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Prevalence and trends of leisure-time physical activity by occupation and industry in U.S. workers: the National Health Interview Survey 2004–2014

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Abstract

Purpose—Studies describing prevalence and trends of physical activity among workers in the United States are scarce. We aimed to estimate prevalence and trends of “sufficient” leisure-time physical activity (LTPA) during the 2004–2014 time period among U.S. workers.

Methods—Data were collected for U.S. workers in the National Health Interview Survey. LTPA was categorized as sufficiently active (moderate intensity, 150 minutes per week), insufficiently active (10–149 minutes per week), and inactive (<10 minutes per week). Prevalence of LTPA was adjusted for age using 2010 U.S. working population as a standardized age distribution.

Results—Prevalence trends of “sufficient” LTPA significantly increased from 2004 to 2014 (45.6% to 54.8%; $P < .001$). Among industry groups, the highest prevalence of “sufficient” LTPA was observed among workers in Professional/Scientific/Technical Services (62.1%). The largest increases were observed among workers in Public Administration (51.3%–63.4%). Among occupational groups, “sufficient” LTPA prevalence was lowest in farming/fishing/forestry (30.8%) and highest in life/physical/social science (66.4%). Prevalence of LTPA significantly increased from 2004 to 2014 in most occupational and industry groups.

Conclusions—Among U.S. workers, trends of “sufficient” LTPA significantly increased between 2004 and 2014. Overall, a larger proportion of white-collar compared to blue-collar workers were engaged in “sufficient” LTPA.

Keywords

Prevalence; Leisure-time physical activity; Occupation; Industry

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Introduction

The prevalence of obesity among U.S. adults and workers increased from the 1980s and then leveled off (about 34% for adults and 28% for workers) during the late 2000s [1–3]. An important factor that may have contributed to this leveling off in the prevalence of obesity may be an increase in the amount of leisure-time physical activity (LTPA) [4]. Regular physical activity has many health benefits: reduction of risk of coronary heart disease, stroke, type 2 diabetes, metabolic syndrome, and some cancers; improvement in mental health and mood; strengthening of bones and muscles; and reduced levels of body fat [5]. Additionally, a recent study revealed that adults with higher levels of LTPA had a lower mortality risk than United States and European adults who were physically inactive [6]. In 2008, the U.S. Department of Health and Human Services first published the Physical Activity Guidelines for Americans in which they recommended more than 150 minutes of moderate intensity or more than 75 minutes of vigorous-intensity aerobic activity per week for substantial health benefits. The recommendations for LTPA in the 2008 Physical Activity Guidelines have been applied to Healthy People 2020 and have been a standard for assessment for America's physical activity.

Most investigations of physical activity focus on three types of physical activity: overall, leisure-time, and occupational physical activity. One study showed that although overall and leisure-time physical activity were associated with Parkinson's disease, occupational physical activity was not [7]. A few European studies found that moderate and high LTPA reduced the risk of cardiovascular disease and mortality, whereas occupational physical activity had opposite results [8–10]. In general, LTPA is positively associated with health, whereas the evidence between occupational physical activity and health is less clear. Some studies reported that LTPA reduced the risk of work-site injury in physically demanding occupations [11,12]. Caban-Martinez et al. [12] found that LTPA was protective of slips and falls among a younger/middle-aged group of workers, and Poplin et al. [11] revealed that fire fighters with a high level of aerobic fitness were significantly less likely to sustain injury, especially sprains and strains. The types of U.S. occupations and industries have changed dramatically over the past half century, moving from labor-related jobs to office or white-collar jobs. Church et al. reported that customer service jobs increased to nearly 80% (of all U.S. jobs) in 2008 from 50% in 1960. At the same time, manufacturing and agricultural jobs noticeably declined to nearly 20% in 2008 from 47% in 1960 [13]. Because of the change in job types which may have resulted in lower occupational physical activity, LTPA plays an even more important role for good health among workers in the 21st century. An assessment of LTPA in current U.S. workers in different occupation and industry groups would be critical, for preventive health initiatives, in identifying those workers who are engaged in lower levels of LTPA.

Most of the previous studies related to LTPA have focused on prevalence in U.S. adults overall, in workers overall, or in workers in a specific occupation or industry. To the best of our knowledge, no studies have explored national trends in LTPA for U.S. workers in different occupational and industry groups using recent U.S. nationwide data. The aim of this article is to investigate the prevalence and trends of "sufficient" LTPA among U.S. workers by occupation and industry groups using data from the National Health Interview

Survey (NHIS). We also investigated the prevalence and trends of LTPA by selected demographic and job characteristics among U.S. workers. The results of this study may be used as a reference for understanding trends in LTPA and informing health policies among U.S. workers in various occupational and industry groups.

Methods

Source of data and study population

Physical activity was assessed using data from the National Health Interview Survey (NHIS), which was developed and administered by the National Center for Health Statistics in the U.S. Centers for Disease Control and Prevention to track health status, health care access, and progress toward achieving national health objectives since 1957. The NHIS is a nationally representative cross-sectional survey conducted annually and was based on a multistage clustered area probability sample. Data were collected through in-person household interviews with telephone follow-up when the interview cannot be completed in person. Written informed consent was obtained from all subjects. All procedures in each NHIS were approved by the National Center for Health Statistics Research Ethics Review Board in compliance with 45 Code of Federal Regulations (CFR) part 46. Individuals who belong to racial/ethnic minority backgrounds (e.g., Blacks, Hispanics, and Asians) and adults aged ≥ 65 years were oversampled to allow for the precise estimation of health in minority populations and elders. Extensive details about the questionnaire, methodology, data, and documentation are available on the NHIS website [14].

The total initial sample size of those persons interviewed in the NHIS Sample Adults survey (aged 18 years or older) in 2004–2014 was 325,884, with an average response rate of 80.1%. For analysis of U.S. adults, the sample size was 318,472 after excluding 7412 adults who did not respond to the physical activity questions. For analysis of U.S. workers, we included working adults aged 18 years and older who were “working at a job or business” or “with a job or business but not at work” during the week before their interview. The final sample size used in our analyses for workers was 186,941.

Leisure-time physical activity

Physical Activity Guidelines for Americans, which was released in 2008 by the U.S. Department of Health and Human Services, provided the first recommendation that described the types and amounts of leisure-time physical activity that should be performed by U.S. youth and adults [15]. The leisure-time physical activity (LTPA) called an aerobic activity or cardio activity, is defined as movement of the body’s large muscles in a rhythmic manner. Intensity is related to how physical activity affects their heart rate and breathing: “As a rule of thumb, a person doing moderate-intensity aerobic activity can talk, but not sing, during the activity. A person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath” [15]. Examples of moderate intensity are walking briskly, water aerobics, bicycling slower than 10 miles per hour, tennis with doubles, ballroom dancing, general gardening, and so forth. Examples of vigorous intensity are race, walking, jogging, or running, swimming laps, tennis with singles, aerobic dancing, bicycling 10 miles per hour or faster, jumping rope, heavy gardening (continuous digging or hoeing),

hiking uphill or with a heavy backpack, and so forth. The NHIS physical activity questions asked about frequency and duration of light-moderate activity and vigorous activity. According to the 2008 Physical Activity Guidelines, adults should do at least 150 minutes a week of moderate intensity, 75 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate-intensity and vigorous-intensity aerobic activity for substantial health benefits. The adults who met the criteria were classified as “sufficiently active”, and those who engaged in physical activity for at least 10 minutes per week but did not meet the criteria were classified as the “insufficiently active”. The “inactive” level meant that there was no physical activity.

Occupational and industry groups

The NHIS Sample Adult data obtained verbatim responses from each participant regarding his/her occupation and industry. This information was subsequently reviewed by U.S. Census Bureau coding specialists, who assigned appropriate industry and occupation codes. These codes, developed by the U.S. Census Bureau staff for use in noneconomic Federal surveys, are 4-digit Census codes for industry and occupation consistent with the North American Industry Classification System and Standard Occupational Classification [16]. We used the 21 simple categories of occupation and the 20 simple sectors of industry in NHIS Sample Adult file available for public use after excluding workers who were classified in the military-specific occupational group or the Armed Forces industry group.

Sociodemographic and job characteristics

Information on sociodemographic and job characteristics was obtained from a self-reported questionnaire. Sociodemographic variables included gender, age, race/ethnicity, education level, and body mass index (BMI). Age was categorized into six groups for adjustment in all prevalence analysis: 18–24, 25–34, 35–44, 45–54, 55–64, 65 or more years. BMI was calculated as weight in kilograms divided by height in meters squared (kg/m^2), and it was grouped into four categories: lean ($\text{BMI} < 18.5$), normal ($18.5 \leq \text{BMI} < 25.0$), overweight ($25.0 \leq \text{BMI} < 30.0$), and obese ($\text{BMI} \geq 30.0$). Smoking status was categorized as follows: current smoker, former smoker, and never smoker. Job characteristics were also collected to assess the participant’s working environment: working hours per week (less than 30 hours/week, 30–49, 50 or more), whether the participant held a second job, and the number of employees at his/her working place (1–9 workers, 10–49, 50–249, 250 or more).

Statistical analysis

The NHIS data in the current analyses were combined across years using the NHIS guidelines as presented in Variance Estimation and Other Analytic Issues, NHIS 1995–2005, and Variance Estimation Guidance, NHIS 2006–2014 [17,18]. To attain unbiased estimates from the NHIS data, all analyses were weighted to account for the complex survey design and survey nonresponse using the SAS-callable SUDAAN v11.0 software (Research Triangle Institute, Research Triangle Park, North Carolina). To more accurately represent the population of the United States, all analyses were performed using a weighting variable, which was divided by 11 to take into consideration the 11 survey years 2004–2014. Standard errors were estimated using Taylor series linearization methods. Each table showed the sample size, the estimated population, the estimated population who were reported

“sufficient” LTPA, the overall prevalence of “sufficient” LTPA, the annual prevalence of “sufficient” LTPA, the slope of the prevalence over time and the *P* values of the slope. A weighted least square linear regression model was fitted to the annual age-adjusted prevalence (i.e., the slope in Tables 1–3). The weight used for each annual prevalence was the inverse of its variance.

Prevalence estimates in all tables were age adjusted and were computed by the direct method by applying age-specific rates in the U.S. 2010 workers population to a standardized age distribution. Age was classified into six groups: 18–24, 25–34, 35–44, 45–54, 55–64, 65+, and the 2010 U.S. workers standard population was provided by Bureau of Labor Statistics [19]. For reliable estimates of the prevalence, Klein et al. [20] reported that the estimates should be derived from sample sizes larger than 50 or relative standard errors (calculated as standard error of prevalence divided by prevalence) greater than 0.3. The prevalence estimates in these analyses were reliable since every estimate met the criteria. We did not report estimates of corresponding variances because of the limitation of space in the table.

Results

Figure 1 shows the prevalence trends of “sufficient”, “insufficient active”, and “inactive” of LTPA among U.S. workers. The trends of “insufficient active” LTPA is constant, approximately 20 percent across all years. The prevalence of “sufficient” levels began initially at approximately 45% during 2004–2007, followed by an increase during 2008–2011, and then leveled off near 55% during 2012–2014. The prevalence of ‘inactive’ began at approximately 35% in 2004–2006 and decreased thereafter, which corresponds somewhat to a mirror image of “sufficient” LTPA.

Table 1 presents the trends of the age-adjusted prevalence of “sufficient” LTPA by demographic and job characteristics. The annual prevalence of “sufficient” LTPA increased significantly between 2004 and 2014 for workers overall, as well as for every sociodemographic subgroup. The average prevalence of “sufficient” LTPA was higher in males, young workers, non-Hispanic whites, workers with a high education level, former smokers, and those who had a normal BMI ($18.5 < \text{BMI} < 25 \text{ kg perm}^2$). During the time period, the change in prevalence of “sufficient” LTPA was higher in blacks (slope = 1.568) than in whites (slope = 1.154), although the overall mean prevalence was higher in whites (54.0%) than in blacks (42.6%). Workers with college degrees had a higher overall mean prevalence of “sufficient” LTPA than those with less education (i.e., high school level; 63.1% and 31.3%, respectively). However, the change in prevalence between 2004 and 2014 was higher in workers with less education than in those with college degrees (slope = 1.267 and 0.884, respectively). Interestingly, employees who worked longer hours (50+ hours/week), who worked at a larger company, and who had a second job had a higher prevalence of “sufficient” LTPA (Table 1).

Table 2 shows the trends of age-adjusted prevalence of “sufficient” LTPA by industry groups among U.S. workers between 2004 and 2014. The industry groups are ordered by the overall mean prevalence of “sufficient” LTPA, from lowest to highest prevalence. During the period, the lowest overall mean prevalence of “sufficient” LTPA was observed among workers in

Agriculture/Forestry/Fishing/Hunting (33.0%), followed by accommodation/food services (41.1%). The highest mean prevalence of “sufficient” LTPA was observed among workers in professional/scientific/technical services (62.1%), followed by in education services (59.1%). Prevalence of “sufficient” LTPA significantly increased from 2004 to 2014 in most industry groups. The largest increases were observed among workers in public administration (51.3% to 63.4%, slope = 1.679; $P < .001$) and followed by workers in arts/entertainment/recreation (56.8% to 66.6%, slope = 1.544; $P < .001$). The smallest increases were observed among workers in utilities (46.6% to 51.1%, slope = 0.743; $P = .115$), followed by agriculture/forestry/fishing/hunting (29.8% to 30.7%, slope = 0.881; $P = .031$).

Among occupational groups (Table 3), the overall prevalence of “sufficient” LTPA ranged from 30.8% in farming/fishing/forestry to 66.4% in life/physical/social science. Employees in life/physical/social science reached the highest prevalence (71.9%) of LTPA in 2014. Prevalence of “sufficient” LTPA significantly increased from 2004 to 2014 among workers in most occupational groups. The largest increases were observed among workers in food preparation/serving (35.8% to 46.0%, slope = 1.591; $P < .001$), followed by business and financial operations (52.9% to 66.1%, slope = 1.339; $P < .001$) and protective services (52.2% to 65.5%, slope = 1.338; $P < .001$). Workers in community/social services had the smallest increase (slope = 0.293; $P = .184$).

Discussion

The findings in this study indicate that there was a difference of approximately 10% between the lowest prevalence of “sufficient” LTPA (in 2006 at 45.2%) and the highest prevalence (in 2013 at 55.0%) during the study period, 2004–2014. The U.S. Centers for Disease Control and Prevention reported that approximately 36% of workers did engage in adequate levels of moderate or vigorous LTPA in 1990 [21]. Despite the changes in types of jobs (i.e., decrease in manufacturing jobs accompanied by an increase in office jobs), the prevalence of LTPA continues to increase. We also noticed that the prevalence noticeably changed by 6.6% from 2007 (45.6%) to 2009 (52.2%). During such a short period (2007–2009), an estimated 9 million U.S. workers were added to the “sufficient” LTPA category. Colman and Dave [22] found, from the 2003–2010 American Time Use Survey, that recreational exercise increased, whereas work time decreased during the U.S. economic recession 2007–2009, and Ruhm [23] also found from the 1987–2000 Behavioral Risk Factor Surveillance System that LTPA rose during temporary economic downturns. These two studies may explain this rapid increase in the prevalence of “sufficient” LTPA within 3 years (2007–2009). Over the past 3 decades, the obesity rate for U.S. adults and workers has continued to increase. We would have expected that the increase in physical activity levels might be a factor in workers’ weight loss and reduced BMI. A recent study reported that the prevalence of U.S. workers with BMI ≥ 30 kg per m² had significantly increased until 2008 and then leveled off during 2009–2011 [3]. Our study showed that although the obese workers had less LTPA than those with normal and overweight, the prevalence of LTPA for the obese workers significantly increased over the study period.

Overall, mean prevalence of “sufficient” LTPA varied according to workers’ demographic characteristics. The current findings were consistent with previous reports that indicate that

men, young workers, whites, or those with college degrees are most likely to engage in “sufficient” physical activity during leisure time [21,24,25]. Additionally, this study showed that workers with long working hours (50 + hrs/wk) and those with second jobs had a higher prevalence of “sufficient” LTPA. Both the long working hours and second jobs would increase income levels, and workers with higher incomes probably spend more of their leisure time in physical activity. In our study, the workers with college degrees had the highest prevalence of having second jobs and were two times more likely to have a second job than those who were less educated (data not shown). Additionally, the workers with college degrees had the highest prevalence of having overtime (i.e., 50 or more hours per week); they were almost two times more likely to have 50 or more hours of work per week than those with less than 12 years of education (data not shown). Previous studies found that physical activity was associated with income [26,27] and education [27]. The present study is a descriptive study, and we cannot ascertain that the association between the long working hours and LTPA is causal.

Our results show that workers in the primary industry sector like Agriculture/Forestry/Fishing/Hunting had the lowest prevalence of “sufficient” LTPA. Blue-collar workers, such as those in Construction, Accommodation and Food Services, Manufacturing, and Retail Trade, also had a relatively low prevalence. These findings are consistent with previous studies [28–30]. An Australian study reported that blue-collar employees had higher levels of insufficient physical activity than professional or white-collar employees [29]. Another study also found that unskilled manual workers had less LTPA than high-level nonmanual workers [28]. Work demands and lack of time have been reported to be the main barriers to LTPA workers in blue-collar jobs [29,31]. Although blue-collar workers had lower prevalence of ‘sufficient’ LTPA, our study showed that the prevalence trends among this group increased steadily. For example, workers in a blue-collar occupational group in this present study, Food Preparation and Serving Related, had the highest increase in prevalence of “sufficient” LTPA. A recent study indicated that LTPA could be protective of slips and falls among food service employees [12]. White-collar workers, such as those in Professional, Sciences, Education Services, and Public Administration, had the highest prevalence of “sufficient” LTPA. A Canadian report was released stating that white-collar workers were more motivated to participate in sports or physical recreation for health reasons, enjoyment, and so forth, and that blue-collar workers were satisfied with their present exercise levels and had less awareness of the health benefits of physical activity [32]. LTPA has been shown to be associated with better health [7–12,15,29–31]. The demographic groups that are more likely to experience poorer health tend to be those used in blue-collar jobs [24–27]. Therefore, these findings seem to suggest that an opportunity exists for employers to encourage and educate blue-collar workers on the benefits of LTPA, and where possible, to facilitate those interested in achieving these goals.

Because employees in Protective services such as fire fighters and police officers reported high prevalence of obesity, they have been encouraged to engage in more physical fitness and weight loss programs for their health. The present study found that the overall mean prevalence of “sufficient” LTPA in protective services was one of the highest and that the prevalence trend gradually increased by 13.3%, from 52.2% in 2004 to 65.5% in 2014. Previous studies in fire fighters and police officers reported that high levels of physical

fitness were inversely associated with metabolic syndrome, musculoskeletal injuries, and chronic pain [11,33,34].

Limitations and strengths

The findings in this report are subject to several limitations. First, physical activity in the NHIS was self-reported and so was subject to recall bias. Although all respondents received instructions in advance that the questions refer to leisure-time activity, some of them may have failed to pay attention and may have included household physical activities and occupational physical activities [27]. In a NHANES study, physical activity measured using accelerometers was much lower than that based on self-reported questionnaires [35]. It could be that the self-reported LTPA in this study was overestimated.

Second, shift work, a major job characteristic, was not considered in our analysis because shift work information was not collected in all the years. It was collected in NHIS Supplements questionnaire in a certain year. Popolonska et al. [36] reported that rotating night shift work among nurses and midwives is associated with higher occupational physical activity but lower leisure time activity. Third, small sample sizes among certain occupations or industries might have resulted in imprecise point estimates of prevalence and wide confidence intervals.

Even with such limitations, a major strength of this study is that we used nationally representative databases to obtain the leisure-time physical activity data. Furthermore, we used a standardized classification system for industry and occupation groups, thus reducing the possibility of misclassification for industry-related or occupation-related physical activity.

Conclusions

Findings from the present study provide prevalence of “sufficient” LTPA that varied by sociodemographic and job characteristics as well as by industry and occupational groups. During the period 2004–2014 in the United States, there has been a progressive increase in the prevalence of “sufficient” LTPA within each demographic subgroup as well as most of the industry and occupational groups. The most progressive increases of LTPA were observed among employees in public administration (in industry sector) and workers in food preparation and serving related (in occupational group). The workers in utilities (in industry sector) and in farming, fishing, and forestry (in occupational group) had the smallest increase in LTPA over the study period.

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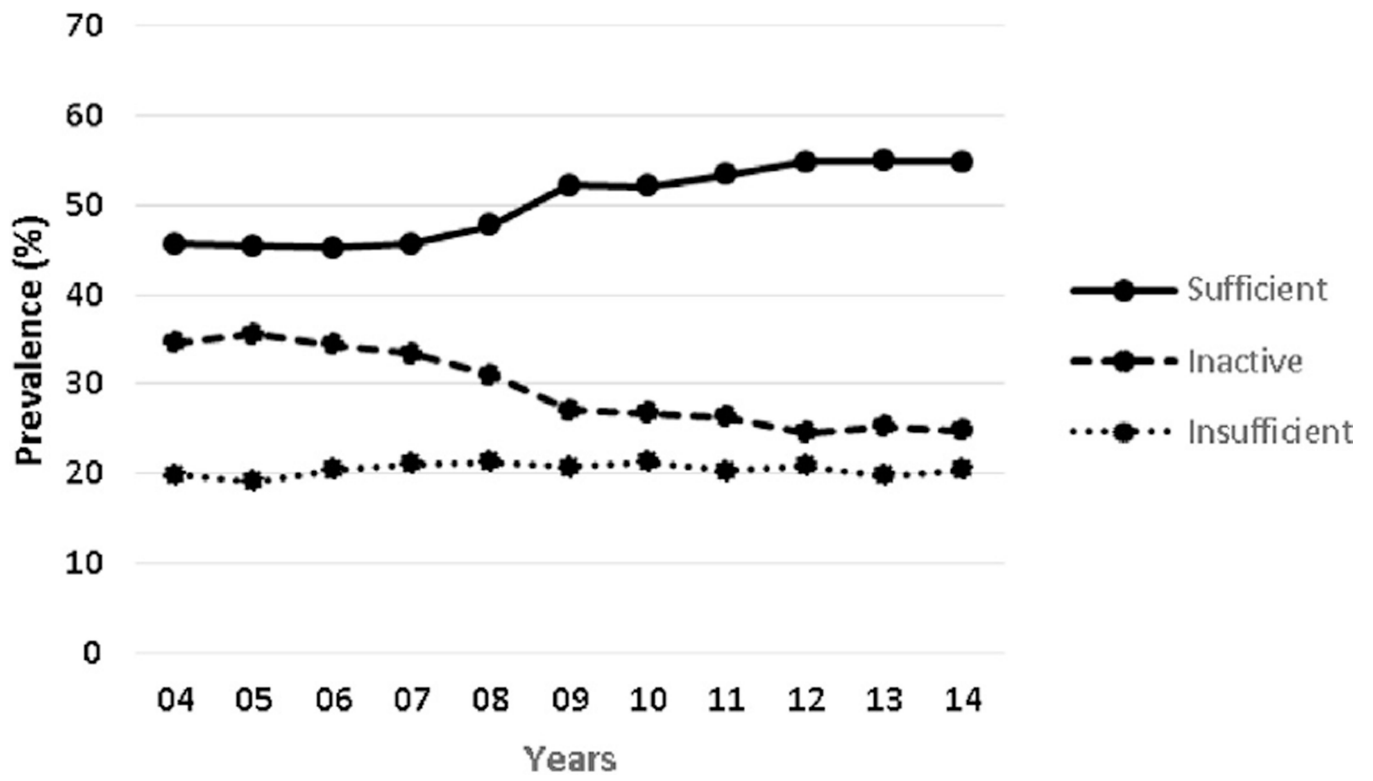


Fig. 1.
Trends in prevalence of LTPA among U.S. workers.

Prevalence and trends in “sufficient” leisure-time physical activity among U.S. workers by selected demographic and job characteristics, 2004–2014

Table 1

Characteristics	Sample size	Est. U.S. workers	Est. No. of Suff. active	Prevalence of “sufficient” leisure-time physical activity*				
				Overall	2004	2005	2006	2007
All	186,941	136.7M	68.9M	50.2 (49.7–50.7)	45.6 (44.5–46.7)	45.4 (44.4–46.4)	45.2 (44.0–46.4)	45.6 (44.2–46.9)
Gender								
Male	92,280	72.9M	38.8M	53.0 (52.3–53.6)	48.0 (46.6–49.3)	47.8 (46.6–49.1)	47.6 (46.1–49.2)	47.8 (46.1–49.5)
Female	94,661	63.8M	30.1M	47.0 (46.5–47.6)	42.8 (41.5–44.2)	42.5 (41.1–43.8)	42.4 (40.8–44.0)	43.0 (41.2–44.7)
Age group (y)								
18–24	19,567	17.4M	10.0M	56.9 (55.8–58.0)	51.0 (48.0–54.0)	54.7 (51.7–57.6)	50.4 (47.5–53.4)	50.9 (47.3–54.5)
25–34	43,614	30.5M	16.7M	54.8 (54.0–55.5)	50.0 (48.0–52.0)	48.1 (46.4–49.9)	48.0 (45.8–50.1)	48.1 (45.8–50.5)
35–44	44,234	31.5M	15.7M	49.9 (49.2–50.7)	44.9 (43.1–46.8)	46.2 (44.5–48.0)	46.5 (44.4–48.6)	45.2 (43.0–47.3)
45–54	42,167	32.2M	15.5M	48.3 (47.6–49.0)	44.3 (42.6–46.1)	44.0 (42.2–45.8)	44.3 (41.9–46.6)	44.6 (42.5–46.7)
55–65	28,266	19.7M	8.9M	45.2 (44.4–46.0)	41.5 (39.1–43.9)	38.0 (35.7–40.3)	40.0 (37.4–42.6)	42.6 (39.9–45.4)
65+	9093	5.4M	2.2M	40.2 (38.9–41.5)	34.6 (31.0–38.4)	37.5 (33.2–42.0)	35.7 (31.4–40.3)	37.6 (32.8–42.6)
Race/ethnicity								
White (non-Hispanic)	113,431	93.6M	50.5M	54.0 (53.4–54.7)	49.3 (48.0–50.6)	50.0 (48.8–51.2)	48.9 (47.4–50.4)	49.3 (47.6–51.0)
Black (non-Hispanic)	26,817	15.4M	6.7M	42.6 (41.7–43.5)	37.4 (35.1–39.9)	34.0 (31.5–36.6)	38.3 (35.6–41.0)	36.7 (34.2–39.3)
Hispanic	34,595	19.9M	8.2M	39.4 (38.6–40.2)	33.7 (31.7–35.9)	31.5 (29.5–33.6)	33.1 (30.5–35.7)	35.5 (33.1–38.0)
Others (non-Hispanic)	12,098	7.8M	3.6M	45.8 (44.5–47.1)	39.1 (35.3–43.0)	38.9 (34.6–43.4)	43.2 (39.1–47.4)	41.1 (36.9–45.4)
Education level								
<High school	20,799	13.6M	3.4M	31.3 (30.4–32.2)	27.2 (25.0–29.4)	27.8 (25.8–29.9)	27.2 (24.6–30.0)	24.6 (22.0–27.5)
High school/GED degree	41,225	31.1M	12.6M	40.1 (39.3–40.9)	36.8 (34.8–38.8)	35.6 (33.8–37.4)	35.9 (34.0–37.9)	35.5 (33.5–37.7)
Some college	58,494	42.7M	22.2M	51.0 (50.3–51.6)	47.2 (45.5–48.9)	46.9 (45.4–48.5)	47.0 (44.9–49.0)	46.5 (44.4–48.5)
College degree	60,236	44.8M	28.1M	63.1 (62.5–63.7)	58.6 (56.9–60.4)	58.9 (57.2–60.5)	59.5 (57.5–61.4)	60.9 (58.8–62.9)
Smoking status								
Current	36,708	26.8M	11.8M	43.0 (42.2–43.7)	40.4 (38.5–42.3)	39.9 (38.2–41.6)	38.2 (36.0–40.4)	37.9 (35.5–40.4)
Former	34,785	26.0M	13.8M	54.7 (53.9–55.6)	53.0 (50.8–55.2)	50.7 (48.4–53.0)	50.2 (47.8–52.5)	50.7 (48.1–53.3)
Never	114,983	84.6M	43.1M	51.0 (50.5–51.5)	45.2 (43.9–46.5)	45.6 (44.3–46.8)	45.8 (44.3–47.3)	46.4 (44.9–48.0)
Body mass index (kg/m ²)								
Lean (BMI 18.4)	2451	1.8M	0.8M	42.6 (39.7–45.4)	43.0 (35.1–51.4)	34.7 (28.3–41.8)	30.5 (23.3–38.6)	31.7 (24.1–40.4)

Characteristics	Sample size	Est. U.S. workers	Est. No. of Suff. active	Prevalence of "sufficient" leisure-time physical activity*				
				Overall	2004	2005	2006	2007
Normal (18.5 BMI<25)	63,636	46.6M	25.8M	54.8 (54.2-55.5)	49.2 (47.6-50.8)	50.7 (49.1-52.4)	48.5 (46.6-50.3)	50.8 (48.8-52.7)
Overweight (25 BMI<30)	64,897	47.8M	25.1M	52.8 (52.1-53.4)	47.5 (45.9-49.1)	47.8 (46.2-49.3)	46.4 (44.7-48.2)	48.2 (46.0-50.3)
Obese (30.0+)	48,699	35.2M	15.3M	43.8 (43.1-44.5)	40.0 (37.9-42.1)	38.2 (36.5-40.0)	42.6 (40.3-44.9)	39.7 (37.6-41.8)
Work hours (h/wk)								
<30	27,000	19.9M	10.4M	50.5 (49.6-51.5)	46.6 (44.1-49.1)	49.3 (46.7-52.0)	46.9 (44.0-49.9)	46.1 (43.1-49.2)
30-50	121,869	88.1M	42.8M	48.3 (47.8-48.9)	43.7 (42.4-45.0)	42.8 (41.7-44.0)	43.1 (41.7-44.4)	43.5 (42.0-45.0)
50+	34,382	25.8M	14.3M	55.1 (54.3-55.9)	50.2 (48.1-52.3)	50.8 (48.5-53.1)	50.3 (47.8-52.8)	50.9 (48.3-53.6)
No. of employee at work								
1-9	46,355	33.7M	16.7M	49.6 (49.0-50.3)	44.8 (43.1-46.6)	44.3 (42.6-46.0)	42.4 (40.4-44.5)	44.0 (41.9-46.2)
10-49	47,212	34.9M	17.3M	48.8 (48.0-49.5)	44.9 (43.1-46.6)	43.9 (42.3-45.6)	44.5 (42.4-46.5)	46.3 (44.0-48.6)
50-249	41,589	30.7M	15.5M	50.3 (49.5-51.0)	45.9 (44.0-47.9)	46.0 (44.0-48.0)	44.8 (42.6-46.9)	46.5 (44.3-48.7)
250+	34,985	25.3M	13.9M	54.7 (54.0-55.5)	49.5 (47.3-51.7)	49.8 (47.8-51.8)	52.3 (49.6-54.9)	50.2 (47.6-52.7)
Second job								
Yes	16,171	11.7M	7.0M	58.8 (57.6-59.9)	54.1 (50.9-57.4)	54.8 (51.6-57.9)	57.9 (53.7-62.0)	56.2 (52.5-59.9)
No	170,144	124.4M	61.8M	49.4 (48.9-49.9)	44.8 (43.7-46.0)	44.6 (43.6-45.7)	44.2 (42.9-45.4)	44.7 (43.3-46.1)

Prevalence of "sufficient" leisure-time physical activity*

2008	2009	2010	2011	2012	2013	2014	Slope (SE) [†]	P [‡]
47.7 (46.4-48.9)	52.2 (51.0-53.4)	52.1 (51.0-53.2)	53.4 (52.3-54.4)	54.8 (53.7-55.8)	55.0 (53.9-56.1)	54.8 (53.7-55.9)	1.190 (0.123)	<.001
50.7 (49.0-52.4)	55.2 (53.5-56.9)	56.3 (54.7-57.8)	56.1 (54.6-57.5)	57.3 (56.0-58.6)	58.3 (56.8-59.7)	57.3 (55.9-58.7)	1.233 (0.143)	<.001
44.3 (42.8-45.8)	48.9 (47.4-50.4)	47.4 (46.0-48.8)	50.3 (49.0-51.6)	51.9 (50.6-53.3)	51.3 (49.9-52.8)	52.0 (50.5-53.6)	1.154 (0.128)	<.001
54.0 (50.2-57.6)	57.7 (53.8-61.4)	57.6 (54.1-61.0)	61.7 (58.7-64.6)	62.5 (59.3-65.6)	64.3 (61.4-67.0)	61.9 (58.5-65.3)	1.407 (0.204)	<.001
52.6 (50.3-55.0)	56.8 (54.7-58.9)	55.8 (54.9-58.8)	58.8 (57.0-60.5)	60.8 (58.8-62.7)	60.6 (58.6-62.6)	61.5 (59.6-63.3)	1.531 (0.171)	<.001
47.2 (44.8-49.6)	52.1 (49.9-54.3)	52.7 (50.7-54.7)	52.9 (50.9-54.9)	54.1 (52.1-56.2)	54.4 (52.3-56.4)	54.6 (52.7-56.5)	1.106 (0.126)	<.001
46.2 (44.0-48.5)	50.8 (48.6-53.0)	50.7 (48.6-52.8)	50.6 (48.6-52.7)	51.8 (49.7-53.8)	52.2 (50.1-54.2)	51.8 (49.7-53.9)	0.978 (0.122)	<.001
42.3 (39.8-44.8)	47.4 (44.9-50.0)	46.2 (43.9-48.6)	48.8 (46.6-51.1)	48.8 (46.4-51.1)	48.9 (46.5-51.3)	48.2 (45.9-50.5)	1.083 (0.174)	<.001
36.6 (31.8-40.9)	40.8 (36.1-45.8)	39.6 (35.4-43.8)	39.5 (35.7-43.4)	45.8 (42.3-49.3)	44.2 (40.5-48.0)	45.0 (41.2-48.8)	1.073 (0.163)	<.001
52.3 (50.7-53.8)	56.2 (54.7-57.7)	56.5 (55.2-57.8)	56.8 (55.6-58.1)	58.6 (57.3-59.9)	58.7 (57.3-60.1)	58.4 (57.0-59.8)	1.154 (0.128)	<.001
38.4 (35.7-41.1)	46.7 (44.1-49.3)	42.6 (39.9-45.3)	48.6 (46.2-51.0)	47.3 (44.9-49.9)	46.6 (44.0-49.1)	51.1 (48.4-53.8)	1.568 (0.247)	<.001

Prevalence of "sufficient" leisure-time physical activity*

2008	2009	2010	2011	2012	2013	2014	Slope (SE) [†]	P [‡]
35.5 (32.6–38.6)	41.1 (38.5–43.7)	39.6 (37.3–41.9)	43.0 (40.8–45.3)	44.7 (42.4–47.0)	46.9 (45.0–48.8)	44.3 (42.4–46.2)	1.496 (0.162)	<.001
43.3 (38.9–47.7)	42.9 (39.2–46.8)	46.5 (42.4–50.6)	48.4 (45.2–51.6)	52.2 (48.9–55.5)	52.8 (49.4–56.1)	50.7 (47.3–54.2)	1.451 (0.168)	<.001
27.9 (24.7–31.2)	32.0 (29.0–35.0)	32.2 (29.3–35.2)	35.6 (33.0–38.3)	38.0 (35.1–40.9)	37.9 (35.0–41.0)	37.2 (34.5–40.0)	1.267 (0.191)	<.001
37.9 (35.6–40.2)	42.6 (40.4–44.7)	42.2 (40.3–44.2)	41.8 (39.9–43.7)	44.0 (41.6–46.4)	45.4 (43.2–47.6)	46.5 (44.2–48.7)	1.151 (0.141)	<.001
48.1 (46.2–50.1)	52.6 (50.5–54.7)	52.5 (50.7–54.2)	53.6 (52.1–55.1)	55.3 (53.7–57.0)	56.0 (54.2–57.7)	53.4 (51.6–55.1)	0.987 (0.147)	<.001
61.3 (59.2–63.3)	65.1 (63.2–66.9)	63.8 (62.0–65.7)	66.5 (65.0–68.0)	66.3 (64.7–67.9)	65.1 (63.4–66.7)	66.4 (64.8–68.0)	0.884 (0.114)	<.001
41.4 (39.0–43.8)	44.4 (42.1–46.8)	46.0 (43.7–48.2)	44.8 (42.6–46.9)	48.0 (45.7–50.2)	47.9 (45.6–50.2)	46.5 (43.8–49.2)	0.971 (0.170)	.001
54.1 (51.4–56.8)	56.2 (53.6–58.8)	56.0 (53.5–58.4)	56.7 (54.2–59.2)	56.9 (54.2–59.5)	60.2 (57.7–62.5)	57.3 (54.7–59.8)	0.839 (0.161)	.001
48.0 (46.5–49.5)	53.1 (51.8–54.5)	52.8 (51.5–54.2)	54.9 (53.7–56.1)	55.6 (54.5–56.8)	55.4 (54.2–56.6)	56.1 (54.9–57.3)	1.293 (0.126)	<.001
45.3 (35.5–55.6)	38.4 (29.2–48.4)	40.7 (32.9–49.0)	52.7 (44.5–60.7)	49.7 (41.0–58.5)	54.9 (45.4–64.0)	55.9 (45.9–65.4)	2.168 (0.563)	.004
52.2 (50.4–54.0)	57.5 (55.5–59.4)	56.4 (54.5–58.2)	58.4 (56.7–60.0)	61.4 (59.8–63.0)	59.1 (57.4–60.7)	60.1 (58.4–61.8)	1.311 (0.163)	<.001
50.1 (48.1–52.0)	55.5 (53.7–57.3)	56.1 (54.5–57.8)	55.9 (54.3–57.5)	56.3 (54.6–57.9)	58.4 (56.8–60.1)	58.1 (56.6–59.7)	1.296 (0.150)	<.001
42.4 (40.1–44.6)	43.2 (41.1–45.3)	44.3 (42.4–46.2)	46.5 (44.7–48.2)	47.3 (45.5–49.1)	47.8 (45.9–49.7)	47.5 (45.6–49.3)	0.991 (0.114)	<.001
48.1 (44.8–51.4)	51.5 (48.6–54.5)	48.6 (46.2–51.0)	52.9 (50.3–55.4)	56.7 (53.8–59.6)	53.2 (50.5–55.9)	54.0 (51.3–56.6)	0.828 (0.191)	<.001
45.7 (44.2–47.1)	50.1 (48.7–51.5)	51.1 (49.8–52.4)	51.6 (50.3–52.8)	53.0 (51.8–54.2)	53.6 (52.4–54.8)	53.4 (52.1–54.6)	1.291 (0.132)	<.001
51.7 (48.9–54.4)	59.2 (56.6–61.7)	57.0 (54.7–59.3)	58.5 (56.2–60.8)	58.3 (55.9–60.6)	60.6 (58.3–62.7)	59.3 (56.8–61.7)	1.161 (1.166)	<.001
48.6 (46.4–50.8)	53.3 (51.1–55.6)	53.0 (51.1–54.9)	52.3 (50.4–54.3)	54.2 (52.3–56.0)	55.3 (53.5–57.1)	54.0 (52.1–56.0)	1.302 (0.193)	<.001
44.1 (41.8–46.4)	50.1 (48.0–52.2)	49.2 (47.1–51.2)	52.0 (50.2–53.8)	54.0 (52.0–56.0)	52.6 (50.6–54.5)	54.1 (52.2–56.1)	1.122 (0.139)	<.001
48.4 (46.0–50.9)	51.5 (49.4–53.7)	51.5 (49.4–53.6)	53.5 (51.6–55.4)	53.7 (51.8–55.5)	54.7 (52.7–56.8)	54.6 (52.6–56.5)	1.094 (0.109)	<.001
51.2 (48.9–53.5)	56.3 (53.8–58.7)	56.4 (54.3–58.5)	57.9 (55.9–59.8)	59.4 (57.3–61.4)	60.0 (57.9–61.9)	58.1 (55.7–60.4)	1.168 (0.141)	<.001
55.8 (52.3–59.3)	59.0 (55.5–62.4)	58.5 (55.4–61.6)	63.1 (60.3–65.9)	61.8 (58.6–64.8)	59.4 (56.2–62.4)	63.9 (60.5–67.1)	0.887 (0.164)	<.001
46.9 (45.6–48.2)	51.5 (50.2–52.7)	51.5 (50.3–52.6)	52.4 (51.3–53.5)	54.1 (53.0–55.2)	54.7 (53.5–55.8)	54.0 (52.9–55.1)	1.200 (0.131)	<.001

* Prevalence estimates were age adjusted to the 2010 U.S. workers standard population by Bureau of Labor Statistics, using six age groups: 18–24, 25–34, 35–44, 45–54, 55–64, 65+ years. Estimated by age group was not age adjusted.

† A weighted linear regression model was fitted to the annual design-adjusted rates. The weight used for each annual rate was the inverse of its variance. The P value was from linear regression model.

Table 2
Prevalence and trends in “sufficient” leisure-time physical activity by industry groups among U.S. workers

Industry groups	Sample size	Est. U.S. workers	Est. no of Suff. active	Prevalence of “sufficient” leisure-time physical activity*						
				Overall	2004	2005	2006	2007		
Agriculture, forestry, fishing, and hunting	2484	1.69M	0.56M	33.0 (30.4–35.8)	29.8 (23.1–37.6)	25.6 (20.0–32.2)	27.4 (20.1–36.1)	30.7 (22.7–40.2)		
Accommodation and food services	12,003	8.51M	3.94M	41.1 (30.4–35.8)	37.8 (23.1–37.6)	34.5 (20.0–32.2)	35.5 (20.1–36.1)	36.1 (22.7–40.2)		
Construction	12,130	9.51M	4.26M	44.3 (43.1–45.5)	40.9 (37.6–44.2)	40.2 (37.2–43.3)	39.8 (36.2–43.3)	37.4 (36.2–43.4)		
Administrative and support and waste management and remediation services	8236	5.68M	2.57M	44.5 (43.0–46.0)	40.5 (36.2–44.9)	44.1 (39.7–48.5)	39.7 (34.6–45.0)	38.0 (33.8–42.5)		
Retail trade	18,632	14.15M	6.55M	44.7 (43.7–45.7)	37.1 (34.5–39.9)	39.9 (37.4–42.5)	38.8 (35.6–42.0)	42.6 (39.7–45.5)		
Transportation and warehousing	7592	5.62M	2.56M	46.1 (44.6–47.5)	42.9 (38.8–47.0)	39.8 (35.6–44.0)	41.7 (36.6–47.1)	39.1 (34.4–44.0)		
Manufacturing	18,761	14.35M	6.67M	46.7 (45.5–47.8)	42.5 (39.8–45.1)	42.1 (39.2–45.0)	39.9 (37.0–42.8)	41.6 (38.0–45.4)		
Other services (except public administration)	9482	6.68M	3.14M	47.0 (45.7–48.4)	42.7 (39.3–46.2)	41.3 (37.5–45.2)	39.0 (34.9–43.3)	44.5 (39.8–49.2)		
Mining	1018	0.70M	0.34M	48.4 (42.7–54.0)	41.3 (27.7–56.4)	43.8 (29.2–59.6)	55.3 (41.2–68.6)	39.0 (28.3–50.9)		
Health care and social assistance	25,731	17.64M	8.77M	49.7 (48.8–50.5)	45.7 (43.2–48.2)	45.7 (43.3–48.2)	47.4 (44.6–50.3)	46.2 (43.2–49.3)		
Wholesale	4714	3.67M	1.84M	50.0 (48.3–51.8)	48.3 (43.6–53.1)	44.6 (40.0–49.3)	47.3 (41.7–52.9)	43.3 (37.9–49.0)		
Utilities	1560	1.23M	0.65M	52.3 (48.7–55.9)	46.6 (38.1–55.2)	53.2 (44.6–61.6)	52.3 (41.9–62.4)	45.2 (35.3–55.4)		
Information	4274	3.21M	1.82M	56.3 (54.5–58.0)	52.1 (46.8–57.3)	49.4 (43.6–55.2)	52.3 (46.4–58.1)	52.8 (45.3–60.2)		
Real estate and rental and leasing	3710	2.71M	1.50M	56.3 (54.3–58.3)	60.2 (54.4–65.7)	45.9 (40.3–51.6)	53.0 (46.3–59.5)	45.3 (38.8–52.0)		
Finance and insurance	8494	6.34M	3.66M	57.5 (56.2–58.8)	51.5 (47.7–55.3)	51.9 (47.9–55.9)	56.3 (51.6–61.0)	52.0 (47.0–56.9)		
Arts, entertainment, and recreation	3635	2.68M	1.60M	58.5 (56.2–60.8)	56.8 (50.2–63.2)	51.4 (45.3–57.6)	50.4 (42.6–58.1)	52.3 (45.4–59.1)		
Public administration	9677	6.81M	3.92M	59.0 (57.6–60.4)	51.3 (47.3–55.4)	54.1 (50.1–58.0)	53.8 (48.8–58.7)	55.9 (50.9–60.7)		
Education services	17,833	12.92M	7.59M	59.1 (58.0–60.1)	54.4 (51.7–57.0)	54.5 (51.7–57.2)	56.3 (52.9–59.5)	57.8 (54.8–60.9)		
Professional, scientific, and technical services	11,954	9.05M	5.61M	62.1 (60.9–63.3)	57.4 (54.2–60.7)	59.3 (55.4–63.0)	59.3 (55.2–63.2)	57.1 (52.5–61.5)		

Prevalence of “sufficient” leisure-time physical activity*							
2008	2009	2010	2011	2012	2013	2014	P†
32.3 (25.2–40.2)	34.0 (26.9–41.9)	39.8 (31.7–48.5)	35.4 (28.8–42.6)	38.8 (31.3–46.9)	38.9 (31.6–46.8)	30.7 (24.9–37.2)	0.881 (0.346) .031
36.8 (25.2–40.2)	42.3 (26.9–41.9)	41.7 (31.7–48.5)	44.1 (28.8–42.6)	49.0 (31.3–46.9)	44.8 (31.6–46.8)	46.5 (24.9–37.2)	1.280 (0.212) <.001
40.3 (36.5–44.3)	46.2 (42.1–50.4)	52.9 (49.3–56.5)	47.0 (43.5–50.5)	47.5 (43.5–51.4)	52.8 (49.3–56.2)	47.6 (43.8–51.5)	1.264 (0.322) .004

Prevalence of “sufficient” leisure-time physical activity*

2008	2009	2010	2011	2012	2013	2014	Slope (SE) [†]	P [‡]
36.1 (31.4–41.2)	51.0 (46.0–56.0)	43.8 (39.4–48.4)	48.2 (44.1–52.4)	46.7 (42.6–50.8)	48.3 (44.1–52.6)	52.8 (48.4–57.2)	1.133 (0.360)	.012
42.7 (39.6–45.9)	45.5 (42.4–48.7)	47.1 (44.2–50.0)	47.6 (44.7–50.4)	50.5 (47.5–53.5)	50.7 (47.6–53.8)	47.9 (44.8–51.1)	1.339 (0.143)	<.001
43.5 (37.6–49.6)	50.9 (45.8–55.9)	49.7 (44.9–54.5)	48.0 (43.7–52.2)	50.8 (45.9–55.7)	51.8 (47.3–56.3)	48.5 (43.6–53.4)	1.139 (0.263)	.002
44.4 (40.8–48.1)	49.0 (45.4–52.5)	47.5 (44.2–50.9)	52.7 (49.5–55.8)	51.9 (49.0–54.8)	51.5 (48.1–54.3)	51.9 (49.0–54.8)	1.275 (0.191)	<.001
47.2 (42.6–51.9)	45.5 (41.0–50.1)	49.0 (44.8–53.2)	51.1 (47.4–54.9)	52.2 (48.3–56.0)	50.8 (46.3–55.3)	52.4 (47.9–56.9)	1.273 (0.180)	<.001
27.0 (16.8–40.3)	48.4 (35.4–61.6)	49.4 (37.2–61.6)	56.7 (43.7–68.8)	49.6 (39.2–59.9)	57.3 (46.6–67.3)	45.7 (32.0–60.1)	1.377 (0.873)	.149
47.3 (44.6–50.0)	51.7 (49.0–54.4)	48.1 (45.4–50.7)	50.8 (48.5–53.2)	53.6 (51.3–55.9)	54.1 (51.8–56.3)	53.3 (49.8–56.8)	0.937 (0.135)	<.001
46.8 (40.1–53.6)	53.9 (47.9–59.7)	53.8 (47.9–59.7)	48.1 (42.3–53.9)	53.0 (47.0–58.9)	59.6 (53.9–65.0)	56.6 (51.0–61.9)	1.189 (0.305)	.004
54.1 (43.3–64.5)	43.9 (34.4–54.0)	58.6 (47.9–68.5)	56.2 (47.7–64.4)	56.3 (47.6–64.7)	57.4 (47.3–66.8)	51.1 (40.9–61.2)	0.743 (0.426)	.115
56.3 (49.5–63.0)	56.8 (50.1–63.2)	56.8 (50.9–62.5)	59.3 (53.6–64.9)	65.2 (59.2–70.7)	56.6 (49.9–63.2)	62.9 (57.6–67.8)	1.250 (0.226)	<.001
58.9 (51.3–66.1)	61.1 (54.5–67.4)	51.9 (44.6–59.1)	61.1 (54.3–67.4)	56.7 (49.8–63.3)	64.0 (57.7–69.8)	64.1 (57.3–70.3)	1.132 (0.543)	.067
56.6 (52.3–60.8)	60.3 (55.7–64.8)	60.4 (55.9–64.8)	60.1 (56.0–64.1)	62.6 (58.5–66.5)	60.0 (55.6–64.2)	61.5 (57.4–65.3)	1.102 (0.176)	<.001
54.8 (47.9–61.4)	61.0 (54.1–67.5)	56.5 (48.9–63.9)	58.4 (52.3–64.3)	68.5 (62.9–73.7)	64.0 (57.6–69.9)	66.4 (60.3–72.0)	1.544 (0.345)	.002
53.8 (48.8–58.7)	57.3 (52.8–61.6)	61.6 (57.4–65.6)	64.6 (60.9–68.2)	64.2 (60.1–68.0)	68.5 (65.3–71.5)	63.4 (58.7–67.9)	1.679 (0.213)	<.001
55.2 (51.6–58.7)	60.0 (56.6–63.3)	60.8 (57.8–63.7)	61.8 (58.8–64.8)	61.4 (58.4–64.4)	62.8 (59.7–65.9)	63.4 (60.2–66.5)	0.976 (0.097)	<.001
59.1 (54.8–63.2)	63.5 (59.6–67.2)	64.9 (60.7–68.9)	63.4 (59.8–66.8)	64.9 (61.2–68.4)	64.7 (61.4–67.9)	67.7 (64.6–70.7)	0.962 (0.126)	<.001

The least/largest slope of prevalence are indicated in bold.

* Prevalence estimates were age adjusted to the 2010 U.S. workers standard population by Bureau of Labor Statistics, using six age groups: 18–24, 25–34, 35–44, 45–54, 55–64, 65+ years.

[†] A weighted linear regression model was fitted to the annual design-adjusted rates. The weight used for each annual rate was the inverse of its variance. The P value was from linear regression model.

Table 3 Prevalence and trends in 'sufficient' leisure-time physical activity by occupational groups among U.S. workers

Occupations	Sample size	Est. U.S. workers	Est. No. of Suff. active	Prevalence of 'sufficient' leisure-time physical activity*				
				Overall	2004	2005	2006	2007
Farming, fishing, and forestry	1437	0.93M	0.30M	30.8 (27.2–34.5)	30.2 (21.9–40.1)	28.9 (20.7–38.7)	25.6 (16.3–37.9)	27.5 (16.7–41.6)
Building and grounds cleaning and maintenance	8224	5.43M	2.09M	38.3 (36.8–39.9)	37.2 (33.1–41.6)	37.6 (33.8–41.5)	30.2 (25.6–35.3)	32.3 (27.8–37.2)
Food preparation and serving related	9796	7.00M	3.16M	39.2 (37.8–40.6)	35.9 (31.7–40.4)	29.9 (26.3–33.8)	34.5 (30.5–38.9)	32.3 (27.8–37.1)
Production	11,740	8.52M	3.36M	39.4 (38.0–40.7)	35.4 (32.5–38.4)	35.3 (31.8–39.1)	36.7 (33.4–40.2)	34.2 (29.6–39.1)
Health care support	4925	3.09M	1.28M	40.1 (38.3–41.9)	37.3 (32.4–42.5)	32.2 (27.5–37.4)	31.3 (25.8–37.5)	38.7 (32.4–45.4)
Construction and extraction	9897	7.63M	3.20M	41.2 (39.2–42.6)	36.9 (33.4–40.5)	36.8 (33.7–40.1)	35.6 (32.1–39.3)	34.6 (30.4–39.1)
Transportation and material moving	10,552	7.85M	3.29M	41.8 (40.6–43.0)	35.8 (32.4–39.5)	37.0 (33.8–40.2)	36.1 (31.9–40.5)	39.4 (35.4–43.5)
Installation, maintenance, and repair	6054	4.91M	2.27M	46.1 (44.5–47.8)	43.9 (39.4–48.5)	39.1 (34.8–43.7)	41.7 (37.0–46.6)	40.4 (35.0–46.1)
Office and administrative support	24,698	17.60M	8.33M	47.0 (46.1–48.0)	43.7 (41.3–46.2)	41.9 (39.7–44.1)	43.6 (40.3–47.0)	40.8 (37.8–43.8)
Personal care and service	6,546	4.37M	2.17M	48.7 (47.2–50.3)	44.9 (40.4–49.5)	43.5 (38.7–48.4)	44.9 (39.1–50.9)	48.7 (43.4–54.0)
Sales and related	18,255	13.97M	7.11M	50.4 (49.4–51.4)	45.5 (42.7–48.4)	45.2 (42.5–47.9)	44.8 (41.8–47.8)	47.2 (43.9–50.6)
Community and social services	3442	2.34M	1.30M	55.6 (43.4–57.7)	54.6 (47.9–60.7)	51.1 (44.3–57.8)	54.6 (46.2–62.7)	56.3 (48.4–63.8)
Health care practitioners and technicians	9943	7.24M	4.08M	56.6 (55.4–57.9)	51.5 (47.5–55.4)	53.3 (49.2–57.4)	54.4 (49.8–59.0)	54.5 (49.8–59.1)
Management	16,236	12.64M	7.33M	58.3 (57.1–59.4)	53.8 (50.7–56.9)	54.8 (51.6–57.8)	52.1 (48.7–55.6)	53.1 (49.0–57.3)
Education, training, and library	11,775	8.65M	5.23M	60.6 (59.4–61.7)	55.2 (52.1–58.2)	57.4 (53.8–60.8)	59.3 (55.2–63.2)	58.3 (54.2–62.3)
Computer and Mathematics	5081	3.82M	2.32M	60.7 (58.9–62.5)	59.4 (53.6–64.9)	56.9 (51.3–62.3)	55.1 (48.8–61.2)	55.4 (49.1–61.5)
Business and financial operations	8419	6.06M	3.66M	60.8 (59.5–62.1)	52.9 (48.9–56.9)	54.7 (50.7–58.6)	57.0 (51.9–62.0)	56.2 (51.0–61.2)
Protective service	3777	2.77M	1.73M	61.5 (59.5–63.5)	52.2 (46.4–58.0)	56.9 (50.7–62.9)	61.6 (54.2–68.5)	56.0 (48.6–63.1)
Architecture and Engineering	3432	2.74M	1.69M	62.2 (60.2–64.2)	60.4 (54.1–66.3)	61.1 (54.3–67.6)	64.5 (57.0–71.4)	55.6 (47.2–63.6)
Legal	2094	1.58M	1.00M	64.4 (61.6–67.0)	66.0 (58.9–72.4)	64.7 (56.4–72.2)	60.5 (50.8–69.3)	61.2 (51.1–70.4)
Arts, design, entertainment, sports & media	3650	2.64M	1.72M	64.5 (62.4–66.5)	63.0 (57.0–68.6)	63.1 (57.0–68.9)	56.2 (49.3–62.9)	59.4 (52.2–66.2)
Life, physical, and social science	1994	1.42M	0.94M	66.4 (63.6–69.1)	58.9 (51.6–65.8)	62.1 (54.0–69.5)	63.1 (52.2–72.8)	65.7 (57.6–74.7)

Prevalence of 'sufficient' leisure-time physical activity*

2008	2009	2010	2011	2012	2013	2014	Slope (SE) [†]	P [‡]
31.7 (21.8–43.7)	29.0 (21.3–38.3)	35.4 (26.0–46.0)	30.4 (21.5–41.1)	35.7 (26.4–46.2)	37.5 (27.2–49.0)	29.7 (23.0–37.5)	0.441 (0.283)	.154
31.4 (26.2–37.1)	40.5 (35.7–45.4)	38.1 (33.8–42.5)	38.5 (34.3–42.8)	42.5 (38.3–46.9)	45.8 (41.3–50.4)	47.7 (43.0–52.5)	1.150 (0.353)	.010
36.2 (31.6–41.1)	39.7 (35.2–44.4)	40.2 (35.5–44.9)	40.3 (36.1–44.6)	48.1 (43.6–52.5)	45.6 (41.1–50.1)	46.0 (41.7–50.4)	1.591 (0.259)	<.001
35.0 (31.2–39.0)	41.6 (37.1–46.2)	38.4 (34.7–42.2)	42.1 (38.5–45.7)	44.6 (41.0–48.2)	48.2 (44.0–52.4)	43.3 (39.6–47.0)	1.123 (0.210)	.001
36.7 (30.9–43.0)	43.2 (37.3–49.2)	42.2 (36.0–48.6)	43.1 (38.2–48.1)	46.4 (40.9–51.9)	43.5 (38.3–48.8)	44.2 (38.4–50.2)	1.249 (0.266)	.001
39.9 (35.6–44.3)	41.3 (37.0–45.8)	48.4 (44.0–52.7)	45.5 (41.6–49.4)	44.3 (40.1–48.6)	49.6 (45.5–53.6)	44.0 (39.7–48.4)	1.295 (0.266)	<.001
39.3 (34.9–43.8)	46.2 (42.1–50.3)	42.7 (38.4–47.1)	45.5 (41.7–49.4)	45.7 (41.9–49.6)	45.9 (42.2–49.7)	46.4 (42.3–50.5)	1.203 (0.157)	<.001
41.1 (35.7–46.6)	49.9 (43.7–56.1)	50.2 (45.0–55.5)	50.2 (45.5–54.9)	49.8 (45.1–54.4)	49.6 (44.9–54.4)	51.1 (45.0–57.2)	1.169 (0.257)	.001
42.5 (39.8–45.3)	49.9 (47.0–52.7)	48.9 (46.2–51.7)	49.7 (47.3–52.1)	53.4 (50.9–55.8)	52.7 (50.1–55.2)	51.1 (48.2–53.9)	1.208 (0.220)	<.001
46.7 (41.2–52.2)	48.0 (42.7–53.3)	48.6 (43.9–53.4)	51.5 (47.1–56.0)	51.5 (47.0–55.9)	53.6 (48.4–58.7)	51.9 (46.8–57.0)	0.929 (0.116)	<.001
49.6 (46.1–53.2)	51.1 (48.0–54.1)	52.5 (49.7–55.3)	54.1 (51.2–57.0)	54.7 (51.7–57.6)	56.7 (53.3–60.0)	53.3 (50.0–56.6)	1.214 (0.142)	<.001
55.8 (48.6–62.8)	57.0 (48.1–65.5)	57.8 (51.2–64.3)	59.0 (53.4–64.5)	56.3 (50.3–62.1)	55.2 (47.7–62.4)	54.1 (47.1–60.9)	0.293 (0.203)	.184
54.0 (49.8–58.0)	57.2 (53.1–61.2)	53.8 (49.5–58.0)	60.7 (56.8–64.5)	60.0 (55.7–64.2)	60.9 (56.9–64.8)	59.4 (55.7–63.0)	0.897 (0.161)	<.001
57.1 (53.0–61.2)	62.3 (58.8–65.6)	61.1 (57.9–64.3)	62.7 (59.5–65.8)	62.1 (59.1–64.9)	58.8 (55.0–62.4)	63.6 (60.5–66.7)	1.072 (0.219)	.001
56.8 (52.5–61.0)	62.7 (58.8–65.6)	62.0 (58.3–65.6)	62.1 (58.5–65.5)	63.5 (60.1–66.7)	61.2 (57.3–65.0)	67.4 (63.9–70.7)	0.956 (0.156)	<.001
55.8 (49.2–62.2)	57.7 (51.2–64.0)	66.0 (60.3–71.2)	58.2 (52.9–63.3)	67.3 (61.8–72.4)	64.2 (59.3–68.9)	65.7 (60.4–70.7)	1.010 (0.310)	.010
60.0 (54.6–65.3)	63.1 (58.4–67.5)	61.0 (56.5–65.3)	65.7 (61.7–69.5)	62.7 (58.5–66.8)	65.8 (61.7–69.7)	66.1 (62.4–69.6)	1.339 (0.144)	<.001
58.6 (50.5–66.2)	63.3 (56.8–69.3)	61.7 (55.3–67.8)	68.3 (62.8–73.3)	64.8 (57.1–71.7)	67.3 (61.4–72.6)	65.5 (59.9–70.7)	1.338 (0.248)	<.001
61.4 (53.7–68.5)	58.8 (52.2–65.2)	66.3 (60.3–71.8)	65.2 (59.2–70.7)	64.7 (58.7–70.3)	61.1 (52.9–68.7)	66.1 (60.1–71.5)	0.525 (0.267)	.081
61.5 (50.4–71.4)	66.1 (55.5–75.2)	62.0 (54.0–69.3)	63.8 (55.0–71.8)	70.2 (62.7–76.8)	69.4 (61.4–76.4)	68.7 (60.4–75.9)	0.521 (0.269)	.080
67.8 (59.9–74.8)	63.0 (56.3–69.1)	65.4 (59.1–71.3)	68.6 (62.1–74.4)	66.7 (60.2–72.6)	66.4 (60.4–71.8)	67.8 (61.9–73.2)	0.712 (0.256)	.022
63.1 (53.1–72.0)	63.6 (55.0–71.4)	71.1 (62.0–78.7)	66.8 (58.1–74.5)	70.0 (62.4–76.7)	68.0 (60.1–75.0)	71.9 (63.7–79.0)	1.094 (0.199)	<.001

The least/largest slope of prevalence are indicated in bold.

* Prevalence estimates were age adjusted to the 2010 U.S. workers standard population by Bureau of Labor Statistics, using six age groups: 18–24, 25–34, 35–44, 45–54, 55–64, 65+ years.

† A weighted linear regression model was fitted to the annual design-adjusted rates. The weight used for each annual rate was the inverse of its variance. The P value was from linear regression model.