
end;

if (Recleis_acts_&i.__RPIL ne 2) and (Recleis_acts_&i.__RPIL ne 3) and (Recleis_acts_&i.__RPIL ne 4) and
(Recleis_acts_&i.__RPIL ne .) then do;
    VarName = "Recleis_acts_&i.__RPIL" ;
    value = Recleis_acts_&i.__RPIL;
    reason = "PIL not equal to 2,3, or 4";
    time= "&stage";
    output;
end;

if Recleis_acts_&i.__Frequnit=1 then do;
        if (Recleis_acts_&i.__Freq<0 and Recleis_acts_&i.__Freq ne .) or Recleis_acts_&i.__Freq >7 then
do;
                VarName= "Recleis_acts_&i.__Freq";
                value=Recleis_acts_&i.__Freq;
                reason="wrong number days per week";
                time = "&stage";
    output;
end;
end;

if Recleis_acts_&i.__Frequnit=2 then do;
        if (Recleis_acts_&i.__Freq<0 and Recleis_acts_&i.__Freq ne .) or Recleis_acts_&i.__Freq >31
then do;
                VarName= "Recleis_acts_&i.__Freq";
                value=Recleis_acts_&i.__Freq;
                reason="wrong number days per month";
                time = "&stage";
    output;
end;
end;

if Recleis_acts_&i.__Frequnit=3 then do;
        if (Recleis_acts_&i.__Freq<0 and Recleis_acts_&i.__Freq ne .) or Recleis_acts_&i.__Freq >365
then do;
                VarName= "Recleis_acts_&i.__Freq";
                value=Recleis_acts_&i.__Freq;
                reason="wrong number days per year";
                time = "&stage";
    output;
end;
if Recleis_acts_&i.__Rmonths ne . then do;
        VarName="Recleis_acts_&i.__Rmonths";
        Value=Recleis_acts_&i.__Rmonths;
```

```
        reason="both days/year and mo/year included";
        time="&stage";
        output;
end;
end;



%let NumMiss=n(Recleis_acts_&i.__Rmonths,Recleis_acts_&i.__Freq, Recleis_acts_&i.__FreqUnit,
Recleis_acts_&i.__RPIL, Recleis_acts_&i.__Ractcode,Recleis_acts_&i.__Rhours);
if (&NumMiss ne 0)  and ( &NumMiss ne 6) then do;
if Recleis_acts_&i.__Ractcode = . then do;
   VarName =  "Recleis_acts_&i.__Ractcode";
   value = Recleis_acts_&i.__Ractcode ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Recleis_acts_&i.__Rmonths = . and RecLeis_acts_&i.__FreqUnit ne 3 then do;
   VarName =  "Recleis_acts_&i.__Rmonths";
   value = Recleis_acts_&i.__Rmonths ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Recleis_acts_&i.__Freq = . then do;
   VarName =  "Recleis_acts_&i.__Freq";
   value = Recleis_acts_&i.__Freq ;
   reason = "missing data for activity &i ";
   time= "&stage" ;
   output;
end;
if Recleis_acts_&i.__FreqUnit = . then do;
   VarName =  "Recleis_acts_&i.__FreqUnit" ;
   value = Recleis_acts_&i.__FreqUnit ;
   reason = "missing data for activity &i ";
   time= "&stage";
   output;
end;
if Recleis_acts_&i.__RPIL = . then do;
   VarName =  "Recleis_acts_&i.__RPIL";
   value = Recleis_acts_&i.__RPIL ;
   reason = "missing data for activity &i ";
   time= "&stage";
   output;
end;
if Recleis_acts_&i.__Rhours = . then do;
   VarName =  "Recleis_acts_&i.__Rhours";
```

```
    value = Recleis_acts_&i.__Rhours ;
    reason = "missing data for activity &i ";
    time= "&stage";
    output;
end;
end;

proc append base=errors data=temp;
run;

%end;
%Mend RecRange;

%RecRange(BLN);

****** Part 1: Section 3D: Occupational activities ******;

%Macro OccRange(stage);
        %do i=1 %to 8;
data temp (keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;

        if (Empvol_acts_&i.__jobmonths <= 0 and Empvol_acts_&i.__jobmonths ne .) or
(Empvol_acts_&i.__jobmonths > 12) then do;
    VarName = "Empvol_acts_&i.__jobmonths";
    value = Empvol_acts_&i.__jobmonths ;
    reason = "out of range";
    time = "&stage";
    output;
end;

        if (Empvol_acts_&i.__jobdays <= 0 and Empvol_acts_&i.__jobdays ne .) or
(Empvol_acts_&i.__jobdays > 7) then do;
    VarName = "Empvol_acts_&i.__jobdays";
    value = Empvol_acts_&i.__jobdays ;
    reason = "out of range";
    time = "&stage";
    output;
end;

        if (Empvol_acts_&i.__jobhours <= 0 and Empvol_acts_&i.__jobhours ne .) or
(Empvol_acts_&i.__jobhours > 1440) then do;
    VarName = "Empvol_acts_&i.__jobhours";
    value = Empvol_acts_&i.__jobhours ;
    reason = "out of range";
    time = "&stage";
    output;
```

```
end;

if (Empvol_acts_&i.__jobPIL ne 1) and (Empvol_acts_&i.__jobPIL ne 2) and (Empvol_acts_&i.__jobPIL ne
3) and (Empvol_acts_&i.__jobPIL ne 4) and (Empvol_acts_&i.__jobPIL ne .) then do;
   VarName = "Empvol_acts_&i.__jobPIL" ;
   value = Empvol_acts_&i.__jobPIL ;
   reason = "PIL not equal to 1, 2,3, or 4";
   time= "&stage";
   output;
end;

%let NumMiss=n(Empvol_acts_&i.__jobmonths,Empvol_acts_&i.__jobdays,
Empvol_acts_&i.__jobhours, Empvol_acts_&i.__jobPIL, Empvol_acts_&i.__jobact1st);
if (&NumMiss ne 0)  and ( &NumMiss ne 5) then do;
if Empvol_acts_&i.__jobact1st = . then do;
   VarName =  "Empvol_acts_&i.__jobact1st";
   value = Empvol_acts_&i.__jobact1st ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Empvol_acts_&i.__jobmonths = . then do;
   VarName =  "Empvol_acts_&i.__jobmonths";
   value = Empvol_acts_&i.__jobmonths ;
   reason = "missing data for activity &i ";
   time="&stage";
   output;
end;
if Empvol_acts_&i.__jobdays = . then do;
   VarName =  "Empvol_acts_&i.__jobdays";
   value = Empvol_acts_&i.__jobdays ;
   reason = "missing data for activity &i ";
   time= "&stage" ;
   output;
end;
if Empvol_acts_&i.__jobhours = . then do;
   VarName =  "Empvol_acts_&i.__jobhours" ;
   value = Empvol_acts_&i.__jobhours ;
   reason = "missing data for activity &i ";
   time= "&stage";
   output;
end;
if Empvol_acts_&i.__jobPIL = . then do;
   VarName =  "Empvol_acts_&i.__jobPIL";
   value = Empvol_acts_&i.__jobPIL ;
   reason = "missing data for activity &i ";
   time= "&stage";
   output;
```

```
end;
end;

proc append base=errors data=temp;
run;

%end;
%Mend OccRange;

%OccRange(BLN);

************************************************************
**** Part 2: Activity codes & MET conversion ***************
************************************************************;
*Description:
        -Section 1: Transportation
                        -check that activity codes correspond to activities that are actually walking or
biking
                        -adds columns to data set converting activity codes to MET values for each
transportation activity
                        -check that if activity code is complete, a MET value is assigned

        -Section 2: Recreation
                        -adds columns to data set converting activity codes to MET values for each
recreation activity
                        -check that if activity code is complete, a MET value is assigned

        -Section 3: Occupational
                        -adds columns to data set converting activity codes to MET values for each
occupational activity. (Note that up to 3 activities are allowed within one occupation, so up to 3 MET
values are assigned)
                        -check that if activity code is complete, a MET value is assigned

        -Section 4: Household
                        -adds columns to data set indicating MET value for each activity, based on PIL.
                        -check that if PIL complete, a MET value is assigned


*Inputs: work.PAQ_BLN
*Outputs: Additional rows within to the work.Errors data set
                                Additional MET value columns within the work.PAQ_BLN data set

;
************************************************************
*** Part 2: Section 1: Transportation (Walk/Bike) activities ****
************************************************************;
*Checks:
        -Check that activity codes provided are actually sensible transportation codes
```

```
        -Check that MET values are >1.5
        -Check that each activity code has a corresponding MET value

*Note: Walk-bike activities use Occupational activity codes, not recreational activity codes
        ;

%macro WBCheck1(stage);
data longform1_&stage(keep=studyid Walkbike_acts_1__WBactcode Walkbike_acts_2__WBactcode
Walkbike_acts_3__WBactcode
        Walkbike_acts_4__WBactcode Walkbike_acts_5__WBactcode Walkbike_acts_6__WBactcode
Walkbike_acts_7__WBactcode Walkbike_acts_8__WBactcode );
set PAQ_&stage;
run;

proc sort data=longform1_&stage;
        by studyID;
run;

*Transpose this data set to create 1 column ('col1') with all activity codes;
proc transpose data=longform1_&stage out=longform2_&stage;
by studyid;
run;

*Find & print unique values activity codes;
proc sql;
create table UniqueWB_&stage as
select unique(col1)
from longform2_&stage;
quit;

proc print data=UniqueWB_&stage noobs;
run;
%mend WBCheck1;

%WBCheck1(bln)
*Compared codes to descriptions in "Kdrive/Projects/AMBER/StudyCoordination/PAQ
Updates/2015_AllPAQ_Codes.xlsx" ;

*The codes 40, 145 and 146 represent sitting- light office work, and driving a police car-- not walk/bike;

%macro WBCheck2(stage);
proc sql;
create table temp as
select studyid, "&stage" as time length=10, _Name_ as VarName length=40, Col1 as Value,
"Inappropriate WB Act Code" as Reason
length=60
from longform2_&stage
where col1=40 or col1=146 or col1=145;
```

```
quit;

proc append base=Errors data=temp;
run;
%mend WBCheck2;

%WBCheck2(BLN)


***** Convert act codes to MET values ***;

%macro WBMetConv(stage);
                %do i=1 %to 8;
data PAQ_&stage;
set PAQ_&stage;
WB_Met_&i=.;
if WalkBike_acts_&i.__Wbactcode=    5     then WB_MET_&i=    4     ;
if WalkBike_acts_&i.__Wbactcode=    10    then WB_MET_&i=    8     ;
if WalkBike_acts_&i.__Wbactcode=    11    then WB_MET_&i=    8     ;
if WalkBike_acts_&i.__Wbactcode=    15    then WB_MET_&i=    3     ;
if WalkBike_acts_&i.__Wbactcode=    16    then WB_MET_&i=    2     ;
if WalkBike_acts_&i.__Wbactcode=    17    then WB_MET_&i=    3     ;
if WalkBike_acts_&i.__Wbactcode=    18    then WB_MET_&i=    4     ;
if WalkBike_acts_&i.__Wbactcode=    20    then WB_MET_&i=    7.5   ;
if WalkBike_acts_&i.__Wbactcode=    25    then WB_MET_&i=    4     ;
if WalkBike_acts_&i.__Wbactcode=    26    then WB_MET_&i=    3.8   ;
if WalkBike_acts_&i.__Wbactcode=    30    then WB_MET_&i=    7.8   ;
if WalkBike_acts_&i.__Wbactcode=    31    then WB_MET_&i=    5     ;
if WalkBike_acts_&i.__Wbactcode=    32    then WB_MET_&i=    6.5   ;
if WalkBike_acts_&i.__Wbactcode=    33    then WB_MET_&i=    8.8   ;
if WalkBike_acts_&i.__Wbactcode=    40    then WB_MET_&i=    1.3   ;
if WalkBike_acts_&i.__Wbactcode=    41    then WB_MET_&i=    2.5   ;
if WalkBike_acts_&i.__Wbactcode=    50    then WB_MET_&i=    3     ;
if WalkBike_acts_&i.__Wbactcode=    51    then WB_MET_&i=    3     ;
if WalkBike_acts_&i.__Wbactcode=    52    then WB_MET_&i=    3.5   ;
if WalkBike_acts_&i.__Wbactcode=    53    then WB_MET_&i=    4.5   ;
if WalkBike_acts_&i.__Wbactcode=    60    then WB_MET_&i=    6.3   ;
if WalkBike_acts_&i.__Wbactcode=    61    then WB_MET_&i=    8     ;
if WalkBike_acts_&i.__Wbactcode=    62    then WB_MET_&i=    5.5   ;
if WalkBike_acts_&i.__Wbactcode=    63    then WB_MET_&i=    5.8   ;
if WalkBike_acts_&i.__Wbactcode=    64    then WB_MET_&i=    7.3   ;
if WalkBike_acts_&i.__Wbactcode=    67    then WB_MET_&i=    4     ;
if WalkBike_acts_&i.__Wbactcode=    68    then WB_MET_&i=    9     ;
if WalkBike_acts_&i.__Wbactcode=    70    then WB_MET_&i=    2     ;
if WalkBike_acts_&i.__Wbactcode=    71    then WB_MET_&i=    3.5   ;
if WalkBike_acts_&i.__Wbactcode=    72    then WB_MET_&i=    4.3   ;
if WalkBike_acts_&i.__Wbactcode=    80    then WB_MET_&i=    3.5   ;
if WalkBike_acts_&i.__Wbactcode=    81    then WB_MET_&i=    4.5   ;
```

```
if WalkBike_acts_&i.__Wbactcode=  82   then WB_MET_&i=  4.8  ;
if WalkBike_acts_&i.__Wbactcode=  83   then WB_MET_&i=  5    ;
if WalkBike_acts_&i.__Wbactcode=  84   then WB_MET_&i=  6.5  ;
if WalkBike_acts_&i.__Wbactcode=  85   then WB_MET_&i=  7.5  ;
if WalkBike_acts_&i.__Wbactcode=  86   then WB_MET_&i=  8.5  ;
if WalkBike_acts_&i.__Wbactcode=  87   then WB_MET_&i=  8    ;
if WalkBike_acts_&i.__Wbactcode=  88   then WB_MET_&i=  8    ;
if WalkBike_acts_&i.__Wbactcode=  89   then WB_MET_&i=  15   ;
if WalkBike_acts_&i.__Wbactcode=  95   then WB_MET_&i=  8.3  ;
if WalkBike_acts_&i.__Wbactcode=  100  then WB_MET_&i=  2.8  ;
if WalkBike_acts_&i.__Wbactcode=  101  then WB_MET_&i=  4.8  ;
if WalkBike_acts_&i.__Wbactcode=  102  then WB_MET_&i=  7.8  ;
if WalkBike_acts_&i.__Wbactcode=  110  then WB_MET_&i=  3.5  ;
if WalkBike_acts_&i.__Wbactcode=  111  then WB_MET_&i=  5.8  ;
if WalkBike_acts_&i.__Wbactcode=  115  then WB_MET_&i=  6.5  ;
if WalkBike_acts_&i.__Wbactcode=  116  then WB_MET_&i=  4.3  ;
if WalkBike_acts_&i.__Wbactcode=  117  then WB_MET_&i=  4    ;
if WalkBike_acts_&i.__Wbactcode=  118  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  119  then WB_MET_&i=  4.5  ;
if WalkBike_acts_&i.__Wbactcode=  120  then WB_MET_&i=  4    ;
if WalkBike_acts_&i.__Wbactcode=  121  then WB_MET_&i=  2    ;
if WalkBike_acts_&i.__Wbactcode=  122  then WB_MET_&i=  6    ;
if WalkBike_acts_&i.__Wbactcode=  123  then WB_MET_&i=  3.3  ;
if WalkBike_acts_&i.__Wbactcode=  124  then WB_MET_&i=  4.5  ;
if WalkBike_acts_&i.__Wbactcode=  125  then WB_MET_&i=  8    ;
if WalkBike_acts_&i.__Wbactcode=  126  then WB_MET_&i=  3    ;
if WalkBike_acts_&i.__Wbactcode=  127  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  128  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  129  then WB_MET_&i=  2    ;
if WalkBike_acts_&i.__Wbactcode=  130  then WB_MET_&i=  3.3  ;
if WalkBike_acts_&i.__Wbactcode=  131  then WB_MET_&i=  3.3  ;
if WalkBike_acts_&i.__Wbactcode=  132  then WB_MET_&i=  7    ;
if WalkBike_acts_&i.__Wbactcode=  133  then WB_MET_&i=  6    ;
if WalkBike_acts_&i.__Wbactcode=  134  then WB_MET_&i=  3.5  ;
if WalkBike_acts_&i.__Wbactcode=  135  then WB_MET_&i=  5.5  ;
if WalkBike_acts_&i.__Wbactcode=  136  then WB_MET_&i=  6    ;
if WalkBike_acts_&i.__Wbactcode=  137  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  138  then WB_MET_&i=  7    ;
if WalkBike_acts_&i.__Wbactcode=  139  then WB_MET_&i=  7    ;
if WalkBike_acts_&i.__Wbactcode=  140  then WB_MET_&i=  3.5  ;
if WalkBike_acts_&i.__Wbactcode=  141  then WB_MET_&i=  3    ;
if WalkBike_acts_&i.__Wbactcode=  142  then WB_MET_&i=  4.3  ;
if WalkBike_acts_&i.__Wbactcode=  143  then WB_MET_&i=  4    ;
if WalkBike_acts_&i.__Wbactcode=  144  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  145  then WB_MET_&i=  2.5  ;
if WalkBike_acts_&i.__Wbactcode=  146  then WB_MET_&i=  1.3  ;
if WalkBike_acts_&i.__Wbactcode=  147  then WB_MET_&i=  4    ;
if WalkBike_acts_&i.__Wbactcode=  148  then WB_MET_&i=  2    ;
```

```
if WalkBike_acts_&i.__Wbactcode=    149    then WB_MET_&i=    8.3    ;
if WalkBike_acts_&i.__Wbactcode=    150    then WB_MET_&i=    2.3    ;
if WalkBike_acts_&i.__Wbactcode=    151    then WB_MET_&i=    4.5    ;
if WalkBike_acts_&i.__Wbactcode=    152    then WB_MET_&i=    8      ;
if WalkBike_acts_&i.__Wbactcode=    153    then WB_MET_&i=    10     ;
if WalkBike_acts_&i.__Wbactcode=    154    then WB_MET_&i=    5      ;
if WalkBike_acts_&i.__Wbactcode=    155    then WB_MET_&i=    17.5   ;
if WalkBike_acts_&i.__Wbactcode=    156    then WB_MET_&i=    4.5    ;
if WalkBike_acts_&i.__Wbactcode=    157    then WB_MET_&i=    7.3    ;
if WalkBike_acts_&i.__Wbactcode=    159    then WB_MET_&i=    6      ;
if WalkBike_acts_&i.__Wbactcode=    162    then WB_MET_&i=    5.5    ;
if WalkBike_acts_&i.__Wbactcode=    163    then WB_MET_&i=    5.5    ;
if WalkBike_acts_&i.__Wbactcode=    164    then WB_MET_&i=    4      ;
if WalkBike_acts_&i.__Wbactcode=    165    then WB_MET_&i=    2.5    ;
if WalkBike_acts_&i.__Wbactcode=    166    then WB_MET_&i=    3      ;
if WalkBike_acts_&i.__Wbactcode=    167    then WB_MET_&i=    3.5    ;
if WalkBike_acts_&i.__Wbactcode=    168    then WB_MET_&i=    4.5    ;
if WalkBike_acts_&i.__Wbactcode=    169    then WB_MET_&i=    5      ;
if WalkBike_acts_&i.__Wbactcode=    170    then WB_MET_&i=    6      ;
if WalkBike_acts_&i.__Wbactcode=    171    then WB_MET_&i=    6.8    ;
if WalkBike_acts_&i.__Wbactcode=    172    then WB_MET_&i=    2.3    ;
if WalkBike_acts_&i.__Wbactcode=    173    then WB_MET_&i=    5.5    ;
if WalkBike_acts_&i.__Wbactcode=    174    then WB_MET_&i=    3.5    ;
if WalkBike_acts_&i.__Wbactcode=    175    then WB_MET_&i=    3      ;
if WalkBike_acts_&i.__Wbactcode=    176    then WB_MET_&i=    5.8    ;
if WalkBike_acts_&i.__Wbactcode=    177    then WB_MET_&i=    6.3    ;
if WalkBike_acts_&i.__Wbactcode=    178    then WB_MET_&i=    5.5    ;
if WalkBike_acts_&i.__Wbactcode=    179    then WB_MET_&i=    6.3    ;
if WalkBike_acts_&i.__Wbactcode=    180    then WB_MET_&i=    5      ;
if WalkBike_acts_&i.__Wbactcode=    181    then WB_MET_&i=    3.8    ;
if WalkBike_acts_&i.__Wbactcode=    182    then WB_MET_&i=    2.5    ;
if WalkBike_acts_&i.__Wbactcode=    183    then WB_MET_&i=    4.3    ;
if WalkBike_acts_&i.__Wbactcode=    184    then WB_MET_&i=    4      ;
if WalkBike_acts_&i.__Wbactcode=    185    then WB_MET_&i=    2.3    ;
if WalkBike_acts_&i.__Wbactcode=    186    then WB_MET_&i=    3.5    ;

if WalkBike_acts_&i.__WBactcode ne . and WB_MET_&i=. then WB_Check_&i=&i;
run;

data temp(keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;
        if WB_Check_&i=&i then do;
                VarName = "WalkBike_acts_&i.__WBactcode";
   value = WalkBike_acts_&i.__WBactcode ;
   reason = "Activity code has no MET value ";
   time="&stage";
   output;
```

```
        end;
        if (WB_MET_&i ge 1 and WB_MET_&i le 1.5) then do;
    VarName="WB_MET_&i";
    value = WB_MET_&i;
    reason ="Met value for WB <= 1.5";
    time="&stage";
    output;
end;
run;

proc append base=Errors data=temp;
run;
%end;
%mend WBMetConv;

%WBMetConv(BLN)

************************************************
*** Part 2: Section 2: Recreation activities ****
************************************************;
*This section:
-assigns MET values to each activity
-checks that MET values are >1.5
-checks that a MET value is assigned for every non missing activity code;

%macro RecMetConv(stage);
                %do i=1 %to 9;
data PAQ_&stage;
set PAQ_&stage;
Rec_Met_&i=.;
if Recleis_acts_&i.__Ractcode= 1    then Rec_MET_&i=    7.3    ;
if Recleis_acts_&i.__Ractcode= 2    then Rec_MET_&i=    5      ;
if Recleis_acts_&i.__Ractcode= 3    then Rec_MET_&i=    7.3    ;
if Recleis_acts_&i.__Ractcode= 4    then Rec_MET_&i=    4.3    ;
if Recleis_acts_&i.__Ractcode= 5    then Rec_MET_&i=    7      ;
if Recleis_acts_&i.__Ractcode= 6    then Rec_MET_&i=    5.5    ;
if Recleis_acts_&i.__Ractcode= 7    then Rec_MET_&i=    7      ;
if Recleis_acts_&i.__Ractcode= 8    then Rec_MET_&i=    8      ;
if Recleis_acts_&i.__Ractcode= 9    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 10   then Rec_MET_&i=    4.5    ;
if Recleis_acts_&i.__Ractcode= 11   then Rec_MET_&i=    7.8    ;
if Recleis_acts_&i.__Ractcode= 12   then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 13   then Rec_MET_&i=    8      ;
if Recleis_acts_&i.__Ractcode= 14   then Rec_MET_&i=    10     ;
if Recleis_acts_&i.__Ractcode= 15   then Rec_MET_&i=    7      ;
if Recleis_acts_&i.__Ractcode= 16   then Rec_MET_&i=    8.8    ;
if Recleis_acts_&i.__Ractcode= 17   then Rec_MET_&i=    11     ;
if Recleis_acts_&i.__Ractcode= 18   then Rec_MET_&i=    2.5    ;
```

```
if Recleis_acts_&i.__Ractcode= 19    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 20    then Rec_MET_&i=    12.8 ;
if Recleis_acts_&i.__Ractcode= 21    then Rec_MET_&i=    5.5  ;
if Recleis_acts_&i.__Ractcode= 22    then Rec_MET_&i=    7.8  ;
if Recleis_acts_&i.__Ractcode= 23    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 24    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 25    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 26    then Rec_MET_&i=    12   ;
if Recleis_acts_&i.__Ractcode= 27    then Rec_MET_&i=    5.8  ;
if Recleis_acts_&i.__Ractcode= 28    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 29    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 30    then Rec_MET_&i=    4.8  ;
if Recleis_acts_&i.__Ractcode= 31    then Rec_MET_&i=    3.3  ;
if Recleis_acts_&i.__Ractcode= 32    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 33    then Rec_MET_&i=    4.5  ;
if Recleis_acts_&i.__Ractcode= 34    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 35    then Rec_MET_&i=    7.8  ;
if Recleis_acts_&i.__Ractcode= 36    then Rec_MET_&i=    2.5  ;
if Recleis_acts_&i.__Ractcode= 37    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 38    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 39    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 40    then Rec_MET_&i=    2    ;
if Recleis_acts_&i.__Ractcode= 41    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 42    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 43    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 44    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 45    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 46    then Rec_MET_&i=    2.5  ;
if Recleis_acts_&i.__Ractcode= 47    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 48    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 49    then Rec_MET_&i=    4.3  ;
if Recleis_acts_&i.__Ractcode= 50    then Rec_MET_&i=    5.3  ;
if Recleis_acts_&i.__Ractcode= 51    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 53    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 54    then Rec_MET_&i=    3.8  ;
if Recleis_acts_&i.__Ractcode= 55    then Rec_MET_&i=    12   ;
if Recleis_acts_&i.__Ractcode= 57    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 58    then Rec_MET_&i=    5.5  ;
if Recleis_acts_&i.__Ractcode= 59    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 60    then Rec_MET_&i=    7.8  ;
if Recleis_acts_&i.__Ractcode= 61    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 62    then Rec_MET_&i=    5.5  ;
if Recleis_acts_&i.__Ractcode= 63    then Rec_MET_&i=    5.8  ;
if Recleis_acts_&i.__Ractcode= 64    then Rec_MET_&i=    7.3  ;
if Recleis_acts_&i.__Ractcode= 65    then Rec_MET_&i=    2.5  ;
if Recleis_acts_&i.__Ractcode= 66    then Rec_MET_&i=    5    ;
if Recleis_acts_&i.__Ractcode= 67    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 68    then Rec_MET_&i=    7    ;
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```
if Recleis_acts_&i.__Ractcode= 69    then Rec_MET_&i=    10.3    ;
if Recleis_acts_&i.__Ractcode= 70    then Rec_MET_&i=    10.3    ;
if Recleis_acts_&i.__Ractcode= 71    then Rec_MET_&i=    5       ;
if Recleis_acts_&i.__Ractcode= 72    then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 73    then Rec_MET_&i=    8       ;
if Recleis_acts_&i.__Ractcode= 74    then Rec_MET_&i=    4       ;
if Recleis_acts_&i.__Ractcode= 75    then Rec_MET_&i=    9       ;
if Recleis_acts_&i.__Ractcode= 76    then Rec_MET_&i=    10      ;
if Recleis_acts_&i.__Ractcode= 77    then Rec_MET_&i=    6       ;
if Recleis_acts_&i.__Ractcode= 78    then Rec_MET_&i=    4       ;
if Recleis_acts_&i.__Ractcode= 79    then Rec_MET_&i=    8       ;
if Recleis_acts_&i.__Ractcode= 80    then Rec_MET_&i=    10      ;
if Recleis_acts_&i.__Ractcode= 81    then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 82    then Rec_MET_&i=    8       ;
if Recleis_acts_&i.__Ractcode= 83    then Rec_MET_&i=    4.8     ;
if Recleis_acts_&i.__Ractcode= 84    then Rec_MET_&i=    6       ;
if Recleis_acts_&i.__Ractcode= 85    then Rec_MET_&i=    8.5     ;
if Recleis_acts_&i.__Ractcode= 86    then Rec_MET_&i=    8.3     ;
if Recleis_acts_&i.__Ractcode= 87    then Rec_MET_&i=    8.3     ;
if Recleis_acts_&i.__Ractcode= 88    then Rec_MET_&i=    9       ;
if Recleis_acts_&i.__Ractcode= 89    then Rec_MET_&i=    9.8     ;
if Recleis_acts_&i.__Ractcode= 90    then Rec_MET_&i=    1.05    ;
if Recleis_acts_&i.__Ractcode= 91    then Rec_MET_&i=    11.5    ;
if Recleis_acts_&i.__Ractcode= 92    then Rec_MET_&i=    12.3    ;
if Recleis_acts_&i.__Ractcode= 93    then Rec_MET_&i=    14.5    ;
if Recleis_acts_&i.__Ractcode= 94    then Rec_MET_&i=    9       ;
if Recleis_acts_&i.__Ractcode= 95    then Rec_MET_&i=    8       ;
if Recleis_acts_&i.__Ractcode= 96    then Rec_MET_&i=    15      ;
if Recleis_acts_&i.__Ractcode= 97    then Rec_MET_&i=    10      ;
if Recleis_acts_&i.__Ractcode= 98    then Rec_MET_&i=    8       ;
if Recleis_acts_&i.__Ractcode= 100   then Rec_MET_&i=    3       ;
if Recleis_acts_&i.__Ractcode= 101   then Rec_MET_&i=    4.5     ;
if Recleis_acts_&i.__Ractcode= 102   then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 103   then Rec_MET_&i=    3       ;
if Recleis_acts_&i.__Ractcode= 104   then Rec_MET_&i=    5       ;
if Recleis_acts_&i.__Ractcode= 105   then Rec_MET_&i=    5.5     ;
if Recleis_acts_&i.__Ractcode= 106   then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 107   then Rec_MET_&i=    9       ;
if Recleis_acts_&i.__Ractcode= 108   then Rec_MET_&i=    13.3    ;
if Recleis_acts_&i.__Ractcode= 109   then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 110   then Rec_MET_&i=    7       ;
if Recleis_acts_&i.__Ractcode= 111   then Rec_MET_&i=    6.8     ;
if Recleis_acts_&i.__Ractcode= 112   then Rec_MET_&i=    9       ;
if Recleis_acts_&i.__Ractcode= 113   then Rec_MET_&i=    12.5    ;
if Recleis_acts_&i.__Ractcode= 114   then Rec_MET_&i=    15      ;
if Recleis_acts_&i.__Ractcode= 115   then Rec_MET_&i=    4.3     ;
if Recleis_acts_&i.__Ractcode= 116   then Rec_MET_&i=    5.3     ;
if Recleis_acts_&i.__Ractcode= 117   then Rec_MET_&i=    8       ;
```

```
if Recleis_acts_&i.__Ractcode= 118    then Rec_MET_&i=    7    ;
if Recleis_acts_&i.__Ractcode= 119    then Rec_MET_&i=    6.8  ;
if Recleis_acts_&i.__Ractcode= 120    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 121    then Rec_MET_&i=    7    ;
if Recleis_acts_&i.__Ractcode= 122    then Rec_MET_&i=    5    ;
if Recleis_acts_&i.__Ractcode= 123    then Rec_MET_&i=    5.3  ;
if Recleis_acts_&i.__Ractcode= 124    then Rec_MET_&i=    10   ;
if Recleis_acts_&i.__Ractcode= 125    then Rec_MET_&i=    7    ;
if Recleis_acts_&i.__Ractcode= 126    then Rec_MET_&i=    5    ;
if Recleis_acts_&i.__Ractcode= 127    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 128    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 129    then Rec_MET_&i=    12   ;
if Recleis_acts_&i.__Ractcode= 130    then Rec_MET_&i=    9    ;
if Recleis_acts_&i.__Ractcode= 131    then Rec_MET_&i=    2.3  ;
if Recleis_acts_&i.__Ractcode= 132    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 133    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 134    then Rec_MET_&i=    5.8  ;
if Recleis_acts_&i.__Ractcode= 135    then Rec_MET_&i=    9.8  ;
if Recleis_acts_&i.__Ractcode= 136    then Rec_MET_&i=    13.8 ;
if Recleis_acts_&i.__Ractcode= 137    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 138    then Rec_MET_&i=    7.3  ;
if Recleis_acts_&i.__Ractcode= 139    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 140    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 141    then Rec_MET_&i=    3.5  ;
if Recleis_acts_&i.__Ractcode= 142    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 143    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 144    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 145    then Rec_MET_&i=    2.8  ;
if Recleis_acts_&i.__Ractcode= 146    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 147    then Rec_MET_&i=    4.3  ;
if Recleis_acts_&i.__Ractcode= 148    then Rec_MET_&i=    6.5  ;
if Recleis_acts_&i.__Ractcode= 149    then Rec_MET_&i=    6.5  ;
if Recleis_acts_&i.__Ractcode= 150    then Rec_MET_&i=    7.3  ;
if Recleis_acts_&i.__Ractcode= 151    then Rec_MET_&i=    8.3  ;
if Recleis_acts_&i.__Ractcode= 152    then Rec_MET_&i=    9    ;
if Recleis_acts_&i.__Ractcode= 153    then Rec_MET_&i=    10   ;
if Recleis_acts_&i.__Ractcode= 154    then Rec_MET_&i=    3    ;
if Recleis_acts_&i.__Ractcode= 155    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 156    then Rec_MET_&i=    5    ;
if Recleis_acts_&i.__Ractcode= 157    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 158    then Rec_MET_&i=    5    ;
if Recleis_acts_&i.__Ractcode= 159    then Rec_MET_&i=    6    ;
if Recleis_acts_&i.__Ractcode= 160    then Rec_MET_&i=    5.5  ;
if Recleis_acts_&i.__Ractcode= 161    then Rec_MET_&i=    9.8  ;
if Recleis_acts_&i.__Ractcode= 162    then Rec_MET_&i=    5.5  ;
if Recleis_acts_&i.__Ractcode= 163    then Rec_MET_&i=    4    ;
if Recleis_acts_&i.__Ractcode= 164    then Rec_MET_&i=    8    ;
if Recleis_acts_&i.__Ractcode= 165    then Rec_MET_&i=    3.5  ;
```

```
if Recleis_acts_&i.__Ractcode= 166    then Rec_MET_&i=    2.8    ;
if Recleis_acts_&i.__Ractcode= 167    then Rec_MET_&i=    2.5    ;
if Recleis_acts_&i.__Ractcode= 169    then Rec_MET_&i=    2      ;
if Recleis_acts_&i.__Ractcode= 170    then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 171    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 172    then Rec_MET_&i=    8      ;
if Recleis_acts_&i.__Ractcode= 180    then Rec_MET_&i=    3      ;
if Recleis_acts_&i.__Ractcode= 181    then Rec_MET_&i=    3      ;
if Recleis_acts_&i.__Ractcode= 182    then Rec_MET_&i=    7      ;
if Recleis_acts_&i.__Ractcode= 183    then Rec_MET_&i=    7.5    ;
if Recleis_acts_&i.__Ractcode= 184    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 185    then Rec_MET_&i=    10     ;
if Recleis_acts_&i.__Ractcode= 186    then Rec_MET_&i=    7.8    ;
if Recleis_acts_&i.__Ractcode= 187    then Rec_MET_&i=    2.5    ;
if Recleis_acts_&i.__Ractcode= 188    then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 189    then Rec_MET_&i=    2.5    ;
if Recleis_acts_&i.__Ractcode= 191    then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 192    then Rec_MET_&i=    5      ;
if Recleis_acts_&i.__Ractcode= 193    then Rec_MET_&i=    8      ;
if Recleis_acts_&i.__Ractcode= 194    then Rec_MET_&i=    11.8   ;
if Recleis_acts_&i.__Ractcode= 195    then Rec_MET_&i=    3.5    ;
if Recleis_acts_&i.__Ractcode= 196    then Rec_MET_&i=    7.5    ;
if Recleis_acts_&i.__Ractcode= 197    then Rec_MET_&i=    9.5    ;
if Recleis_acts_&i.__Ractcode= 198    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 199    then Rec_MET_&i=    3.5    ;
if Recleis_acts_&i.__Ractcode= 200    then Rec_MET_&i=    2      ;
if Recleis_acts_&i.__Ractcode= 201    then Rec_MET_&i=    2.5    ;
if Recleis_acts_&i.__Ractcode= 202    then Rec_MET_&i=    3.3    ;
if Recleis_acts_&i.__Ractcode= 203    then Rec_MET_&i=    3.5    ;
if Recleis_acts_&i.__Ractcode= 204    then Rec_MET_&i=    7      ;
if Recleis_acts_&i.__Ractcode= 205    then Rec_MET_&i=    3      ;
if Recleis_acts_&i.__Ractcode= 206    then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 207    then Rec_MET_&i=    4      ;
if Recleis_acts_&i.__Ractcode= 208    then Rec_MET_&i=    3.5    ;
if Recleis_acts_&i.__Ractcode= 209    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 210    then Rec_MET_&i=    8.5    ;
if Recleis_acts_&i.__Ractcode= 211    then Rec_MET_&i=    7.5    ;
if Recleis_acts_&i.__Ractcode= 212    then Rec_MET_&i=    5      ;
if Recleis_acts_&i.__Ractcode= 213    then Rec_MET_&i=    6      ;
if Recleis_acts_&i.__Ractcode= 214    then Rec_MET_&i=    4.8    ;
if Recleis_acts_&i.__Ractcode= 215    then Rec_MET_&i=    5      ;
if Recleis_acts_&i.__Ractcode= 216    then Rec_MET_&i=    5.3    ;
if Recleis_acts_&i.__Ractcode= 217    then Rec_MET_&i=    3.5    ;
if Recleis_acts_&i.__Ractcode= 218    then Rec_MET_&i=    2.3    ;
if Recleis_acts_&i.__Ractcode= 219    then Rec_MET_&i=    3.8    ;
if Recleis_acts_&i.__Ractcode= 220    then Rec_MET_&i=    7.2    ;
if Recleis_acts_&i.__Ractcode= 221    then Rec_MET_&i=    5      ;
if Recleis_acts_&i.__Ractcode= 222    then Rec_MET_&i=    3.5    ;
```

```
if Recleis_acts_&i.__Ractcode= 223      then Rec_MET_&i=      8.5      ;
if Recleis_acts_&i.__Ractcode= 224      then Rec_MET_&i=      2.3      ;
if Recleis_acts_&i.__Ractcode= 225      then Rec_MET_&i=      4        ;
if Recleis_acts_&i.__Ractcode= 226      then Rec_MET_&i=      6        ;
if Recleis_acts_&i.__Ractcode= 227      then Rec_MET_&i=      2.5      ;
if Recleis_acts_&i.__Ractcode= 228      then Rec_MET_&i=      9.8      ;
if Recleis_acts_&i.__Ractcode= 229      then Rec_MET_&i=      6        ;
if Recleis_acts_&i.__Ractcode= 230      then Rec_MET_&i=      6.5      ;
if Recleis_acts_&i.__Ractcode= 231      then Rec_MET_&i=      7.3      ;
if Recleis_acts_&i.__Ractcode= 232      then Rec_MET_&i=      10.3     ;
if Recleis_acts_&i.__Ractcode= 233      then Rec_MET_&i=      4        ;


if Recleis_acts_&i.__Ractcode ne . and Rec_MET_&i=. then Rec_Check_&i=&i;
run;

data temp(keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;
        if Rec_Check_&i=&i then do;
                VarName =  "Recleis_acts_&i.__Ractcode";
   value = Recleis_acts_&i.__Ractcode ;
   reason = "Activity code has no MET value ";
   time="&stage";
   output;
        end;
        if (Rec_MET_&i ge 1 and Rec_MET_&i le 1.5) then do;
    VarName="Rec_MET_&i";
    value = Rec_MET_&i;
    reason ="Met value for Rec <= 1.5";
    time="&stage";
    output;
end;
run;

proc append base=Errors data=temp;
run;
%end;
%mend RecMetConv;

%RecMetConv(BLN)

*******************************************************
****** Part 2: Section 3: Occupational activities ****
*******************************************************;
*This section:
-assigns MET values to each activity
-checks that a MET value is assigned for every non missing activity code;
```

```
%macro OccMetConv(stage);
		%do i=1 %to 9;
			%do j=1 %to 3;
				%if &j=1 %then %let SubNum=1st;
				%if &j=2 %then %let SubNum=2nd;
				%if &j=3 %then %let SubNum=3rd;
data PAQ_&stage;
set PAQ_&stage;
OC_MET_&i._&SubNum=.;
if EmpVol_acts_&i.__jobact&SubNum= 5	then OC_MET_&i._&SubNum= 4	;
if EmpVol_acts_&i.__jobact&SubNum= 10	then OC_MET_&i._&SubNum= 8	;
if EmpVol_acts_&i.__jobact&SubNum= 11	then OC_MET_&i._&SubNum= 8	;
if EmpVol_acts_&i.__jobact&SubNum= 15	then OC_MET_&i._&SubNum= 3	;
if EmpVol_acts_&i.__jobact&SubNum= 16	then OC_MET_&i._&SubNum= 2	;
if EmpVol_acts_&i.__jobact&SubNum= 17	then OC_MET_&i._&SubNum= 3	;
if EmpVol_acts_&i.__jobact&SubNum= 18	then OC_MET_&i._&SubNum= 4	;
if EmpVol_acts_&i.__jobact&SubNum= 20	then OC_MET_&i._&SubNum= 7.5	;
if EmpVol_acts_&i.__jobact&SubNum= 25	then OC_MET_&i._&SubNum= 4	;
if EmpVol_acts_&i.__jobact&SubNum= 26	then OC_MET_&i._&SubNum= 3.8	;
if EmpVol_acts_&i.__jobact&SubNum= 30	then OC_MET_&i._&SubNum= 7.8	;
if EmpVol_acts_&i.__jobact&SubNum= 31	then OC_MET_&i._&SubNum= 5	;
if EmpVol_acts_&i.__jobact&SubNum= 32	then OC_MET_&i._&SubNum= 6.5	;
if EmpVol_acts_&i.__jobact&SubNum= 33	then OC_MET_&i._&SubNum= 8.8	;
if EmpVol_acts_&i.__jobact&SubNum= 40	then OC_MET_&i._&SubNum= 1.3	;
if EmpVol_acts_&i.__jobact&SubNum= 41	then OC_MET_&i._&SubNum= 2.5	;
if EmpVol_acts_&i.__jobact&SubNum= 50	then OC_MET_&i._&SubNum= 3	;
if EmpVol_acts_&i.__jobact&SubNum= 51	then OC_MET_&i._&SubNum= 3	;
if EmpVol_acts_&i.__jobact&SubNum= 52	then OC_MET_&i._&SubNum= 3.5	;
if EmpVol_acts_&i.__jobact&SubNum= 53	then OC_MET_&i._&SubNum= 4.5	;
if EmpVol_acts_&i.__jobact&SubNum= 60	then OC_MET_&i._&SubNum= 6.3	;
if EmpVol_acts_&i.__jobact&SubNum= 61	then OC_MET_&i._&SubNum= 8	;
if EmpVol_acts_&i.__jobact&SubNum= 62	then OC_MET_&i._&SubNum= 5.5	;
if EmpVol_acts_&i.__jobact&SubNum= 63	then OC_MET_&i._&SubNum= 5.8	;
if EmpVol_acts_&i.__jobact&SubNum= 64	then OC_MET_&i._&SubNum= 7.3	;
if EmpVol_acts_&i.__jobact&SubNum= 67	then OC_MET_&i._&SubNum= 4	;
if EmpVol_acts_&i.__jobact&SubNum= 68	then OC_MET_&i._&SubNum= 9	;
if EmpVol_acts_&i.__jobact&SubNum= 70	then OC_MET_&i._&SubNum= 2	;
if EmpVol_acts_&i.__jobact&SubNum= 71	then OC_MET_&i._&SubNum= 3.5	;
if EmpVol_acts_&i.__jobact&SubNum= 72	then OC_MET_&i._&SubNum= 4.3	;
if EmpVol_acts_&i.__jobact&SubNum= 80	then OC_MET_&i._&SubNum= 3.5	;
if EmpVol_acts_&i.__jobact&SubNum= 81	then OC_MET_&i._&SubNum= 4.5	;
if EmpVol_acts_&i.__jobact&SubNum= 82	then OC_MET_&i._&SubNum= 4.8	;
if EmpVol_acts_&i.__jobact&SubNum= 83	then OC_MET_&i._&SubNum= 5	;
if EmpVol_acts_&i.__jobact&SubNum= 84	then OC_MET_&i._&SubNum= 6.5	;
if EmpVol_acts_&i.__jobact&SubNum= 85	then OC_MET_&i._&SubNum= 7.5	;
if EmpVol_acts_&i.__jobact&SubNum= 86	then OC_MET_&i._&SubNum= 8.5	;
if EmpVol_acts_&i.__jobact&SubNum= 87	then OC_MET_&i._&SubNum= 8	;
```

```
if EmpVol_acts_&i.__jobact&SubNum= 88    then OC_MET_&i._&SubNum=  8    ;
if EmpVol_acts_&i.__jobact&SubNum= 89    then OC_MET_&i._&SubNum=  15   ;
if EmpVol_acts_&i.__jobact&SubNum= 95    then OC_MET_&i._&SubNum=  8.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 100   then OC_MET_&i._&SubNum=  2.8  ;
if EmpVol_acts_&i.__jobact&SubNum= 101   then OC_MET_&i._&SubNum=  4.8  ;
if EmpVol_acts_&i.__jobact&SubNum= 102   then OC_MET_&i._&SubNum=  7.8  ;
if EmpVol_acts_&i.__jobact&SubNum= 110   then OC_MET_&i._&SubNum=  3.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 111   then OC_MET_&i._&SubNum=  5.8  ;
if EmpVol_acts_&i.__jobact&SubNum= 115   then OC_MET_&i._&SubNum=  6.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 116   then OC_MET_&i._&SubNum=  4.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 117   then OC_MET_&i._&SubNum=  4    ;
if EmpVol_acts_&i.__jobact&SubNum= 118   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 119   then OC_MET_&i._&SubNum=  4.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 120   then OC_MET_&i._&SubNum=  4    ;
if EmpVol_acts_&i.__jobact&SubNum= 121   then OC_MET_&i._&SubNum=  2    ;
if EmpVol_acts_&i.__jobact&SubNum= 122   then OC_MET_&i._&SubNum=  6    ;
if EmpVol_acts_&i.__jobact&SubNum= 123   then OC_MET_&i._&SubNum=  3.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 124   then OC_MET_&i._&SubNum=  4.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 125   then OC_MET_&i._&SubNum=  8    ;
if EmpVol_acts_&i.__jobact&SubNum= 126   then OC_MET_&i._&SubNum=  3    ;
if EmpVol_acts_&i.__jobact&SubNum= 127   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 128   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 129   then OC_MET_&i._&SubNum=  2    ;
if EmpVol_acts_&i.__jobact&SubNum= 130   then OC_MET_&i._&SubNum=  3.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 131   then OC_MET_&i._&SubNum=  3.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 132   then OC_MET_&i._&SubNum=  7    ;
if EmpVol_acts_&i.__jobact&SubNum= 133   then OC_MET_&i._&SubNum=  6    ;
if EmpVol_acts_&i.__jobact&SubNum= 134   then OC_MET_&i._&SubNum=  3.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 135   then OC_MET_&i._&SubNum=  5.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 136   then OC_MET_&i._&SubNum=  6    ;
if EmpVol_acts_&i.__jobact&SubNum= 137   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 138   then OC_MET_&i._&SubNum=  7    ;
if EmpVol_acts_&i.__jobact&SubNum= 139   then OC_MET_&i._&SubNum=  7    ;
if EmpVol_acts_&i.__jobact&SubNum= 140   then OC_MET_&i._&SubNum=  3.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 141   then OC_MET_&i._&SubNum=  3    ;
if EmpVol_acts_&i.__jobact&SubNum= 142   then OC_MET_&i._&SubNum=  4.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 143   then OC_MET_&i._&SubNum=  4    ;
if EmpVol_acts_&i.__jobact&SubNum= 144   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 145   then OC_MET_&i._&SubNum=  2.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 146   then OC_MET_&i._&SubNum=  1.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 147   then OC_MET_&i._&SubNum=  4    ;
if EmpVol_acts_&i.__jobact&SubNum= 148   then OC_MET_&i._&SubNum=  2    ;
if EmpVol_acts_&i.__jobact&SubNum= 149   then OC_MET_&i._&SubNum=  8.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 150   then OC_MET_&i._&SubNum=  2.3  ;
if EmpVol_acts_&i.__jobact&SubNum= 151   then OC_MET_&i._&SubNum=  4.5  ;
if EmpVol_acts_&i.__jobact&SubNum= 152   then OC_MET_&i._&SubNum=  8    ;
if EmpVol_acts_&i.__jobact&SubNum= 153   then OC_MET_&i._&SubNum=  10   ;
if EmpVol_acts_&i.__jobact&SubNum= 154   then OC_MET_&i._&SubNum=  5    ;
```

```
if EmpVol_acts_&i.__jobact&SubNum= 155     then OC_MET_&i._&SubNum=  17.5    ;
if EmpVol_acts_&i.__jobact&SubNum= 156     then OC_MET_&i._&SubNum=  4.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 157     then OC_MET_&i._&SubNum=  7.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 159     then OC_MET_&i._&SubNum=  6       ;
if EmpVol_acts_&i.__jobact&SubNum= 162     then OC_MET_&i._&SubNum=  5.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 163     then OC_MET_&i._&SubNum=  5.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 164     then OC_MET_&i._&SubNum=  4       ;
if EmpVol_acts_&i.__jobact&SubNum= 165     then OC_MET_&i._&SubNum=  2.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 166     then OC_MET_&i._&SubNum=  3       ;
if EmpVol_acts_&i.__jobact&SubNum= 167     then OC_MET_&i._&SubNum=  3.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 168     then OC_MET_&i._&SubNum=  4.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 169     then OC_MET_&i._&SubNum=  5       ;
if EmpVol_acts_&i.__jobact&SubNum= 170     then OC_MET_&i._&SubNum=  6       ;
if EmpVol_acts_&i.__jobact&SubNum= 171     then OC_MET_&i._&SubNum=  6.8     ;
if EmpVol_acts_&i.__jobact&SubNum= 172     then OC_MET_&i._&SubNum=  2.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 173     then OC_MET_&i._&SubNum=  5.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 174     then OC_MET_&i._&SubNum=  3.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 175     then OC_MET_&i._&SubNum=  3       ;
if EmpVol_acts_&i.__jobact&SubNum= 176     then OC_MET_&i._&SubNum=  5.8     ;
if EmpVol_acts_&i.__jobact&SubNum= 177     then OC_MET_&i._&SubNum=  6.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 178     then OC_MET_&i._&SubNum=  5.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 179     then OC_MET_&i._&SubNum=  6.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 180     then OC_MET_&i._&SubNum=  5       ;
if EmpVol_acts_&i.__jobact&SubNum= 181     then OC_MET_&i._&SubNum=  3.8     ;
if EmpVol_acts_&i.__jobact&SubNum= 182     then OC_MET_&i._&SubNum=  2.5     ;
if EmpVol_acts_&i.__jobact&SubNum= 183     then OC_MET_&i._&SubNum=  4.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 184     then OC_MET_&i._&SubNum=  4       ;
if EmpVol_acts_&i.__jobact&SubNum= 185     then OC_MET_&i._&SubNum=  2.3     ;
if EmpVol_acts_&i.__jobact&SubNum= 186     then OC_MET_&i._&SubNum=  3.5     ;

if EmpVol_acts_&i.__jobact&SubNum ne . and OC_MET_&i._&SubNum=. then
Oc_Check_&i._&subnum=&i;
run;

data temp(keep=studyID varname value reason time);
        length varname $40 reason $60 time $10;
        set PAQ_&stage;
        if Oc_Check_&i ne . then do;
                VarName =  "EmpVol_acts_&i.__jobact&SubNum";
   value = EmpVol_acts_&i.__jobact&SubNum ;
   reason = "Activity code has no MET value ";
   time="&stage";
   output;
        end;
run;

proc append base=Errors data=temp;
run;
```

```
%end;
%end;
%mend OccMetConv;

%OccMetConv(BLN)

************************************************
****** Part 2: Section 4: Household activities ****
************************************************;

%macro HHMetConv(stage);
                    %do i=1 %to 9;
data PAQ_&stage;
set PAQ_&stage;
HH_Met_&i=.;
  if HHold_acts_&i.__hpil=2 then HH_MET_&i=2.5;
  if HHold_acts_&i.__hpil=3 then HH_MET_&i=3.5;
  if HHold_acts_&i.__hpil=4 then HH_MET_&i=4.5;
%end;
%mend HHMetConv;

%HHMetConv(BLN)

****************************************************************
**** Part 3: Create Derived Variables *************************
****************************************************************;
*Sections of part 3 are:
      Section 1: -Calculate derived household variables: Household Hrs/week & MET Hrs/week

      Section 2: -Calculate derived transportation (aka Walk/ bike, or "WB") variables: Transportation
Hrs/week & MET Hrs/week

      Section 3: -Calculate derived occupational variables: Non-sedentary occupational hrs/week,
sedentary occupational hrs/week, non-sedentary occupational mets/week, and sedentary occupational
mets/week

      Section 4: -Calculate derived recreational variables: Recreational hrs/week and recreational
mets/week

      Section 5: Combine derived variables into one data set

Note: Derived variables at each time point are (BLN are provided here as an example, but would be the
same for other time points):

          SEDENTARY OCCUPATIONAL ACTIVITY:
           -OC_Sed_timeBLN= sedentary occupational activity at BLN (hours/week)
           -OC_Sed_metsBLN= sedentary occupational activity at BLN (MET hours/week)
```

```
            NON-SEDENTARY OCCUPATIONAL ACTIVITY:
             -OC_NonSed_timeBLN= non-sedentary occupational activity at BLN (hours/week)
             -OC_NonSed_metsBLN= non-sedentary occupational activity at BLN (MET hours/week)
             -fulltime_BLN --> indicator variable taking value 1 if participant works >= 35 hrs/week, or 0 if <
35hrs/week

             HOUSEHOLD ACTIVITY:
             -HHtimeBLN= household activity at BLN (hours/week)
             -HHmetsBLN= household activity at BLN (MET hours/week)


             RECREATIONAL ACTIVITY:
             -RECtimeBLN= recreational activity at BLN (hours/week)
             -RECmetsBLN= recreational activity at BLN (MET hours/week)

             TRANSPORTATION (WALK/BIKE) ACTIVITY:
             -WBtimeBLN= transportation activity at BLN (hours/week)
             -WBmetsBLN= transportation activity at BLN (MET hours/week)

*Inputs: work.PAQ_BLN
                                          work.Errors
*Outputs: Additional rows within work.Errors
                                    work.Derived_BLN (or Derived_EOS, etc) -- a data set of derived
variables
;

*********************************************************
*** Part 3: Section 1: Household Activity Hours and METS **
*********************************************************;
*This data step calculates household hrs/week and MET hrs/week;
*Note that MET values for household data are calculated as MET=PIL +0.5;
*Derived variables calculated within this macro are:
 -HHtimeBLN= mean hours per week on household activities
 -HHmetsBLN= mean MET-hours per week on household activities
;

%macro HHTotalsMac(stage);
data HH_&stage;
        set PAQ_&stage;
run;

%do i=1 %to 9;
data HH_&stage;
        set HH_&stage;
if n(HH_MET_&i,HHold_acts_&i.__Hmonths,HHold_acts_&i.__Hdays, HHold_acts_&i.__Hhours) =4 then
do;
   HrsWk_&i=HHold_acts_&i.__Hmonths* HHold_acts_&i.__Hdays *
HHold_acts_&i.__Hhours*4.3482143/52.177456;
```

```
   *Calculate mean hrs per week for household activity i;
   METHrsWk_&i=HH_MET_&i  * HHold_acts_&i.__Hmonths * HHold_acts_&i.__Hdays *
HHold_acts_&i.__Hhours *4.3482143/52.177456;
   *Calculate MET hrs per week for household activity i;
 end;
run;
%end;

data HH_&stage;
        set HH_&stage;
        HHtime&stage=sum(of HrsWk_1 - HrsWk_9);
        HHmets&stage=sum(of METHrsWk_1 - METHrsWk_9);
run;

%mend HHTotalsMac;

%HHTotalsMac(BLN)

************************************************************
*** Part 3: Section 2: Recreational Activity Hours and METS **
************************************************************;
*Calculate Rec time & mets;
*Note that calculations for hours/week are different according to Frequency Unit (which may be
1=days/week, 2=days/month, or
3=days/year);
*Derived variables are:
  -RECtimeBLN= mean recreational hours/week
  -RECmetsBLN=mean recreational MET hours/week
;

%Macro RecMetMac(stage);
data REC_&stage;
        set PAQ_&stage;
run;

%do i=1 %to 9;
data REC_&stage;
        set REC_&stage;
*Calculation when frequency unit is days/week;
if RecLeis_acts_&i.__FreqUnit=1 and
n(RecLeis_acts_&i.__Rmonths,RecLeis_acts_&i.__Rhours,RecLeis_acts_&i.__Freq,
RecLeis_acts_&i.__FreqUnit,Rec_MET_&i)=5 then do;
        HrsWk_&i= RecLeis_acts_&i.__Rmonths * RecLeis_acts_&i.__Rhours * RecLeis_acts_&i.__Freq
*4.3482143/52.177456;
        MetHrsWk_&i= REC_MET_&i *RecLeis_acts_&i.__Rmonths * RecLeis_acts_&i.__Rhours *
RecLeis_acts_&i.__Freq *4.3482143/52.177456;
end;
```

```
*Calculation when frequency unit is days/month;
if RecLeis_acts_&i.__FreqUnit=2 and n(RecLeis_acts_&i.__Rmonths,
RecLeis_acts_&i.__Rhours,RecLeis_acts_&i.__Freq, RecLeis_acts_&i.__FreqUnit,Rec_MET_&i)=5 then
do;
        HrsWk_&i= RecLeis_acts_&i.__Rmonths * RecLeis_acts_&i.__Rhours * RecLeis_acts_&i.__Freq
/52.177456;
        METHrsWk_&i= REC_MET_&i *RecLeis_acts_&i.__Rmonths * RecLeis_acts_&i.__Rhours *
RecLeis_acts_&i.__Freq /52.177456;
end;

*Calculation when frequency unit is days/year;
if RecLeis_acts_&i.__FreqUnit=3 and n(RecLeis_acts_&i.__Rhours,RecLeis_acts_&i.__Freq,
RecLeis_acts_&i.__FreqUnit,Rec_MET_&i)=4 then do;
        HrsWk_&i= RecLeis_acts_&i.__Rhours * RecLeis_acts_&i.__Freq /52.177456;
        MetHrsWk_&i= REC_MET_&i * RecLeis_acts_&i.__Rhours * RecLeis_acts_&i.__Freq /52.177456;
end;

%end;

data REC_&stage;
        set REC_&stage;
        RECtime&stage=sum(of HrsWk_1 - HrsWk_9);
        RECmets&stage=sum(of METHrsWk_1 - METHrsWk_9);
run;

%Mend RecMetMac;

%RecMetMac(BLN)

*****************************************************************
***** Part 3: Section 3: Transportation Activity hours & METS ***
*****************************************************************;
*Calculate METS & hours for each WB Activity, and then for sum of all WB activities;
*Derived variables created within this macro are:
 -WBtimeBLN= mean hours per week spent on walking/ biking to work
 -WBmetsBLN= mean MET-hours per week spent on walking/ biking to work
;
%Macro WBMetMac(stage);
        data WB_&stage;
                set PAQ_&stage;
        run;

%do i=1 %to 8;
data WB_&stage;
set WB_&stage;
if n(Walkbike_acts_&i.__WBmonths,Walkbike_acts_&i.__WBdays,Walkbike_acts_&i.__WBmins,
WB_MET_&i)=4 then do;
```

```
   HrsWk_&i=(Walkbike_acts_&i.__WBmonths*
Walkbike_acts_&i.__WBdays*Walkbike_acts_&i.__WBmins/60)*(4.3482143/52.177456);

   METHrsWk_&i=WB_MET_&i*(Walkbike_acts_&i.__WBmonths*
Walkbike_acts_&i.__WBdays*Walkbike_acts_&i.__WBmins/60)*(4.3482143/52.177456);
end;
%end;

data WB_&stage;
        set WB_&stage;
        WBtime&stage=sum(of HrsWk_1 - HrsWk_8);
        WBmets&stage=sum(of METHrsWk_1 - METHrsWk_8);
run;

%mend WBMetMac;

%WBMetMac(BLN)

*******************************************************
***** Part 3: Section 4: Occupational Activity **********
*******************************************************;

*Calculate occupational Hours and METS for non-sedentary and sedentary activities separately;
*Note that sedentary is considered 1.5 METS or less, and non-sedentary is considered >= 1.5 METS;
*Derived variables calculated in this section are:
OC_Sed_MetsBLN= mean MET-hours per week on occupational sedentary activities
OC_NonSed_MetsBLN=mean MET-hours per week on occupational non-sedentary activities
OC_Sed_timeBLN=mean hours per week on occupational sedentary activities
OC_NonSed_timeBLN= mean hours per week on occupational non-sedentary activities
OC_timeTotalBLN=OC_Time_Sed + OC_Time_NonSed
fulltime_BLN --> indicator variable taking value 1 if participant works >= 35 hrs/week, or 0 if <
35hrs/week total
;

%Macro OCMetMac(stage);
data OC_&stage;
        set PAQ_&stage;
run;

        %do i=1 %to 8;
data OC_&stage;
set OC_&stage;
if n(EmpVol_acts_&i.__jobmonths,EmpVol_acts_&i.__jobhours,EmpVol_acts_&i.__jobdays)=3 then do;

*Calculate total number of activities within each job;
NAct_&i =n(OC_MET_&i._1st,OC_MET_&i._2nd,OC_MET_&i._3rd);
NActNonSed_&i=0;
*Calculate total number of non-sedentary activities within each job;
```

```
  if OC_MET_&i._1st > 1.5 then NActNonSed_&i = NActNonSed_&i +1;
  if OC_MET_&i._2nd > 1.5 then NActNonSed_&i = NActNonSed_&i +1;
  if OC_MET_&i._3rd > 1.5 then NActNonSed_&i = NActNonSed_&i +1;
*   if NActNonSed{i} = 0 then NActNonSed{i}= . ;
*Calculate time in non-sedentary activities for each job;
TimeNonSed_&i=(EmpVol_acts_&i.__jobmonths*EmpVol_acts_&i.__jobhours*EmpVol_acts_&i.__jobda
ys*4.3482143/52.177456)*NActNonSed_&i/NAct_&i;
TimeSed_&i=
(EmpVol_acts_&i.__jobmonths*EmpVol_acts_&i.__jobhours*EmpVol_acts_&i.__jobdays*4.3482143/52
.177456)*((NAct_&i - NActNonSed_&i)/NAct_&i);
METperJobNonSed_&i=0;
  if OC_MET_&i._1st > 1.5 then METperJobNonSed_&i= METperJobNonSed_&i+
(OC_MET_&i._1st*TimeNonSed_&i/NActNonSed_&i);
  if OC_MET_&i._2nd > 1.5 then METperJobNonSed_&i= METperJobNonSed_&i+
(OC_MET_&i._2nd*TimeNonSed_&i/NActNonSed_&i);
  if OC_MET_&i._3rd > 1.5 then METperJobNonSed_&i= METperJobNonSed_&i+
(OC_MET_&i._3rd*TimeNonSed_&i/NActNonSed_&i);
METperJobSed_&i=0;
  if (OC_MET_&i._1st le 1.5 and OC_MET_&i._1st > 0) then METperJobSed_&i= METperJobSed_&i+
(OC_MET_&i._1st*TimeSed_&i/(NAct_&i - NActNonSed_&i));
  if (OC_MET_&i._2nd le 1.5 and OC_MET_&i._2nd > 0) then METperJobSed_&i= METperJobSed_&i+
(OC_MET_&i._2nd*TimeSed_&i/(NAct_&i - NActNonSed_&i));
  if (OC_MET_&i._3rd le 1.5 and OC_MET_&i._3rd > 0) then METperJobSed_&i= METperJobSed_&i+
(OC_MET_&i._3rd*TimeSed_&i/(NAct_&i - NActNonSed_&i));
end;
%end;

OC_Sed_Mets&stage=sum(of METperJobSed_1 - METperJobSed_8);
OC_NonSed_Mets&stage=sum(of METperJobNonSed_1 - METperJobNonSed_8) ;
OC_Sed_Time&stage=sum(of TimeSed_1 - TimeSed_8);
OC_NonSed_time&stage=sum(of TimeNonSed_1 - TimeNonSed_8);
OC_TimeTotal&stage=OC_Sed_Time&stage+OC_NonSed_Time&stage;
if(OC_TimeTotal&stage ge 35) then Fulltime_&stage=1;
  else Fulltime_&stage=0;
run;
%mend OCMetMac;

%OCMetMac(BLN)

*****************************************************************
*** Part 3: Section 5: Combine derived variables into one data set ***
*****************************************************************;

%Macro CombineMac(stage);
        proc sql;
                create table Derived_&stage as
                select PAQ_&stage..StudyID,
                HH.HHtime&stage format=6.2, HH.HHmets&stage format=6.2,
```

```
		Rec.RECtime&stage format=6.2, Rec.RECmets&stage format=6.2,
		WB.WBtime&stage format=6.2, WB.WBmets&stage format=6.2,
		OC.OC_Sed_time&stage format=6.2, OC.OC_NonSed_time&stage format=6.2,
OC.OC_Sed_mets&stage format=6.2, OC.OC_NonSed_mets&stage format=6.2, OC.OC_timeTotal&stage
format=6.2, OC.fulltime_&stage
		from PAQ_&stage, HH_&stage as HH, Rec_&stage as Rec, WB_&stage as WB,
OC_&stage as OC
		where PAQ_&stage..studyID=HH.StudyID and HH.studyID=Rec.StudyID and
WB.studyID=Rec.studyID and WB.studyID=Oc.studyID;
	quit;

	data Derived_&stage;
		set Derived_&stage;
		if HHtime&stage=. then HHtime&stage=0;
		if HHmets&stage=. then HHmets&stage=0;
		if RECtime&stage=. then RECtime&stage=0;
		if RECmets&stage=. then RECmets&stage=0;
		if WBtime&stage=. then WBtime&stage=0;
		if WBmets&stage=. then WBmets&stage=0;
		if OC_Sed_time&stage=. then OC_Sed_time&stage=0;
		if OC_NonSed_time&stage=. then OC_NonSed_time&stage=0;
		if OC_Sed_mets&stage=. then OC_Sed_mets&stage=0;
		if OC_NonSed_mets&stage=. then OC_NonSed_mets&stage=0;
		if OC_timeTotal&stage=. then OC_timeTotal&stage=0;
		if fulltime_&stage=. then fulltime_&stage=0;
	run;
%Mend CombineMac;

%CombineMac(BLN);



*****************************************************************
**** Part 4: Check for derived outliers ******************************
*****************************************************************;

*Description:
  -Section 1:
	-calculate grand total reported hours, & grand total mets, total non-sedentary reported hours,
and total (sedentary + non sedentary) occupational hours
	-Examine Histograms of all derived variables
	-Calculate mean, median, and sd of derived variables for comparison to my previous derived
variables, to make sure I haven't made calculation errors in writing this code

  -Section 2:
	-Flag participants who reported >=14hrs/day per section of activity or >=16hrs/day total
```

```
*Inputs:  "Derived_BLN" (or other "derived_EOS", etc, created in Module 1 Part 3)

*Outputs:
                                        -Additional rows within to file "work.Errors"
                                        -Derived_BLN2, a data set similar to Derived_BLN with
additional columns of total time/ MET variables

;

*************************************************************************
**********  Part 4: Section 1: Histograms & comparison to other PAQ data ****
*************************************************************************;
%Macro HistMac(stage);
proc univariate data=Derived_&stage;
var HHtime&stage HHmets&stage RECtime&stage RECmets&stage WBtime&stage WBmets&stage
OC_Sed_time&stage OC_NonSed_time&stage OC_Sed_mets&stage OC_NonSed_mets&stage
OC_timeTotal&stage fulltime_&stage;
histogram;
run;

%Mend HistMac;

%HistMac(BLN);

%Macro totaltime(stage);
data derived_&stage.2;
set derived_&stage;
OC_MetsTotal&stage=sum(OC_Sed_Mets&stage, OC_NonSed_METs&Stage);
Total_NonSed_time&stage=sum(HHtime&stage, RECtime&stage, WBtime&stage,
OC_NonSed_time&stage);
Total_NonSed_Mets&stage=sum(HHmets&stage, RECmets&stage, WBmets&stage,
OC_NonSed_mets&stage);
Grand_Total_time&stage=sum(HHtime&stage, RECtime&stage, WBtime&stage,
OC_NonSed_time&stage, OC_Sed_time&stage);
Grand_Total_Mets&stage=sum(HHmets&stage, RECmets&stage, WBmets&stage,
OC_NonSed_mets&stage, OC_Sed_mets&stage);
run;
%Mend totaltime;

%totaltime(BLN);

*Print all derived variable means, medians, standard deviations, min & max;
%Macro DerivedCheck(stage);
proc means data=derived_&stage.2 n mean median std min max;
var  HHtime&stage HHmets&stage
RECtime&stage RECmets&stage
WBtime&stage WBmets&stage
OC_Sed_time&stage OC_NonSed_time&stage OC_timeTotal&stage
```

```
OC_Sed_mets&stage OC_NonSed_mets&stage OC_MetsTotal&stage
fulltime_&stage
Total_NonSed_time&stage Total_NonSed_Mets&stage
Grand_Total_time&stage Grand_Total_Mets&stage;
output out=summary_&stage;
run;

proc transpose data=summary_&stage out=summary_&stage.2
(rename=(col1=N col2=Min col3=Max col4=Mean col5=Std))
name=VarName;
run;

ods html file="&outloc./Summary_&stage.2.xls";
proc print data=summary_&stage.2 noobs;
run;
ods html close;
%Mend DerivedCheck;

%DerivedCheck(BLN);


*************************************************************************
*****  Part 4: Section 2: Check for outliers in derived variables  **********
*************************************************************************;

*Christine specified that she wanted to investigate participants who reported >=14 hrs/day of activity
within
any one section, or >= 16 hrs/day grand total;

%Macro OutlierMac(stage, vars, TotalName);
%let vars=%upcase(&vars);
%do i=1 %to 4;
%let varstmp=%scan(&vars, &i);
%put &Varstmp;

data temp_&i (keep= studyid Varname value reason time);
set derived_&stage.2;
length VarName $ 35 reason $ 45 time $ 4;
if &Varstmp > 98  then do;
   VarName="&Varstmp";
   Value=&varstmp;
   reason= "More than 14hrs/day per section";
   time="&stage";
   output;
end;
run;
%end;
```

```
data temp_5 (keep= studyid Varname value reason time);
set Derived_&stage.2;
length VarName $ 35 reason $ 45 time $ 4;
if &TotalName > 112  then do;
   VarName="&TotalName";
   Value=&TotalName;
   reason= "More than 16hrs/day total";
   time="&stage";
   output;
end;
run;

data temp_total;
set temp_1 temp_2 temp_3 temp_4 temp_5;
run;

proc append base=errors data=temp_total;
run;
%Mend OutlierMac;

%outlierMac(BLN, HHtimeBLN WBtimeBLN OC_timeTotalBLN RectimeBLN, Grand_Total_timeBLN);


**************************************************************************
****  Part 5: Save data sets to permanent locations **********************
**************************************************************************;
*Description:
                        Section 1: This section should be run after "first round" of cleaning
                                                -Saves data set of errors to K drive for
examination/ correction by study staff
                                                -saves data set of derived variables to K
drive for later reference. (Not saved to SQL because this is not the "final" data set.)

                        Section 2: This section should be run after "second round" of cleaning
                                                -Saves data set of outstanding/ errors
to K drive for examination/correction
                                                -Saves "final" data set of derived
variables to AMBER_Stats SQL database

Inputs: work.Errors
                        work.Derived_BLN & work.Derived_BLN2

Outputs:
                Section 1:
                Errors data set: "/home/racheloreilly/Kdrive/Projects/AMBER/Analysis/PAQ/Cleaning
and derived variables-- pre-cleaning/PAQ_PreCleaning_Errors_Dec2015.xls"
```

```
		Derived variables data set: "Derived_BLN" in
"/home/racheloreilly/Kdrive/Projects/AMBER/Analysis/PAQ/Cleaning and derived variables-- pre-
cleaning"

		Section 2:
		Errors data set: "/home/racheloreilly/Kdrive/Projects/AMBER/Analysis/PAQ/Cleaning
and derived variables-- post-cleaning/PAQ_PostCleaning_Errors_Dec2015.xls"
		Derived variables data set: "PAQ_derived_BLN_v2" in AMBER_Stats database
			-note that this is version 2, because version 1 was created in June 2015 with
only first 500 participants, and v2 uses "new" / year 2011 MET values instead of "old"/year 2000 MET
values
;

*****************************************************************
***** Part 5: Section 1: First round cleaning ******************
*****************************************************************;
*This section should be run after intital check of data, before corrections are made;

/* Note, I have commented this out so that if the entire code file is run, the output files won't be
overwritten. Uncomment this to run.

*Print errors to K drive;
ods html file="&outloc/PAQ_PreCleaning_Errors_Dec2015.xls";
proc print data=Errors noobs;
run;
ods html close;


*Save derived variables to permanent location;
data results.Derived_BLN;
	set Derived_BLN;
run;
*/

*****************************************************************
***** Part 5: Section 2: Second round cleaning ******************
*****************************************************************;
*This section should be run after corrections are made & data set is "final";
/*Commented this out so that is not accidentally run

*Print errors to K drive;
ods html file="&outlocPost/PAQ_PostCleaning_Errors_Dec2015.xls";
proc print data=Errors noobs;
run;
ods html close;

*Save derived variables to amber stats library;
proc sql;
```

```
create table Am_stats.PAQ_derived_BLN_v2(studyID numeric, fulltime_BLN int,
HHtimeBLN numeric, HHmetsBLN numeric,
WBtimeBLN numeric, WBmetsBLN numeric,
RECtimeBLN numeric, RECmetsBLN numeric,
OC_Sed_timeBLN numeric, OC_Sed_metsBLN numeric,
OC_NonSed_timeBLN numeric, OC_NonSed_metsBLN numeric,
total_NonSed_TimeBLN numeric, total_NonSed_MetsBLN numeric)
;
quit;


proc sql;
insert into Am_stats.PAQ_derived_BLN_v2(studyID, fulltime_BLN,
HHtimeBLN , HHmetsBLN ,
WBtimeBLN , WBmetsBLN ,
RECtimeBLN , RECmetsBLN ,
OC_Sed_timeBLN , OC_Sed_metsBLN ,
OC_NonSed_timeBLN , OC_NonSed_metsBLN ,
total_NonSed_TimeBLN , total_NonSed_MetsBLN
)
select studyID, fulltime_BLN,
HHtimeBLN , HHmetsBLN ,
WBtimeBLN , WBmetsBLN ,
RECtimeBLN , RECmetsBLN ,
OC_Sed_timeBLN , OC_Sed_metsBLN ,
OC_NonSed_timeBLN , OC_NonSed_metsBLN ,
total_NonSed_TimeBLN , total_NonSed_MetsBLN
from derived_BLN2;
quit;

*/
```

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