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Physical activity types among US adults with mobility disability, Behavioral Risk Factor Surveillance System, 2017

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Abstract

Background: The Physical Activity Guidelines for Americans, second edition, recommend that all adults participate in moderate-intensity equivalent aerobic physical activity at least 150–300 min/week for substantial health benefits and muscle-strengthening activities involving all major muscle groups 2 or more days a week. The prevalence of the general population meeting the Guidelines and the types of physical activity in which they engage have been described elsewhere. Similar descriptions are lacking for individuals with mobility disability whose physical activity profiles may differ from the general population.

Objective: This study examined patterns of aerobic and muscle-strengthening physical activity among US adults with mobility disability.

Methods: We used 2017 Behavioral Risk Factor Surveillance System data from 66,635 adults with mobility disability. We estimated the percentage who engaged in any aerobic physical activity, met the aerobic and/or muscle-strengthening guidelines, and who participated in specific activities.

Results: Less than half (45.2%) of US adults with mobility disability reported engaging in aerobic physical activity, and 39.5% met one or both components of the physical activity guidelines. Walking was the most commonly reported activity type (34.0%).

Conclusions: Walking is a common activity type among adults with mobility disability. Efforts to make walking or wheelchair rolling a safe, viable option are important to helping decrease

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Decalartion of competing interest

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barriers that may limit the ability of those with mobility disability to engage in walking or other physical activity types.

Keywords

Physical activity; Mobility disability; Physical activity guidelines

Introduction

Regular physical activity helps improve overall health and wellbeing, including prevention and reduction of the risk of chronic diseases.[1,2] For substantial health benefits, the Physical Activity Guidelines for Americans, second edition (Guidelines), recommend that all adults participate in at least 150–300 min of moderate-intensity, 75–150 min of vigorous-intensity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity per week for substantial health benefits.[2] The Guidelines also recommend that adults engage in muscle-strengthening activities of moderate or high intensity involving all major muscle groups on two or more days a week for additional health benefits.[2]

National estimates from 2017 indicate that only 54.1% of adults met the aerobic guideline, 27.7% met the muscle-strengthening guideline, and 24.3% met both.[3] A 2015 study reported walking is the most commonly reported aerobic activity.[4] However, studies assessing these Guidelines among adults who report mobility disability (serious difficulty walking or climbing stairs) are lacking. Furthermore, to our knowledge, no study has previously reported the specific types of physical activities in which adults with mobility disability engage.

Physical activity is important for adults with and without mobility disability to potentially alleviate and/or prevent down-stream health complications and promote healthy aging. Because physical activity and healthy aging research has often focused on older adults without disability, Rosenberg et al. (2011) present evidence on the importance of four topic areas needed to shape a healthy aging research agenda among older adults with mobility disabilities. These areas include: 1) prevalence, 2) health benefits, 3) determinants of participation in physical activity, and, 4) promising physical activity interventions among older adults with mobility disability.[5] Understanding current physical activity patterns among adults with disability may help to shape a more inclusive agenda. Besides, mobility disability is reported by 13.7% of adults, making it the most common functional disability type in the US.[6] Prevalence of mobility disability increases with increased age, and women report a higher prevalence of mobility disability than men.[6] Nearly 60% of adults with a mobility disability report no aerobic activity, and those who are inactive are more likely to report at least one of four chronic conditions (heart disease, stroke, diabetes, cancer) compared with their physically active counterparts.[7] It is important to assess physical activity patterns among subpopulations who experience disparities in physical activity participation in order to ascertain movement towards achieving Healthy People 2020 physical activity objectives[3] and meet the Surgeon General's Call to Action to promote walking and walkable communities in the US. Understanding physical activity patterns, including differences by demographic groups, among adults with mobility disability can

help in the development of inclusive interventions to increase activity levels among those who report at least some physical activity, and promote initiation of physical activity in those who are currently inactive.

This study examined patterns of aerobic and muscle-strengthening physical activity among US adults with mobility disability. The specific research objectives were the following: 1) describe the prevalence of physical activity and whether US adults with mobility disability met the Guidelines; 2) determine specific activities in which US adults with mobility disability engage; and 3) assess whether reported physical activity types differ based on demographic and health characteristics among US adults with mobility disability.

Methods

Data source

This study used data from the 2017 Behavioral Risk Factor Surveillance System (BRFSS),[8] a random-digit-dialed landline and cellular telephone survey, which assesses health behaviors and conditions of civilian, noninstitutionalized adults aged 18 years and older in the US and its territories. Response rates for BRFSS are calculated using standards set by the American Association of Public Opinion Research (AAPOR) Response Rate Formula #4 (http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf). The response rate is the number of respondents who completed the survey as a proportion of all eligible and likely-eligible people. The median survey response rate for all states, territories and Washington, DC, in 2017 was 45.1%, and ranged from 30.6% to 64.1% (https://www.cdc.gov/brfss/annual_data/2017/pdf/2017-sdqr-508.pdf). The BRFSS protocol was approved by the Centers for Disease Control and Prevention institutional review board. Respondents were de-identified; hence, institutional review board approval was not required for this secondary data analysis.

BRFSS study sample

The 2017 BRFSS su1vey included 450,016 respondents, of whom 76,457 reported mobility disability. Our final analytic sample included 66,635 adults with mobility disability after we excluded 9822 respondents who were missing information on physical activity type (n = 7509), sex (n = 18), race/ethnicity (n = 1230), education level (n = 166), smoking status (n = 361), and arthritis status (n = 538). Respondents with missing information were excluded so that our study sample contained only respondents with complete information. Compared with those included in the study, a higher proportion of respondents excluded for missing physical activity type information were 45–64 years of age, non-Hispanic black, had less than a high school education, were missing BMI or under/normal weight (and, thus, a lower proportion had obesity), and had arthritis.

Mobility disability

A respondent who answered “yes” to the question “Do you have serious difficulty walking or climbing stairs?” was considered to have a mobility disability.

Demographic and health characteristics

Demographic characteristics assessed were age (18–44, 45–64, ≥65 years old), sex (male, female), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic other race), and education level (less than high school graduate, high school graduate, some college, college graduate). Health characteristics assessed were body mass index (BMI) category, cigarette smoking status, and arthritis status. BMI was calculated using self-reported height and weight measurements (BMI = weight(kilograms)/[height(meters)]^2) and classified into four categories: under/normal weight (BMI<25), overweight (25 ≤ BMI<30), and obese (BMI≤30); respondents without valid information on height and weight were retained in the analytic sample and were classified as missing BMI. Smoking status was based on respondent's report of smoking at least 100 cigarettes in their lifetime and whether or not they currently smoke cigarettes every day, some days, or not at all; respondents were classified as current smoker, former smoker, and never smoker. Arthritis status was determined by respondents' report of ever having been told by a doctor or other health professional that they had any form of arthritis. Respondents were classified based on the presence or absence of the condition.

Physical activity

The 2017 BRFSS contained eight questions on physical activity. Respondents were first asked, "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?" Respondents who answered "yes" were then asked about the activities in which they engaged the most. Activity types were recorded by interviewers using a list of 74 common non-occupational physical activities. If the activities were not on the list, they were categorized as "Other, not specified". For the current study, the 74 activities were grouped into 14 major activity categories in accordance with the classifications of the 2011 Compendium of Physical Activities (i.e. gardening and yard work were combined into a single lawn and garden category).[9] Though the activity type "Other, not specified" is presented, the results are not discussed further because of the mix of different activity types in that category. For each activity, respondents reported the frequency (number of times per week) and duration (number of minutes each time) of their participation. The combined frequency and duration of both activities were used to categorize aerobic physical activity levels as follows: sufficiently active (≥ 150 min/week of moderate-intensity equivalent activity), insufficiently active (some activity but not enough to meet the sufficiently active definition); and inactive (moderate- or vigorous-intensity activity of <10 min). Adults who reported only muscle strengthening anaerobic exercises (e.g. Pilates, weight lifting, yoga, tai chi) were considered aerobically inactive. The minutes from these activities were not included in the calculation. However, these adults were included in assessment of whether respondents met the Guidelines for muscle-strengthening activities.

To assess participation in muscle-strengthening activities, respondents were asked, "During the past month, how many times per week or per month did you do physical activities or exercises to STRENGTHEN your muscles? Do NOT count aerobic activities like walking, running, or bicycling. Count activities using your own body weight like yoga, sit-ups or push-ups and those using weight machines, free weights, or elastic bands." Respondents

were considered to have met the muscle-strengthening guideline if they reported participating in muscle-strengthening activities 2 or more times per week.

To assess adherence to the Guidelines, we categorized respondents as having met both aerobic and muscle-strengthening activity guidelines (i.e., were sufficiently active and performed muscle-strengthening activities 2 or more days per week), having met the aerobic guideline only, having met the muscle-strengthening guideline only, or having met neither the aerobic nor the muscle-strengthening guideline.

Because mobility disability is defined in our study as serious difficulty walking, we sought to determine if the demographic or health profile of those with mobility disability who report walking as an activity differs significantly from those with mobility disability who report physical activities other than walking, and from those who report no activity. We assessed differences in demographic and health characteristics by physical activity type, by classifying respondents into three activity groups: 1) those who reported walking, either as their only activity or along with other activities (hereafter, referred to as “walking”); 2) those who reported muscle-strengthening activity or any aerobic activity other than walking (hereafter, referred to as “physical activity other than walking”); and 3) those who reported no aerobic and no muscle-strengthening activity (hereafter, referred to as “no physical activity”).

Statistical analysis

We calculated percentages and corresponding 95% confidence intervals (CIs) of select demographic and health characteristics, aerobic physical activity levels, adherence to the physical activity guidelines, and the 74 specific activity types and 14 major activity categories for adults with mobility disability. We also calculated prevalence estimates and 95% CIs of demographic and health characteristics among adults with mobility disability who reported walking, physical activity other than walking, and no physical activity. Pairwise t-tests were used to identify significant differences in demographic and health characteristics between adults with mobility disability who participated in physical activity other than walking and those who reported no physical activity compared with those who engaged in walking (referent group). We used the Bonferroni correction method to control for inflated error due to multiple comparisons, with the original identified level of statistical significance (0.05) divided by the number of tests performed for each characteristic. Therefore, the significance level was set at $P \leq 0.001$ (=0.05/51 tests) for comparison between physical activity type groups. Analyses were completed using SAS-callable SUDMN, v11.0.1, to account for the complex sampling design of the BRFSS. Data were weighted to adjust for noncoverage and nonresponse as well as demographic characteristics of the sample.

Results

Study sample

Of adults with reported mobility disability, 44.4% were between the ages of 45–64 years, 60% were female, almost two-thirds (65.1%) were non-Hispanic white, and one-quarter

(23.9%) did not graduate high school. Almost half (46.2%) had obesity, nearly one-quarter (23.8%) were current smokers, and two-thirds (68.7%) had arthritis. Approximately one-third (30.4%) participated in aerobic physical activity at a level considered to be sufficiently active, 14.7% were insufficiently active, and 54.8% engaged in no aerobic physical activity. Nearly 40% of adults with mobility disability met one or both of the aerobic and muscle-strengthening activity guidelines; 9.2% met both guidelines, 21.3% met only the aerobic guideline, and 9.1% met only the muscle-strengthening guideline. Over 60% of adults with mobility disability did not meet either guideline (Table 1).

Prevalence of physical activity types

Walking (all types) was the most common category of physical activity reported by adults with mobility disability (34.0%), followed by conditioning exercises (8.6%), lawn and garden (7.3%), and home activities (3.2%). The most commonly reported specific types of physical activity were walking (general) (33.9%), gardening (5.0%), and household activities (3.0%). Less common, but still reported by at least 2% of adults with mobility disability, were riding an exercise bicycle (2.8%), weight lifting (2.6%), yard work (2.4%), swimming for exercise (2.3%), and other conditioning exercises (2.2%) (Table 2).

Prevalence of demographic and health characteristics by reported physical activity type

Among respondents who reported walking, 47.0% were between the ages of 45–64 years, approximately 60% were female, almost two-thirds (63.8%) were non-Hispanic white, and nearly one-quarter (22.6%) did not graduate high school. Almost half (44.1 %) had obesity, nearly one-quarter (24.0%) were current smokers, and two-thirds (68.7%) had arthritis (Table 3).

Those who reported physical activity other than walking or reported no physical activity were older (i.e., at least 65 years of age) than those who reported walking (41.7% and 41.5%, respectively, vs 35.4%; $p < 0.001$). As compared to those who reported walking, a higher proportion of those who reported physical activity other than walking were male (45.5% vs 40.5%, $p < 0.001$). Compared with those who reported walking, respondents who reported physical activity other than walking had a lower proportion with less than a high school education and respondents who reported no physical activity had a higher proportion of those with less than a high school education (17.2% and 27.4%, respectively, vs 22.6%; $p < 0.001$. A higher proportion of those who reported physical activity other than walking were a college graduate (18.4% vs 15.4%, $p = 0.001$), and a lower proportion of those who reported no physical activity had at least some college education when compared with those who reported walking (some college: 28.0% vs 32.0%, $p < 0.001$; college graduate: 10.1% vs 15.4%, $p < 0.001$) (Table 3).

Compared with respondents who reported walking, respondents who reported no physical activity had a lower proportion that were overweight (24.1% vs 30.1 %, $p < 0.001$) and a higher proportion had obesity (49.4% vs 44.1 %, $p < 0.001$). The proportion of former smokers was higher among those who reported physical activity other than walking compared to those who reported walking (34.5% vs 30.1%, $p < 0.001$). There were no significant differences in arthritis status (Table 3).

The majority of respondents who reported walking (97.9%) were active (63.0% were sufficiently active and 34.9% insufficiently active), and most met one or both aerobic and muscle-strengthening activity guidelines; 16.9% met both, 46.1% met the aerobic guideline only, and 6.4% met the muscle-strengthening activity guideline only. More of those who reported physical activity other than walking were aerobically inactive and fewer meet the aerobic physical activity guideline only compared with those who reported walking (34.6% vs 2.1%, $p < 0.001$ and 30.8% vs 46.1%, $p < 0.001$, respectively). However, more of those who reported physical activity other than walking met the muscle-strengthening activity guideline only (38.0% vs 6.4%, $p < 0.001$). There was no significant difference between the groups with meeting both guidelines (Table 3).

Discussion

Our study found that nearly half (45.2%) of adults with a mobility disability reported engaging in at least some aerobic activity (i.e., were sufficiently or insufficiently physically active), and nearly 40% met one or both of the aerobic and muscle-strengthening guidelines. Walking was the most common physical activity type, reported by 34.0% of adults with mobility disability, followed by conditioning exercises, lawn and garden, and home activities. These results provide evidence that a gap remains for people with disabilities in meeting the Guidelines and illustrates the importance of developing interventions aimed at increasing the level of physical activity among adults with mobility disability.

While 45.2% of adults with mobility disability in our study participated in at least some aerobic physical activity, over half were inactive. This is consistent with a previous report that found that 57.4% of adults with mobility disability were inactive.[7] Walking is the most common physical activity in the US general population, reported by approximately 47% of adults.[4] We found that among adults with mobility disability, walking was also the most commonly reported type of physical activity. There are few studies describing types of physical activity among adults with mobility disability. However, our finding (34.0% of adults with mobility disability reported walking) is similar to that in a 2012 CDC report, which noted 25% of US adults who needed walking assistance engaged in walking for physical activity or transportation.[10] In our study, additional activities commonly reported by adults with mobility disability were conditioning exercises (e.g., riding an exercise bicycle, weight lifting), lawn and garden (e.g., gardening, yard work), and home activities (e.g., household activities). Our findings, similar to those in the general population reported by Berrigan et al.,[10] showed that adults with mobility disability who reported walking for physical activity had a higher prevalence (63.0%) of meeting the aerobic physical activity guideline. Those who reported physical activity other than walking were more likely to meet the muscle-strengthening activity guideline; demonstrating participation in physical activity even in the absence or availability of aerobic activities such as walking.

All adults with or without disabilities are encouraged to participate in physical activity. Several national initiatives focus on improving the health of the nation by promoting physical activity, such as *Healthy People 2020* and the Surgeon General's Call to Action.[3,11,12] *Healthy People 2020* physical activity objectives are aimed at increasing the proportion of adults who engage in 150 min of moderate-intensity equivalent aerobic activity

per week and who engage in muscle-strengthening activities two or more times per week. Furthermore, the *Healthy People 2020* physical activity objectives aim to increase trips made by walking and create legislative policies for the built environment that enhance access to and availability of physical activity opportunities.[3,11] Additionally, the Surgeon General issued a Call to Action to encourage walking and improve walkability (for walks and wheelchair rolls[1]) of communities for all ages and abilities.[12] Despite these national efforts, in a recent study, only 44% of the adults surveyed correctly identified walking as the activity referenced in the Call to Action.[13] For all adults, raising awareness of the importance of physical activity may be a first step in efforts to increase walking. For adults with mobility disability in particular, increasing activity from sedentary to at least low-intensity physical activity may be a plausible starting point for intervention.[14] Findings from DiPietro et al. (2017) have shown that sedentary time is a strong risk factor for increased mobility disability, independent of level of moderate-to-vigorous-intensity physical activity, as well as sex, educational attainment, smoking, and health status.[15] Our study reveals specific activities most prevalent among adults with mobility disability who engage in any physical activity. Encouraging participation in and increasing accessibility of these most prevalent physical activities may help decrease sedentary behavior among adults with mobility disability who are inactive and increase intensity or duration of physical activity among those who are already active. Some adults with mobility disability may have difficulty or may be unable to participate in aerobic activities. For example, a 2014 study which showed that adults with disabilities were 82% more likely to be physically active if their doctor recommended it, also showed that approximately 5% of working age adults with disabilities reported being unable to engage in physical activity.[7] While the reason was not specified, the inability to engage in physical activity could be due, in part, to the specific condition or limitation affecting one's mobility or barriers in the person's environment that limits his or her participation (e.g., lack of accessible exercise equipment, stairs).

Adults with mobility disability face unique barriers to engaging in physical activity. Barriers include lack of recreational/fitness center accessible design, cost for membership to these facilities, lack of knowledge of facility staff on disabilities and adaptive fitness programs and equipment, and lack of outdoor accessible built environments.[16,17] Additional barriers include perceptions and attitudes related to accessibility and disability, psychosocial support, lack of policies specific to people with disabilities at fitness centers, and resource availability (e.g. transportation) for people with disability.[16,18] Title III of the 2010 Americans with Disabilities Act (ADA) Standards for Accessible Design established standards for new construction and alterations of public and commercial facilities for accessibility and use by people with disabilities.[19] While fitness facilities built after implementation of ADA have greater accessibility, many facilities remain inaccessible and unusable for people with disabilities.[20]

Beyond the baseline requirements outlined in the ADA, additional efforts may be needed to ensure accessibility and usability of the facilities and equipment for people with mobility disability. Clear messaging that includes pictures of those with disabilities, training for

[1] https://www.nchpad.org/1410/6278/How-I-Walk--A-Campaign-to-Rebrand-Walking.

fitness staff, and physical accessibility to facilities and equipment may be the first stepping stones to promoting inclusive physical activity for individuals with disability in the community.[21] Enhancements to universal design,[23] elements in community built environments, such as adequate amount of accessible parking spaces, curb ramps, wheelchair chargers, and paved sidewalks and trails, are also needed to provide safe and accessible spaces for adults with mobility disability to engage in physical activity. Inclusion of individuals with disability in the planning of community-level interventions, local campaigns, individually adapted health behavior change programs, and enforced inclusivity in urban design land use policies are additional recommendations to increase physical activity among adults with disabilities.[21]

The current study provides findings on the types of physical activity performed by adults with mobility disability. The study has several strengths. First, this is the first study to report on the specific types of physical activity reported by adults with mobility disability. Second, the large sample size allows for adequate testing of demographic and health characteristics differences between physical activity type groups. Third, age, sex, and education distribution of the study population is consistent with what is known in current literature. However, this study also has several limitations. First, BRFSS is a self-reported survey; responses are subject to recall, response, and social desirability bias. Second, BRFSS is a survey of community-dwelling adults. People residing in non-community settings (e.g., nursing homes) may be more likely to have a disability; therefore, disability estimates may be underestimated. Third, mobility disability was defined as “serious difficulty walking or climbing stairs;” individuals with mild or moderate difficulties may not be identified as having a disability. Furthermore, information about permanence, duration, or underlying medical condition of the mobility disability are not reported. Lastly, BRFSS data are cross-sectional so causality cannot be inferred.

Conclusions

Physical activity is a vital component of optimal health and wellbeing and is important for everyone. Although walking is the most common type of physical activity, adults with mobility disability face unique barriers that may limit their ability to engage in walking and other types of physical activity. Healthcare provider recommendations and increased knowledge about the importance of physical activity for adults with mobility disability are fundamental steps to increase physical activity. Enforcement of ADA requirements for facility accessibility, proper education and training of fitness and recreational facility staff, development of adaptive and supportive fitness programs, and universal design of indoor and outdoor environments are all factors that can help overcome barriers and afford those with mobility disability the opportunity to engage in physical activity and achieve optimal health.

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[3]https://www.economist.com/business/2018/11/03/better-by-design.

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Table 1

Distribution of selected demographic characteristics and health behaviors among US adults aged 18 and older who reported having mobility disability, BRFSS 2017 (n = 66,635).

Characteristics	Mobility Disability	
	n	% (95% CI)
Age		
18 – 44	5335	16.2 (15.4,16.9)
45 – 64	26,293	44.4 (43.5,45.2)
65+	35,007	39.5 (38.7,40.3)
Sex		
Male	23,418	40.0 (39.2,40.8)
Female	43,217	60.0 (59.2,60.8)
Race/Ethnicity		
White, non-Hispanic	50,000	65.1 (64.2,65.9)
Black, non-Hispanic	6811	14.2 (13.6,14.9)
Hispanic	5089	14.4 (13.7,15.1)
Other, non-Hispanic	4735	6.3 (5.8,6.9)
Education level		
< High school graduate	8989	23.9 (23.1,24.7)
High school graduate	22,809	32.1 (31.3,32.9)
Some college	19,962	30.6 (29.8,31.4)
College graduate	14,875	13.4 (12.9,13.9)
BM1 category		
Under/Normal weight	13,803	20.4 (19.7,21.1)
Overweight	18,393	27.2 (26.4,27.9)
Obese	30,640	46.2 (45.3,47.0)
Missing	3799	6.3 (5.8,6.7)
Smoking status		
Never smoker	29,423	44.1 (43.2,45.0)
Former smoker	23,181	32.1 (31.3,32.9)
Current smoker	14,031	23.8 (23.1,24.5)
Arthritis status		
No arthritis	18,341	31.3 (30.5,32.1)
Arthritis	48,294	68.7 (67.9,69.5)
Aerobic activity		
Sufficiently active	20,765	30.4 (29.7,31.2)
Insufficiently active	9272	14.7 (14.1,15.4)
Inactive	36,598	54.8 (54.0,55.7)
Physical activity guidelines		
Met both aerobic and MS guidelines	6360	9.2 (8.7,9.6)
Met aerobic guideline only	14,405	21.3 (20.6,22.0)
Met MS guideline only	5935	9.1 (8.6,9.6)

Characteristics	Mobility Disability	
	n	% (95% CI)
Met neither aerobic nor MS guidelines	39,935	60.5 (59.6,61.3)

Note. All estimates are weighted according to BRFSS sampling methodology.

Abbreviations: BMI, body mass index: BRFSS. Behavioral Risk Factor Surveillance System: CI: confidence interval: MS, muscle-strengthening: US, United States of America.

Table 2

Specific activities of US adults aged 18 and older who reported having mobility disability. BRFSS 2017 (n = 66,635).

Major category Specific activity	n	% (95% Cl)
Bicycling	902	1.8 (1.5,2.0)
Conditioning exercise	5619	8.6 (8.1,9.1)
Active gaming	31	_[b]
Pilates[a]	83	0.1 (0.1.0.2)
Riding an exercise bicycle	2131	2.8 (2.5,3.0)
Stair climbing/Stairmaster	358	0.5 (0.4,0.6)
Upper body cycle	90	0.1 (0.1,0.1)
Weight lifting[a]	1389	2.6 (2.3,2.9)
Yoga[a]	536	0.9 (0.6,1.1)
Other conditioning exercises	1390	2.2 (1.9,2.5)
Dancing/Aerobics	1090	1.5 (1.3,1.8)
Fishing and hunting	257	0.4 (0.3.0.5)
Home activities	2627	3.2 (3.0,3.5)
Childcare	217	0.3 (0.3,0.4)
Household activities	2424	3.0 (2.7,3.2)
Home repair	59	0.1 (0.1,0.1)[c]
Lawn and garden	5419	7.3 (6.9,7.7)
Gardening	3641	5.0 (4.7,5.4)
Yard work	1920	2.4 (2.2,2.6)
Miscellaneous	249	0.3 (0.2,0.5)[c]
Farm/Ranch work	249	0.3 (0.2,0.5)[c]
Running/Jogging	398	1.2 (1.0,1.6)
Sports	1168	2.0 (1.7,2.3)
Basketball	108	0.3 (0.2,0.4)[c]
Bowling	124	0.2 (0.1,0.3)
Golf	500	0.7 (0.6.0.8)
Handball, racquetball, or squash	11	_[b]
Karate/Martial arts	39	_[b]
Soccer	37	_[b]
Softball/Baseball	28	_[b]
Tai chi[a]	113	0.1 (0.1,0.2)[c]
Tennis	39	0.1 (0.0,0. l)[c]
Touch football	7	_[b]

Major category Specific activity	n	% (95% CI)
Volleyball	27	_[b]
Other sports	173	0.3 (0.2,0.4)
Walking (all types)	22,566	34.0 (33.2,34.9)
Hiking/Backpacking	124	0.2 (0.2.0.3)
Walking (general)	22,483	33.9 (33.1,34.7)
Water activities	1402	2.4 (2.1,2.7)
Swimming for exercise	1327	2.3 (2.0.2.6)
Waterskiing	15	_[b]
Other water activities	65	0.1 (0.1,0.2)[c]
Winter activities	18	_[b]
Snow skiing	12	_[b]
Other winter activities	6	_[b]
Other, not specified	4568	6.1 (5.7,6.4)

Note. All estimates are weighted according to BRFSS sampling methodology.

Abbreviations: BRFSS. Behavioral Risk Factor Surveillance System; CI: confidence interval; US. United States of America.

[a]Nonaerobic activity.

[b]Estimate not available because relative standard error> 0.30, data suppressed.

[c]Relative standard error = 0.20–0.30.

Table 3

Distribution of selected demographic characteristics and health behaviors among US adults aged 18 and older who reported having mobility disability by physical activity type. BRFSS 2017 (n = 66,635).

Characteristics	Reported walking		Reported muscle-strengthening activity or any aerobic activity other than walking		P Value[c]	Reported no aerobic and no muscle-strengthening activity		P Value[c]
	n	%[b](95% CI)	n	%[b](95% CI)		n	%[b](95% CI)	
Total	22,566	34.0 (33.2,34.9)	12,138	18.1 (17.5,18.8)	NA	31,931	47.8 (47.0,48.7)	NA
Age								
18 – 44	2094	17.6 (16.3,18.8)	1098	19.9 (17.9,22.1)	0.058	2143	13.8 (12.8,14.8)	<0.001
45 – 64	9473	47.0 (45.6,48.5)	4289	38.4 (36.4,40.4)	<0.001	12,531	44.7 (43.5,45.9)	0.017
65+	10,999	35.4 (34.1,36.7)	6751	41.7 (39.7,43.7)	<0.001	17,257	41.5 (40.3,42.7)	<0.001
Sex								
Male	8139	40.5 (39.1,41.9)	4828	45.5 (43.4,47.5)	<0.001	10,451	37.6 (36.4,38.8)	0.002
Female	14,427	59.5 (58.1,60.9)	7310	54.5 (52.5,56.6)	<0.001	21,480	62.4 (61.2,63.6)	0.002
Race/Ethnicity								
White, non-Hispanic	16,627	63.8 (62.3,65.2)	9353	66.8 (64.5,69.0)	0.029	24,020	65.4 (64.1,66.6)	0.104
Black, non-Hispanic	2485	15.2 (14.1,16.3)	1113	14.5 (12.8,16.4)	0.539	3213	13.5 (12.6,14.4)	0.022
Hispanic	1651	14.0 (12.9,15.1)	740	11.8 (10.2,13.6)	0.040	2698	15.7 (14.6,16.7)	0.030
Other, non-Hispanic	1803	7.1 (6.3.8.1)	932	6.9 (5.6,8.5)	0.795	2000	5.5 (4.8,6.3)	0.006
Education level								
< High school graduate	2733	22.6 (21.2,24.0)	1185	17.2 (15.6,18.9)	<0.001	5071	27.4 (26.2,28.6)	<0.001
High school graduate	7134	30.0 (28.7,313)	3602	29.8 (28.0,31.6)	0.850	12,073	34.5 (33.4,35.7)	<0.001
Some college	6967	32.0 (30.7,33.3)	3848	34.7 (32.7,36.8)	0.030	9147	28.0 (27.0,29.1)	<0.001
College graduate	5732	15.4 (14.6,16.3)	3503	18.4 (16.9,20.0)	0.001	5640	10.1 (9.5,10.7)	<0.001
BMI category								
Under/Normal weight	4786	20.4 (19.3,21.5)	2766	22.7 (21.1,24.4)	0.019	6251	19.5 (18.6,20.5)	0.264
Overweight	6766	30.1 (28.7,31.5)	3549	29.8 (27.9,31.8)	0.830	8078	24.1 (23.1,25.1)	<0.001
Obese	9897	44.1 (42.7,45.5)	5186	41.6 (39.6,43.6)	0.051	15,557	49.4 (48.2,50.6)	<0.001
Missing	1117	5.5 (4.8,6.2)	637	5.8 (4.7,7.3)	0.607	2045	7.0 (63,7.7)	0.002
Smoking status								
Never smoker	10,351	45.9 (44.4,47.3)	5504	44.0 (41.9,46.1)	0.153	13,568	42.8 (41.6,44.1)	0.002
Former smoker	7666	30.1 (28.9,31.3)	4471	34.5 (32.6,36.4)	<0.001	11,044	32.6 (31.5,33.8)	0.003

Characteristics	Reported walking		Reported muscle-strengthening activity or any aerobic activity other than walking		P Value[c]	Reported no aerobic and no muscle-strengthening activity		P Value[c]
	n	%[b](95% CI)	n	%[b](95% CI)		n	%[b](95% CI)	
Current smoker	4549	24.0 (22.8,25.3)	2163	21.5 (19.8,23.2)	0.017	7319	24.5 (23.6,25.5)	0.551
Arthritis status								
No arthritis	6192	31.3 (30.0,32.7)	3400	33.0 (31.0,35.0)	0.188	8749	30.6 (29.5,31.8)	0.455
Arthritis	16,374	68.7 (67.3,70.0)	8738	67.0 (65.0,69.0)	0.188	23,182	69.4 (68.2,70.5)	0.455
Aerobic activity								
Sufficiently active	14,552	63.0 (61.6,64.4)	6213	49.6 (47.5,51.6)	<0.001	NA	NA	NA
Insufficiently active	7554	34.9 (33.5,36.3)	1718	15.8 (14.3,17.5)	<0.001	NA	NA	NA
Inactive[a]	460	2.1 (1.7,2.6)	4207	34.6 (32.6,36.7)	<0.001	31,931	NA	NA
Physical activity guidelines								
Met both aerobic and MS guidelines	4093	16.9 (15.9,18.0)	2267	18.7 (17.2,20.4)	0.057	NA	NA	NA
Met aerobic guideline only	10,459	46.1 (44.7,47.5)	3946	30.8 (29.0,32.7)	<0.001	NA	NA	NA
Met MS guideline only	1434	6.4 (5.8,7.1)	4501	38.0 (36.0,40.1)	<0.001	NA	NA	NA
Met neither aerobic nor MS guideline	6580	30.6 (29.2,31.9)	1424	12.4 (11.2,13.7)	<0.001	31,931	NA	NA

Abbreviations: BMI, body mass index: BRFSS, Behavioral Risk Factor Surveillance System: CI: confidence interval; MS, muscle-strengthening: NA, not applicable; US, United States of America.

[a]Respondents classified as inactive reported that they participated in physical activity; however, the duration of the activity did not meet the 2018 physical activity guidelines of a minimum of 10 min in duration or the activity was not considered aerobically active.

[b]All estimates are weighted according to BRFSS sampling methodology. Some percentages do not total to 100.0% due to rounding.

[c]P value is calculated based on a paired *t*-test. The referent group is those that reported walking.