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Linking the American Time Use Survey (ATUS) and the Compendium of Physical Activities: Methods and Rationale

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Background: The 2003 Bureau of Labor Statistics American Time Use Survey (ATUS) contains 438 distinct primary activity variables that can be analyzed with regard to how time is spent by Americans. The Compendium of Physical Activities is used to code physical activities derived from various surveys, logs, diaries, etc to facilitate comparison of coded intensity levels across studies. ***Methods:*** This paper describes the methods, challenges, and rationale for linking Compendium estimates of physical activity intensity (METs, metabolic equivalents) with all activities reported in the 2003 ATUS. ***Results:*** The assigned ATUS intensity levels are not intended to compute the energy costs of physical activity in individuals. Instead, they are intended to be used to identify time spent in activities broadly classified by type and intensity. This function will complement public health surveillance systems and aid in policy and health-promotion activities. For example, at least one of the future projects of this process is the descriptive epidemiology of time spent in common physical activity intensity categories. ***Conclusions:*** The process of metabolic coding of the ATUS by linking it with the Compendium of Physical Activities can make important contributions to our understanding of Americans' time spent in health-related physical activity.

Keywords: metabolic coding, surveillance, secondary analysis

The prevalence of physical activity behaviors and their associated health correlates have been observed in US public health surveillance systems for nearly 25 years.[1,2] The purpose of surveillance is to provide a timely, ongoing system to collect, evaluate, and disseminate data about the trends and magnitude of health behaviors and problems in populations and to provide a basis for intervention, education, and evaluation of related promotion activities.[3] Primary data-collection

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methods used in public health surveillance are telephone surveys, physician reports, and clinical evaluations for selected risk factors and health conditions.[1–3] Physical activity behaviors have traditionally been measured using questionnaires[1,2]; however recently, accelerometers[4] and time use data[5] have become available to provide more detailed assessments of the type, intensity, and duration of physical activities performed throughout the day.

Time use data and methods have been extensively validated[6] and are based on an international history of social research.[7] Time use surveys are typically designed to collect a detailed time-defined trace of activities over the course of 24 hours. The American Time Use Survey (ATUS) is a nationally representative survey conducted by the Bureau of Labor Statistics (BLS) as a means of assigning value to nonmarket productivity based on the kinds of activities engaged in and the time spent doing them.[8] The 2003 ATUS contains 438 distinct primary activity variables as part of a classification system modeled after the more contemporary activity classifications used in Australian time use surveys.[8] Beyond its original purpose, however, the ATUS presents a unique and valuable opportunity to explore Americans' activity engagement from a public health perspective.

Specifically, a valuable aspect of the ATUS for surveillance research on physical activity is inclusion of activities in all locations, circumstances, and contexts: occupation, transportation, household, and leisure time. Some aspects of these data have already been reported in a news release from the BLS[9]:

- Employed adult women (18 years and older) spent about an hour more per day than employed men doing household activities and caring for household members.
- Adults in households without children spent about 1.4 hours more per day engaged in leisure and sports activities than those with children.
- Men were more likely than women to participate in sports on any given day, 19% versus 16%. Men also spent more time in sports activities on the days they participated (2.0 versus 1.3 hours).

Although these time estimates for various categories of activity are valuable, research to link physical activity to disease risk or prevention requires going beyond estimates of time duration to estimates of the intensity of physical activities and ultimately their associated metabolic or energy cost.

The ATUS collects data in sufficient detail to allow for coding of primary activities for activity intensity using available estimates of physical activity intensity. The National Cancer Institute within the National Institutes of Health saw this opportunity to link the ATUS primary activities codes with metabolic equivalents (METs) cataloged in the Compendium of Physical Activities[10,11] and commissioned this effort to capitalize on available and future ATUS data. Linking primary activities reported in the ATUS to estimates of physical activity intensity will allow improved assessment of the extent of physical activity in the population, identification of major sources of energy expenditure, and examination of factors associated with differing degrees of energy expenditure, to name but three opportunities available from this process. This article describes the methods, challenges, and rationale for linking Compendium MET estimates of physical activity intensity with all primary activities reported in the 2003 ATUS.

Methods

ATUS Procedures

Microdata from the 2003 ATUS were released in January 2005. Details about the ATUS methods are available at **http://www.bls.gov/tus/**. Briefly, the ATUS response sample represents a subsample drawn from households that have previously completed the Current Population Survey (CPS; **http://www.bls.gov/cps**), a federal survey that provides the source of the nation's unemployment rate, among other vital statistics. Specifically for the ATUS, a single individual from each selected household is interviewed by telephone once (on a single, preassigned reporting day) about their personal time use over the previous 24-hour day (anchored by 4:00 AM). Both weekdays and weekend days were considered, but users are advised to use ATUS-constructed weights to ensure appropriate interpretation of time spent between these types of days. The actual interview is conducted (after obtaining verbal consent) using a Computer Assisted Telephone Interviewing (CATI) system to standardize progress and prompting through a combination of structured general background questions and conversational interviewing representing the designated recalled day. Responses about activities (and their durations) are captured verbatim. The 2003 ATUS sample consisted of about 21,000 interviews. The ATUS is authorized by Title 13, United States Code section 8 (population statistics) and 9 (confidentiality).

Interviewers are trained to use software to assign a 6-digit code to each ATUS primary activity based on an organizational system that classifies activities from broad categories to more specific ones using hierarchical 2-digit tiers. ATUS variables are named according to specified rule, and the first letter *T* stands for time and the second letter *U* indicates that the variable is unedited. Values of unedited variables are generally produced by the CATI or Computer Assisted Personal Interview (CAPI) instruments and are either collected or assigned during the interview. The first tier, indicated by the first 2 digits of the 6-digit code (the actual ATUS variable name is TUTIER1CODE, but for simplicity herein is called the Major Category), represents 17 Major Categories of activities (eg, *personal care; household activities; sports, exercise, and recreation;* and *traveling*). The second tier is indicated by the second 2 digits (TUTIER2CODE herein called General Category). For example, General Category activities under *household activities* include *housework; lawn, garden, and houseplants;* and *household management*. The third tier is indicated by the last 2 digits (TUTIER3CODE herein called Specific Category). For example, Specific Category activities under *housework* include *interior cleaning; laundry;* and *storing interior household items, including food*. The ATUS lexicon further provides extensive lists of activity examples that would fall further under these Specific Categories, but there are no codes assigned at this (fourth) level and, therefore, they do not constitute an actual ATUS variable. Uncoded example activities included under the Specific Category of *interior cleaning* include *vacuuming, scrubbing, dusting,* and *emptying the ashtray*. Trained ATUS coders refer to these examples when assigning the 6-digit primary activity codes that represent the full 3-tier system (but, to emphasize, this fourth level is not coded).

Compendium of Physical Activities

The Compendium of Physical Activities[10,11] is a comprehensive list of 605 physical activities used to code the type, purpose, and intensity of physical activities performed in daily life. The Compendium was developed to facilitate comparison of intensity levels across studies. The activities listed in the Compendium were identified from various surveys, logs, diaries, and occupational task lists, and their associated MET levels were obtained from existing charts and tables, published research studies, and, for some activities, MET levels from similar activities previously listed in the Compendium. The Compendium uses a 5-digit coding scheme to categorize activities. The first 2 digits represent the major purpose of the activity or Major Heading, for example, *self-care* and *home activities*. There are 21 Major Headings for physical activity behaviors ranging from inactivity to *sports and exercise.* The last 3 digits indicate a specific activity within each Major Heading. For example, under the Major Heading of *home activities* there are separate 3-digit codes for *vacuuming, scrubbing floors,* and *light cleaning* (including dusting, straightening up). Each 5-digit activity is associated with a 2- or 3-digit MET intensity level. A MET is defined as the activity metabolic rate divided by the resting metabolic rate, with lying or sitting quietly classified as 1 MET. A 3-MET activity requires 3 times the energy expenditure at rest. For example, *scrubbing floors* is a 3.8-MET activity, *vacuuming* is a 3.5-MET activity, and *light cleaning* is a 2.5-MET activity. Intensity categories are broadly interpreted as light (<3 METs), moderate (3–6 METs), and vigorous (>6 METs).[12] It is possible to also separate the light-intensity category into sleeping activities (<1 MET) and sedentary/lying/sitting activities (≥1 and <3 METs) based on Compendium coding.

Linking the ATUS and the Compendium

The Compendium was used to assign MET values to the (fourth-level) example activities as presented in the ATUS lexicon. We began by producing 17 Excel spreadsheets representing each of the 17 Major Categories, their associated General and Specific Categories, and ultimately example activities provided in the ATUS lexicon of activities (ATUS now provides this lexicon in Excel format). Compendium activity codes and MET values were then assigned to each example activity independently by one of the researchers (TLW) who regularly verified and clarified problematic activities as they emerged with the lead author (CT-L). An example of linking a single ATUS primary activity variable with the associated Compendium activity codes and MET value is shown in Table 1. The first author of the Compendium publications[10,11] (and another researcher in this project, BEA) then independently reviewed all activity codes and MET values to ensure conformance with the Compendium. Noted inconsistencies were rarely discrepant by 1 or more METs, and most discrepancies related only to the suggested linked 5-digit Compendium activity code. Specifically, when coding varied, it was a result of how the coders interpreted the setting and purpose of the ATUS activities and how the coders assigned Compendium codes and MET intensities to ATUS activities missing from the Compendium. Coding differences were resolved to provide an appropriate MET intensity for the intended purpose of the activity. The greatest challenge was in making sure the MET intensity for specific activities reflected

Table 1 Example of Linking ATUS and Compendium Activity Variables

ATUS				Compendium		
Major Category (and associated 2-digit code)	General Category (and associated 2-digit code)	Specific Category (and associated 2-digit code)	Lexicon example (uncoded)	Major Heading (and associated 2-digit code)	Specific Activity (and associated 3-digit code)	METs
Personal care (02)	Grooming (01)	Washing, dressing, and grooming oneself (01)	Doing own hair	Self-care (13)	Hairstyling (045)	2.5

Abbreviations: ATUS, American Time Use Survey; METs, metabolic equivalents.

the energy cost for specific activities listed in the ATUS. Inconsistencies were discussed among authors, resolved by consensus, and corrected in the final data set. The process was repeated as necessary to identify and resolve problems.

As an example of this process, a notable inconsistency was identified under *caring for household members* (ATUS Major Category = 03), *caring for household adults* (General Category = 04), *providing medical care to household adult* (Specific Category = 03). ATUS example activities under this collective 6-digit code included *giving household adult medicine* and *bandaging household adult*. Initially, the closest Compendium code considered was 05187 *home activities/elder care, disabled adult, only active periods,* with a MET value of 4, which appeared high considering the implied ATUS activity. Following discussion, we arrived at a consensus that the ATUS example activities implied sitting or standing and, therefore, were more aligned with the Compendium code 05185 *home activities, child care: sitting/kneeling, dressing, bathing, grooming, feeding, occasional lifting of child—light effort, general* (MET value of 2.5). This coding challenge illuminated a limitation of the Compendium; additional detailed MET values are required to more accurately code diverse activities related to elder care.

Once linked codes and MET values were finalized, aggregate intensity values were computed for each of the ATUS third-tier Specific Category activities based on a process of averaging the MET variables assigned to the underlying and associated example activities. Essentially, MET values were averaged over those example activities categorized under shared 6-digit codes representing the final ATUS Specific Category activity MET value. Exceptions included treatment of General or Specific Categories that ATUS assigned "99" as a 2-digit code. ATUS uses these as not elsewhere classified (n.e.c.) indicators, that is, the example activity was deemed to be representative of the relevant activity (ie, General or Specific Category, depending where the 99 was indicated in the 6-digit series) but not elsewhere classified. In these cases, MET values were averaged over similar 2-digit General Category variables (or, in some cases, the Major Category if the General Category was also coded as 99). As a result of averaging the MET levels assigned to individual activities (provided as examples within each Specific Category activity), summary MET values for ATUS activities might differ exactly from similar activities reported in the Compendium. An illustration of this process is presented in Table 2.

Through this iterative process, challenges in assigning MET levels occurred. It became evident early on that *sports, exercise, and recreation* (Major Category = 13) was an ATUS amalgamation of both participating in (represented by Major Category = 01; *participating in sports, exercise, or recreation*) and spectating at (represented by General Category = 02; *attending sporting/recreational events*) such activities. An aggregate MET value would ultimately underestimate the intensity value of participation and overestimate spectating. We, therefore, determined it was necessary to produce aggregated MET values for ATUS primary activities under *sports, exercise, and recreation* separately by the associated General Category.

The ATUS category *sports, exercise, and recreation* proved challenging to code for additional reasons. Specifically, with regard to *participating in sports, exercise, or recreation* (Major Category = 01), the ATUS lexicon combined example activities of active engagement in sports, exercise, or recreation and talking to

Table 2 Illustrative Example of Process of Imputed Summary MET Values

			Lexicon example activity	Compendium MET value	Summary MET value
Major Category 01 Personal Care					
01	**General Category 01 Sleeping**				
01	01	**01 Specific Category Sleeping**	sleeping	0.90	0.92 (average of all
01	01	01	falling asleep	0.90	Specific Category =
01	01	01	dozing off	0.90	01 MET values)
01	01	01	napping	0.90	
01	01	01	getting up	1.00	
01	01	01	waking up	1.00	
01	01	01	dreaming	0.90	
01	01	01	cat napping	0.90	
01	01	01	getting some shut-eye	0.90	
01	01	01	dozing	0.90	
01	01	**02 Specific Category Sleeplessness**	sleeplessness	1.00	1.00 (average of all
01	01	02	insomnia	1.00	Specific Category =
01	01	02	tossing and turning	1.00	02 MET values)
01	01	02	lying awake	1.00	
01	01	02	counting sheep	1.00	
01	01	**99 Specific Category Sleeping, n.e.c.**	(no examples)	(no assigned value)	0.96 (average of all General Category = 01 MET values)

Abbreviations: MET, metabolic equivalent; n.e.c., not elsewhere classified.

involved individuals in 15 cases. For example, a Specific Category under this structure is called *doing aerobics*. Lexicon example activities include *step aerobics* (METs = 8.5), *high-impact aerobics* (METs = 7.0), *low-impact aerobics* (METs = 5.0), and *talking to an aerobics instructor* (MET = 1.8). Strictly applied, *talking to an aerobics instructor* would pull the average intensity down for this set of example activities, and the summary MET value would underestimate the likely intensity of *doing aerobics*. To illustrate, the summary MET value for the Specific Category *doing aerobics* was 5.58 when *talking to an aerobics instructor* was considered in the average and 6.83 when it was removed from the equation. Because, as stated earlier, vigorous intensity is broadly interpreted as >6 METs, censoring *talking to an aerobics instructor* was necessary to truly represent *doing aerobics* as a vigorous activity. Following careful consideration of alternative strategies (eg, weighting was determined not to be possible), the authors arrived at a consensus that it was prudent, for the purposes of assigning an appropriate MET value, to ignore those example activities that included talking to individuals under the General Category *participating in sports, exercise, or recreation*.

We also quickly identified that *traveling* (Major Category = 17) did not provide sufficient detail about the mode of traveling to assign MET values without linking it further to another ATUS variable, TEWHERE. The second letter *E* indicates that the variable has gone through an editing process, or consistency checks. Values of edited variables are almost always equal to values of the corresponding unedited variables. Data differ when a value is allocated or imputed by the processing system based on allocation rules specified in CPS or ATUS processing. This variable corresponds to the interview question "Where were you while you were [activity]?" For simplicity, it will be referred to as a Place/Transit variable herein. When asked in the context of *traveling*, this Place/Transit variable can provide important information necessary to assign an intensity variable. Specifically, Place/Transit represents either place (eg, *home/yard, workplace, grocery store,* etc) or in-transit (eg, *walking, bicycling, bus, car,* etc) indicators. In-transit indicators within Place/Transit could be directly assigned a Compendium MET value. After carefully considering the place indicators, it became evident that in each case, the traveling would likely be *walking*; it was considered unlikely that any individual would be traveling by any other mode in the *home/yard, workplace, grocery store,* etc.

A final challenge in the process of linking the ATUS and the Compendium was with regard to assigning MET values corresponding to occupation time. The ATUS Major Category = 05, *working and work related activities,* does not segment out individual employment tasks necessary to assign specific MET values; almost all associated 6-digit codes are exactly the same and simply indicate that the respondent was working. To emphasize, respondents are not asked to break down the activities they did while at their main job. The explanation for the omission of detailed occupational activities from the ATUS is due to the fact that the BLS developed the detailed time use survey to identify nonoccupational activities and to provide a monetary estimate of time spent in such activities.[8] However, because linked Occupational Category variables (based on 2002 Census Occupation Codes located at **http://www.bls.gov/tus/census02iocodes.pdf**) from the related CPS files were available for each respondent, coauthor BEA considered the types of movements characterizing over 500 example occupations listed under

these broader categories to assign underlying corresponding MET values using the Tecumseh Occupational Physical Activity Questionnaire classification system.[13] This system assigns MET levels based on the considered body position (sit, stand, walk, heavy labor) and intensity (light, moderate, vigorous). This approach is a better reflection of the energy cost of occupational activities as done during a usual workday. A single example is a firefighter who might be active fighting a fire for a couple of hours at a 10 to 12 MET level but does a light and moderate mix of activities the rest of the shift. The eventual output of this separate process was a single summary MET value (using a similar process as described earlier) linked to each of the 22 Occupation Categories (Table 4, which can be viewed at **http://riskfactor.cancer.gov/tools/atus-met/**). For example, the Occupational Category *building and grounds cleaning and maintenance* has a mean MET summary value of 3.58, based on a range of values (2.5 to 4.5) for all the associated occupations listed. Other examples of the summary MET values assigned include *management* (1.73); *production* (2.6); and *farming, fishing, and forestry* (3.67). As with the ATUS-coded activities, the METs assigned to the occupation codes might differ from the Compendium of Physical Activities because of differences in the processes used to assign MET levels and averaging of METs across several activities and specific movements that reflect an occupational activity category.

The ultimate product of this extensive and iterative process was a single summary MET value linked to most of the ATUS 6-digit primary activity codes. The exceptions were only the primary activities related to *traveling*, and these could be imputed by further linkage to the ATUS Place/Transit variables (Table 5, which can be viewed at **http://riskfactor.cancer.gov/tools/atus-met/**). Finally, it is necessary to link ATUS occupational activities with CPS occupational codes (Table 4). These summary MET values are available in Tables 3, 4, and 5 at **http://riskfactor.cancer.gov/tools/atus-met/**.

Discussion

The process of metabolically coding the ATUS by linking it with the Compendium of Physical Activities can make important contributions to our understanding of Americans' time spent in health-related physical activity. The most fundamental public health application of these metabolically coded time use data is to provide nationally representative estimates of Americans' time spent in intensities of physical activity deemed to be related to health. Time spent in at least moderate intensity has readily apparent health ramifications since public health recommendations endorse such behavior for at least 30 minutes daily.[14,15] Time spent in lower-intensity physical activity might still be important in terms of energy balance.[16] A recent focus has emerged on sedentary time and its potentially detrimental (and possibly independent) effects on health.[17] Descriptive statistics captured as part of the ATUS include sex, age, education level, employment status, marital status, race/ethnicity, and whether the respondent has a child living in the household, among others. Therefore, it is possible to examine time spent in health-related physical activity across different groups. For example, it will be possible to compare physical activity patterns of the following: men and women at all ages, single women or men living in households with children and single women or

men living in households without children, students and nonstudents, etc. At least one of the future projects of the process described herein is the descriptive epidemiology of time spent in common physical activity intensity categories (ie, light, moderate, and vigorous) based on some of these important demographic variables. The availability of time use data from other countries would permit important international comparisons. In addition, because the ATUS is an ongoing survey, it will be possible to track changes in time spent in different intensities of physical activity.

In terms of surveillance strategies, the ATUS will provide important information to compare and verify existing surveillance data that have been based primarily on longer-term recalled physical activities (ie, over the past week, over the past month). One challenge that will need to be addressed is the comparability of these various scales of monitoring frame. Specifically, the ATUS is based on a single day of recalled activity. It is likely that an individual who runs 3 days per week will not be captured within an ATUS prevalence estimate of time in vigorous-intensity activity if they are solicited on a nonrunning day; longer-term recall would more likely capture this nondaily (ie, episodic) activity, resulting in discrepant prevalence estimates by instrument.

Another possible use of this linked product is the identification of major sources of energy expenditure because the ATUS captures primary activities representing the general domains of occupation, transportation, household, and leisure time. However, a simple review of the MET levels associated with the activities shows that most are within the sedentary and light (1–2.9 METs) and moderate (3–6) MET intensities. This is a result of averaging MET intensities from individual activities reported by ATUS participants into a composite database presented for use. An example is in the Major Category *participating in sports, exercise, or recreation* where activities ranging from 3.0 to 11.0 METs were averaged to yield a summary MET value of 5.87 for *playing sports, n.e.c.* (defined earlier). Thus, for respondents who engage in vigorous sports and exercise activities, the energy cost of their daily activities might be underestimated. However, given the lower prevalence of respondents engaging in sports and exercise activities in the 2003 ATUS database (19% of men and 16% of women[9]) and given that the overall intended use for the ATUS data in aggregate is to describe how population groups spend their time, the level of participant misclassification should be low. Furthermore, as stated earlier, there is growing interest in the contribution of lower-intensity activities to energy balance.[16]

The ATUS has a number of limitations as a physical activity surveillance instrument. First, only one activity at a time is captured. Primary activities are collected and coded; respondents are not systematically asked about concurrent or secondary activities. In fact, if the respondent volunteers two concurrent activities, interviewers are trained to probe for the primary activity and only include it in the coded data (so as to not collect time in activities that would sum over 24 hours).[8] An implication of the ATUS design strategy is that any physical activities that are performed concurrently but secondary to another activity would not be counted and, therefore, would be underestimated. For example, it is possible that a respondent's report of riding a bicycle after school with a child (ATUS 6-digit code 030105, MET summary value 5.0) could have been otherwise coded as hearing about their child's day (ATUS 6-digit code 030106, MET summary value 1.5).

Unless a more systematic approach to collecting secondary activities is implemented, it appears that this loss is the unfortunate trade-off for a nonreactive survey that does not specifically probe physical activity behaviors.

Second, because the ATUS did not obtain detailed information about occupational behaviors, the database has limited application in identifying total physical activity behaviors, which include those engaged in during work. Although the entire process of linking the ATUS and Compendium was based on imputation, we acknowledge that the resulting summary MET values associated with the 22 Occupation Categories is most crude and should be used and interpreted only with due caution.

Third, the ATUS obtains detailed data about daily activities of randomly selected adults in the United States for a single 24-hour period. Although the data are collected on an ongoing basis throughout the year, accounting for seasonal differences in physical activity, the data cannot be used to characterize habitual physical activity behaviors of individuals or selected population groups. Instead, the ATUS is most effective for characterizing patterns and trends in population groups for the types and durations of activities and the behavior settings for the activities (eg, at home or in the car; alone or with families or others).

Fourth, the MET levels assigned to ATUS activities might ultimately differ for similar activities in the Compendium of Physical Activities. This a result of the process of averaging MET levels for several example activities listed in the lexicon, a document originally intended as a guide to identify and code Specific Category activities. The final product of this process is a summary MET variable, to emphasize, one that might not be exactly the same as comparable Compendium activities.

Finally, despite the process described herein undertaken to metabolically code ATUS primary physical activities, we are not able to compute their actual energy cost, at least in terms of kilocalories expended. The ATUS did not collect respondents' self-reported height or weight data (necessary for such imputation) before 2006. More importantly, however, the aggregated MET summary values are too crude for such specific estimates at the level of the individual. Although additional ATUS coding at the level of the lexicon examples would allow more detailed estimates of time spent in the various intensities of physical activity, it still can only be interpreted on a population basis. It is possible, however, that a descriptive epidemiology paper based on the currently metabolically coded data will be able to compute MET-min, a compilation of activity duration and intensity. Starting with 2006, height and weight data were collected by ATUS. Regardless of whether the end output is expressed as MET-min or kilocalories, however, both will be crude, reflecting the limitations of the ATUS activity coding.

ATUS microdata are now available for 2003 to 2007 at **http://www.bls.gov/tus/**. There have been some minor changes to the lexicons relevant to the process of linking ATUS primary activities and the Compendium MET values; however, overall summary MET values have been little affected (eg, $\leq \pm 0.74$ METs when comparing similar categories between 2003 and 2005). Beyond changes to lexicon examples, 2004 additions to the Place/Transit variable described earlier included *bank, gym/health club,* and *post office*. In terms of assigning MET values, these additions are considered only when linked to the Major Category *traveling.* As before, we determined that traveling undertaken within any of these place

indicators would likely be walking. Finally, in 2005, a change in digits assigned to the first-tier code for *traveling* had no effect on assignment of MET values.

In summary, the major strength of the ATUS is in obtaining a cross-sectional view of how American adults spend 24 hours of their lives. This provides researchers and practitioners with detailed information about patterns of transportation, home, family-care, leisure-time, and social-interaction activities that can be used for hypothesis generation, program development, and comparison of current data sets. The process of metabolic coding of the ATUS by linking it with the Compendium of Physical Activities can make important contributions to our understanding of Americans' time spent in health-related physical activity. Specifically, these data will provide us with a clearer picture of the proportion of Americans who engage in any moderate or vigorous physical activity on any given day. Furthermore, we will be able to generate more detailed estimates of time spent in these specific (and other, eg, sedentary) activities on a populations basis, but also among the subsample who report any engagement whatsoever in said activities. At least one of the future projects of this process is the descriptive epidemiology of time spent in common physical activity intensity classifications including lying, sitting, and light, moderate, and vigorous intensities.

Note

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