

# Physical Activity among Adult Oklahomans: 2008 update



People who are usually inactive can improve their health and well-being by becoming even moderately active on a regular basis.

Physical activity need not be strenuous to achieve health benefits. Greater health benefits can be achieved by increasing the amount (duration, frequency, or intensity) of physical activity.

Regular physical activity decreases the risk of cardiovascular diseases, cancer, obesity, arthritis, type 2 diabetes, osteoporosis, and improves quality of life and mental health.<sup>1</sup>

One of the goals of Healthy People 2010 is to improve health, fitness, and quality of life through daily physical activity. There are 15 objectives to address physical activity and fitness. This report will only discuss three objectives involving adults.<sup>2</sup>

- ◆ Reduce the proportion of adults who engage in no leisure-time physical activity.
- ◆ Increase the proportion of adults who engage in moderate physical activity for at least 30 minutes per day five or more days per week or vigorous physical activity for at least 20 minutes per day three or more days per week.
- ◆ Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness for at least 20 minutes per day three or more days per week.

Despite evidence that exercise is healthful, American adults are not regularly active. The proportion of adults 18 years and older who had no leisure-time physical activity remains unchanged in recent years.

## Data Source

The Behavioral Risk Factor Surveillance System (BRFSS) is the survey monitoring state-level prevalence of the major behavioral risks associated with premature morbidity and mortality among adults. The BRFSS includes one question regarding leisure-time physical activity in the core. Three questions address moderate physical activity and another three questions address vigorous physical activity in an optional module. The latest data on physical activity in BRFSS is from the 2007 survey.

BRFSS data have some limitations: 1) the self-reported results are subjected to recall-bias and can not be verified; 2) BRFSS is a telephone-based survey, thus persons without a residential telephone may not be included. Though adjusted by weight, these limitations can never be completely eliminated.

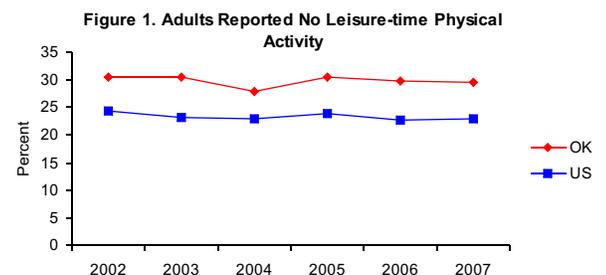
## Definitions

**Physical activity** is defined as the bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level.<sup>1</sup> **Leisure-time physical activity** is defined as exercise, sports, recreation, or hobbies that are not associated with activities as part of the person's regular job duties, household, or transportation.<sup>1</sup> **Moderate physical activity** is defined as activities that use large muscle groups and are at least equivalent to brisk walking. In addition to walking, activities may include swimming, cycling, dancing, gardening and yard work, and various domestic and occupational activities. **Vigorous physical activity** is defined as rhythmic, repetitive physical activities that use large muscle groups at 70 percent or more of maximum heart rate for age. An exercise heart rate of 70 percent of maximum heart rate for age is about 60 percent of maximal cardio-respiratory capacity and is sufficient for cardio-respiratory conditioning. Maximum heart rate equals roughly 220 beats per minute minus age. Examples of vigorous physical activities include jogging/running, lap swimming, cycling, aerobic dancing, skating, rowing, jumping rope, cross-country skiing, hiking/backpacking, racquet sports, and some competitive group sports.

## Results

### No leisure-time physical activity

In 2007 BRFSS data, 29.6% of adults 18 years and older in Oklahoma reported that they did not participate in any type of physical activity during the past month, higher than the nationwide average of 23.0%. According to the BRFSS data, the proportions of adults with no leisure-time physical activity remain unchanged during the past five years, both in Oklahoma and nationwide (Figure 1).



Data Source: BRFSS 2002-2007.

Proportions of adults with no leisure-time physical activity remain unchanged both in Oklahoma and nationwide.

Women, people of older age, lower household incomes, and lower level of education were less likely to meet the recommended physical activity.

The results from BRFSS data indicate similar characteristics in Oklahoma and nationwide of leisure-time physical activities (Table 1):

- 1) Women reported slightly lower proportion of participating in physical activities;
- 2) People of older age, lower incomes, or lower education had lower proportion of participating in physical activities;
- 3) Hispanics reported significantly lower proportion of engaging in physical activities compared with not-Hispanic White.

However, Oklahomans were less likely to be physically active in each social economic subgroup compared with nationwide (Table 1).

**Table 1. Oklahoma Adults Not Participating in Any Physical Activity in Past Month, BRFSS 2007**

	Oklahoma(%)	95% CI*	Nationwide(%)
Total	29.6	28.2-31.0	23.0
Gender			
Male	27.8	25.6-30.0	20.7
Female	31.4	29.8-33.0	25.1
Age			
18-24	23.7	18.0-29.4	17.2
25-34	22.6	19.3-25.9	18.7
35-44	26.2	23.3-29.1	19.3
45-54	28.3	25.6-31.0	22.9
55-64	36.9	34.0-39.8	25.8
65+	40.0	37.6-42.4	32.5
Race/ethnicity**			
NH-White	28.3	26.9-29.7	20.7
NH-African American	34.2	28.7-39.7	30.1
NH-American Indian	32.1	26.8-37.4	N/A
NH-Multiracial	28.9	23.0-34.8	17.3
Hispanic	36.6	30.1-43.1	33.8
Income			
<\$15,000	44.8	40.5-49.1	42.4
\$15,000-24,999	41.0	37.3-44.7	35.8
\$25,000-34,999	36.1	31.8-40.4	27.9
\$35,000-49,000	27.0	23.7-30.3	22.6
\$50,000+	17.4	15.4-19.4	13.9
Education			
Less than High School	46.7	42.4-51.0	42.7
H.S. or G.E.D.	36.0	33.5-38.5	30.2
Some post-H.S.	27.5	25.0-30.0	21.5
College graduate	15.6	13.8-17.4	13.0

\* CI: Confidence interval. \*\* NH: Not-Hispanic.

One of the objectives in Healthy People 2010 is to reduce the proportion of adults who engage in no leisure-time physical activity to 20%.<sup>2</sup> Oklahoma has not met this objective yet (29.6%); neither has the US (23.0%). The unchanged trend of people reporting no leisure-time physical activity indicates the difficulties to approaching this objective (Figure 1). Furthermore, because there are relatively more people in Oklahoma being inactive, intensive efforts should be made to decrease the disparity and meet the objective with the rest of the nation.

**At least moderate physical activity**

Although vigorous physical activity is

recommended for improved cardio-respiratory fitness, increasing evidence suggests that moderate physical activity can also have significant health benefits, including a decreasing risk of coronary heart diseases.<sup>2</sup>

The Healthy People 2010 objective of “At least moderate physical activity” is to increase the proportion of adults who engage in moderate physical activity for at least 30 minutes per day five or more days per week, or vigorous physical activity for at least 20 minutes per day three or more days per week to 50%.<sup>2</sup>

2007 BRFSS data indicated that 45.5% of adults in Oklahoma participated in this kind of activity, lower than the 49.2% nationwide (Table 2).

**Table 2. Adults with 30+ Minutes of Moderate Physical Activity Five or More Days Per Week, Or Vigorous Physical Activity for 20+ Minutes Three or More Days Per Week, BRFSS 2007**

	Oklahoma(%)	95%CI	Nationwide(%)
Total	45.5	43.9-47.1	49.2
Gender			
Male	46.6	44.1-49.1	51.5
Female	44.4	42.6-46.2	47.5
Age			
18-24	59.4	52.7-66.1	60.7
25-34	49.8	45.9-53.7	54.0
35-44	47.2	43.9-50.5	51.9
45-54	45.5	42.4-48.6	48.6
55-64	38.6	35.7-41.5	47.0
65+	35.1	32.7-37.5	39.0
Race/ethnicity**			
NH-White	46.3	44.5-48.1	51.8
NH-African American	43.8	37.9-49.7	41.3
NH-American Indian	39.0	33.4-44.6	N/A
NH-Multiracial	47.0	40.3-53.7	55.6
Hispanic	42.2	35.3-49.1	44.5
Income			
<\$15,000	35.5	31.0-40.0	36.9
\$15,000-24,999	40.7	36.8-44.6	42.5
\$25,000-34,999	42.0	37.5-46.5	45.6
\$35,000-49,000	47.7	44.0-51.4	49.4
\$50,000+	51.9	49.4-54.4	54.8
Education			
Less than High School	38.1	33.6-42.6	39.5
H.S. or G.E.D.	43.2	40.3-46.1	46.1
Some post-H.S.	44.8	41.9-47.7	50.4
College graduate	52.5	49.8-55.2	53.7

\* CI: Confidence interval. \*\* NH: Not-Hispanic.

Oklahomans aged 55 years and older reported significantly lower proportions of engaging in moderate physical activity compared with younger people. Adults with higher household incomes and higher education levels tend to be more likely to meet the recommended “At least moderate physical activity” (Table 2).

Not-Hispanic Multiracial adults reported similar proportions of engaging in the moderate physical activity as not-Hispanic Whites, while other minority groups reported slightly lower proportions (Table 2).

None of the Healthy People 2010 objectives concerning adult physical activity have been met in Oklahoma or in the nation.

People engaged in any type of physical activity reported significantly lower prevalence of chronic conditions or cardiovascular diseases.

Compared with nationwide data, Oklahomans in each social economic group, besides African Americans, reported slightly lower proportion of engaging in moderate physical activities.

**Regular vigorous physical activity**

The Healthy People 2010 objective for “Regular vigorous physical activity” is to increase the proportion of adults engaged in vigorous physical activity at least 20 minutes per day three or more days per week to 30%<sup>2</sup>.

The 2007 BRFSS data indicated that 23.6% of adult Oklahomans reported engaging in regular vigorous physical activity compared to 28.1% of adults nationwide (Table 3).

**Table 3. Adults with Vigorous Physical Activity for 20+ Minutes Three or More Days Per Week, BRFSS 2007**

	Oklahoma(%)	95% CI*	Nationwide(%)
Total	23.6	22.2-24.9	28.1
Gender			
Male	27.0	24.8-29.2	32.7
Female	20.3	18.8-21.8	23.5
Age			
18-24	36.5	30.0-43.1	42.4
25-34	29.0	25.4-32.5	33.8
35-44	28.3	25.3-31.4	31.0
45-54	23.5	20.9-26.1	26.9
55-64	16.3	14.1-18.5	22.0
65+	10.8	9.4-12.3	14.7
Race/ethnicity**			
NH-White	23.8	22.3-25.4	29.2
NH-African American	25.2	20.0-30.4	24.0
NH-American Indian	23.2	18.2-28.1	N/A
NH-Multiracial	21.7	16.1-27.3	22.6
Hispanic	21.1	15.8-26.3	24.9
Income			
<\$15,000	14.3	11.2-17.5	15.8
\$15,000-24,999	17.3	13.8-20.8	20.7
\$25,000-34,999	20.1	16.5-23.6	23.2
\$35,000-49,000	24.8	21.3-28.2	26.2
\$50,000+	31.6	29.2-33.9	34.4
Education			
Less than High School	16.7	13.2-20.1	18.3
H.S. or G.E.D.	21.1	18.6-23.6	24.4
Some post-H.S.	23.5	21.0-26.0	28.4
College graduate	30.3	27.7-32.8	33.3

\* CI: Confidence interval. \*\* NH: Not-Hispanic.

In both Oklahoma and the nation, women, people of older age, lower incomes, and lower education levels were more likely to report lower proportions of engaging in regular vigorous physical activity (Table 3).

Males reported significantly higher proportion of regular vigorous physical activity than females. Oklahomans age 55 years and older had a significantly lower proportions of engaging in vigorous physical activity. Adults in Oklahoma with higher household incomes or with higher education levels were more likely to have significantly higher proportions of engaging in regular vigorous physical activity, compared with their counterparts (Table 3).

The proportions of engaging in regular vigorous physical activity were similar among racial/ethnic groups in Oklahoma, as well as nationwide (Table 3).

Compared with the results from nationwide data, besides African Americans, Oklahoma adults in each social economic group reported lower proportion of engaging in regular vigorous physical activities.

**Chronic diseases and physical activity**

The BRFSS data provided self-reported information of chronic conditions (such as hypertension, high cholesterol, diabetes, and obesity) and cardiovascular diseases (CVD, including heart attack, coronary heart disease, and stroke).

Oklahoma adults who engaged in any type of physical activities reported significantly lower (P<0.05) prevalence of chronic conditions or cardiovascular diseases, compared with those who did not participate in physical activity (Table 4).

People who are more active tend to have lower prevalence of chronic conditions and CVD. Oklahoma adults who met the recommended regular vigorous physical activity reported significantly lower prevalence of hypertension, diabetes, heart attack, and coronary heart disease than those who engaged in leisure-time physical activity.

Although not significant, adults who met the recommended regular vigorous physical activity reported lower prevalence of high cholesterol, obesity, and stroke, compared with those who met the recommendation of moderate physical activity. In addition, people meeting the recommendation of moderate physical activity reported slightly lower prevalence than those who participated in leisure-time physical activity (Table 4). These results again demonstrated the importance of participating in moderate or vigorous physical activity.

**Discussion**

The 2007 BRFSS data indicated that none of the Healthy People 2010 objectives concerning adult physical activity have been met in Oklahoma or in the nation. Compared with nationwide, besides certain racial groups, people in Oklahoma reported slightly lower

proportions of engaging in any type of physical activity.

Similar socioeconomic characteristics could be found in Oklahoma and the United States of people engaging in physical activity. Women, people of older age, lower incomes, lower education levels, and Hispanics were less likely to engage in physical activity nor to meet the recommendations.

Although unmet the Healthy People 2010 Objectives, most measurements from 2007 data had slight improvements compared with 2005 data. The 2007 Oklahoma BRFSS data indicated significantly increased proportions of adults met the recommended “at least moderate physical activities” from 2005, especially on women, and people 45-54 years old ( $p < 0.05$ ). Meanwhile, there were significantly more women in 2007 reported that they met the recommended “regular vigorous physical activities” compared with 2005 ( $p < 0.05$ ).

**Table 4. Different Prevalence of Chronic Conditions and Cardiovascular Diseases among Adults in Oklahoma by Physical Activities, BRFSS 2007\***

Physical Activity	Status	Hypertension	High Cholesterol	Diabetes	Obesity	Heart Attack	Coronary Heart Disease	Stroke
Leisure-time	Engaged	27.4 (25.9-28.9)	37.5 (35.8-39.3)	7.7 (6.9-8.6)	23.6 (22.1-25.1)	4.4 (3.8-5.0)	4.3 (3.7-5.0)	2.6 (2.1-3.1)
	Not Engaged	40.7 (38.2-43.2)	48.7 (45.9-51.4)	16.2 (14.4-17.9)	37.1 (34.5-39.6)	9.0 (7.7-10.3)	8.3 (7.0-9.7)	5.2 (4.3-6.2)
Moderate	Meet Recommendation	24.8 (22.9-26.7)	36.3 (34.0-38.7)	6.6 (5.6-7.7)	23.2 (21.2-25.2)	3.7 (3.0-4.4)	4.2 (3.4-5.0)	2.3 (1.7-2.9)
	Not Meet Recommendation	36.0 (34.2-37.8)	44.0 (41.9-46.1)	12.8 (11.5-14.0)	32.0 (30.1-33.8)	7.2 (6.4-8.1)	6.6 (5.7-7.4)	4.0 (3.3-4.6)
Vigorous	Meet Recommendation	20.4 (17.9-22.9)	33.4 (30.2-36.6)	4.8 (3.5-6.0)	19.8 (17.2-22.4)	2.4 (1.7-3.2)	2.8 (2.0-3.6)	1.6 (1.0-2.1)
	Not Meet Recommendation	34.7 (33.1-36.2)	43.0 (41.3-44.8)	12.0 (11.0-13.0)	30.8 (29.2-32.3)	6.8 (6.1-7.5)	6.3 (5.6-7.0)	3.9 (3.3-4.4)

\*: percent (95% confidence interval).

Results in this report indicated that people engaged in physical activity reported significantly lower prevalence of chronic conditions or CVD, especially for those who met the recommended regular vigorous physical activity. Even though whether or not the participants engaged in physical activity before the onset of chronic conditions could not be determined by BRFSS data, the importance of physical activity should not be ignored.

## Conclusions

The proportion of Oklahomans engaged in the leisure-time physical activity remains unchanged during the past five years. The proportions of adults in Oklahoma engaged in physical activity were lower than the national average and have not met the Healthy People 2010 objectives, although some improvements from 2005 to 2007 were found. People in certain socioeconomic status were less likely to engage in physical activity. People engaged in physical activity reported lower prevalence of chronic conditions and diseases.

## References

1. U.S. Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
2. U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.

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