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Summary of Edits

Summary of changes between Version 1.0 and 1.1:

- Intensity is determined by participant self-report, but final judgement rests with the interviewer. If there is any difficulty with participant's report of intensity for a particular activity, interviewer determines intensity using the Compendium.

22. Physical Activity Assessment

Acknowledgements

The 7-day Physical Activity Recall has been adapted from work done at San Diego State University (Project Grad, James Sallis, Ph.D., Principal Investigator) and the Cooper Institute for Aerobics Research (Project Active, Steven N. Blair, P.E.D., Principal Investigator) and the Activity Counseling Trial.

Introduction

The 7-Day Physical Activity Recall (PAR) interview technique is used to estimate an individual's average daily energy expenditure for the previous week. Based upon participant recalls, hours spent in sleep and in *moderate*, *hard*, and *very hard* intensity activities are determined. By mathematical difference, these data will then be used to estimate activities classified as *light* intensity. Total kilocalories can then be estimated from the number of hours engaged at the various levels of intensity. The purpose, therefore, is not to single out specific physical activities but to identify participation in activities at various levels of intensity. The interview looks at work-related activities, leisure-time activities, and sleep patterns. The purpose of this manual is to standardize the interview process and to increase agreement among interviewers.

A staff person's interview technique should limit bias (it should be objective), and should try to keep the interview from becoming tedious. To achieve these goals, an interviewer script is included in Appendix 1. Although the interviewer does not have to memorize this script, it should be followed very closely to reduce variability between and within interviewers. A major effort should be made by the person conducting the interview not to be judgmental of participant responses. There are no right or wrong answers to the interview. It is important to set a positive, non-threatening tone and to put the participant at ease at the beginning of the interview. It is also important to remember not to become sidetracked by the study participant. It may be difficult for participants to remember their past week's activity. Some may not try very hard, and others get bogged down in details. Interviewers should strive to achieve a happy medium by controlling the pace of the interview and avoiding extraneous talk. If participants are going into excessive detail, remind them that they need not account for every minute, but that an average or estimate is expected. For example, the interviewer might ask, "How much time in general?" or "about how long?"

It is important to remember that most participants spend a vast majority of their waking hours doing *light* activity. Many tiring and unpleasant household or occupational tasks do not have a very high energy cost. Clerks in a store, for example may be on their feet all day and may feel fatigued, but the energy cost is in the *light* category. An exception to this example would be time spent in stocking shelves, which probably would be classified as *moderate* activity. Also, for most occupational tasks that require at least moderate energy expenditure, it is important to accurately determine the actual time spent doing the activity. In the stocking clerk example,

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even though a person might do that activity for an entire shift, it probably would not equal eight hours. You should try to subtract time spent on lunch, breaks, and the like.

Blinding

It is preferred that the PAR be administered by a blinded staff person. When this is not possible, the PAR may be administered by an unblinded staff person who is not doing intervention visits or taking outcome blood pressure measurements.

Interviewer Preparation Guidelines

The following points should be explained to each participant before actually beginning the physical activity interview. Reviewing the interviewer script provided in Appendix 1 will assist in communicating this information.

The participant is to think of physical activities during the past seven days. It is important to stress that this is a recall of actual activities for the past week, not a history of what they usually do.

Light activities, such as deskwork, standing, light housework, softball, archery, bowling, and the like (where there is little movement of large muscles) will not be considered during this interview. For the 7-day recall, we are interested in occupational, household, and sports activities that make you feel like you are working as hard or harder than when you are walking briskly (15-20 minutes per mile for most people).

Explain to the participant that he or she will be asked to categorize the intensity of the activity into one of three groups, ***moderate***, ***hard*** or ***very hard***. Explain that the ***moderate*** category is similar to how one might feel while walking briskly and that the ***very hard*** category is similar to how one might feel when running. The ***hard*** category falls in between. In other words, if the activity in question seems harder than walking briskly but not as strenuous as running, place it in the ***hard*** category.

Prior to the interview it is a good idea to give examples and interact with the participant to allow feedback for a complete understanding of the types and intensities of activities that would fall into these categories. Laminated cards highlighting examples of each of the intensity categories are provided to each interviewer.

Prior to conducting the interview, the interviewer should be familiar with the energy cost of many common activities (see the Certification and Quality Control monitoring section in this chapter). Study personnel are urged to consult the reprint of Ainsworth, et al. (see Appendix) for a listing of these energy costs in METS (metabolic equivalents). Activity of 3-5 METS is considered moderate intensity activity. 5.1 - 6.9 METS is considered hard, and 7.0 or more METS is considered very hard.

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Should any questions arise regarding administration of the PAR during the course of PREMIER, study personnel are requested to contact the Data Manager at the Coordinating Center for clarification and direction. All issues raised during the study are recorded in a log book for future reference.

Interview Protocol and Guidelines

Physical activity recall data for PREMIER is collected on pre-printed forms entered into the computer. Detailed information on participant interviewing can be found in the interviewer script (Appendices 1-3). Detailed information on completion of the pre-printed forms is found below.

Required materials

- 7-Day Physical Activity Recall Form (#18)

The complete instructions for completing the PAR form are included with the form (administration, coding, and review instructions). The following sections are an overview to the process, but the instructions included with the form contain more detail on some items and should also be reviewed.

Completing the introductory questions

The first page of the PAR Form (Form #18) contains two questions used by the computer system to identify the days of the week referenced in the worksheet. Please fill out the first question by identifying the day of the interview.

Then ask the participant to identify their weekend days and check them off under the second question. If the participant does not work or does not have a “weekend”, do not check any of the items. If left blank, note this in the margin to show that the answer is not applicable rather than missing.

If a person has weekdays instead of weekends off from work—for example, Tuesday and Wednesday instead of Saturday and Sunday—ask the participant if they consider the weekdays they have off as their weekend. If they do not consider the days off as their weekend days, ask them which days are most like weekends. Some participants may only consider one day as their weekend day. Others may have three-day weekends. The point here is to determine the participant’s non-work days, as they are likely to have a different routine than the workdays. Make sure to count the most appropriate days of the week, as indicated by the participant, as weekend days.

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Use of the Worksheet

The PAR worksheet (page 2 of the PAR form) is used to help the interviewer summarize the physical activity reported by the study participant. The number of hours and minutes (__:__) that the participant reports having spent in moderate, hard, and very hard activities (as well as sleep time) are recorded on the Worksheet. These data are then entered and used to calculate an estimate of energy expenditure.

Establishing the days of the week

To aid the participant in recall, ask about each day in turn, starting with yesterday and working backwards. “Okay, today is Tuesday, yesterday was Monday.” Also, make sure to label the worksheet (see below) with the appropriate days of the week

Do this by placing yesterday’s day of the week in the blank below the column labeled “Yesterday”. Then, working backwards with respect to the day of the week, write each of the past 6 days of the week in the appropriate space above the columns, ending with the last day of the recall week below the column labeled “One Week Ago”. This makes logging the participant’s activities much easier. Also, connecting activities to specific days of the week helps the participant to remember more.

Using the participant’s answers to question 2 on page 1, identify their weekend days and mark them with a “W” above the column.

Sleep

The first item on the PAR Worksheet is an assessment of the participant’s sleep times for the week. The goal in estimating the sleep pattern in the PAR is to get an estimate of an individual’s hours spent in bed per night. Even if they claim not to have slept, if they were in a prone position, they used approximately the same number of kilocalories as sleep, so that time should be counted as “sleep”.

The sleep time should be rounded to the nearest ¼ hour. For example, if the individual reported 20 minutes, round down to 15 minutes (:15). If they report 25 or 35 minutes, this would be rounded to 30 minutes (:30), if they have 40 or 50 minutes, round to 45 minutes (:45), and if they report between 55 and 05, round to the nearest hour (:00). Many people will get in bed and get out of bed at consistent hours on the weekdays. This should be determined as an initial step by asking the following:

“For the past 5 weeknights, did you usually get in bed and get out of bed at the same time, or did it vary each night?”

If the times vary most nights, go day by day, beginning with getting in bed last night and getting out of bed this morning (the day of the interview). Work your way back through the week

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asking for the specific times they got in bed and got out of bed each night and day. Going backwards helps people remember by starting with the most recent timeframe.

If the times of getting in bed and getting out of bed are fairly constant during the weekdays, ask what time they got in bed and what time they got out of bed and record these numbers on the worksheet. Ask the participant if there were any unusual weekdays when they might have gotten in bed or out of bed earlier or later. Record any of these changes on the appropriate day.

Next, ask the participant about the past Saturday night getting up on Sunday and the last Friday night (or equivalent weekend days) getting up on Saturday. Record these numbers on the worksheet.

For example, if the interview takes place on a Tuesday, the first night of recorded sleep (working backwards from Tuesday) would be going to sleep Monday night and getting up on Tuesday morning the day of the interview. The total number of hours slept in this time frame would be recorded for Monday night (labeled “yesterday” on the Worksheet). The next night of sleep assessed would be Sunday night, getting up on Monday. This number would be entered into the Sunday column. Therefore, keep in mind that although the labeled column refers to that *day’s* activities, it also refers to that *night’s* sleep times.

Keep in mind that some people may nap during the day or fall asleep while reclined in a chair. This time should be added to the pertinent night’s sleep time. To capture this information, the participant should be asked if they took any naps or laid down for any period during the last seven days. Interviewers should be particularly alert to this if there was a night of limited or no sleep time.

Activities during the day

Starting with yesterday and working backward, ask about activities during each day. Ask only about activities that are *moderate*, (at least the intensity of brisk walking), *hard* (intensity between walking and running), and *very hard* (intensity of running).

Ask about activity during each segment of each day as a separate question. For example, “On Wednesday morning, from the time you got out of the bed until the time you had lunch, did you do any physical activity you would consider moderate, hard, or very hard?” Morning is generally considered from the time they wake up in the morning to the time they have lunch, afternoon is from lunch to dinner and evening is for dinner until the time one goes to bed. The previous question would then be repeated for the remaining segments of the day.

It will help recall significantly to have the participant remember what he or she did during the day in question. If the participant is having trouble remembering their activities during each segment of the day, ask the general question, “Do you remember what you did on (Tuesday)?” Once the participant starts remembering, switch back to the segments of the day as outlined above (i.e., morning, afternoon, evening).

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The interview needs to be sensitive to walking. However, people walk many times during the day, and we will not count all of them. For example, we do not want them to add up each time they walk to the refrigerator. The general rule is that they should do 10 minutes in a given intensity category in a given segment of the day (e.g., morning, afternoon, evening) for it to count. The specific rule for walking is that you only count walking that is done at a brisk pace and for at least 10 minutes.

Some people will provide exact times (i.e., “I walked 3 miles in 45 minutes 35 seconds.”) In these cases, round times to the nearest minute.

Frequency

Probe to determine if the amount of the activity the participant reports is per weekend, per week, or per day, etc. Someone may say, for example, “I did one hour of digging this past weekend” when what he or she meant is, “I did one hour of digging each of the two days this past weekend.”

Some people have trouble recalling or pinpointing the moderate to very hard activities they have engaged in over the past seven days. In such cases, try to cue them by asking them general questions. For example, “How about any housework that made you feel similar to brisk walking?” “Did you take any walks?” “How do you get to and from work?” “Did you do any vigorous home repair or gardening?”

Take a retrospective look back at each day by asking the respondent whether there is any activity they may have forgotten to mention.

Intensity

Make sure to emphasize the intensity guidelines. Use the list of activities in Appendix 5 to make a laminated card listing common activities and their intensity levels. If you are unsure of the strenuousness of an activity that a participant may have participated in, ask him to describe the physical effort involved. For example, what does the activity entail?

Walking and running provide good frames of reference for classifying activities. Everyone should be familiar with the relative intensity of brisk walking, which is about the midpoint of the moderate activity category. Therefore, if some other activity that the participant reports seems to be about as strenuous to the individual as walking briskly, then the activity should be coded as **moderate**. If the activity is of an intensity less than a brisk walk, it is considered a **light** activity and is not included in the worksheet.

Most running or jogging at any speed falls into the **very hard** category. If some activity seems about as strenuous to the individual as running, classify the activity as **very hard**. If the activity

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in question seems harder than walking, but not as strenuous as running, place it in the *hard* category.

For most activities, the rate at which they are performed can make a huge difference in the energy cost. It is possible to play single tennis, for example, so as not to move around much and not expend much energy. Try to get some indication of how hard the participant is working at a particular task. Again, use comparisons to walking and running so the participant can rate how hard she did the activity.

Time

Some people have trouble quantifying the amount of time they spent doing moderate, hard, or very hard activities. In such cases, break down all of their activities into specific events and ask them how long they did each activity. Then sum up the amount of time relevant to each category. If the individual is having difficulty quantifying the amount of time engaged in a particular activity, suggest to the individual possible time frames such as 15 minutes, 30 minutes, 45 minutes, or an hour. However, it is not necessary to round participant answers to anything but the nearest minute.

The activity in question should be performed for at least 10 minutes during one segment of the day: morning, afternoon, or evening. For example, if their activities last at least 10 minutes in one intensity category (e.g., hard) for one segment of the day (e.g., Wednesday afternoon), the total time of those activities should be counted. If 10 minutes of activity is spread out over two or more segments of the day, it is not counted.

Be sure that the time reported for an activity was actually spent doing the activity. Being at the pool for 2 hours but only swimming for 15 minutes, for example, should be recorded as 15 minutes, not 2 hours. Working in the garden all day Saturday (8 hours) should mean actually working for 8 hours. Do not record the time spent on breaks, rest periods, meals, and the like.

Cells with no activities reported

For any day/time/intensity where no activities were reported, leave the cell blank. To remember that these were intentionally left blank, run an arrow through the cell(s) down to the end of the column or to the next cell with activity reported. See the sample included in the coding instructions for the PAR form for an example of a completed form.

Special Cases

If the last week was totally atypical--for example, in the hospital or in bed, or involving a family crisis, or a work crisis, or travel—it is permissible to go to the previous week for the survey. Do not take this action lightly; use it only in unusual circumstances and notify the CC of the exception.

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Strength and Flexibility Exercises

Any reported strength and flexibility exercises performed for at least 10 minutes should be recorded on the worksheet if they are performed at the moderate, hard, or very hard intensity level as are any other physical activities. Usually, strength and flexibility exercises will be recorded as moderate physical activities, however, the interviewer should be confident that these activities are performed at the same intensity as going on a brisk walk. The classification can be verified by determining the time spent in the activity and the total number of exercises (i.e., number of sit-ups, push-ups, etc.) performed during that time period.

Participant review

At the end of each day of recall, the interviewer should ask the participant to take a retrospective look of the past week as well as at the end of each day to determine any activities that may have been overlooked.

Use cues as much as possible to aid in the participant's recall of the past week. For example, "Did you want to add any other household, occupational, or sports activities that you participated in the past week and that we have not talked about?" "Did you take any walks we have not already covered?" "Are there any activities that you are unsure about?" However, it is important that the interviewer administer these questions consistently to all participants.

After the participant has reviewed his answers, ask him the two questions at the bottom of the worksheet and record his answers.

Types of activity questions

Ask the participant to complete the questions about types of activity on pages 3 and 4 of the questionnaire, and the question about vigorous activity on page 4 of the questionnaire. Review the pages to be sure all items have been answered. Thank the participant for her time and participation. The interview is concluded.

Evaluation and review by the interviewer

The interviewer should fill out the interviewer evaluation section of the form once the worksheet and supplemental questions are completed. This subjective opinion of the interviewer is important to evaluate data quality.

Procedures for dealing with data from interviews determined to be invalid are handled on a case-by-case basis. Interviewers and/or clinic coordinators are requested to discuss such cases with the Data Manager at the Coordinating Center.

Prior to data entry, the interviewer should visually review each form and ensure the completeness and correctness of each entry. Questionable intensities of reported physical

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activities (question #3 on the interviewer evaluation page) should be verified using the Compendium of Physical Activities or with the local master trainer or study master trainer.

Important procedures the interviewer often overlooks

Ask about each day in turn, starting with yesterday and working backwards. “Okay, today is Tuesday, yesterday was Monday.” Also, make sure to label the worksheet with the appropriate days of the week. This makes logging the participant’s activities much easier.

Connecting activities to specific days of the week aids the participant in recall of events. Before asking about activities, it might help to ask the participant what he or she did that day, in general. “Where did you go and what did you do on that day?” Again, this helps them recall activities specific to that day.

Ask separately about each segment of the day. “What activities did you do in the morning; in the afternoon; in the evening?” Again, this helps the participant to remember more clearly.

Several times during the interview, remind the participant to think about all physical activities including work, household, and leisure/sport activities.

Count walking that is done for at least 10 minutes continuously. However, for the activity to be counted, the walking must be done at a brisk pace.

The purpose of the PAR is to estimate energy expenditure, so an activity does not have to be continuous to be coded. If their activities add up to at least 10 minutes in one intensity category (e.g., hard) for one segment of the day (e.g., Wednesday afternoon), then that activity or those activities should be counted.

For example, consider 60 minutes of gardening, which included both digging and planting. If the participant alternately dug and stopped to plant in five-minute intervals, this activity would be recorded as 30 minutes of digging and would qualify as hard activity. If 10 minutes of activity is spread out over two or more segments of the day, it is not counted. For example, 5 minutes of walking in the morning, 5 minutes in the afternoon and 5 minutes in the evening do not qualify. This rule allows the interviewer to code sporadic activities, but it does not force one to code every single minute of activity during the day, which would be too time consuming.

At the end of the interview, ask the participant if he/she forgot any activities.

The interviewer should not guess what intensity an activity is. Have the participant classify all activities into intensity categories, using the rule: running is very hard, brisk walking is moderate, and hard is in between. If the participant is unable to determine the intensity, or the interviewer questions the accuracy of the intensity level reported by the participant, the interviewer refers to the Compendium to determine intensity. The Compendium is not used for every activity; only for those activities for which there is some difficulty with the participant’s

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report of intensity. The final judgement about intensity rests with the interviewer. Use the Compendium as a tool to help make these judgements.

Weekend days should be marked with a “W” above the column.

If the participant offers information about sexual activities, the interviewer should offer his or her thanks, but the activity should not be recorded. However, do not make a point with the participant that the activity won't be recorded.

Certification and Quality Control Monitoring

Initial Interviewer Certification

Prior to conducting physical activity recall interviews for PREMIER, relevant staff are required to be certified in the interview procedure. During initial training for PAR measurement, this certification requires the following steps:

- a. A personal review of an ACT PAR audiotape containing sample 7-day PAR interviews.
- b. Attendance in a three hour training session led by a qualified individual experienced in PAR administration. This session includes practice sessions in which the interviewer has the opportunity to administer at least two practice PAR interviews under the supervision of the instructor. The instructor provides appropriate feedback and guidance.
- c. Personal review by qualified instructor.
- d. Review by qualified instructor of two practice interviews recorded on audiotape.

Initial Certification During Course of Study

For those individuals unable to attend the initial PAR training sessions conducted at the Coordinating Center in June 1999 and those who join the study team while the study is occurring, opportunities at individual Clinical Centers are provided for PAR interviewer certification. There are four stages to this decentralized approach to certification:

- a. A personal review of ACT PAR audiotape containing sample 7-day PAR interviews.
- b. Attendance in a three hour training session led by a qualified individual experienced in PAR administration. This session includes practice sessions in which the interviewer has the opportunity for administering at least two practice PAR interviews under the supervision of the instructor. The instructor provides appropriate feedback and guidance.
- c. Personal review by qualified instructor via telephone or audio tape. The interviewer conducts two practice physical activity interviews under supervision. Feedback is provided and, upon completion, the interviewer is certified.

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Recertification and Monitoring

To minimize “interviewer drift”, all certified PAR interviewers are monitored for quality control. Each interviewer is observed every 6 months by the local master trainer on two separate interviews and provided feedback where necessary. Local master trainers are observed by another local master trainer (if one exists) or by an experienced interviewer every 6 months as well. Local master trainers are re-certified annually at the clinical measures training session.

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Appendix 1: Interviewer script

Note to the interviewer: This script is provided to help in the administration of the 7-Day Physical Activity Recall for PREMIER. While you do not need to memorize this script word for word, you should become familiar enough with it to be able to closely follow along. For the most part, this script only contains what you should say to the participant. Instructions in coding the information and recording it on the 7-Day Physical Activity Recall form are included in the coding instructions attached to the form. Interviewer Tips and Probing Tips are included at the end of this script.

Italicized instructions in parentheses are for the interviewer and are not part of the script to the participant.

(Complete the first question on page 1 and label worksheet with days of the week from yesterday to one week ago, prior to starting the detailed interview.)

(Page 1)

“Hi, *(participant’s name)*. We’re going to do a 7-day physical activity recall together. We’ll go over the last seven days and what you actually did for physical activity or exercise during those days.”

“To start off, what days of the week do you consider to be your weekend or non-work days? For most people this would be Saturday and Sunday but it may be different for you.” *(Record answer under question 2)*

(Page 2)

“There are three intensity levels that we want to talk about. The first one is moderate intensity physical activity. Here are some examples of moderate intensity activities *(show laminated card)*. These would all be about the same intensity as going on a brisk walk.”

“The next level is hard intensity activity, and here are some examples of hard intensity activities *(show laminated card)*. This would be activity that’s a little harder than going on a brisk walk, but not quite as hard as running.”

“The last intensity level is very hard intensity activity. Here are some examples of very hard intensity activities *(show laminated card)*. These would all be about the same intensity as running.”

“Remember, these are just examples, so some of the activities you do that are moderate, hard, or very hard may not be listed on these cards. If you have any questions about how to rate an activity just ask me. A lot of the activities people do are considered light intensity activities,

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which are less than moderate intensity activities. You won't have to report these types of activities."

"We're also going to break the day up into 3 general time segments. Consider morning as the time after you get out of bed until the time you have lunch. Afternoon is the time after lunch, but before dinner, and evening is the time from dinner until the time you get in the bed. Remember, these are just general guidelines that work for most people."

"Let's talk now about your sleeping habits over the last seven days. On those weeknights did you get in bed and get out of bed at the same time or did it vary?" *(Remember for recording purposes, weeknights are the nights before a weekday. Example: if weekdays are Monday – Friday, the weeknights are Sunday – Thursday.)*

Participant says "About the same every night." "OK, what time was it that you got in the bed? What time did you get out of the bed? Did you have any unusual weekdays when you got in bed or out of bed earlier or later? Let's go back to (most recent weekend night). What time did you get in bed on (most recent weekend night) night? What time did you get out of bed on (weekend morning)? How about on (next recent weekend night)? What time did you get in bed? What time did you get out bed on (morning of next weekend night)?"

Participant says, "They vary." "OK, let's think back on last night getting up this morning. What time did you get in the bed last night? What time did you get out of the bed this morning? Let's think back on (night before last) what time was it that you got in the bed? What time did you get out of the bed (yesterday) morning? Repeat by going backwards through the last 7 nights."

"Did you take any naps or lay down for any period of time during the last 7 days?"

"Now we're going to talk about your moderate (*point to card*), hard (*point to card*), and very hard (*point to card*) activities for the last week."

Let's think back on yesterday, which was (yesterday). On yesterday morning, from the time you got out of bed until the time you had lunch, did you do anything you would consider moderate, hard or very hard?"

"How about yesterday afternoon, from the time you had lunch until the time you had dinner?"

"What about last evening, from the time you had dinner until the time you got in the bed. Anything moderate, hard, or very hard?"

(Continue working backward for each day of the week, making sure you prompt them often as to the day of the week and the segment of the day being discussed).

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“Are there any activities you did during the last week that might be moderate, hard, or very hard that we’ve not already talked about?”

“Was this a typical week in terms of your usual pattern of activity or exercise?”

(If “No”) “Were you more or less active in the past week than you usually are?”

(Page 3)

“Up to now, we’ve just been talking about the last 7 days. Now, I’d like you to think about your usual activities and your activities over the last three months. Here is a questionnaire for you to fill out that asks about what types of activities you have done. Let me know if you have any questions.” (Give participant the Activities Questionnaire to fill out).

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Appendix 2: General interviewing techniques

Presented below are general interviewing techniques. Specific issues regarding the 7-day PAR interview and solutions to a variety of problems are offered in Appendix 3.

I. HOW TO GET SATISFACTORY ANSWERS

- A. ***Learn the Purpose of Each Question.*** In order to do a good job of interviewing; you need to understand the kind of information we are trying to get through particular question. Unless you understand its purpose, you will not be able to judge when response is adequate and when you must probe for clarification or for additional information.
- B. ***Don't Attempt to Interpret/Explain the Question – Maintain Neutrality.*** If a participant does not seem to understand a question, repeat the question slowly and clearly. Give the participant time to think about the question (while simultaneously being aware of time allowed for administering the questionnaire). If a participant wants to know what a particular question means, and you do not have specific instructions for that question, the acceptable is: “Whatever it means to you.” Do not attempt to explain the purpose of a question unless the interviewer instructions specifically authorize you to do so.
- C. ***Don't leave a question until you have an adequate answer or have determined that a participant can't give a clearer answer.***

II. PROBING TECHNIQUES

- The two most effective neutral probes are silence and repeating the original question.
- A. ***Silence.*** The value of silence cannot be overestimated. Many people, including interviewers, react to silence as a vacuum that must be filled with constant chatter. The interviewer who can wait quietly and patiently will soon find that 15 seconds of silence is more that most participants can take, and the participant will often expand or clarify a previously inadequate answer.
 - B. ***Repeat the Question or Answer Categories.*** Be sure to repeat the question as stated in the interview script. This is particularly useful when the participant answers a question irrelevantly. In some cases it will be necessary to remind the participant of your frame of reference, i.e., to acknowledge what the participant has said and then bring the participant back to the topic by repeating the question.
 - C. ***Do not accept a “Don't Know” Answer Without Probing at Least Once.*** If a response is a “don't know”, probe by asking: “Well, what do you think?” or “I'd like to know your opinion” (if the question asks for an opinion rather than facts.) If the question deals with facts, we prefer an approximation to no answer at all, and you might probe “what's your best guess?” or “approximately?” to convey the idea that 100% accuracy is not required.
 - D. ***Use Neutral Probes That Do Not Suggest Answers.*** Probes are needed to obtain more complete, accurate answers. All probes must be non-directive, i.e., the probe must not suggest any particular answer to the participant. Probes should be used whenever the participant is hesitant in answering questions; when he/she seems to

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have trouble expressing himself/herself; when he/she seems too shy to speak at length; whenever there is any reason for the interviewer to believe that the participant has not given a complete report of his/her thoughts; and finally, reassuring probes are needed when a participant seems to lack confidence.

E. *Examples of Other Neutral Probes:*

1. In what way?
2. What is that? Why do you feel that way?
3. How do you mean?
4. I would like your impression.
5. I would like your opinion.
6. What do you think?
7. Can you give me an example? or For Example?
8. Can you explain that in a little more detail?
9. How are you using the term?
10. How is that? Or How does that work?
11. Anything at all – even little things?
12. If you had to choose, which would you say?
13. What else can you tell me about that?
14. In general, overall

1. Generally Speaking, Some Probes are Avoided in Favor of others
 - a. Instead of “anything else?” you’ll find that “what else can you tell me about that?” is more likely to elicit answers.
 - b. Instead of “why?” you’ll find “why do you feel that way?” or “I’d be interested in your reasons” accomplishes the same purpose and is less likely to be threatening.
2. Questions Used in Ordinary Conversation Should be Avoided Because They Suggest Answers
 - a. Refrain from asking “do you mean A or B”. This suggests two possible answers and there may be others which may occur to the participant.

F. *Do Not Leave a Probe Dangling.* Always record the response to a probe even if it’s Only “no” or “That’s all I can think of.”

G. *Always Cross Reference.* When you probe to clarify a response, always indicate which response you are clarifying. There will be times when a participant will say something ambiguous and continue talking.

1. If there’s not enough space to record the respondent’s answer, use the margin. Be sure to label these continuations clearly when you edit each completed interview.
2. Don’t ask “do you mean....” People tend to say “yes” to any suggestion either because it’s easy or because they think it’s the right answer.

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Appendix 3: PAR interview tips

- Participant says this wasn't a typical week, doesn't want to do recall on past week, or say information won't be valid. Tell participant there will be a question at the end of the questionnaire where we can note that it wasn't a typical week.
- If the participant isn't putting effort into the recall, take a different approach. Think back on (next day of the week) what did you get up and do on (next day of the week)? When the participant starts to put more effort into the recall, switch back to asking about anything moderate, hard or very hard during each segment of the day.
- Always get the participant to compare their activity to brisk walking, running, or in between walking and running.
- If the participant asks how an activity is classified, get as much information about the activity as possible and then tell them how it is usually classified.
- Assure the participant that it is all right to change answers or add forgotten items to the recall.
- Some participants will be ashamed or embarrassed of low activity levels. Assure them that different people have different activity levels.
- Some participants will apologize profusely if the interviewer has to erase or change an answer that has been given. Tell them that's why we do the interview in pencil and it's more important to get it right.
- Use cues that the participant may have provided during the interview to prompt their memories. If the participant just can't remember, go to the next time segment and at the end of the recall ask again about the missing time segment.
- Using Probing Tips to get complete information on an activity, its intensity, and duration.

Probing Tips

- Get as much detail as possible about an activity, its duration and its intensity, without exhausting the participant or getting bogged down.
- When a participant reports an activity, ask if they consider it moderate, hard, or very hard.
- Remember to liken moderate activity to going on a brisk walk. Hard activity is more than a brisk walk but not quite running. Very hard activity is the same intensity as running.
- Use the laminated cards to help classify activities.
- Ask "How long did you spend in that activity?" "Did you take any breaks?" Were you working at the same intensity level for the whole time?" Try and determine as closely as possible the actual time spent in an activity.
- If you're unsure of what comprises an activity (i.e., yard work), ask the participant to tell you the details of the activity. Determine which activities are moderate, hard, or very hard and record individual times in correct intensity categories.

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- If you are unsure about how to classify an activity, refer to the Compendium of Physical Activities. If you need further help, call Debbie Young at JHU.
- The participant might report that this was a typical week for their pattern of activity. If the recall reflects some unusual activity (i.e., moving an office, cleaning the garage), ask the participant if they normally do (unusual activity) or something equal to that activity every week. If they answer 'no', then the past week was not a typical week. If they say 'yes' then the past seven days were typical.
- Look for facial clues for signs of boredom, confusion, and misunderstanding and adjust the interview accordingly.
- Listen attentively; things the interviewer hears at the first of the recall can be used to aid in the activity recall.
- Control the interview. It needs to be long enough to get the correct information, but not so long that time is wasted in meaningless conversation or useless details.
- Don't try to hide the recall form from the participant, but adopt a casual manner where the participant does not see the completed worksheet.
- Use the calendar to help the participant keep the days straight. If they have brought their own calendar they can use it to help them. Don't openly encourage participants to bring their calendars prior to a 7-day recall.

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Appendix 4: Instructor's Outline

Introduction to Seven-Day PAR Training

Purpose

- To get an estimate of an individual's energy expenditure (including strength & flexibility activities) for previous week.
- Not singling out aerobic activities, looking at activities performed at various levels of energy expenditure.
- Most people spend majority of time doing light activity
- Exception: Stocking shelves at work (moderate)
- History of PAR

Interviewer Preparation Guidelines

Explain following items before beginning interview:

- Recall of actual activities for past week, not a history
- Not interested in light activities
- Have to be same or higher intensity as walking briskly

Categorization of activity

- Moderate – similar to how you feel when you're walking briskly
- Very Hard – similar to how you feel when you're running
- Hard – falls in between

Interview Protocol and Guidelines

Establishing days for recall

- Start with yesterday and work backwards (see manual)
- Label worksheet with days of the week

Sleep

- Start with yesterday and work backwards (see manual)
- Want an estimate of individual's hours in bed, not necessarily asleep
- Write total hours at top in that day's column – easier to wait until later to add up totals
- Prompt: ask if they have a regular time that they go to bed and get up, especially if they are having trouble remembering – also ask what they did that night to help them remember

Activity

- Start with yesterday and work backwards (see manual)

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Appendix 5: List of activities and intensity levels

Compendium of Physical Activities: classification of energy costs of human physical activities

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ABSTRACT

AINSWORTH, B. E., W. L. HASKELL, A. S. LEON, D. R. JACOBS, JR., H. J. MONTOYE, J. F. SALLIS, and R. S. PAFFENBARGER, JR. Compendium of Physical Activities: classification of energy costs of human physical activities. *Med. Sci. Sports Exerc.*, Vol. 25, No. 1, pp. 71-80, 1993. A coding scheme is presented for classifying physical activity by rate of energy expenditure, i.e., by intensity. Energy cost was established by a review of published and unpublished data. This coding scheme employs five digits that classify activity by purpose (i.e., sports, occupation, self-care), the specific type of activity, and its intensity as the ratio of work metabolic rate to resting metabolic rate (METs). Energy expenditure in kilocalories or kilocalories per kilogram body weight can be estimated for all activities, specific activities, or activity types. General use of this coding system would enhance the comparability of results across studies using self reports of physical activity.

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EXERCISE, EXERTION, PHYSICAL ACTIVITY

The proliferation of self-report measures of physical activity reflects growing interest in the study of physical activity and its relation to various health outcomes. A common problem faced by researchers is the coding of physical activities by type and by intensity. Each researcher has devised a coding system to fit his or her purposes. While there are similarities across published systems, there are also differences that limit the comparability of results across studies and add confusion to the field. The availability of a comprehensive list of physical activities coded with a standardized system that is flexible enough to meet multiple needs of physical activity researchers would facilitate research in this area.

This Compendium of Physical Activities has been developed to facilitate the coding of physical activities and to promote comparability of coding across studies. The Compendium is designed to be useful for investigators who collect data on physical activity by diary, recall, or direct observation methods. The physical activity data may be used to describe activity patterns of populations, to study determinants of physical activity, or to investigate the relations between physical activity, health and disease. Because each activity can be coded by function, specific type, and intensity, the same compendium can be used for many different purposes and in both clinical and epidemiologic studies.

The intensity or energy cost values were derived from the best available published and unpublished data. Most sources have been used extensively by investigators in the past, but this Compendium has integrated these sources and offers a single coding system that can serve as a common source for subsequent research.

CODING SCHEME

This activity classification system was a product of a multicenter Request For Applications from the Epidemiology section of the National Heart, Lung, and Blood Institute (NHLBI) for the purpose of validating physical activity measurement techniques. It provides a comprehensive system for coding physical data on physical activity by purpose and energy cost. The energy cost of specific activities listed in this Compendium were obtained primarily from the following previously published physical activity energy expenditure lists: Tecumseh Occupational Questionnaire (13,14), Minnesota Leisure Time Physical Activity Questionnaire (LTPA) (5, 10), McArdle, Katch, and Katch's physical activity list (7,9), the 7-Day Recall Physical Activity Questionnaire (2), and the American Health Foundation's physical activity list (8). Activities from the LTPA were identified by a T followed by a number (e.g., T115). By retaining the LTPA designator codes, the new list may be used to score the LTPA with its original physical activity intensity codes.

As would be expected, there was considerable overlap in energy expenditure values among the supplied lists. For example, the Minnesota LTPA, which was developed from the Tecumseh Leisure Time Questionnaire, identifies similar activities; while the list of activities from the 7-Day Physical Activity Recall questionnaire is nearly identical to that of McArdle, Katch, and

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Katch (9). In general, the majority of the energy expenditure lists were generated from Passmore and Durnin (11); while McArdle, Katch, and Katch (9) also used data derived from Bannister and Brown (1) and Howley and Glover (6).

The intensity assigned to activities in this publication were determined by selecting a mean energy expenditure value from the eight sources mentioned previously. The representative intensity levels were determined by consensus of the authors.

Organization

The Compendium of Physical Activities is organized to maximize flexibility in coding, data entry, and interpretation of energy cost for each class and type of activity.

Activity coding. The coding scheme for the Compendium of Activities employs a five-digit code in order to categorize activities by their major heading (first two digits on the left), specific activity (last three digits on the right), and intensity (3-digit column). The coding scheme is organized in the following way:

<u>00</u>	<u>000</u>	<u>00.0</u>
major headings	specific activity	intensity

For example

01	009	08.5
bicycling	bmx	METs

Major headings. The Compendium is organized by activity types or purpose and includes activities of daily living or self care, leisure and recreation, occupation, and rest (Table 1). The major headings explain the reason a person is engaging in a specific activity and is useful in categorizing activity types.

Identification of the proper major heading is the initial step in classifying an activity. However, it is possible that there may be more than one reason for performing an activity; thus, a specific activity may be listed under more than one major heading. For example, an individual may sit and read a book for pleasure in one situation and at another time read a document as a job requirement. These may be classified under the major headings of rest or inactivity and occupation depending on their purpose. Assumptions made for the placement of activities into major headings are listed in Appendix 2.

Specific activities. The specific activity descriptions range from a general classification of an activity (e.g., tennis, general) to a detailed description that includes the form and intensity of the activity (e.g., tennis, singles, vigorous effort) depending on the information gathered by the survey method. Activities without a specified intensity are classified as "general." More detailed descriptions of activities are preferred since an appropriate intensity can be assigned. Guidelines for coding specific activities within major headings are listed in Appendix 3.

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Intensity of activities. All activities are assigned an intensity unit based on their rate of energy expenditure expressed as METS. The intensity of activities in the Compendium are classified as multiples of one MET or the ratio of the associated metabolic rate for the specific activity divided by the resting metabolic rate (RMR). For example, a 2-MET activity requires two times the metabolic energy expenditure of sitting quietly. One MET is also defined as the energy expenditure for sitting quietly, which for the average adult is approximately 3.5 ml of oxygen (kg body weight-1 (min-1 or 1 kcal (kg-1 body weight (h-1.

TABLE 1. Major types of activities

Bicycling	Lawn and garden	Sports
Conditioning exercises	Miscellaneous	Transportation
Dancing	Music playing	Walking
Fishing and hunting	Occupation	Water activities
Home activities	Running	Winter activities
Home repair	Self-Care	
Inactivity	Sexual activity	

A MET value was assigned to each activity in the Compendium and was based on the ‘best representation’ from published lists and selected unpublished data as was previously mentioned. For activities not in the original lists, intensity was obtained from published literature, if possible, and assigned a MET value or estimated from similar known activities (3,4,11,16).

Only data for adults were included in this Compendium, When children's games are listed in the Compendium, the intensity level is for adults participating in children's activities. Further, the Compendium is not intended to be used for adults with major neuromuscular handicaps or other conditions that would significantly alter their mechanical or metabolic efficiency.

Calculation of Energy Cost

Energy expenditure values can be expressed in kcal (kg-1 body weight (h-1, kcal (min-1, kcal (h-1, or kcal (24 h-1. The most accurate way to determine the kilocalorie energy cost of an activity is to measure the kcal expended during rest (i.e., the RMR) and multiply that value by the MET values listed in the Compendium. Because RMR is fairly close to 1 kcal (kg body weight-1 (h-1, the energy cost of activities may be expressed as multiples of the RMR (15). By multiplying the body weight in kg by the MET value and duration of activity, it is possible to estimate a kcal energy expenditure that is specific to a person's body weight. For example, bicycling at a 4 MET value expends 4 kcal (kg-1 body weight (h-1. A 60-kg individual bicycling for 40 min expends the following: (4 METs x 60 kg body weight) x (40 min/60 min) = 160 kcal. Dividing 160 kcal by 40 min equals 4 kcal (min-1. Using the same formula for an 80-kg person would yield an energy expenditure of 213 kcal or 5.3 kcal (min-1. However, it is important to note that to the extent the RMR is not equal to 1 kcal (kg body weight-1 (h-1 for

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individuals, then estimates of energy expenditure that include weight will more closely reflect body weight than the metabolic rate (2).

Use of the Compendium for PA Records or Diaries

For records or diaries the data collection forms should be organized in a way to identify each activity's major heading, classify the intensity level, and then record the duration to ensure accurate data entry. Figure 1 shows an example of a section of a data collection form that may be used for this purpose.

It is important the participant complete all questions except the space labeled "for clinic use only." The clinic staff will use this space to record the activity code or MET value for data analysis. The space labeled "reason for activity" is to help the coder decide under which major heading to place the activity. The intensity rating is designed to help the coder in assigning the appropriate MET value. Intensity terms of light, moderate, heavy or vigorous, and very heavy or very vigorous should be used in classifying intensity. In the case of walking, the corresponding intensity terms are very slow, slow, moderate, brisk, and very brisk. If a coder does not plan to use the five digit code for data analysis, a space can be provided on the questionnaire to record the MET values to calculate kcal scores.

Type of Activity	Reason for Activity	Subjective Intensity Level	Duration Hours:Min	Code or MET level (for clinic use only)
1. _____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____

Figure 1 - Example of a section of recording form that asks participants to list the types of physical activities performed, reasons for engaging in the activities, a rating of the participants' impression of the intensity level (light, moderate, vigorous, very vigorous), and the duration of the activities in hours and minutes.

Discussion and Limitations

The Compendium of Activities is a classification system that groups physical activities by purpose and provides flexibility in determining energy cost. However, there are several factors that may limit the use of the Compendium for determining the precise energy cost of PA. The activity classification system was primarily based on previously published data and as such may not reflect the exact energy cost of all physical activities. Since often the values are merely averages, they do not take into account that some people perform activities more vigorously than others. In addition, the MET values of some activities were not derived from actual measurements of oxygen consumption; instead they were estimated from the energy cost of activities having similar movement patterns. Therefore, the estimates may have ill-defined confidence limits around the mean MET values. For activities in which the parameters are undefined, individual differences in energy expenditure can be large and the true energy cost for

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a person may or may not be close to the stated mean. This does not reduce the value of the standard intensity codes, but it is an important perspective from which to view the Compendium. Calculation of kcal energy expenditure from body weight and MET values may also affect the energy cost of activities. Therefore, use of the kcal scores in correlation analyses should be used with caution since coefficients may reflect body weight rather than the actual energy cost of activities. Expression of energy expenditure scores as kcal (kg-1 body weight (h-1 or kcal (kg-1 body weight (day-1 will eliminate this effect. Individual variation in movement patterns and differences in the way activity is reported (i.e., effort, pace, age, and gender differences) may influence the energy cost of activities also. For example, one person may rate his or her walking pace as "brisk" while another classifies the same pace as "slow." The Compendium cannot account for individual differences in movement efficiency; however, variation in how physical activities are recorded can be reduced by providing instruction to participants on how to classify energy expenditure (i.e., 3 mph is moderate walking), standardizing data recording techniques, and having trained interviewers review the data with participants for clarity before energy costs are calculated.

SUMMARY AND CONCLUSIONS

The Compendium of Physical Activities is a unique coding system that classifies the energy cost of physical activities. Based on previously published data, it groups activities by purpose and intensity expressed as METs. The Compendium is easy to use and provides flexibility in calculating the energy cost of various types of physical activities. Despite its possible limitations, the Compendium of Physical Activities is useful for coding physical activity questionnaires or records used in physical activity research, education, and clinic settings.

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APPENDIX 1. Compendium of physical activities

Mets	Activity Level	Activity	Description
8.5	VH	Bicycling	Bicycling, BMX or mountain
4.0	M	Bicycling	Bicycling, <10 mph, general, leisure, to work or for pleasure
6.0	H	Bicycling	Bicycling, 10-11.9 mph, leisure, slow, light effort
8.0	VH	Bicycling	Bicycling, 12-13.9 mph, leisure, moderate effort
10.0	VH	Bicycling	Bicycling, 14-15.9 mph, racing or leisure, fast, vigorous effort
12.0	VH	Bicycling	Bicycling, 16-19 mph, racing/not drafting or > 19 mph drafting, very fast, racing general
16.0	VH	Bicycling	Bicycling, >20 mph, racing, not drafting
5.0	M	Bicycling	Unicycling
5.0	M	Conditioning exercise	Bicycling, stationary, general
3.0	M	Conditioning exercise	Bicycling, stationary, 50 W, very light effort
5.5	H	Conditioning exercise	Bicycling, stationary, 100 W, light effort
7.0	VH	Conditioning exercise	Bicycling, stationary, 150 W, moderate effort
10.5	VH	Conditioning exercise	Bicycling, stationary, 200 W, vigorous effort
12.5	VH	Conditioning exercise	Bicycling, stationary, 250 W, very vigorous effort
8.0	VH	Conditioning exercise	Calisthenics (e.g., pushups, pullups, situps), heavy, vigorous effort
4.5	M	Conditioning exercise	Calisthenics, home exercise, light or moderate effort, general (example: back exercises), going up and down from floor
8.0	VH	Conditioning exercise	Circuit training, general
6.0	H	Conditioning exercise	Weight lifting (free weight, nautilus or universal-type), power lifting or body building, vigorous effort
5.5	H	Conditioning exercise	Health club exercise, general (T 160)
6.0	H	Conditioning exercise	Stair-treadmill ergometer, general
9.5	VH	Conditioning exercise	Rowing, stationary ergometer, general
3.5	M	Conditioning exercise	Rowing, stationary, 50 W, light effort
7.0	VH	Conditioning exercise	Rowing, stationary, 100 W, moderate effort

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8.5	VH	Conditioning exercise	Rowing, stationary, 150 W, vigorous effort
12.0	VH	Conditioning exercise	Rowing, stationary, 200 W, very vigorous effort
9.5	VH	Conditioning exercise	Ski machine, general
6.0	H	Conditioning exercise	Slimnastics
4.0	M	Conditioning exercise	Stretching, hatha yoga
6.0	H	Conditioning exercise	Teaching aerobic exercise class
4.0	M	Conditioning exercise	Water aerobics, water calisthenics
3.0	M	Conditioning exercise	Weight lifting (free, nautilus, or universal type), light or moderate effort, light workout, general
1.0		Conditioning exercise	Whirlpool, sitting
6.0	H	Dancing	Aerobic, ballet or modern, twist
6.0	H	Dancing	Aerobic, general
5.0	M	Dancing	Aerobic, low impact
7.0	VH	Dancing	Aerobic, high impact
4.5	M	Dancing	General
5.5	H	Dancing	Ballroom, fast (disco, folk, square)
3.0	M	Dancing	Ballroom, slow (e.g., waltz, foxtrot, slow dancing)
4.0	M	Fishing and hunting	Fishing, general
4.0	M	Fishing and hunting	Digging worms, with shovel
5.0	M	Fishing and hunting	Fishing from river bank and walking
2.5		Fishing and hunting	Fishing from boat, sitting
3.5	M	Fishing and hunting	Fishing from river bank, standing
6.0	H	Fishing and hunting	Fishing in stream, in waders
2.0		Fishing and hunting	Fishing, ice, sitting
2.5		Fishing and hunting	Hunting, bow and arrow or crossbow
6.0	H	Fishing and hunting	Hunting, deer, elk, large game
2.5		Fishing and hunting	Hunting, duck, wading
5.0	M	Fishing and hunting	Hunting, general
6.0	H	Fishing and hunting	Hunting, pheasants or grouse
5.0	M	Fishing and hunting	Hunting, rabbit, squirrel, prairie chick, raccoon, small game
2.5		Fishing and hunting	Pistol shooting or trap shooting, standing
2.5		Home activities	Carpet sweeping, sweeping floors
4.5	M	Home activities	Cleaning, heavy or major (e.g., wash car, wash windows, mop, clean garage), vigorous effort
3.5	M	Home activities	Cleaning, house or cabin, general

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2.5		Home activities	Cleaning, light (dusting, straightening up, vacuuming, changing linen, carrying out trash), moderate effort
2.3		Home activities	Wash dishes-standing or in general (not broken into stand/walk components)
2.3		Home activities	Wash dishes; clearing dishes from the table-walking
2.5		Home activities	Cooking or food preparation-standing or sitting or in general (not broken into stand/walk components)
2.5		Home activities	Serving food, setting table-IMPLIED walking or standing
2.5		Home activities	Cooking or food preparation-walking
2.5		Home activities	Putting away groceries (e.g., carrying groceries, shopping without a grocery cart)
8.0	VH	Home activities	Carrying groceries upstairs
3.5	M	Home activities	Food shopping, with grocery cart
2.0		Home activities	Standing-shopping (non-grocery shopping)
2.3		Home activities	Walking-shopping (non-grocery shopping)
2.3		Home activities	Ironing
1.5		Home activities	Sitting, knitting, sewing, light wrapping (presents)
2.0		Home activities	IMPLIED standing-laundry, fold or hang clothes, put clothes in washer or dryer, packing suitcase
2.3		Home activities	IMPLIED walking-putting away clothes, gathering clothes to pack, putting away laundry
2.0		Home activities	Making bed
5.0	M	Home activities	Maple syruping/sugar bushing (including carrying buckets, carrying wood)
6.0	H	Home activities	Moving furniture, household
5.5	H	Home activities	Scrubbing floors, on hands and knees
4.0	M	Home activities	Sweeping garage, sidewalk or outside of house
7.0	VH	Home activities	Moving household items, carrying boxes
3.5	M	Home activities	Standing-packing/unpacking boxes, occasional lifting of household items, light-moderate effort
3.0	M	Home activities	IMPLIED walking-putting away household items-moderate effort

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9.0	VH	Home activities	Move household items upstairs, carrying boxes or furniture
2.5		Home activities	Standing-light (pump gas, change light bulb, etc.)
3.0	M	Home activities	Walking-light, non-cleaning (ready to leave, shut/lock doors, close windows, etc.)
2.5		Home activities	Sitting-playing with child(ren)-light
2.8		Home activities	Standing-playing with child(ren)-light
4.0	M	Home activities	Walk/run-playing with child(ren)-moderate
5.0	M	Home activities	Walk/run-playing with child(ren)-vigorous
3.0	M	Home activities	Child care: sitting/kneeling-dressing, bathing, grooming, feeding, occasional lifting of child-light effort
3.5	M	Home activities	Child care: standing-dressing, bathing, grooming, feeding, occasional lifting of child-light effort
3.0	M	Home repair	Airplane repair
4.5	M	Home repair	Automobile body work
3.0	M	Home repair	Automobile repair
3.0	M	Home repair	Carpentry, general, workshop
6.0	H	Home repair	Carpentry, outside house, installing rain gutters
4.5	M	Home repair	Carpentry, finishing or refinishing cabinets or furniture
7.5	VH	Home repair	Carpentry, sawing hardwood
5.0	M	Home repair	Caulking, chinking log cabin
4.5	M	Home repair	Caulking, except log cabin
5.0	M	Home repair	Cleaning gutters
5.0	M	Home repair	Excavating garage
5.0	M	Home repair	Hanging storm windows
4.5	M	Home repair	Laying or removing carpet
4.5	M	Home repair	Laying tile or linoleum
5.0	M	Home repair	Painting, outside house
4.5	M	Home repair	Painting, papering, plastering, scraping, inside house hanging sheet rock, remodeling
3.0	M	Home repair	Put on and removal of tarp-sailboat
6.0	H	Home repair	Roofing
4.5	M	Home repair	Sanding floors with a power sander
4.5	M	Home repair	Scrape and paint sailboat or powerboat
5.0	M	Home repair	Spreading dirt with a shovel

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4.5	M	Home repair	Wash and wax hull of sailboat, car, powerboat, airplane
4.5	M	Home repair	Washing fence
3.0	M	Home repair	Wiring, plumbing
0.9		Inactivity, quiet	Lying quietly, reclining (watch television) lying quietly in bed-awake
1.0		Inactivity, quiet	Sitting quietly (riding in a car, listening to a lecture or music, watch television or a movie)
0.9		Inactivity, quiet	Sleeping
1.2		Inactivity, quiet	Standing quietly (standing in line)
1.0		Inactivity, light	Recline-writing
1.0		Inactivity, light	Recline-talking or talking on phone
1.0		Inactivity, light	Recline-reading
5.0	M	Lawn and garden	Carrying, loading or stacking wood, loading/unloading or carrying lumber
6.0	H	Lawn and garden	Chopping wood, splitting logs
5.0	M	Lawn and garden	Clearing land, hauling branches
5.0	M	Lawn and garden	Digging sandbox
5.0	M	Lawn and garden	Digging, spading, filling garden
6.0	H	Lawn and garden	Gardening with heavy power tools, tilling a garden (see occupation, shoveling)
5.0	M	Lawn and garden	Laying crushed rock
5.0	M	Lawn and garden	Laying sod
5.5	H	Lawn and garden	Mowing lawn, general
2.5		Lawn and garden	Mowing, lawn, riding mower
6.0	H	Lawn and garden	Mowing lawn, walk, hand mower
4.5	M	Lawn and garden	Mowing lawn, walk, power mower
4.5	M	Lawn and garden	Operating snow blower, walking
4.0	M	Lawn and garden	Planting seedlings, shrubs
4.5	M	Lawn and garden	Planting trees
4.0	M	Lawn and garden	Raking lawn
4.0	M	Lawn and garden	Raking roof with snow rake
3.0	M	Lawn and garden	Riding snow blower
4.0	M	Lawn and garden	Sacking grass, leaves
6.0	H	Lawn and garden	Shoveling, snow, by hand
4.5	M	Lawn and garden	Trimming shrubs or trees, manual cutter
3.5	M	Lawn and garden	Trimming shrubs or trees, power cutter
2.5		Lawn and garden	Walking, applying fertilizer or seeding a lawn
1.5		Lawn and garden	Watering lawn or garden, standing or walking

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4.5	M	Lawn and garden	Weeding cultivating garden
5.0	M	Lawn and garden	Gardening, general
3.0	M	Lawn and garden	Implied walking/standing-picking up yard, light
1.5		Miscellaneous	Sitting, card playing, playing board game
2.0		Miscellaneous	Standing-drawing (writing), casino gambling
1.3		Miscellaneous	Sitting-reading book, newspaper, etc.
1.8		Miscellaneous	Sitting-writing, desk work
1.8		Miscellaneous	Standing-talking or talking on the phone
1.5		Miscellaneous	Sitting-talking or talking on the phone
1.8		Miscellaneous	Sitting-studying, general, including reading and /or writing
1.8		Miscellaneous	Sitting-in class, general, including note-taking or class discussion
1.8		Miscellaneous	Standing-reading
1.8		Music playing	Accordion
2.0		Music playing	Cello
2.5		Music playing	Conducting
4.0	M	Music playing	Drums
2.0		Music playing	Flute (sitting)
2.0		Music playing	Horn
2.5		Music playing	Piano or organ
3.5	M	Music playing	Trombone
2.5		Music playing	Trumpet
2.5		Music playing	Violin
2.0		Music playing	Woodwind
2.0		Music playing	Guitar, classical, folk (sitting)
3.0	M	Music playing	Guitar, rock and roll band (standing)
4.0	M	Music playing	Marching band, playing an instrument, baton twirling (walking)
3.5	M	Music playing	Marching band, drum major (walking)
4.0	M	Occupation	Bakery, general
2.3		Occupation	Bookbinding
6.0	H	Occupation	Building road (including hauling debris, driving heavy machinery)
2.0		Occupation	Building road, directing traffic (standing)
3.5	M	Occupation	Carpentry, general
8.0	VH	Occupation	Carrying heavy loads, such as bricks
8.0	VH	Occupation	Carrying moderate loads up stairs, moving boxes (16-40 pounds)
2.5		Occupation	Chambermaid

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6.5	H	Occupation	Coal mining, drilling coal, rock
6.5	H	Occupation	Coal mining, erecting supports
6.0	H	Occupation	Coal mining, general
7.0	VH	Occupation	Coal mining, shoveling coal
5.5	H	Occupation	Construction, outside, remodeling
3.5	M	Occupation	Electric work, plumbing
8.0	VH	Occupation	Farming, baling hay, cleaning barn, poultry work
3.5	M	Occupation	Farming, chasing cattle, non-strenuous
2.5		Occupation	Farming, driving harvester
2.5		Occupation	Farming, driving tractor
4.0	M	Occupation	Farming, feeding small animals
4.5	M	Occupation	Farming, feeding cattle
8.0	VH	Occupation	Farming, forking straw bales
3.0	M	Occupation	Farming, milking by hand
1.5		Occupation	Farming, milking by machine
5.5	H	Occupation	Farming, shoveling grain
12.0	VH	Occupation	Fire fighter, general
11.0	VH	Occupation	Fire fighter, climbing ladder with full gear
8.0	VH	Occupation	Fire fighter, hauling hoses on ground
17.0	VH	Occupation	Forestry, ax chopping, fast
5.0	M	Occupation	Forestry, ax chopping, slow
7.0	VH	Occupation	Forestry, barking trees
11.0	VH	Occupation	Forestry, carrying logs
8.0	VH	Occupation	Forestry, felling trees
8.0	VH	Occupation	Forestry, general
5.0	M	Occupation	Forestry, hoeing
6.0	H	Occupation	Forestry, planting by hand
7.0	VH	Occupation	Forestry, sawing by hand
4.5	M	Occupation	Forestry, sawing, power
9.0	VH	Occupation	Forestry, trimming trees
4.0	M	Occupation	Forestry, weeding
4.5	M	Occupation	Furriery
6.0	H	Occupation	Horse grooming
8.0	VH	Occupation	Horse racing, galloping
6.5	H	Occupation	Horse racing, trotting
2.6		Occupation	Horse racing, walking
3.5	M	Occupation	Locksmith
2.5		Occupation	Machine tooling, machining, working sheet metal
3.0	M	Occupation	Machine tooling, operating lathe
5.0	M	Occupation	Machine tooling, operating punch press

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4.0	M	Occupation	Machine tooling, tapping and drilling
3.0	M	Occupation	Machine tooling, welding
7.0	VH	Occupation	Masonry, concrete
4.0	M	Occupation	Masseur, masseuse (standing)
7.0	VH	Occupation	Moving, pushing heavy objects, 75 lbs or more (desks, moving van work)
2.5		Occupation	Operating heavy duty equipment/automated, not driving
4.5	M	Occupation	Orange grove work
2.3		Occupation	Printing (standing)
2.5		Occupation	Police, directing traffic (standing)
2.0		Occupation	Police, driving a squad car (sitting)
1.3		Occupation	Police, riding in a squad car (sitting)
8.0	VH	Occupation	Police, making an arrest (standing)
2.5		Occupation	Shoe repair, general
8.5	VH	Occupation	Shoveling, digging ditches
9.0	VH	Occupation	Shoveling, heavy (more than 16 lbs. · min ⁻¹)
6.0	H	Occupation	Shoveling, light (less than 10 lbs. · min ⁻¹)
7.0	VH	Occupation	Shoveling, moderate (10-15 lbs. · min ⁻¹)
1.5		Occupation	Sitting-light office work, in general (chemistry lab work, light use of handtools, watch repair or micro-assembly, light assembly/repair)
1.5		Occupation	Sitting-meetings, general, and/or with talking involved
2.5		Occupation	Sitting; moderate (heavy levers, riding mower/forklift, crane operation)
2.5		Occupation	Standing; light (bartending, store clerk, assembling, filing, xeroxing, put up Christmas tree)
3.0	M	Occupation	Standing; light/moderate (assemble/repair heavy parts, welding, stocking, auto repair, pack boxes for moving, etc.), patient care (as in nursing)
3.5	M	Occupation	Standing; moderate (assembling at fast rate, lifting 50 lbs, hitch/twisting ropes)
4.0	M	Occupation	Standing; moderate/heavy (lifting more than 50 lb, masonry, painting, paper hanging)
5.0	M	Occupation	Steel mill, fetting
5.5	H	Occupation	Steel mill, forging
8.0	VH	Occupation	Steel mill, hand rolling
8.0	VH	Occupation	Steel mill, merchant mill rolling

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11.0	VH	Occupation	Steel mill, removing slag
7.5	VH	Occupation	Steel mill, tending furnace
5.5	H	Occupation	Steel mill, tipping molds
8.0	VH	Occupation	Steel mill, working in general
2.5		Occupation	Tailoring, cutting
2.5		Occupation	Tailoring, general
2.0		Occupation	Tailoring, hand sewing
2.5		Occupation	Tailoring, machine sewing
4.0	M	Occupation	Tailoring, pressing
6.5	H	Occupation	Truck driving, loading and unloading truck (standing)
1.5		Occupation	Typing, electric, manual or computer
6.0	H	Occupation	Using heavy power tools such as pneumatic tools (jackhammers, drills, etc.)
8.0	VH	Occupation	Using heavy tools (not power) such as shovel, pick, tunnel bar, spade
2.0		Occupation	Walking on job, less than 2.0 mph (in office or lab area), very slow
3.5	M	Occupation	Walking on job, 3.0 mph, in office, moderate speed, not carrying anything
4.0	M	Occupation	Walking on job, 3.5 mph, in office, brisk speed, not carrying anything
3.0	M	Occupation	Walking, 2.5 mph, slowly and carrying light objects less than 25 lbs
4.0	M	Occupation	Walking, 3.0 mph, moderately and carrying light objects less than 25 lbs
4.5	M	Occupation	Walking, 3.5 mph, briskly and carrying objects less than 25 lbs
5.0	M	Occupation	Walking or walk downstairs or standing, carrying objects about 25-49 lbs
6.5	H	Occupation	Walking or walk downstairs or standing, carrying objects about 50-74 lbs
7.5	VH	Occupation	Walking or walk downstairs or standing, carrying objects about 75-99 lbs
8.5	VH	Occupation	Walking or walk downstairs or standing, carrying objects about 100 lbs and over
3.0	M	Occupation	Working in scene shop, theater actor, backstage, employee
6.0	H	Running	Jog/walk combination (jogging component of less than 10 min) (T 180)
7.0	VH	Running	Jogging, general
8.0	VH	Running	Running, 5 mph (12 min·mile ⁻¹)

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9.0	VH	Running	Running, 5.2 mph (11.5 min·mile ⁻¹)
10.0	VH	Running	Running, 6 mph (10 min·mile ⁻¹)
11.0	VH	Running	Running, 6.7 mph (9 min·mile ⁻¹)
11.5	VH	Running	Running, 7 mph (8.5 min·mile ⁻¹)
12.5	VH	Running	Running, 7.5 mph (8 min·mile ⁻¹)
13.5	VH	Running	Running, 8 mph (7.5 min·mile ⁻¹)
14.0	VH	Running	Running, 8.6 mph (7 min·mile ⁻¹)
15.0	VH	Running	Running, 9 mph (6.5 min·mile ⁻¹)
16.0	VH	Running	Running, 10 mph (6 min·mile ⁻¹)
18.0	VH	Running	Running, 10.9 mph (5.5 min·mile ⁻¹)
9.0	VH	Running	Running, cross-country
8.0	VH	Running	Running, general
8.0	VH	Running	Running, in place
15.0	VH	Running	Running, stairs, up
10.0	VH	Running	Running, on a track, team practice
8.0	VH	Running	Running, training, pushing wheelchair, marathon wheeling
3.0	M	Running	Running, wheeling, general
2.5		Self-care	Standing-getting ready for bed, in general
1.0		Self-care	Sitting on toilet
2.0		Self-care	Bathing (sitting)
2.5		Self-care	Dressing, undressing (standing or sitting)
1.5		Self-care	Eating (sitting)
2.0		Self-care	Talking and eating or eating only (standing)
2.5		Self-care	Sitting or standing – grooming (washing, shaving, brushing teeth, urinating, washing hands, put on make-up)
4.0	M	Self-care	Showering, toweling off (standing)
1.5		Sexual activity	Active, vigorous effort
1.3		Sexual activity	General, moderate effort
1.0		Sexual activity	Passive, light effort, kissing, hugging
3.5	M	Sports	Archery (non-hunting)
7.0	VH	Sports	Badminton, competitive
4.5	M	Sports	Badminton, social singles and doubles, general
8.0	VH	Sports	Basketball, game
6.0	H	Sports	Basketball, nongame, general
7.0	VH	Sports	Basketball, officiating
4.5	M	Sports	Basketball, shooting baskets
6.5	H	Sports	Basketball, wheelchair
2.5		Sports	Billiards
3.0	M	Sports	Bowling

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12.0	VH	Sports	Boxing, in ring, general
6.0	H	Sports	Boxing, punching bag
9.0	VH	Sports	Boxing, sparring
7.0	VH	Sports	Broomball
5.0	M	Sports	Children's games (hopscotch, 4-square, dodgeball, playground apparatus, t-ball, tetherball, marbles, jacks, arcade games)
4.0	M	Sports	Coaching: football, soccer, basketball, baseball, swimming, etc.
5.0	M	Sports	Cricket (batting, bowling)
2.5		Sports	Croquet
4.0	M	Sports	Curling
2.5		Sports	Darts, wall or lawn
6.0	H	Sports	Drag racing, pushing or driving a car
6.0	H	Sports	Fencing
9.0	VH	Sports	Football, competitive
8.0	VH	Sports	Football, touch, flag, general
2.5		Sports	Football or baseball, playing catch
3.0	M	Sports	Frisbee playing, general
3.5	M	Sports	Frisbee, ultimate
4.5	M	Sports	Golf, general
5.5	H	Sports	Golf, carrying clubs
3.0	M	Sports	Golf, miniature, driving range
5.0	M	Sports	Golf, pulling clubs
3.5	M	Sports	Golf, using power cart
4.0	M	Sports	Gymnastics, general
4.0	M	Sports	Hacky sack
12.0	VH	Sports	Handball, general
8.0	VH	Sports	Handball, team
3.5	M	Sports	Hang gliding
8.0	VH	Sports	Hockey, field
8.0	VH	Sports	Hockey, ice
4.0	M	Sports	Horseback riding, general
3.5	M	Sports	Horseback riding, saddling horse
6.5	H	Sports	Horseback riding, trotting
2.5		Sports	Horseback riding, walking
3.0	M	Sports	Horseshoe pitching, quoits
12.0	VH	Sports	Jai alai
10.0	VH	Sports	Judo, jujitsu, karate, kick boxing, tae kwan do
4.0	M	Sports	Juggling
7.0	VH	Sports	Kickball

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8.0	VH	Sports	Lacrosse
4.0	M	Sports	Motocross
9.0	VH	Sports	Orienteering
10.0	VH	Sports	Paddleball, competitive
6.0	H	Sports	Paddleball, casual, general
8.0	VH	Sports	Polo
10.0	VH	Sports	Racketball, competitive
7.0	VH	Sports	Racketball, casual, general
11.0	VH	Sports	Rock climbing, ascending rock
8.0	VH	Sports	Rock climbing, rappelling
12.0	VH	Sports	Rope jumping, fast
10.0	VH	Sports	Rope jumping, moderate, general
8.0	VH	Sports	Rope jumping, slow
10.0	VH	Sports	Rugby
3.0	M	Sports	Shuffleboard, lawn bowling
5.0	M	Sports	Skateboarding
7.0	VH	Sports	Skating, roller
3.5	M	Sports	Sky diving
10.0	VH	Sports	Soccer, competitive
7.0	VH	Sports	Soccer, casual, general
5.0	M	Sports	Softball or baseball, fast or slow pitch, general
4.0	M	Sports	Softball, officiating
6.0	H	Sports	Softball, pitching
12.0	VH	Sports	Squash
4.0	M	Sports	Table tennis, ping pong
4.0	M	Sports	Tai chi
7.0	VH	Sports	Tennis, general
6.0	H	Sports	Tennis, doubles
8.0	VH	Sports	Tennis, singles
3.5	M	Sports	Trampoline
4.0	M	Sports	Volleyball, competitive, in gymnasium
3.0	M	Sports	Volleyball, noncompetitive; 6-9 member team, general
8.0	VH	Sports	Volleyball, beach
6.0	H	Sports	Wrestling (one match = 5 min)
7.0	VH	Sports	Wallyball, general
2.0		Transportation	Automobile or light truck (not a semi) driving
2.0		Transportation	Flying airplane
2.5		Transportation	Motor scooter, motorcycle

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6.0	H	Transportation	Pushing plane in and out of hangar
3.0	M	Transportation	Driving heavy truck, tractor, bus
7.0	VH	Walking	Backpacking, general
3.5	M	Walking	Carrying infant or 15-lb load (e.g., suitcase), level ground or downstairs
9.0	VH	Walking	Carrying load upstairs, general
5.0	M	Walking	Carrying 1- to 15-lb load, upstairs
6.0	H	Walking	Carrying 16- to 24-lb load, upstairs
8.0	VH	Walking	Carrying 25- to 49-lb load, upstairs
10.0	VH	Walking	Carrying 50- to 74-lb load, upstairs
12.0	VH	Walking	Carrying 74+ lb load, upstairs
7.0	VH	Walking	Climbing hills with 0- to 9-lb load
7.5	VH	Walking	Climbing hills with 10- to 20-lb load
8.0	VH	Walking	Climbing hills with 21- to 42-lb load
9.0	VH	Walking	Climbing hills with 42+ lb load
3.0	M	Walking	Downstairs
6.0	H	Walking	Hiking, cross country
6.5	H	Walking	Marching, rapidly, military
2.5		Walking	Pushing or pulling stroller with child
6.5	H	Walking	Race walking
8.0	VH	Walking	Rock or mountain climbing
8.0	VH	Walking	Up stairs, using or climbing up ladder
4.0	M	Walking	Using crutches
2.0		Walking	Walking, less than 2.0 mph, level ground, strolling, household walking, very slow
2.5		Walking	Walking, 2.0 mph, level, slow pace, firm surface
3.0	M	Walking	Walking, 2.5 mph, firm surface
3.0	M	Walking	Walking, 2.5 mph, downhill
3.5	M	Walking	Walking, 3.0 mph, level, moderate pace, firm surface
4.0	M	Walking	Walking, 3.5 mph, level, brisk, firm surface
6.0	H	Walking	Walking, 3.5 mph, uphill
4.0	M	Walking	Walking, 4.0 mph, level, firm surface, very brisk pace
4.5	M	Walking	Walking, 4.5 mph, level, firm surface, very, very brisk
3.5	M	Walking	Walking, for pleasure, work break, walking the dog
5.0	M	Walking	Walking, grass track
4.0	M	Walking	Walking, to work or class

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2.5		Water activities	Boating, power
4.0	M	Water activities	Canoeing, on camping trip
7.0	VH	Water activities	Canoeing, portaging
3.0	M	Water activities	Canoeing, rowing, 2.0-3.9 mph, light effort
7.0	VH	Water activities	Canoeing, rowing, 4.0-5.9 mph, moderate effort
12.0	VH	Water activities	Canoeing, rowing, >6 mph, vigorous effort
3.5	M	Water activities	Canoeing, rowing, for pleasure, general
12.0	VH	Water activities	Canoeing, rowing, in competition, or crew or sculling
3.0	M	Water activities	Diving, springboard or platform
5.0	M	Water activities	Kayaking
4.0	M	Water activities	Paddleboat
3.0	M	Water activities	Sailing, boat and board sailing, windsurfing, ice sailing, general
5.0	M	Water activities	Sailing, in competition
3.0	M	Water activities	Sailing, Sunfish/Laser/Hobie Cat, keel boats, ocean sailing, yachting
6.0	H	Water activities	Skiing, water
7.0	VH	Water activities	Skimobiling
12.0	VH	Water activities	Skindiving or scuba diving as frogman
16.0	VH	Water activities	Skindiving, fast
12.5	VH	Water activities	Skindiving, moderate
7.0	VH	Water activities	Skindiving, scuba diving, general (T 310)
5.0	M	Water activities	Snorkeling
3.0	M	Water activities	Surfing, body or board
10.0	VH	Water activities	Swimming laps, freestyle, fast, vigorous effort
8.0	VH	Water activities	Swimming laps, freestyle, slow, moderate or light effort
8.0	VH	Water activities	Swimming, backstroke, general
10.0	VH	Water activities	Swimming, breaststroke, general
11.0	VH	Water activities	Swimming, butterfly, general
11.0	VH	Water activities	Swimming, crawl, fast (75 yards·min ⁻¹), vigorous effort
8.0	VH	Water activities	Swimming, crawl, slow (50 yards·min ⁻¹), moderate or light effort
6.0	H	Water activities	Swimming, lake, ocean, river (T 280, T 295)
6.0	H	Water activities	Swimming, leisurely, not lap swimming, general
8.0	VH	Water activities	Swimming, sidestroke, general

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8.0	VH	Water activities	Swimming, synchronized
10.0	VH	Water activities	Swimming, treading water, fast, vigorous effort
4.0	M	Water activities	Swimming, treading water, moderate effort, general
10.0	VH	Water activities	Water polo
3.0	M	Water activities	Water volleyball
5.0	M	Water activities	Whitewater rafting, kayaking, or canoeing
6.0	H	Winter activities	Moving ice house (set up/drill holes, etc.)
5.5	H	Winter activities	Skating, ice, 9 mph or less
7.0	VH	Winter activities	Skating, ice, general
9.0	VH	Winter activities	Skating, ice, rapidly, more than 9 mph
15.0	VH	Winter activities	Skating, speed, competitive
7.0	VH	Winter activities	Ski jumping (climb up carrying skis)
7.0	VH	Winter activities	Skiing, general
7.0	VH	Winter activities	Skiing, cross-country, 2.5 mph, slow or light effort, ski walking
8.0	VH	Winter activities	Skiing, cross-country, 4.0-4.9 mph, moderate speed and effort, general
9.0	VH	Winter activities	Skiing, cross-country, 5.0-7.9 mph, brisk speed, vigorous effort
14.0	VH	Winter activities	Skiing, cross-country, >8.0 mph, racing
16.5	VH	Winter activities	Skiing, cross-country, hard snow, uphill, maximum
5.0	M	Winter activities	Skiing, downhill, light effort
6.0	H	Winter activities	Skiing, downhill, moderate effort, general
8.0	VH	Winter activities	Skiing, downhill, vigorous effort, racing
7.0	VH	Winter activities	Sledding, tobogganing, bobsledding, luge
8.0	VH	Winter activities	Snow shoeing
3.5	M	Winter activities	Snowmobiling

APPENDIX 2. Guidelines for assigning activities by major purpose or intent

1. Conditioning exercises include activities with the intent of improving physical condition. This includes stationary ergometers (bicycling, rowing machines, treadmills, etc.) health club exercise, calisthenics, and aerobics.
2. Home repair includes all activity associated with the repair of a house and does not include housework. This is not an occupational task.
3. Sleeping, lying, sitting, and standing are classified as inactivity.
4. Home activities include all activities associated with maintaining the inside of a home and includes house cleaning, laundry, grocery shopping, and cooking.
5. Lawn and garden includes all activity associated with maintaining the yard and includes

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- yard work, gardening, and snow removal.
6. Occupation includes all job-related physical activity where one is paid (gainful employment). Specific activities may be cross-referenced in other categories (such as reading, writing, driving a car, waking) and should be coded in this major heading if related to employment. Housework is occupational only if the person is earning money for the task.
 7. Self-care includes all activity related to grooming, eating, bathing, etc.
 8. Transportation includes energy expended for the primary purpose of going somewhere in a motorized vehicle.
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APPENDIX 3. Guidelines for coding specific activities.

- A. General guidelines: All activities should be coded as “general” if no other information about the activity is given. This applies primarily to intensity ranges. If any additional information is given, activities should be coded accordingly.
- B. Specific guidelines
 1. Bicycling
 - a. Stationary cycling using cycle ergometers (all types), wind trainers, or other conditioning devices should be classified under the major heading of Conditioning Exercise, stationary cycling specific activities (codes 02010 to 02015).
 - b. The list does not account for differences in wind conditions.
 - c. If bicycling is performed in a race, classify it as general racing if no descriptions are given about drafting (code 01050). If information is given about the speed or drafting code as 01050 (bicycling, 16-19 mph, racing/not drafting or >19 mph drafting, very fast) or 01060 (bicycling, \geq 20 mph, racing, not drafting).
 - d. Using a mountain bike in the city should be classified as bicycling, general (code 01010). Cycling on mountain trails or on a BMX course is coded 01009.
 2. Conditioning Exercises
 - a. If a calisthenics program is described as a light or moderate type of activity (e.g., performing back exercises) but indicates a vigorous effort on the part of the participant, code the activity as calisthenics, general (code 02030).
 - b. Exercise performed at a health club that is not described should be classified as health club, general (code 02060). Other activities performed at a health club (e.g., weight lifting, aerobic dance, circuit training, treadmill running, etc. at a health club) should be classified under separate major headings.
 - c. Regardless of whether aerobic dance, conditioning, circuit training, or water calisthenics programs are described by their component parts (i.e., 10 min jogging in place, 10 min sit-ups, 10 min stretching, etc.), code the

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- activity as one activity (e.g., water aerobics, code 02120).
- d. Effort, speed, or intensity breakdowns for the specific activities of stair-treadmill ergometer (code 02065), ski machine (code 02080), water aerobics or water calisthenics (code 02120), circuit training (code 02040), and slimnastics (code 02090) are not given. Code these as general, even though effort or intensities may vary in the descriptions of the activity.
3. Dancing
 - a. If the type of dancing performed is not described, code it as dancing, general (code 03025)-
 4. Home Activities
 - a. House cleaning should be coded as light (code 05040) or heavy (code 05020). Examples for each are given in the description of the specific activities.
 - b. Making the bed on a daily basis is coded 05100. Changing the bed sheets is coded as cleaning, light (code 05040).
 5. Home Repair
 - a. Any painting outside of the house (i.e., fence, the house, barn) is coded, painting, outside house (code 60150).
 6. Inactivity
 - a. Sitting and reading a book or newspaper is listed under the major heading of Miscellaneous, reading, book, newspaper, etc. (code 09030).
 - b. Sitting and writing is listed under the major heading of Miscellaneous, writing (code 09040).
 7. Lawn and Garden
 - a. Working in the garden with a specific type of tool (e.g., hoe, spade) is coded as digging, spading, filling garden (code 08050).
 - b. Removing snow may be done by one of three methods: shoveling snow by hand (code 08200), walking and operating a snow blow (code 08130), or riding a snow blower (code 08180).
 8. Music Playing
 - a. Most variation in music playing will be according to the setting (i.e., rock and roll band, orchestra, marching band, concert band, standing on the stage, performance, practice, in a church etc.). The compendium does not consider differences in the setting (except for marching band and guitar playing).
 9. Occupation
 - a. Types of occupational activities not listed separately under specific activities (e.g., chemistry laboratory experiments), should be placed into the types of energy expenditure classifications best describing the activity. See sitting: light (code 11580), sitting: moderate (code 11590), standing: light (code 11600), standing: light to moderate (code 11610) standing: moderate (code 11620), standing: moderate to heavy code 11630).
 - b. Driving an automobile or a light truck for employment (taxi cab, salesman, contractor, ambulance driver, bus driver, should be listed under

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- the major heading of Transportation, automobile or light truck (not a semi) driving (code 06010).
- c. Performing skin or SCUBA diving as an occupation is listed under the major heading of Water Activities, and the specific activity of skin-diving or SCUBA diving as a frogman (code 18170).
10. Running
 - a. Running is not classified as treadmill or outdoor running. Running on a treadmill or outdoors should be coded by the speed of the run (codes 12030 to 12130). If speed is not given, code it as running, general (code 12150).
 11. Self-care
 - a. The compendium does not account for effort ratings. All items are considered to be general.
 12. Transportation
 - a. Being a passenger in an automobile is coded under the major heading of inactivity, sitting quietly (code 07020).
 13. Walking
 - a. Household walking is coded 17150, regardless if the subject identified a walking speed.
 - b. If the walking speed is unidentified, use 3.0 mph, level, moderate, firm surface as the standard speed (code 17190). This should not be used for household walking.
 - c. Walking during a household move, shopping, or for household work is coded under the major heading of Home Activities. Walking for job related activities is coded under Occupational Activities.
 - d. If a subject is backpacking, regardless of descriptors attached, the code is backpacking, general (code 17010).
 - e. The compendium does not account for variations in speed or effort while carrying luggage or a child.
 - f. Mountain climbing should be classified as general (rock or mountain climbing, code 17120) if no descriptors are given. If the weight of the load is described, code the activity as climbing hills with the appropriate load (codes 17030 to 17060).
 - g. Walking on a grassy area (golf course, in a park, etc.) should be coded as walking, grass track (code 17260). The compendium does not account for variations in walking speed on a grassy area, so ignore recordings of walking speed or effort. If the walking is not on a grassy area, code the activity according to the walking speed (codes 17150 to 17230).
 - h. Walking to work or to class should be coded as 17270. The compendium does not account for walking speed or effort in this activity. Even though a speed or effort is given for the walking, do not code walking to work or to class in any other walking category.
 - i. Hiking and cross-country walking (code 17080) should be used only if the walking activity lasted 3 h or more. Do not use this category for

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- backpacking, but for day hikes.
14. Water Activities
- a. Swimming should be coded as leisurely, not lap swimming (code 18310) if descriptions about stroke, speed, or swimming location are not given.
 - b. Lap swimming should be coded as swimming laps, freestyle, slow (code 18240) if the activity is described as lap swimming, light or moderate effort, but stroke or speed are not indicated. Swimming laps should be coded as swimming, laps, freestyle, fast (code 18230) if the activity is described as lap swimming, vigorous effort but stroke or speed are not indicated given.
 - c. Swimming crawl should be coded as swimming, crawl, slow ($50 \text{ yards} \cdot \text{min}^{-1}$) if speed is not given and the effort is rated light or moderate (code 18290). Swimming crawl should be coded as swimming, crawl, fast ($75 \text{ yards} \cdot \text{min}^{-1}$) if speed is not given, but the effort is rated as vigorous (code 18280).
 - d. The swimming strokes of backstroke (code 18250), breaststroke (code 18260), butterfly (code 18270), and sidestroke (code 18230) are coded as general for speed and intensity.
 - e. If a swimming activity is not identified as lake, ocean, or river swimming (code 18300), assume that the swimming was performed in a swimming pool.
 - f. If canoeing is related to a canoe trip, code as canoeing, on a camping trip (code 18020). Otherwise, code it according to the speed and effort listed.
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