

**Prevalence of Consuming Fruits and Vegetables Five or More Times Per Day Among Adults by Demographic Characteristics, Risk Factors, Other Conditions, and Place of Residence, Texas, 2015**

**Prepared by Lakshmi Sahini, MPH  
Epidemiologist**

Office of Surveillance, Evaluation and Research  
Health Promotion and Chronic Disease Prevention Section  
Texas Department of State Health Services

**Reviewed by Erin Wu, MPH  
Epidemiologist Team Lead**

Office of Surveillance, Evaluation and Research  
Health Promotion and Chronic Disease Prevention Section  
Texas Department of State Health Services

**Reviewed by Nimisha Bhakta, MPH  
Manager**

Office of Surveillance, Evaluation and Research  
Health Promotion and Chronic Disease Prevention Section  
Texas Department of State Health Services

**November 30, 2016**

Table 1. Prevalence of Consuming Fruit and Vegetables Five or More Times Per Day or Less than Five Times Per Day Among Adults by Demographics, Texas, 2015

Demographic Characteristics	Consume Fruits and Vegetables Five or More Times Per Day				Consume Fruits and Vegetables Less Than Five Times Per Day			
	Estimated		95% CI		Estimated		95% CI	
	No. of Adults	%	Lower Limit	Upper Limit	No. of Adults	%	Lower Limit	Upper Limit
Total Population	3,011,032	18.2	16.9	19.5	13,517,153	81.8	80.5	83.1
Sex								
Male	1,192,121	14.9	13.1	16.7	6,810,304	85.1	83.3	86.9
Female	1,818,911	21.3	19.5	23.2	6,706,850	78.7	76.8	80.5
Age Group								
18 to 29 years	539,008	15.7	12.4	18.9	2,902,569	84.3	81.1	87.6
30 to 44 years	927,354	19.6	17.0	22.2	3,805,284	80.4	77.8	83.0
45 to 64 years	1,073,122	19.3	17.0	21.6	4,490,200	80.7	78.4	83.0
65+ years	440,065	16.6	14.5	18.6	2,215,753	83.4	81.4	85.5
Race/Ethnicity								
White only, non-Hispanic	1,297,022	16.6	15.0	18.2	6,529,790	83.4	81.8	85.0
Black only, non-Hispanic	321,256	18.0	13.5	22.4	1,467,980	82.0	77.6	86.5
Hispanic	1,101,220	19.6	17.1	22.1	4,528,256	80.4	77.9	82.9
Other only/Multiracial	234,337	23.4	16.7	30.2	765,842	76.6	69.8	83.3
Education								
Less than High School	518,915	17.6	14.3	20.9	2,428,334	82.4	79.1	85.7
High School Graduate	665,785	16.4	13.8	19.0	3,382,450	83.6	81.0	86.2
Some College	921,656	17.3	14.8	19.8	4,401,079	82.7	80.2	85.2
College Graduate	892,729	21.5	19.2	23.7	3,267,680	78.5	76.3	80.8
Annual Household Income								
Less than \$35,000	983,825	17.0	14.8	19.2	4,810,521	83.0	80.8	85.2
\$35,000 to < \$50,000	370,084	18.8	14.8	22.9	1,594,223	81.2	77.1	85.2
\$50,000 to < \$75,000	342,788	16.2	12.3	20.1	1,769,267	83.8	79.9	87.7
\$75,000 or more	838,996	19.3	16.9	21.7	3,508,386	80.7	78.3	83.1
Any Health Care Coverage								
Yes	2,310,089	18.1	16.7	19.5	10,478,270	81.9	80.5	83.3
No	695,815	19.0	15.7	22.3	2,962,304	81.0	77.7	84.3
Sexual Orientation								
Straight	2,086,749	17.9	16.5	19.4	9,544,868	82.1	80.6	83.5
Lesbian/ Gay/ Bisexual/Other	75,935	17.2	10.6	23.8	366,232	82.8	76.2	89.4
Relationship Status								
Married or partner in an unmarried couple	1,860,465	19.4	17.7	21.1	7,744,533	80.6	78.9	82.3
Widowed	172,831	17.4	13.0	21.7	821,307	82.6	78.3	87.0
Divorced or separated	404,824	17.5	14.0	21.0	1,911,669	82.5	79.0	86.0
Never married	561,357	15.9	12.7	19.0	2,971,465	84.1	81.0	87.3

Abbreviations: CI, confidence interval

Data Source: Texas Behavioral Risk Factor Surveillance System Public Use Data File, 2015. Texas Department of State Health Services, Austin, TX.

Table 2. Prevalence of Consuming Fruit and Vegetables Five or More Times Per Day or Less than Five Times Per Day Among Adults by Selected Disease Risk Factors and Comorbid Conditions, in Texas, 2015

Risk Factors and Comorbid Conditions	Consume Fruits and Vegetables Five or More Times Per Day				Consume Fruits and Vegetables Less Than Five Times Per Day			
	Estimated		95% CI		Estimated		95% CI	
	No. of Adults	%	Lower Limit	Upper Limit	No. of Adults	%	Lower Limit	Upper Limit
Total Population	3,011,032	18.2	16.9	19.5	13,517,153	81.8	80.5	83.1
Ate at a Fast Food Restaurant 2 or More Times Per Week								
Yes	473,433	14.6	10.3	18.9	2,768,933	85.4	81.1	89.7
No	1,675,235	18.4	15.8	21.0	7,425,939	81.6	79.0	84.2
Aerobic and Strengthening Physical Activity Recommendations								
Met Both Guidelines	801,683	26.9	23.4	30.4	2,179,408	73.1	69.6	76.6
Met Aerobic Guidelines Only	749,403	18.8	16.1	21.4	3,243,896	81.2	78.6	83.9
Met Strengthening Guidelines Only	324,731	19.9	15.6	24.2	1,308,838	80.1	75.8	84.4
Did Not Meet Either Guideline	946,870	13.4	11.6	15.3	6,098,954	86.6	84.7	88.4
Leisure time Physical Activity								
Yes	2,308,407	19.9	18.3	21.5	9,297,372	80.1	78.5	81.7
No	645,607	13.7	11.4	16.0	4,068,519	86.3	84.0	88.6
Obesity								
Yes	857,209	17.1	14.7	19.5	4,157,846	82.9	80.5	85.3
No	1,897,126	18.8	17.1	20.5	8,191,116	80.2	78.0	82.9
Diabetes								
Yes	340,285	17.4	14.0	20.9	1,613,622	82.6	79.1	86.0
No	2,665,241	18.3	16.9	19.8	11,862,090	81.7	80.2	83.1
Cardiovascular Disease								
Yes	216,321	16.8	12.8	20.8	1,071,767	83.2	79.2	87.2
No	2,755,012	18.2	16.8	19.6	12,355,020	81.8	80.4	83.2
Heart Disease								
Yes	146,712	14.7	10.9	18.4	854,485	85.3	81.6	89.1
No	2,817,177	18.3	16.9	19.7	12,570,888	81.7	80.3	83.1
Stroke								
Yes	98,900	20.8	12.7	29.0	375,667	79.2	71.0	87.3
No	2,907,307	18.2	16.8	19.5	13,095,386	81.8	80.5	83.2
High Blood Pressure								
Yes	802,686	16.5	14.5	18.5	4,057,302	83.5	81.5	85.5
No	2,191,225	18.9	17.2	20.5	9,428,402	81.1	79.5	82.8
Cancer								
Yes	274,441	17.7	14.2	21.3	1,272,312	82.3	78.7	85.8
No	2,708,394	18.2	16.8	19.6	12,194,392	81.8	80.4	83.2
Arthritis								
Yes	599,817	17.3	14.9	19.8	2,863,082	82.7	80.2	85.1
No	2,394,806	18.5	16.9	20.0	10,571,155	81.5	80.0	83.1
Asthma								
Yes	249,983	20.6	15.7	25.4	965,139	79.4	74.6	84.3
No	2,747,308	18.1	16.7	19.5	12,442,062	81.9	80.5	83.3

Table 2. Prevalence of Consuming Fruit and Vegetables Five or More Times Per Day or Less than Five Times Per Day Among Adults by Selected Disease Risk Factors and Comorbid Conditions, in Texas, 2015

Risk Factors and Comorbid Conditions	Consume Fruits and Vegetables Five or More Times Per Day				Consume Fruits and Vegetables Less Than Five Times Per Day			
	Estimated		95% CI		Estimated		95% CI	
	No. of Adults	%	Lower Limit	Upper Limit	No. of Adults	%	Lower Limit	Upper Limit
Total Population	3,011,032	18.2	16.9	19.5	13,517,153	81.8	80.5	83.1
Kidney Disease								
Yes	85,759	18.1	11.0	25.3	387,318	81.9	74.7	89.0
No	2,902,887	18.2	16.8	19.5	13,079,565	81.8	80.5	83.2
COPD								
Yes	139,426	16.5	11.7	21.2	706,921	83.5	78.8	88.3
No	2,855,765	18.3	16.9	19.7	12,739,947	81.7	80.3	83.1
Depression								
Yes	392,622	14.3	11.5	17.0	2,354,544	85.7	83.0	88.5
No	2,595,013	19.0	17.5	20.4	11,095,303	81.0	79.6	82.5
Disability								
Yes	217,618	14.3	11.5	17.1	1,301,904	85.7	82.9	88.5
No	798,255	19.8	17.5	22.0	3,241,906	80.2	78.0	82.5
Cigarette Smoking								
Current	327,752	13.4	10.4	16.3	2,126,918	86.6	83.7	89.6
Former	618,328	17.5	15.0	20.1	2,906,364	82.5	79.9	85.0
Never	2,047,024	19.5	17.8	21.3	8,429,848	80.5	78.7	82.2
Binge Drinking								
Yes	369,533	14.3	11.1	17.4	2,222,532	85.7	82.6	88.9
No	2,591,775	19.0	17.5	20.5	11,046,149	81.0	79.5	82.5
Heavy Drinking								
Yes	157,878	17.0	11.4	22.6	770,991	83.0	77.4	88.6
No	2,782,594	18.3	16.9	19.6	12,444,395	81.7	80.4	83.1

Abbreviations: CI, confidence interval

Data Source: Texas Behavioral Risk Factor Surveillance System Public Use Data File, 2015. Texas Department of State Health Services, Austin, TX.

Table 3. Prevalence of Consuming Fruit and Vegetables Five or More Times Per Day or Less than Five Times Per Day Among Adults by Place of Residence, in Texas, 2015

Place of Residence	Consume Fruits and Vegetables Five or More Times Per Day				Consume Fruits and Vegetables Less Than Five Times Per Day			
	Estimated		95% CI		Estimated		95% CI	
	No. of Adults	%	Lower Limit	Upper Limit	No. of Adults	%	Lower Limit	Upper Limit
Total Population	3,011,032	18.2	16.9	19.5	13,517,153	81.8	80.5	83.1
PHR								
1	93,130	15.6	11.8	19.4	502,602	84.4	80.6	88.2
2	63,334	17.5	12.2	22.8	298,309	82.5	77.2	87.8
3	888,737	20.2	17.0	23.4	3,511,162	79.8	76.6	83.0
4	82,146	13.4	9.5	17.3	529,503	86.6	82.7	90.5
5	81,463	17.4	12.0	22.8	387,724	82.6	77.2	88.0
6	692,808	18.1	14.8	21.4	3,141,660	81.9	78.6	85.2
7	319,862	16.4	14.1	18.8	1,627,143	83.6	81.2	85.9
8	305,687	18.3	14.6	22.1	1,362,396	81.7	77.9	85.4
9	76,922	17.2	12.6	21.8	370,173	82.8	78.2	87.4
10	78,210	16.4	12.8	20.0	399,839	83.6	80.0	87.2
11	225,483	19.2	15.8	22.5	951,657	80.8	77.5	84.2
Border Counties (15)								
Border	260,536	19.2	16.3	22.1	1,096,101	80.8	77.9	83.7
Non-border	2,647,247	18.1	16.7	19.5	11,986,067	81.9	80.5	83.3
Border Counties (32)								
Border	282,170	19.7	16.7	22.6	1,152,999	80.3	77.4	83.3
Non-border	2,625,613	18.0	16.6	19.5	11,929,170	82.0	80.5	83.4
Metropolitan Statistical Area (MSA)								
Abilene MSA	28,688	24.5	12.3	36.8	88,179	75.5	63.2	87.7
Amarillo MSA	28,090	18.8	10.6	27.0	121,533	81.2	73.0	89.4
Austin-Round Rock MSA	216,238	18.1	15.1	21.1	977,762	81.9	78.9	84.9
Beaumont-Port Arthur MSA	20,112	8.7	4.3	13.1	211,247	91.3	86.9	95.7
Brownsville-Harlingen MSA	42,267	18.8	12.9	24.7	182,573	81.2	75.3	87.1
College Station-Bryan MSA	18,439	11.7	7.6	15.9	138,851	88.3	84.1	92.4
Corpus Christi MSA	42,305	14.7	9.7	19.6	246,204	85.3	80.4	90.3
Dallas-Plano-Irving PMSA	592,780	20.9	16.7	25.1	2,241,255	79.1	74.9	83.3
El Paso MSA	73,474	16.1	12.5	19.6	383,725	83.9	80.4	87.5
Ft. Worth-Arlington PMSA	268,713	18.8	13.9	23.7	1,162,582	81.2	76.3	86.1
Houston-Baytown-Sugar Land MSA	683,724	18.1	14.8	21.5	3,090,301	81.9	78.5	85.2
Killeen-Temple-Ft. Hood MSA	40,109	13.5	7.2	19.9	256,466	86.5	80.1	92.8
Laredo MSA	---	---	---	---	---	---	---	---
Longview MSA	28,104	26.3	14.6	38.0	78,711	73.7	62.0	85.4
Lubbock MSA	27,356	14.2	8.0	20.5	164,683	85.8	79.5	92.0
McAllen-Edinburg-Mission MSA	94,263	21.7	15.8	27.6	339,211	78.3	72.4	84.2
Midland MSA	17,309	16.5	7.9	25.1	87,656	83.5	74.9	92.1
Odessa MSA	20,760	19.0	8.5	29.4	88,657	81.0	70.6	91.5
San Angelo MSA	---	---	---	---	---	---	---	---
San Antonio-New Braunfels MSA	274,047	19.5	15.2	23.8	1,128,120	80.5	76.2	84.8
Tyler MSA	---	---	---	---	---	---	---	---
Waco MSA	26,724	21.2	9.4	33.0	99,221	78.8	67.0	90.6
Wichita Falls MSA	14,322	16.1	10.3	21.8	74,829	83.9	78.2	89.7
County								
Angelina	--	--	--	--	--	--	--	--
Bell	32,837	15.1	7.3	22.9	184,472	84.9	77.1	92.7
Bexar	232,844	20.9	16.0	25.9	879,574	79.1	74.1	84.0
Brazoria	--	--	--	--	--	--	--	--

Table 3. Prevalence of Consuming Fruit and Vegetables Five or More Times Per Day or Less than Five Times Per Day Among Adults by Place of Residence, in Texas, 2015

Place of Residence	Consume Fruits and Vegetables Five or More Times Per Day				Consume Fruits and Vegetables Less Than Five Times Per Day			
	Estimated No. of Adults	%	95% CI		Estimated No. of Adults	%	95% CI	
			Lower Limit	Upper Limit			Lower Limit	Upper Limit
Total Population	3,011,032	18.2	16.9	19.5	13,517,153	81.8	80.5	83.1
Brazos	18,439	13.0	8.4	17.6	123,522	87.0	82.4	91.6
Cameron	42,267	18.8	12.9	24.7	182,573	81.2	75.3	87.1
Collin	87,194	18.5	9.5	27.4	384,768	81.5	72.6	90.5
Comal	--	--	--	--	--	--	--	--
Dallas	328,388	22.1	15.9	28.4	1,155,096	77.9	71.6	84.1
Denton	116,331	22.2	12.1	32.2	408,851	77.8	67.8	87.9
Ector	20,760	19.0	8.5	29.4	88,657	81.0	70.6	91.5
El Paso	73,474	16.2	12.6	19.7	381,062	83.8	80.3	87.4
Ellis	13,542	12.9	7.3	18.5	91,237	87.1	81.5	92.7
Fort Bend	57,863	16.9	7.5	26.3	285,162	83.1	73.7	92.5
Galveston	27,411	14.0	8.7	19.3	168,309	86.0	80.7	91.3
Gregg	--	--	--	--	--	--	--	--
Guadalupe	--	--	--	--	--	--	--	--
Harris	506,302	19.7	15.4	23.9	2,065,838	80.3	76.1	84.6
Hays	25,203	19.3	9.7	28.9	105,246	80.7	71.1	90.3
Hidalgo	94,263	21.7	15.8	27.7	339,211	78.3	72.3	84.2
Jefferson	13,556	10.7	4.8	16.5	113,416	89.3	83.5	95.2
Lamar	4,447	13.4	5.9	20.8	28,837	86.6	79.2	94.1
Lubbock	23,656	13.2	6.9	19.5	155,373	86.8	80.5	93.1
McLennan	26,724	23.0	10.3	35.7	89,492	77.0	64.3	89.7
Midland	13,919	14.8	6.3	23.3	80,279	85.2	76.7	93.7
Montgomery	--	--	--	--	--	--	--	--
Nacogdoches	--	--	--	--	--	--	--	--
Nueces	41,180	17.9	11.8	24.1	188,239	82.1	75.9	88.2
Orange	--	--	--	--	--	--	--	--
Potter	--	--	--	--	--	--	--	--
Randall	17,208	20.2	9.7	30.6	68,136	79.8	69.4	90.3
Red River	--	--	--	--	--	--	--	--
Rusk	--	--	--	--	--	--	--	--
Smith	--	--	--	--	--	--	--	--
Tarrant	239,194	20.1	14.5	25.7	951,376	79.9	74.3	85.5
Taylor	--	--	--	--	--	--	--	--
Tom Green	--	--	--	--	--	--	--	--
Travis	129,923	17.9	14.6	21.3	594,953	82.1	78.7	85.4
Waller	3,846	14.0	8.6	19.4	23,571	86.0	80.6	91.4
Webb	--	--	--	--	--	--	--	--
Wichita	13,341	17.3	11.0	23.7	63,666	82.7	76.3	89.0
Williamson	48,527	18.3	11.0	25.6	216,547	81.7	74.7	89.0

Abbreviations: CI, confidence interval

Data Source: Texas Behavioral Risk Factor Surveillance System Public Use Data File, 2015. Texas Department of State Health Services, Austin, TX.

## Technical Notes

Percentages for each measure were based on the number of respondents with a specific response(s) among the total number of respondents for the given survey question(s), excluding people with missing information or who refused or did not know the answer to the survey question(s). The following questions were used:

- 1) *Consumption of Fruits and Vegetables 5 or More Times Per Day*: Variable calculated from responses to a series of six questions on the number of times per day, week, or month a respondent consumed specific types of fruits and vegetables in the past month. (Excludes missing and out of range values);
- 2) *Any Health Care Coverage*: “Yes” and “No” responses to the question, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?”;
- 3) *Ate at a Fast Food Restaurant 2 or More Times Per Week*: Variable calculated from responses to the question, “During the past month, how many times per day, week, or month did you eat a meal from a fast food place?” Responses of one or more times per day, two or more times per week, or eight or more times per month were categorized as “Yes”, otherwise responses were categorized as “No”.
- 4) *Aerobic and Strengthening Physical Activity Recommendations*: Variable calculated from responses to a series of seven questions on the two types of physical activity a person spent the most time doing in the past month; incorporates activity met value for each activity and includes estimated age-gender specific maximum oxygen consumption and estimated functional capacity for each respondent to estimate activity intensity;
- 5) *Leisure Time Physical Activity*: “Yes” and “No” responses to the question, “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?”;
- 6) *Obesity*: Body mass index of 30 or more calculated from the questions, “About how much do you weigh without shoes?” and “About how tall are you without shoes?”;
- 7) *Diabetes*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you have diabetes?” [Does not include female respondents who responded “Yes, but told only during pregnancy.”];
- 8) *Cardiovascular Disease*: “Yes” responses to any or “No” responses to all of the following questions, “Has a doctor, nurse, or other health professional ever told you that you had a heart attack, also called a myocardial infarction?”, or “Has a doctor, nurse, or other health professional ever told you that you had angina or coronary heart disease?”, or “Has a doctor, nurse, or other health professional ever told you that you had a stroke?”;
- 9) *Heart Disease*: “Yes” responses to either or “No” responses to both of the following questions, “Has a doctor, nurse, or other health professional ever told you that you had a heart attack, also called a myocardial infarction?”, or “Has a doctor, nurse, or other health professional ever told you that you had angina or coronary heart disease?”;
- 10) *Stroke*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you had a stroke?”;
- 11) *High Blood Pressure*: “Yes” or “No” responses to the question, “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?” [“No” includes respondents who

responded “told borderline high or pre-hypertensive” and female respondents who responded “Yes, but told only during pregnancy.”];

- 12) *Cancer*: “Yes” responses to either or “No” responses to both of the following questions, “Has a doctor, nurse, or other health professional ever told you that you had skin cancer?”, or “Has a doctor, nurse, or other health professional ever told you that you had any other types of cancer?”;
- 13) *Asthma*: “Yes” responses to both of the following questions, or “Yes” responses to the first and “No” responses to the second question (indicating no current asthma), or “No” responses to the first question (indicating no current asthma), “Has a doctor, nurse, or other health professional ever told you that you had asthma?” and “Do you still have asthma?”;
- 14) *COPD*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you have COPD (chronic obstructive pulmonary disease), emphysema, or chronic bronchitis?”;
- 15) *Kidney Disease*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you have kidney disease? Do not include kidney stones, bladder infection or incontinence.”;
- 16) *Arthritis*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?”;
- 17) *Depression*: “Yes” and “No” responses to the question, “Has a doctor, nurse, or other health professional ever told you that you have a depressive disorder including depression, major depression, dysthymia, or minor depression?”.
- 18) *Disability*: “Yes” and “No” responses to the question, “Are you limited in any way in any activities because of physical, mental, or emotional problems?”;
- 19) *Cigarette Smoking*: “Yes” responses for current and former smokers and “No” responses for never smokers to the question, “Have you smoked at least 100 cigarettes in your entire life?” and responses of “Everyday” or “Some days” for current smokers and responses of “Not at all” for former smokers to the question, “Do you now smoke cigarettes every day, some days, or not at all?”;
- 20) *Binge Drinking*: Responses of “1 or more” times to the question, “Considering all types of alcoholic beverages, how many times during the past 30 days did you have (5 or more drinks for men, 4 or more drinks for women) on one occasion?”;
- 21) *Heavy Drinking*: Responses of “2 or more” for men and “1 or more” for women to the question, “During the past 30 days, what is the largest number of drinks you had on any occasion?”;

Estimates were excluded (--) if they were considered unreliable because the sample size was too small.

Estimates were generated from one-way and two-way cross tabulations that used weighted data and accounted for the stratified survey design; therefore, the estimates calculated from survey data represent prevalence in the population.

Estimates were produced by the Office of Surveillance, Evaluation, and Research, Health Promotion and Chronic Disease Prevention Section, Division for Disease Control and Prevention Services, Texas Department of State Health Services; November, 2016.