Physical Activity Levels in U.S. Latino/Hispanic Adults: Results From the Hispanic Community Health Study/Study of Latinos

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Abstract

Introduction—Physical activity (PA) prevalence among U.S. Latino/Hispanic adults of diverse backgrounds is not well known. This study describes PA among a representative sample of U.S. Latino/Hispanic adults.

Methods—A population-based cohort of Hispanic/Latino adults (aged 18–74 years) participating in the Hispanic Community Health Study/Study of Latinos from March 2008 to June 2011 (N=16,415) was recruited in four urban areas from Miami, the Bronx, Chicago, and San Diego.

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Participants wore an Actical hip accelerometer for 1 week (*n*=12,253) and completed the Global Physical Activity Questionnaire (*n*=15,741). Data were analyzed in 2015.

Results—Based on accelerometry, Hispanics/Latinos engaged in 23.8 min/day (10.3 min/day when only considering minutes from sustained 10-min bouts) of moderate to vigorous PA (MVPA). Individuals of Puerto Rican and Dominican background had the most min/day of MVPA (32.1 and 29.1, respectively), whereas those of Cuban background had the fewest (15.3). Based on the Global Physical Activity Questionnaire, 65% of Hispanic/Latinos met the aerobic component of 2008 Physical Activity Guidelines for Americans. Men and individuals of Puerto Rican background had the most min/day of leisure-time MVPA (30.3 and 30.2, respectively). Individuals of Puerto Rican and Dominican background had the most min/day of transportation-related PA (48.7 and 39.7, respectively). Individuals of Mexican and Central American background had the most min/day of work-related MVPA (90.7 and 93.2, respectively).

Conclusions—Among Hispanics/Latinos, self-reported data provided information on the type of PA and helped explain variability identified from accelerometer-assessed PA. These findings highlight variability in PA among Hispanics from diverse ethnic backgrounds.

Introduction

Regular physical activity (PA) is associated with many health benefits. People who are physically active have lower risk of chronic diseases (e.g., heart disease, stroke, Type 2 diabetes, depression, and some cancers) and live longer than those who are inactive.[1] The 2008 Physical Activity Guidelines for Americans (2008-PAG) recommend that adults engage in 150 min/wk of moderate-intensity aerobic activity, 75 min/wk of vigorous-intensity aerobic activity, or an equivalent combination of the two.[1] Self-reported measures of PA including active transportation, leisure, and household PA indicate that only half of adults (51.6%) are meeting aerobic activity guidelines,[2] and accelerometer-measured amount of moderate to vigorous PA (MVPA) is much lower.[3,4] Thus, measures of PA vary considerably depending on the instrument used, with each offering different advantages and disadvantages.

National data suggest that PA patterns vary by race/ethnicity. Data collected through self-report indicate that fewer Hispanic/Latino adults are meeting the 2008-PAG compared with non-Hispanic whites (33.4% vs 47.6%, respectively).[5] On the other hand, accelerometer-based measures suggest that individuals of Mexican American background engage in higher amounts of MVPA compared with blacks and non-Hispanic whites.[3,6] One explanation for this discrepancy is that a large percentage of Mexican Americans have occupations requiring higher-intensity PA.[7,8] Self-reported and accelerometry-assessed PA data yield different types of information; therefore, collecting both provides a comprehensive picture of the type, duration, and intensity of performed PA.[9] The current study examines the PA patterns of U.S. Hispanic/Latino adults of different backgrounds using accelerometry-assessed and self-reported PA.

Methods

This study investigated PA patterns of U.S. Hispanic/Latino adults using data from the population-based cohort study Hispanic Community Health Study/Study of Latinos (HCHS/SOL).[10,11] From March 2008 to June 2011, 16,415 self-identified Hispanic/Latino men and women aged 18–74 years were recruited and enrolled from randomly selected households through a multistage area probability design in four U.S. urban communities (Bronx, NY; Chicago, IL; Miami, FL; San Diego, CA). Informed consent was obtained from all participants and IRBs at each site approved the study. The sample design and cohort selection have been described previously.[10]

Measures

The HCHS/SOL used the Actical accelerometer (version B-1, model 198-0200-03) for an objective measure of PA. A detailed description on accelerometer adherence and performance has been described elsewhere.[12] Briefly, at the baseline clinic visit, participants were fitted with a belt and left the clinic wearing the accelerometer above the right iliac crest. They were told to undertake their usual activities while wearing the accelerometer, and to remove it only for swimming, showering, and sleeping.

The Actical was programmed to capture accelerations (in counts) in 1-minute epochs. The authors included time beginning at 5:00AM the morning following the clinic visit and truncated data at midnight on Day 6, providing a consistent, 6-day wear period across all participants. Non-wear was defined as consecutive zero counts for at least 90 minutes (Window 1), allowing for short time intervals with nonzero counts lasting up to 2 minutes if no counts were detected during both the 30 minutes (Window 2) upstream and downstream from that interval.[13] Adherence was defined as   10 hours/day of wear time for at least 3 days of wear. The thresholds used to define active intensity levels were: light, 100–1,534 counts/minute; moderate, 1,535–3,961 counts/minute; and vigorous,   3,962 counts/minute.[14-16]

Time spent in PA by intensity level (light, moderate, or vigorous) was calculated by summing the minutes in a day where the counts were within each threshold, and then averaging across adherent days. PA duration was also calculated counting only min/day from sustained bouts. A bout was defined as   10 consecutive minutes above the relevant threshold, with allowance of interruptions of 1 or 2 minutes below the threshold or with one missing count within any rolling 10-minute segment of the bout. A bout was terminated when there were 3 minutes below the threshold. The authors assessed whether a participant engaged in   150 min/wk of MVPA, defined as   150 min/wk of moderate PA,   75 min/wk of vigorous PA, or   150 min/wk of a combination of the two (multiplying time in vigorous PA by two and summing).[12] Minutes per week was calculated as the average daily minutes of the adherent days multiplied by seven. All values are reported in min/day, as this is the original unit in both instruments. However, min/wk is provided when needed for comparison to other studies and the 2008-PAG.

The HCHS/SOL assessed self-reported PA in a typical week using an interviewer-administered, modified Global Physical Activity Questionnaire that included questions on

three activity domains (work, transport, and leisure) available at www.who.int/chp/steps/GPAQ/en. Other studies indicate evidence for validity and reliability of the instrument.[17,18] Participants were asked to think about activities that lasted at least 10 minutes in a typical week. For the work and leisure domains, the questionnaire separately queried participants about the number of hours/day and days/wk that they engaged in MVPA. For transport, participants were asked the number of hours/day and days/wk that they walked or bicycled for at least 10 minutes at a time to get to and from work places (paid and volunteer work), without distinguishing the intensity.

Self-reported moderate PA was calculated by summing the minutes in moderate activity from the three domains (work, leisure, and transport). By contrast, self-reported vigorous PA (min/day) only included minutes from work and leisure domains. MVPA was calculated by adding min/day in moderate and vigorous activity. Meeting the 2008-PAG was operationalized as either having 150 min/wk of moderate PA, 75 min/wk of vigorous PA, or 150 min/wk of a combination of the two (multiplying time in vigorous PA by two and summing).[12]

At baseline, HCHS/SOL participants were interviewed in Spanish or English. Anthropometry and other assessments were collected in a standardized manner.[19] BMI was categorized as underweight (<18.5 kg/m^2), normal weight (18.5 and <25 kg/m^2), overweight (25 and <30 kg/m^2), and obese (30 kg/m^2). Age, sex, marital status, education, annual household income, employment status, and years lived in the U.S. were queried. Participants self-identified into the following Hispanic/Latino backgrounds: Central American, Cuban, Dominican, Mexican, Puerto Rican, South American, more than one Hispanic background, or other.

Statistical Analysis

All reported values (means and prevalence rates) were weighted to account for disproportionate selection probabilities[20] and to at least partially adjust for any bias effects due to differential nonresponse in the selected sample at the household and individual levels. All analyses also accounted for cluster sampling and the use of stratification in sample selection using complex survey procedures in SAS, version 9.3 and SUDAAN, version 10. Data were analyzed in 2015. Sociodemographic characteristics by Hispanic/Latino background were internally adjusted to the HCHS/SOL mean age (41.4 years) and the percentage female (52.3%) of the target population because there were differences across backgrounds. PA prevalence rates and means were age standardized to the year 2010 U.S. Census population (24%, 18–29 yrs; 18.6%, 30–39 yrs; 20.2%, 40–49 yrs; 19.4%, 50–59 yrs; 13.5%, 60–69 yrs; and 4.3%, 70–74 yrs) to allow for comparability with other studies.

Of the 16,415 HCHS/SOL participants, this study excluded 590 participants with mixed/other Hispanic/Latino background and 9 participants aged >74 years at baseline. It further excluded 75 participants without self-reported PA data, yielding an analytic sample size of 15,741 for PA self-report. By contrast, the analytic sample for accelerometry was limited to individuals who were adherent to HCHS/SOL protocol (i.e., provided 3 days with 10 hours of wear/day; $n=12,253$),[12] and adjusted for missing data using inverse probability weighting (IPW).[21] An IPW weight was created from a logistic regression model on the full

sample predicting being adherent or not based on a set of covariates including factors for which participation differed[12] (age, sex, income level, marital status, education, employment status, language preference, immigrant generation, self-reported PA, BMI, and aggregate physical health). Because some participants (n=917 of 12,253, 5.6%) also had missing data for one or more covariates, and logistic regression requires complete cases, these missing covariates (0.63% of the total number of data items) were first imputed by multiple imputation. Specifically, the authors fit the IPW model for being adherent in five imputed data sets, averaged the five linear predictors, and calculated the probability of being adherent and the IPW weight.[22] The IPW model had fairly good prediction properties as measured by the C-statistic of 0.71 averaged across the five imputations (0.5 is the same as chance, 1.0 indicates perfect prediction). The sampling weight used in analyses of the accelerometer data was the product of the IPW weight and the HCHS/SOL sampling weight to obtain estimates for the HCHS/SOL target population accounting for the missing accelerometer data. IPW was chosen over multiple imputation owing to complexities of imputing accelerometry data.

Results

Sociodemographic characteristics by Hispanic/Latino background are presented in Appendix Table 1. The mean age was 41.4 years, ranging from a mean of 38.6 years among those of Mexican background to a mean of 46.6 years among those of Cuban background.

On average, women engaged in 18.5 min/day of MVPA, 11.1 min/day fewer than men (Table 1). The majority of MVPA, for both men and women, was spent performing moderate PA. Younger Hispanics/Latinos tended to engage in more MVPA compared with their older counterparts. Individuals of Puerto Rican and Dominican background had the highest amount of MVPA (32.1 and 29.1 min/day, respectively), twice that of individuals of Cuban background, who had the lowest amount of MVPA (15.3 min/day). When considering only minutes of MVPA in bouts, on average women and men engaged in 7.9 and 12.8 min/day, respectively. Sex, age, and Hispanic/Latino background patterns of MVPA in bouts were similar to patterns seen for all minutes in MVPA. Appendix Table 2 shows mean accelerometry-assessed PA by Hispanic/Latino background within age group by sex.

This study found that 31.3% of women and 51.1% of men engaged in 150 min/wk of MVPA, but the prevalence were lower (10.6% and 16.4% respectively) when only considering MVPA from bouts (Appendix Figure 1). The prevalences tended to be lower by age. In general, individuals of Puerto Rican, Dominican, and South American backgrounds were most likely to engage in 150 min/wk of MVPA, and individuals of Cuban background were less likely (Appendix Figure 2). Overall, Hispanics/Latinos engaged in 221.5 min/day of light activity, with men engaging in more light activity (231.3 min/day) than women (212.4 min/day, Table 2).

When considering work activity, Hispanic/Latinos reported engaging in 77.6 min/day of MVPA (Table 3). Men reported more than twice as much work activity (108.0 min/day) compared with women (49.0 min/day), except for the group aged 60–74 years in which both

sexes had similar duration of work activity. Men and women aged 30–39 years reported the highest work activity duration. Individuals of Mexican and Central American background also reported the highest work activity duration (90.7 and 93.2 min/day, respectively), whereas individuals of Cuban background reported the least amount of time in work activity (59.7 min/day). Overall, individuals reported engaging in 32.1 min/day of active transport. Men reported engaging in more time in active transport per day than women (36.7 and 27.8 min/day, respectively). Individuals of Dominican and Puerto Rican background reported the highest amount of active transport (39.7 and 48.7 min/day, respectively). On average, individuals reported engaging in 22.7 min/day of leisure MVPA. Men reported engaging in twice as much leisure activity compared with women (30.3 and 15.4 min/day, respectively). Puerto Rican men and women reported the highest, and women of Dominican background and men of Cuban background the lowest, level of leisure activity. Appendix Table 3 provides mean min/day of self-reported PA by Hispanic/Latino background within age group and sex.

Figure 1 (A and B) shows the prevalence of adults meeting the aerobic component of 2008-PAG using self-reported PA by age, Hispanic/Latino background, and sex. Men had much higher 2008-PAG prevalence rates compared with women, with the exception of Central American background aged 45–64 years. Overall, 65.4% of Hispanics/Latinos reported meeting the 2008-PAG (Appendix Figure 3). Prevalence was lower among older Hispanics/Latinos. Cubans also tended to meet the 2008-PAG less than other groups.

Discussion

Accelerometer-assessed PA showed that Hispanics/Latinos from diverse backgrounds engaged in 23.8min/day of MVPA on average (equivalent to 166.6 min/wk). Consistent with other national data, the majority of this PA was of moderate intensity.[4] Compared with MVPA in bouts for a nationally representative sample of non-Hispanic whites, Hispanics/Latinos engaged in slightly higher MPVA (10.3 min/day, equivalent to 72.1 min/wk vs 9.1 min/day, equivalent to 63.7 min/wk, a difference of 1.2 min/day).[4] This difference may be, in part, from use of different accelerometers (Actical in HCHS/SOL and ActiGraph in National Health and Nutrition Examination Survey). This study found that 40.8% (or 13.3% when considering only minutes from bouts) of Hispanics/Latinos were engaging in at least 150 min/wk of MVPA as assessed by accelerometer, which is slightly higher than other national reports that include individuals from all races/ethnicities.[4]

Men tended to engage in more MVPA than women: 51.1% of men and 31.3% of women engaged in 150 min/wk of MVPA as assessed by the accelerometer. Consistent with other reports,[3,4] younger Hispanics/Latinos tended to engage in more MVPA than their older counterparts. Adults of Puerto Rican and Dominican background tended to engage in more MVPA as assessed by the accelerometer compared with other Hispanic/Latino groups, particularly individuals of Cuban background who engaged in the lowest MVPA duration. For individuals with Mexican background, National Health and Nutrition Examination Survey data using the ActiGraph accelerometer show higher levels of MVPA from bouts compared with HCHS/SOL (12.9 min/day, equivalent to 90.7 min/wk[4] vs. 10.0 min/day, equivalent to 70.0 min/wk). This trend is consistent across age groups.

This study found that Hispanics/Latinos engaged in approximately 221.5 min/day of light activity. To the authors' knowledge, this is the first report that characterizes light activity among Hispanics/Latinos from diverse backgrounds. Individuals from Mexican background tended to engaged in more light activity compared with those of other Hispanic/Latino backgrounds. Further studies are needed to investigate types of light activities Hispanics/ Latinos of different backgrounds engage in to evaluate opportunities for increased intensity and duration.

The authors found that Hispanic/Latino adults reported more than twice the amount of total MVPA than that assessed by accelerometer. Consistent with the accelerometer data, younger Hispanics/Latinos self-reported more activity than their older counterparts. In general, Hispanics/Latinos were more likely to report engaging in work-related MVPA than any other type of activity. Compared with non-Hispanic whites and blacks, Troiano and colleagues[3] found that Mexican American adults had the highest levels of accelerometer-assessed MVPA. They hypothesized that this difference might be explained by higher transportation and work-related activity not usually included with self-reported PA data.[3] The current study found that individuals of Mexican background were one of the top two (along with Central Americans) Hispanic/Latino groups reporting work-related activity; however, they were not necessarily the most active Hispanic/Latino groups overall, as assessed by the accelerometer. It is possible that the accelerometer does not capture work-related activity well, such as heavy lifting and other activities requiring upper body movements. Measurement error among self-reported measures and accelerometers could also account for the discrepancies in values.[23,24] The present findings suggest that women and individuals of Cuban background reported the fewest min/day of leisure MVPA. Individuals of Puerto Rican and Dominican background reported the highest amount of active transport. This may be explained by the fact that most individuals of Puerto Rican and Dominican background in this study were from the Bronx and Chicago sites where different forms of commuting (bus, train) are common and accessible.

Study Limitations and Strengths

This study has a few limitations worth noting. The accelerometer this study used is likely to underestimate activity that is performed above the waist and during activities such as bicycling. At the same time, self-reported PA involves a cognitive task that suffers from diverse interpretations of moderate intensity or leisure.[25] Further, self-report methods are limited by recall bias, response bias, and the inability to capture the absolute level of PA.[26] Although the Global Physical Activity Questionnaire has been found to be an acceptable instrument for assessing PA in diverse populations,[18] other research involving Hispanics/ Latinos has found that it is valid when assessing vigorous activity, but less so when assessing moderate activity. Though not every participant provided 1 week of accelerometry data, more than three quarters of the analytic sample had 5 or 6 adherent days.[12] Those with fewer than 3 adherent days were not included in this analysis and were accounted for using IPW such that means and percentages still reflected the underlying population. The number of missing days was similar to other population-based studies.[3,14]

Despite these limitations, the study has several strengths. The two PA assessment methods provide complementary information: Accelerometry is an objective measure of frequency, intensity, and duration of PA whereas self-report data can provide additional information on the time of PA spent in different domains (i.e., transportation, leisure, work).[27] Another strength is that this is the first published report that provides PA assessed by accelerometry and self-report involving a population-based sample of Hispanic/Latino adults from diverse backgrounds. Lastly, although the study population is limited to four communities, rather than the entire nation, HCHS/SOL's hybrid design, which uses probability sampling within preselected diverse regions, is superior to the convenience samples that are typically included in epidemiologic cohort studies.

Conclusions

Individuals of Puerto Rican background had the highest accelerometer-assessed MVPA. They also reported the highest leisure- and transportation-time MVPA compared with Hispanics/Latinos from different backgrounds. Future studies can consider new ways to use both self-reported and accelerometry-assessed PA in tandem.[9] Moreover, research should examine the influence of acculturation and other sociodemographic factors on the PA patterns among Hispanics/Latinos of different backgrounds. Although many factors contribute to population levels of PA, this study was only able to explore a few of these. Findings from these studies will help determine target subpopulations for interventions that aim to increase PA, including light activity given emerging evidence of the benefits of light activity on health.[28-30]

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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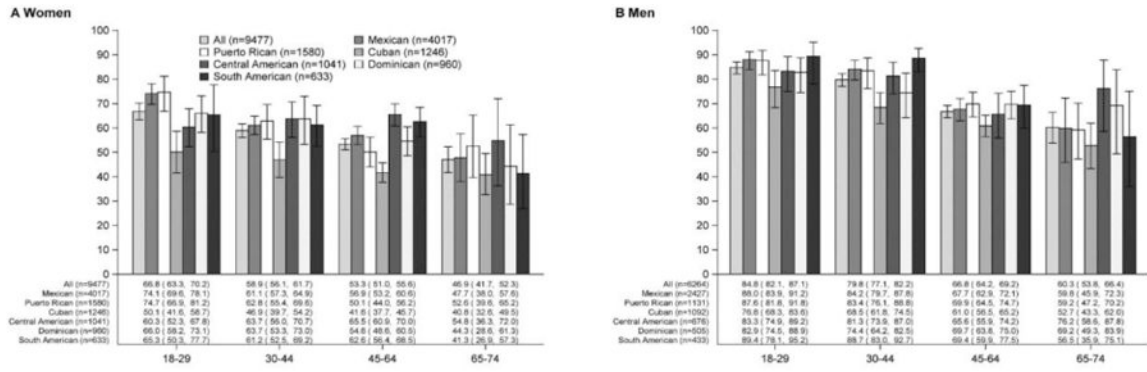
Figure 1.

Prevalence of meeting 2008-PAG from self-report (N=15741) by age group, Hispanic/Latino background, and sex (HCHS/SOL 2008-2011).

PAG, Physical Activity Guidelines

Bars are prevalence for meeting 2008-PAG for Americans with 95 % CI from self-report data. Using PA self-report (from GPAQ), we operationalized meeting the 2008-PAG as either having 150 min/wk moderate PA, or 75 min/wk of vigorous PA, or 150 min/wk for a combination of the two (multiplying vigorous by 2 and summing). Self-reported moderate PA (min/day) was calculated by summing the minutes in moderate activity from the three domains (work, leisure, and transport). In contrast, self-reported vigorous PA (min/day) only included minutes from work and leisure domains.

Table 1

Mean Accelerometer MVPA Minutes/Day, Overall and in Modified Bouts of 10+ Minutes, (N=12,253) by Sex, Age Group, and Ethnicity (HCHS/SOL 2008-2011)

| | Overall (N=12,253) | | | Male (n=4,870) | | | | | | | Female (n=7,383) | | | | | | |
| | | MVPA | | | MVPA | | Moderate | | Vigorous | | | MVPA | | Moderate | | Vigorous | |
	n	Mean	(95 % CI)	n	Mean	(95 % CI)	Mean	(95 % CI)	Mean	(95 % CI)	n	Mean	(95 % CI)	Mean	(95 % CI)	Mean	(95 % CI)
Total minutes																	
Overall	12,253	23.8	(22.8, 24.8)	4,870	29.6	(28.2, 31.1)	25.2	(24.1, 26.2)	4.5	(3.9, 5.1)	7,383	18.5	(17.4, 19.5)	16.3	(15.5, 17.1)	2.1	(1.8, 2.5)
Age Group (y)																	
18-29	1,652	29.8	(27.9, 31.8)	790	35.7	(32.8, 38.7)	29.6	(27.7, 31.6)	6.1	(4.8, 7.4)	862	23.7	(21.4, 26.0)	20.9	(19.1, 22.7)	2.8	(2.1, 3.5)
30-49	1,709	26.8	(24.6, 29.0)	718	32.6	(29.1, 36.2)	27.5	(25.1, 29.9)	5.1	(3.4, 6.9)	991	21.3	(19.3, 23.3)	18.6	(17.1, 20.2)	2.6	(1.9, 3.3)
40-49	3,188	25.3	(23.2, 27.4)	1,233	32.1	(28.8, 35.3)	27.2	(24.8, 29.6)	4.8	(3.7, 6.0)	1,955	19.0	(16.6, 21.4)	16.5	(15.0, 18.0)	2.5	(1.4, 3.6)
50-59	3,433	20.7	(19.3, 22.1)	1,256	26.2	(24.1, 28.2)	23.0	(21.3, 24.7)	3.2	(2.6, 3.8)	2,177	16.5	(14.7, 18.2)	14.9	(13.3, 16.6)	1.5	(1.2, 1.8)
60-69	1,862	15.8	(14.1, 17.4)	719	21.4	(18.6, 24.2)	18.5	(16.3, 20.6)	2.9	(1.9, 4.0)	1,143	11.0	(9.4, 12.6)	9.8	(8.5, 11.0)	1.2	(0.6, 1.8)
70-74	409	9.7	(7.6, 11.8)	154	13.4	(9.2, 17.6)	11.2	(8.6, 13.9)	2.1	(0.0, 4.4)	255	7.4	(5.4, 9.3)	6.8	(5.1, 8.5)	0.6	(0.1, 1.1)
Ethnicity[a]																	
Mexican	5,190	23.2	(22.0, 24.3)	1,936	29.5	(27.5, 31.4)	25.1	(23.8, 26.4)	4.4	(3.5, 5.2)	3,254	17.7	(16.7, 18.8)	15.7	(14.8, 16.6)	2.1	(1.7, 2.5)
Puerto Rican	2,088	32.1	(29.1, 35.2)	862	39.8	(36.2, 43.5)	32.0	(29.4, 34.6)	7.8	(6.2, 9.4)	1,226	24.5	(20.7, 28.2)	20.7	(18.2, 23.2)	3.8	(2.1, 5.4)
Cuban	1,679	15.3	(13.8, 16.7)	799	19.3	(17.2, 21.4)	17.4	(15.6, 19.1)	1.9	(1.2, 2.6)	880	10.6	(9.1, 12.1)	10.0	(8.5, 11.4)	0.7	(0.4, 0.9)
Central American	1,273	23.2	(21.1, 25.3)	517	28.9	(25.3, 32.4)	24.9	(22.5, 27.4)	3.9	(2.7, 5.2)	756	18.0	(15.8, 20.2)	16.2	(14.5, 17.8)	1.8	(1.0, 2.6)
Dominican	1,177	29.1	(26.8, 31.3)	421	36.3	(31.3, 41.3)	30.7	(27.6, 33.8)	5.6	(3.4, 7.8)	756	25.0	(22.3, 27.7)	22.0	(19.9, 24.2)	3.0	(2.2, 3.8)
South American	846	25.3	(22.5, 28.2)	335	30.7	(26.0, 35.4)	26.3	(22.3, 30.3)	4.4	(3.2, 5.5)	511	19.9	(17.5, 22.2)	18.0	(16.1, 19.9)	1.9	(1.1, 2.6)
Minutes from bouts[b]																	
Overall	12,253	10.3	(9.6, 10.9)	4,870	12.8	(11.8, 13.8)	7.8	(7.2, 8.4)	2.1	(1.8, 2.4)	7,383	7.9	(7.3, 8.6)	5.7	(5.2, 6.1)	0.9	(0.7, 1.1)
Age group (y)																	
18-29	1,652	13.0	(11.8, 14.3)	790	15.7	(13.6, 17.8)	9.0	(7.9, 10.1)	2.5	(1.8, 3.2)	862	10.2	(8.9, 11.5)	7.4	(6.3, 8.4)	1.0	(0.7, 1.3)
30-49	1,709	11.7	(10.1, 13.3)	718	14.1	(11.5, 16.8)	8.7	(7.1, 10.4)	2.6	(1.6, 3.7)	991	9.4	(8.0, 10.9)	6.5	(5.5, 7.5)	1.4	(0.8, 1.9)
40-49	3,188	10.6	(9.1, 12.1)	1,233	13.3	(10.9, 15.7)	7.7	(6.4, 9.1)	2.2	(1.6, 2.9)	1,955	8.1	(6.5, 9.8)	5.5	(4.7, 6.3)	1.2	(0.6, 1.8)
50-59	3,433	8.7	(7.9, 9.5)	1,256	11.1	(9.7, 12.5)	7.4	(6.4, 8.4)	1.5	(1.1, 1.9)	2,177	6.9	(6.0, 7.8)	5.3	(4.6, 6.0)	0.6	(0.4, 0.7)
60-69	1,862	6.9	(5.9, 8.0)	719	9.6	(7.7, 11.4)	6.3	(5.0, 7.6)	1.4	(0.7, 2.1)	1,143	4.7	(3.7, 5.7)	3.4	(2.7, 4.2)	0.5	(0.2, 0.7)
70-74	409	4.3	(2.9, 5.6)	154	6.4	(3.5, 9.4)	4.0	(2.5, 5.5)	1.1	(0.0, 2.5)	255	2.9	(1.8, 4.1)	2.4	(1.5, 3.4)	0.3	(0.0, 0.5)

| | Overall (N=12,253) | | | Male (n=4,870) | | | | | | | Female (n=7,383) | | | | | | |
| | | MVPA | | | MVPA | | Moderate | | Vigorous | | | MVPA | | Moderate | | Vigorous | |
	n	Mean n	(95 % CI)	n	Mean n	(95 % CI)	Mean n	(95 % CI)	Mean n	(95 % CI)	n	Mean n	(95 % CI)	Mean n	(95 % CI)	Mean n	(95 % CI)
Ethnicity																	
Mexican	5,190	10.0	(9.2, 10.9)	1,936	12.2	(10.9, 13.6)	7.3	(6.6, 8.0)	2.2	(1.7, 2.8)	3,254	8.1	(7.3, 8.9)	5.7	(5.1, 6.4)	1.1	(0.8, 1.4)
Puerto Rican	2,088	14.8	(13.1, 16.5)	862	19.3	(17.0, 21.6)	10.7	(9.3, 12.2)	3.4	(2.5, 4.2)	1,226	10.2	(8.2, 12.3)	6.6	(5.6, 7.6)	1.3	(0.6, 2.0)
Cuban	1,679	5.5	(4.4, 6.7)	799	6.9	(5.2, 8.7)	4.8	(3.6, 5.9)	1.1	(0.6, 1.6)	880	3.8	(2.8, 4.9)	3.2	(2.2, 4.2)	0.3	(0.1, 0.4)
Central American	1,273	10.2	(8.6, 11.7)	517	12.4	(9.8, 15.0)	7.5	(6.3, 8.8)	1.5	(0.9, 2.0)	756	8.1	(6.6, 9.6)	6.1	(5.2, 7.1)	0.7	(0.4, 1.1)
Dominican	1,177	12.8	(11.3, 14.3)	421	15.9	(12.5, 19.2)	10.0	(8.7, 11.3)	2.0	(1.1, 2.9)	756	11.1	(9.2, 13.0)	8.0	(6.6, 9.4)	1.0	(0.7, 1.4)
South American	846	11.2	(8.8, 13.5)	335	14.2	(10.1, 18.3)	9.5	(6.1, 12.8)	2.0	(1.2, 2.9)	511	7.9	(6.6, 9.1)	6.2	(5.2, 7.1)	0.6	(0.3, 0.9)

MVPA, moderate to vigorous physical activity

[a] Standardized to U.S. 2010 Census Population.

[b] A bout is defined as the duration of at least 10 minutes in which 8 out of the 10 rolling minutes meets the activity criteria.

Table 2

Mean Minutes/Day in Light Physical Activity From Accelerometer (N=12253) by Sex, Age Group, and Ethnicity (HCHS/SOL 2008-2011)

	Overall (N=12,253)		Male (n=4,870)		Female (n=7,383)	
	N	Mean (95% CI)	n	Mean (95% CI)	n	Mean (95% CI)
Overall	12,253	221.5 (218.7, 224.4)	4,870	231.3 (227.1, 235.5)	7,383	212.4 (209.2, 215.7)
Age group (y)						
18-29	1,652	221.0 (214.6, 227.4)	790	230.3 (220.0, 240.6)	862	211.2 (203.8, 218.5)
30-39	1,709	243.6 (237.3, 249.9)	718	257.0 (246.4, 267.6)	991	230.8 (223.8, 237.7)
40-49	3,188	239.5 (234.3, 244.7)	1,233	252.0 (244.8, 259.2)	1,955	227.7 (220.8, 234.7)
50-59	3,433	221.6 (215.5, 227.6)	1,256	230.5 (222.3, 238.6)	2,177	214.7 (206.1, 223.4)
60-69	1,862	188.7 (183.8, 193.6)	719	194.7 (187.1, 202.3)	1,143	183.5 (177.3, 189.8)
70-74	409	148.0 (140.1, 156.0)	154	147.0 (133.4, 160.6)	255	148.7 (139.0, 158.3)
Ethnicity [a]						
Mexican	5,190	235.2 (230.4, 240.1)	1,936	253.0 (245.7, 260.4)	3,254	220.2 (215.1, 225.3)
Puerto Rican	2,088	217.7 (211.1, 224.4)	862	222.6 (212.7, 232.4)	1,226	212.7 (204.5, 221.0)
Cuban	1,679	209.0 (203.6, 214.4)	799	215.7 (206.8, 224.6)	880	200.9 (194.7, 207.2)
Central American	1,273	218.5 (213.1, 223.9)	517	226.8 (218.0, 235.6)	756	210.3 (203.5, 217.1)
Dominican	1,177	204.2 (196.0, 212.3)	421	212.8 (201.2, 224.4)	756	200.3 (191.7, 208.8)
South American	846	217.1 (208.6, 225.5)	335	222.0 (208.7, 235.4)	511	212.2 (201.4, 223.1)

[a] Standardized to U.S. 2010 Census Population.

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Table 3

Mean Minutes/Day of Self-Reported Physical Activity (N=15,741) by Sex, Age Group, and Ethnicity (HCHS/SOL 2008-2011)

	Overall (N=15,741)							Male (n=6,264)							Female (n=9,477)						
	n	Work (MVPA) Mean	Work (MVPA) 95% CI	Leisure (MVPA) Mean	Leisure (MVPA) 95% CI	Transport Mean	Transport 95% CI	n	Work (MVPA) Mean	Work (MVPA) 95% CI	Leisure (MVPA) Mean	Leisure (MVPA) 95% CI	Transport Mean	Transport 95% CI	n	Work (MVPA) Mean	Work (MVPA) 95% CI	Leisure (MVPA) Mean	Leisure (MVPA) 95% CI	Transport Mean	Transport 95% CI
Overall	15,741	77.6	(73.7, 81.5)	22.7	(21.3, 24.2)	32.1	(29.8, 34.4)	6,264	108.0	(101.5, 114.6)	30.3	(28.1, 32.5)	36.7	(32.6, 40.8)	9,477	49.0	(45.1, 52.9)	15.4	(13.9, 17.0)	27.8	(25.9, 29.8)
Age (y)																					
18-29	2,469	91.0	(81.6, 100.4)	42.6	(38.8, 46.5)	36.6	(32.3, 40.8)	1,139	131.4	(116.4, 146.5)	59.7	(53.5, 65.9)	43.9	(36.9, 50.9)	1,330	50.1	(42.1, 58.1)	25.4	(21.3, 29.5)	29.2	(25.2, 33.1)
30-39	2,277	100.7	(90.1, 111.3)	24.0	(21.3, 26.7)	31.5	(24.6, 38.3)	952	140.3	(122.2, 158.3)	31.1	(26.9, 35.3)	33.2	(20.8, 45.7)	1,325	63.3	(51.0, 75.6)	17.3	(14.2, 20.3)	29.9	(25.0, 34.7)
40-49	4,063	86.7	(79.1, 94.3)	19.0	(16.0, 22.0)	29.6	(26.4, 32.9)	1,574	125.9	(112.6, 139.1)	25.1	(19.9, 30.2)	32.8	(28.0, 37.6)	2,489	50.1	(44.2, 56.0)	13.3	(10.4, 16.2)	26.7	(22.3, 31.0)
50-59	4,221	71.7	(63.6, 79.8)	11.9	(10.7, 13.1)	34.3	(28.4, 40.2)	1,557	96.7	(83.6, 109.8)	15.7	(13.5, 17.9)	40.8	(29.2, 52.4)	2,664	51.7	(42.5, 60.9)	8.8	(7.6, 10.0)	29.0	(24.7, 33.4)
60-69	2,228	38.2	(32.1, 44.4)	10.5	(8.6, 12.4)	27.4	(23.8, 31.1)	863	43.7	(34.0, 53.3)	13.0	(9.9, 16.1)	32.4	(26.2, 38.7)	1,365	33.6	(25.6, 41.5)	8.4	(6.1, 10.7)	23.2	(19.2, 27.1)
70-74	483	10.6	(3.3, 18.0)	11.7	(6.8, 16.6)	25.7	(18.2, 33.3)	179	8.9	(3.3, 14.4)	7.7	(5.0, 10.3)	24.4	(17.7, 31.1)	304	11.8	(0.3, 23.2)	14.2	(6.5, 22.0)	26.6	(15.0, 38.2)
Ethnicity [a]																					
Mexican	6,444	90.7	(83.7, 97.8)	23.6	(21.4, 25.9)	25.3	(21.8, 28.7)	2,427	132.5	(120.2, 144.8)	29.8	(26.5, 33.1)	28.9	(22.9, 34.9)	4,017	53.9	(47.7, 60.1)	17.9	(15.5, 20.4)	21.9	(19.2, 24.6)
Puerto Rican	2,711	69.5	(59.9, 79.0)	30.2	(26.1, 34.3)	48.7	(42.8, 54.7)	1,131	93.6	(77.6, 109.7)	40.8	(34.6, 46.9)	56.1	(46.3, 66.0)	1,580	43.3	(35.4, 51.1)	18.3	(13.1, 23.4)	41.7	(36.4, 47.0)
Cuban	2,338	59.7	(51.4, 68.0)	19.1	(16.4, 21.8)	25.3	(21.6, 29.0)	1,092	75.0	(63.5, 86.5)	25.1	(20.6, 29.6)	28.1	(22.4, 33.7)	1,246	42.1	(32.6, 51.5)	12.2	(9.9, 14.5)	21.9	(17.2, 26.5)
Central American	1,717	93.2	(82.8, 103.5)	20.7	(16.0, 25.3)	32.7	(28.2, 37.3)	676	126.4	(109.6, 143.2)	25.8	(20.5, 31.1)	34.8	(27.0, 42.7)	1,041	61.4	(51.2, 71.6)	15.0	(8.4, 21.6)	30.0	(25.6, 34.5)
Dominican	1,465	73.0	(58.2, 87.9)	17.9	(15.0, 20.7)	39.7	(34.5, 44.9)	505	107.4	(84.7, 130.1)	28.8	(23.5, 34.0)	46.3	(37.0, 55.5)	960	51.2	(32.2, 70.2)	10.3	(7.9, 12.6)	34.9	(29.5, 40.4)
South American	1,066	68.5	(56.1, 81.0)	23.1	(19.5, 26.7)	28.0	(23.1, 32.8)	433	100.4	(79.3, 121.6)	33.1	(27.2, 39.0)	31.0	(22.8, 39.2)	633	39.2	(29.3, 49.0)	14.0	(10.5, 17.4)	26.0	(20.3, 31.7)

MVPA, moderate or vigorous physical activity.

[a] Standardized to U.S. 2010 Census Population.