

# Walking and Cycling in the United States, 2001-2009: Evidence from the National Household Travel Surveys



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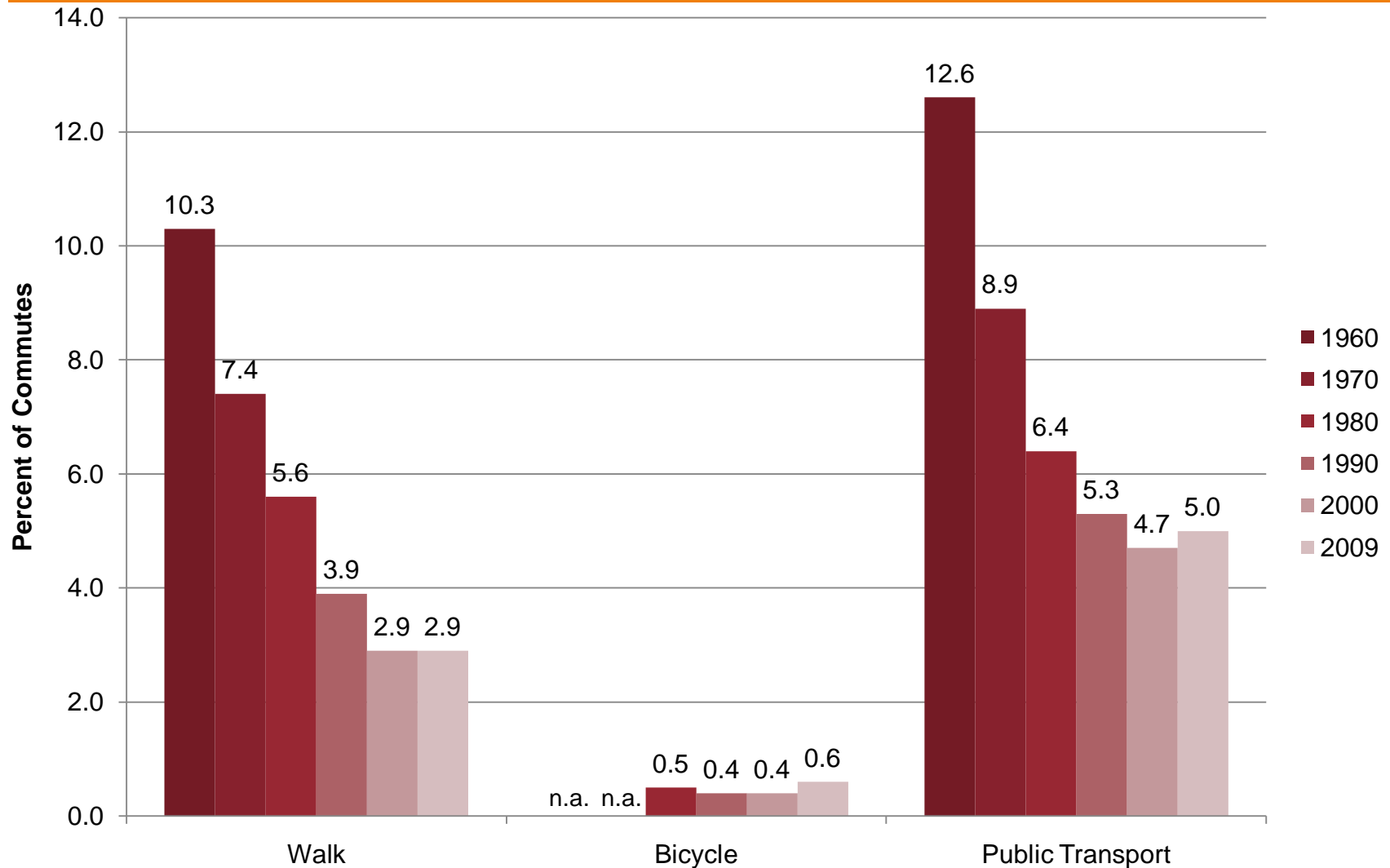
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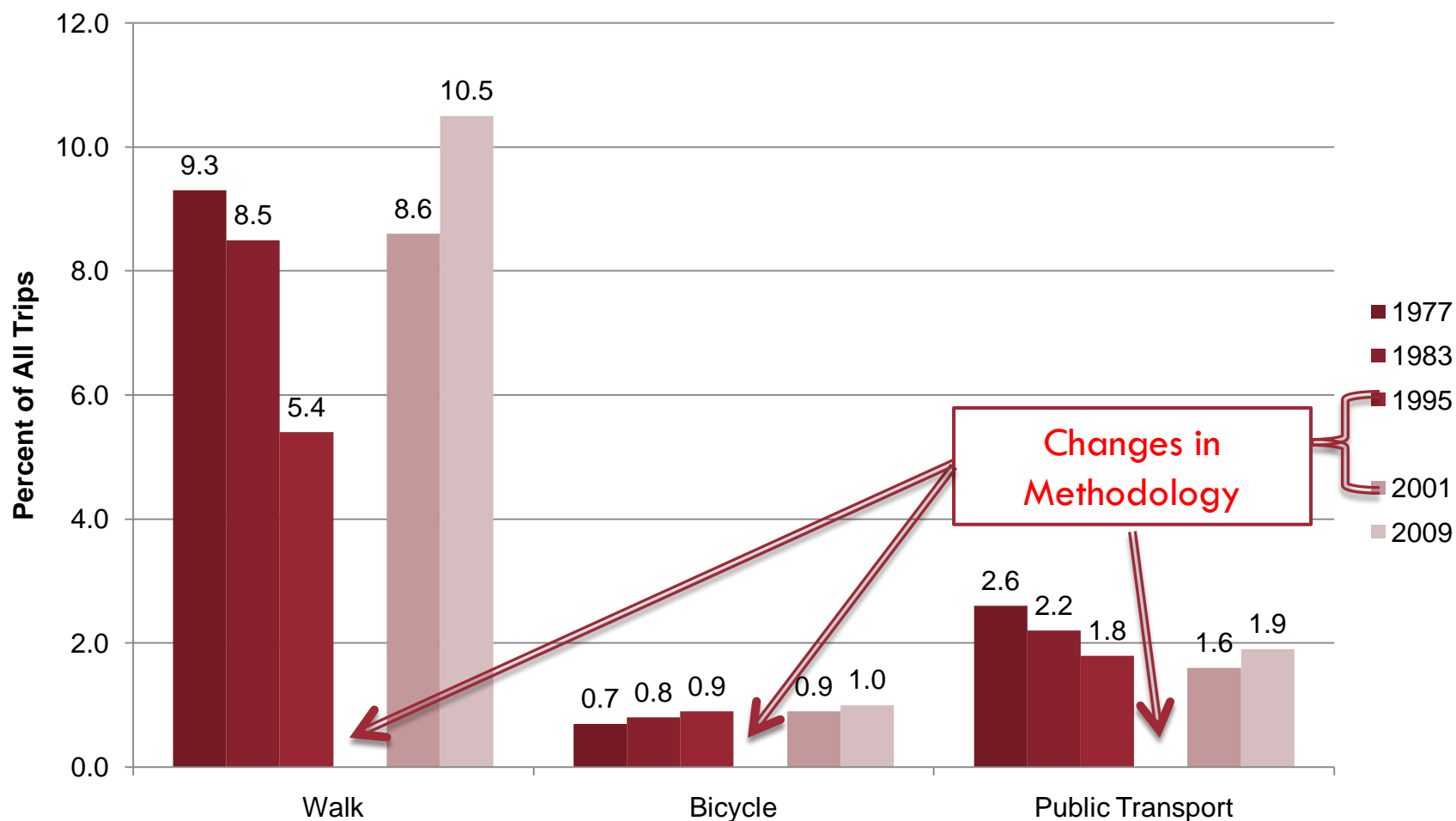
# Walking and cycling are healthy and sustainable means of transport

- Contribute to daily physical activity, aerobic fitness, and cardiovascular health
- Help to protect against obesity, diabetes, and various other diseases
- Can improve individual health and help to reduce air pollution, carbon emissions, congestion, noise, and traffic dangers
- Important to monitor rates of walking and cycling over time and to assess differences among population subgroups

# Rates of active travel to work have declined sharply in the USA since 1960



# Trends for walking and cycling for all trip purposes



# Has there been a turnaround?

## Are rates of walking and cycling rising?

- **We used the two most recent NHTS surveys to measure changes in active travel in the United States from 2001 to 2009**
- **We analyzed the NHTS data on walking and cycling from:**
  - trip-based perspective of travel behavior
  - public health perspective of population physical activity rates
    - methodology developed by Merom et al. (2010)  
for public health analysis of travel surveys

# Many similarities and only few differences between NHTS 2001 / 2009

- Similarities:
  - ▣ Random digit dialing, stratified sampling, travel diaries
  - ▣ Proxy interviews with adults for people aged  $\leq 15$  years
  - ▣ Timing (March 2000 to May 2001 and March 2008 to April 2009)
  - ▣ Sampling during all days, including weekends and holidays
  - ▣ Civilian, non-institutionalized population
  - ▣ Improved reporting of walking and cycling trips through multiple prompts
  - ▣ Splitting of round trips (e.g. walking the dog)
  - ▣ Walk and bike trips to and from public transport included
  - ▣ Trips defined “from one address to another”
- Differences:
  - ▣ Response rates: 2001 41% and 2009 20%
  - ▣ Children younger than 5 excluded in 2009
  - ▣ More add-ons for 2009 NHTS

# Methods

- Trip based analysis:
  - ▣ Daily frequency, duration, and distance of walking & cycling per capita
- Person based analysis:
  - ▣ Aggregate trip characteristics (number, duration, and distance), match to the trip maker, and add to the person dataset
- Daily physical activity analysis:
  - ▣ [1] any walking or cycling, [2] 30 minutes or more of walking and cycling, and [3] 30 minutes or more of walking and cycling accumulated in bouts of at least 10 minutes each
- Weekly active travel analysis:
  - ▣ Proportions of population subgroups making 0, 1-4, and 5 or more walk and bike trips per week

# Annual Walking and Cycling Trips, Duration, and Distance per Capita, 2001-2009

	2001		2009		Difference
	Mean	95% CI	Mean	95% CI	2001-2009
<b>NUMBER OF TRIPS</b>					
<b><i>Trips per capita per year</i></b>					
Walking	<b>168.6</b>	164.3-173.0	<b>185.8</b>	179.9-191.6	<b>+17.2*</b>
Cycling	<b>12.4</b>	11.3-13.1	<b>14.2</b>	12.8-16.1	<b>+1.8*</b>
Active travel	<b>181.0</b>	176.7-185.4	<b>200.4</b>	194.2-206.2	<b>+19.3*</b>
<b>DURATION</b>					
<b><i>Hours per capita per year</i></b>					
Walking	<b>33.0</b>	31.9-36.1	<b>37.7</b>	36.1-39.4	<b>+4.8*</b>
Cycling	<b>4.5</b>	4.1-5.0	<b>4.6</b>	4.1-5.1	+0.0
Active travel	<b>37.5</b>	36.3-38.8	<b>42.3</b>	40.6-44.0	<b>+4.8*</b>
<b>DISTANCE</b>					
<b><i>Miles per capita per year</i></b>					
Walking	<b>103.3</b>	(126.7-136.5)	<b>112.4</b>	(133.2-146.0)	<b>+9.1*</b>
Cycling	<b>19.4</b>	(17.2-21.9)	<b>24.1</b>	(21.2-27.4)	<b>+4.8*</b>
Active travel	<b>122.6</b>	(143.8-158.8)	<b>136.5</b>	(154.4-173.4)	<b>+13.9*</b>

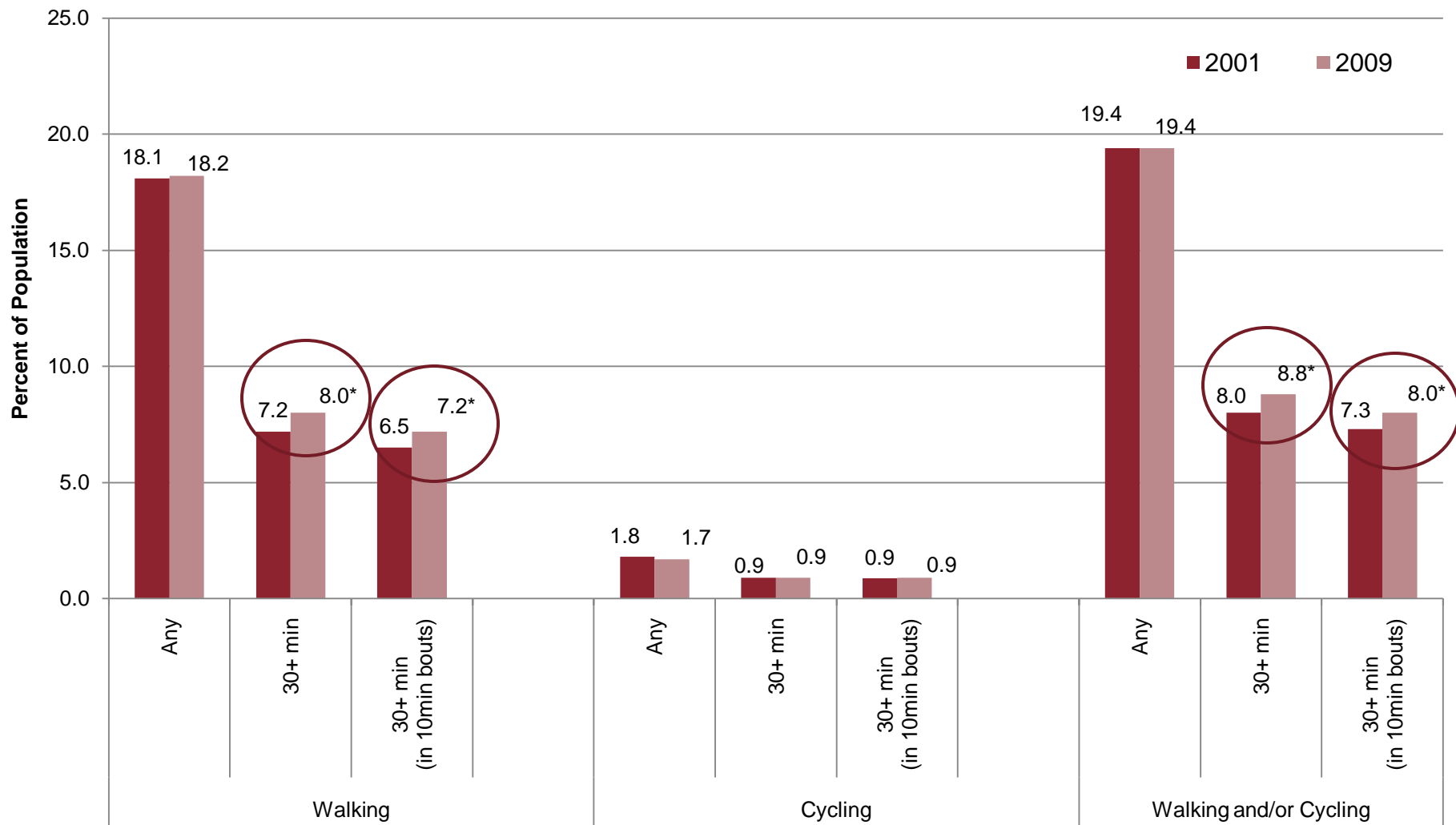
\* P<0.05

Note. Excludes respondents younger than 5 years.

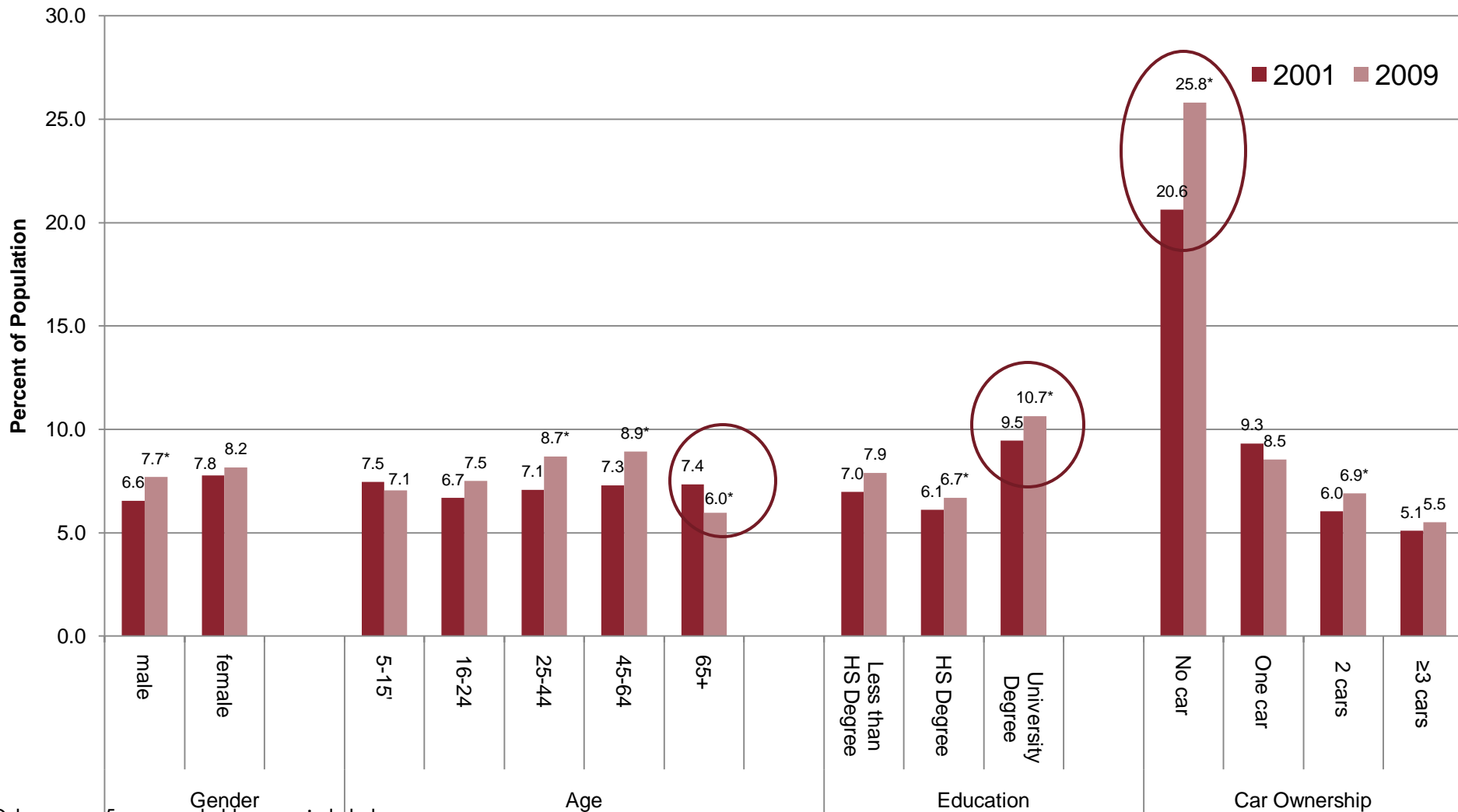
Source: Calculated by the authors based on NHTS 2001 and NHTS 2009



# Proportion of Americans Reaching Recommended Daily Physical Activity Levels Through Active Transport



# Prevalence of 30 min Walking per Day by Population Subgroup in the USA, 2001-2009

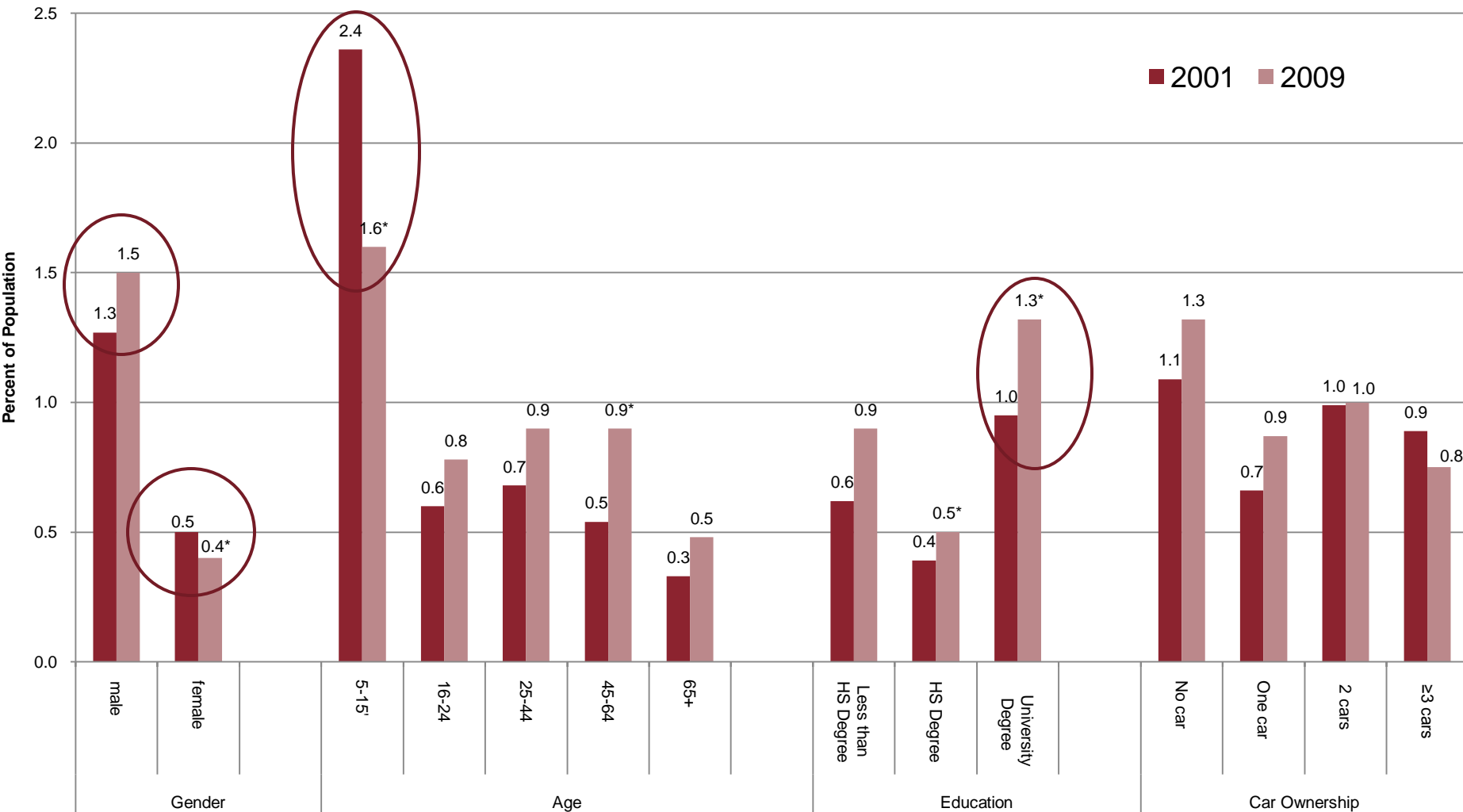


Only persons 5 years and older were included.

Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

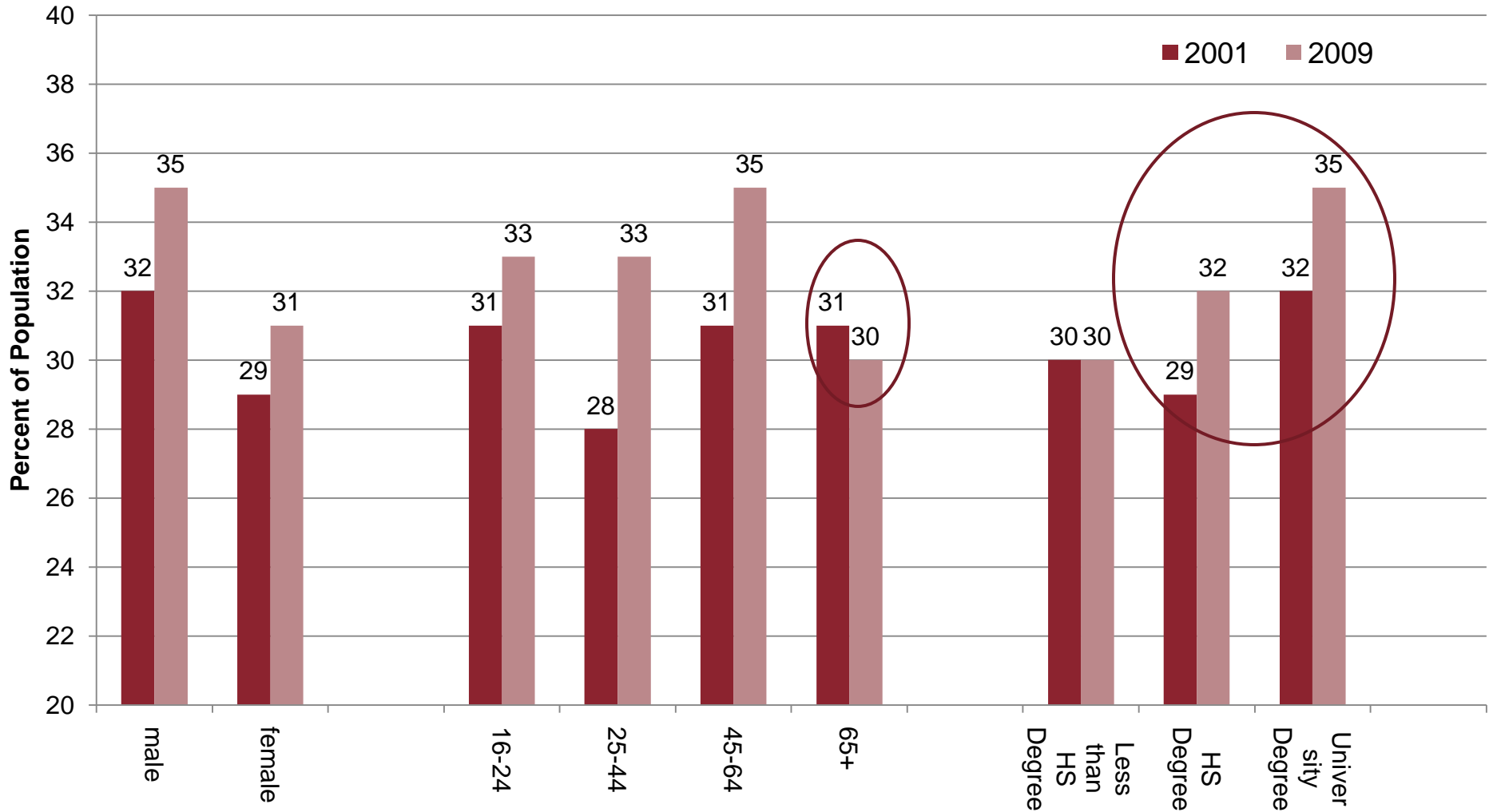
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# Prevalence of 30 min Cycling per Day by Population Subgroup in the USA, 2001-2009



Only persons 5 years and older were included.  
 Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

# Prevalence of 5 or More Walk Trips per Week by Population Subgroup, 2001-2009

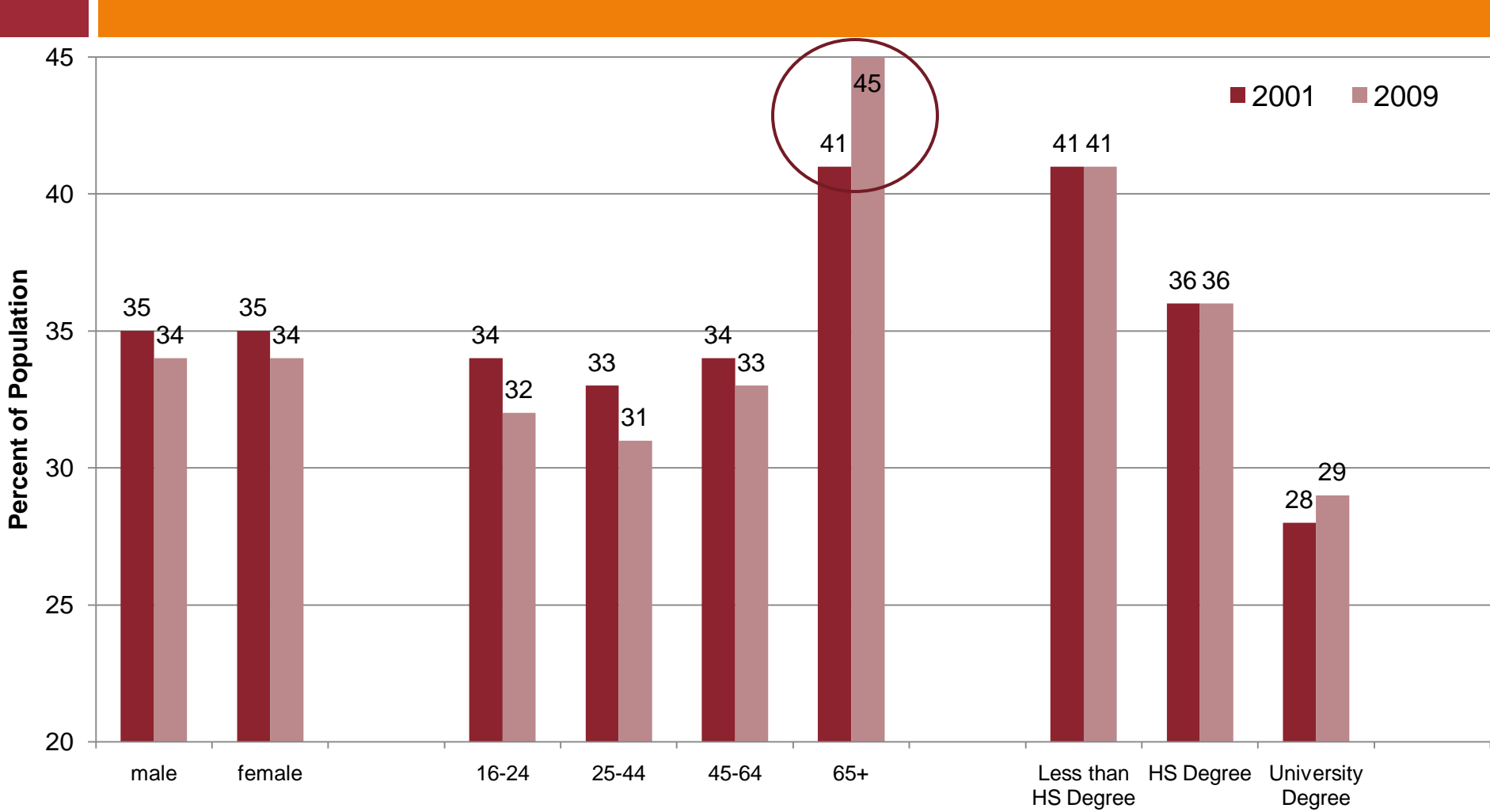


Only persons 16 years and older were included.

Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

Pucher, Buehler, Merom, Bauman, AJPH, 2011, *in press*

# Prevalence of No Walk Trips per Week by Population Subgroup, 2001-2009



Only persons 16 years and older were included.  
Source: Calculated by the authors based on NHTS 2001 and NHTS 2009

# Key Trends

- walk share of all trips has risen, and the frequency, duration, and distance of walk trips per capita also increased
- more walkers accumulating 30 minutes a day, without changes in the prevalence of ‘any walking’
- the prevalence of walking at least 30 minutes per day—both with and without the 10-minute bout criterion—has increased
- only slight decreases in ‘no walking’ but considerable increases ‘5 or more walk trips’ per week
- no significant increase in cycling trip rates or prevalence on a national basis

# Socioeconomics of Active Travel

- Active travel declined significantly among children, seniors and women
- Increases in the prevalence of walking 30 minutes a day for men, the age group 25-64, the employed, the well educated, and people without a car
- In both 2001 and 2009, the prevalence of walking 30 minutes a day was higher among Hispanics, African Americans, and Asians than among whites

# NHTS Limitations

- restricted to land-line telephones, excluding cell-phone-only households
- lower survey response rate in 2009 (20%) compared to 2001 (41%)
- self-reported estimates of time and distance of walk and bike trips might not be accurate



# Conclusions

- Implement a comprehensive, integrated package of policies and programs to increase walking and cycling
- Special consideration for women, children, and seniors, who are the most vulnerable pedestrians and cyclists
- Educational and promotional programs to encourage a more active lifestyle
- Individualized marketing schemes may help target particular groups

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