ACTIVE TRAVEL AT PENN STATE

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Prepared by Dr. Melissa Bopp and the Physical Activity and Public Health Lab

A summary of research about the current state of walking and biking on Pennsylvania State University's University Park campus
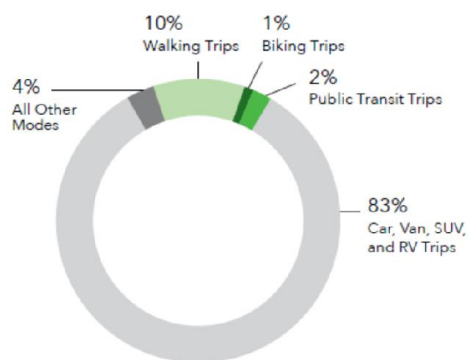
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Why Active Travel?

Active travel, walking and biking for transportation, is associated with significant health benefits. Regular active travel is associated with improved mental and physical health, decreased obesity and chronic disease and lower premature mortality rates. At a community level this behavior is associated with improved air quality and lower fuel expenditure. Nationally, rates of active travel are lower when compared with other countries. University campuses are an ideal place to study active travel since they have large numbers of people and infrastructure to support health, parking, transportation and environmental issues. The current report outlines research findings from Pennsylvania State University.
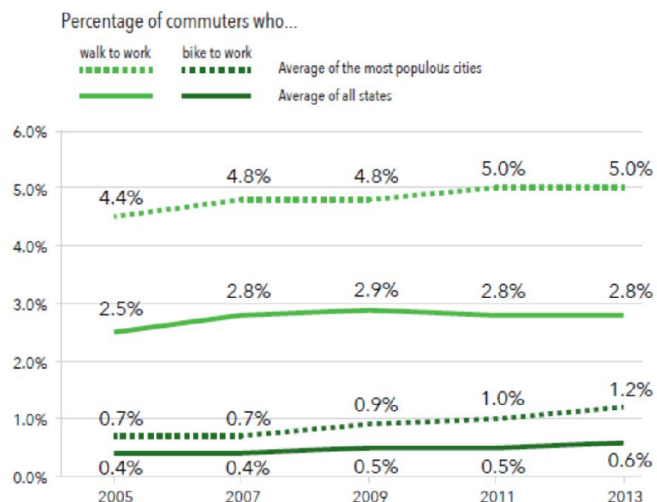
National trends for active travel

U.S. Trips, by Mode of Transportation

10% Walking Trips
1% Biking Trips
2% Public Transit Trips
4% All Other Modes
83% Car, Van, SUV, and RV Trips

Source: NHTS 2009

U.S. Commuter Trends (2005–2013)

Percentage of commuters who...
walk to work — bike to work — Average of the most populous cities
— Average of all states

4.4% 4.8% 4.8% 5.0% 5.0%
2.5% 2.8% 2.9% 2.8% 2.8%
0.7% 0.7% 0.9% 1.0% 1.2%
0.4% 0.4% 0.5% 0.5% 0.6%
2005 2007 2009 2011 2013

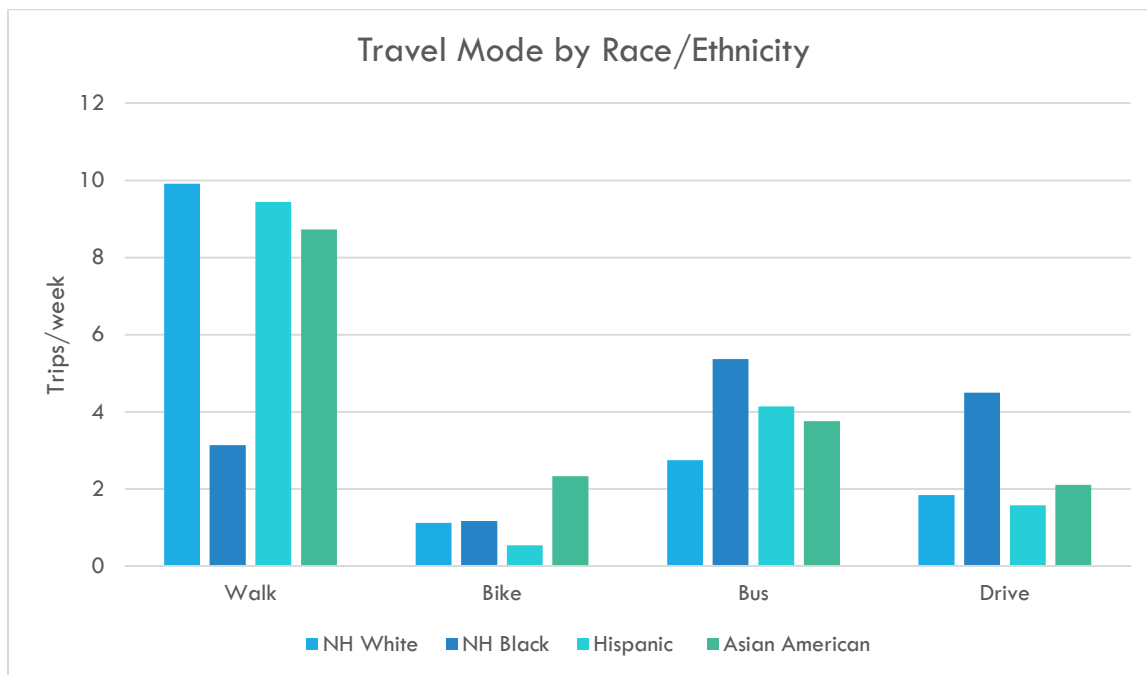Sources: ACS 2005 (1-yr est), ACS 2007, 2009, 2011, 2013 (3-yr est)

Data sources used in this report

The data sources used in this report were obtained between 2011 and 2016 using online surveys, focus groups, objective fitness assessments and interviews with faculty, staff and students. All noted differences and relationships were statistically significant. Studies published from this data are at the end of the report.

Student Active Travel at Penn State

Rates of active travel

❖ The mean number of active travel trips (walking or biking) per week for undergraduate students was 12.2 while graduate students had a mean of 4.5 active travel trips per week

❖ The number of active trips per week between males and females did not differ by much:
  ○ Males had a mean of 10.1
  ○ Females had a mean of 10.8

❖ Walking was the most common mode of transportation for all seasons
  ○ Most common season for biking was summer
  ○ Most common season for driving was summer
  ○ Most common season for CATA was winter

Travel Mode by Race/Ethnicity

Y-axis: Trips/week

Categories: Walk, Bike, Bus, Drive

Legend: NH White, NH Black, Hispanic, Asian American

Individual level findings

❖ 43.0% ranked time as the most important factor for travel mode choice

❖ Normal weight individuals had a mean of 11.3 active travel trips to campus per week

❖ Overweight individuals had a mean of 9.7 active travel trips to campus per week

❖ Obese individuals had a mean of 6.0 active travel trips to campus per week

❖ Undergraduates actively travel more than grad students

- ❖ When asked how confident they felt about biking in the general State College area, 80.8% reported being at least somewhat confident
- ❖ When asked how confident they felt about biking on campus, 83.6% reported being somewhat confident
- ❖ Students had lower self-efficacy (confidence) for biking compared with faculty staff
- ❖ Students who were active travelers had a lower systolic blood pressure and greater cardiorespiratory fitness levels compared with those who were not active travelers

Social differences

- ❖ Among women, having a roommate who bikes to campus increases the likelihood of biking to campus
- ❖ Having someone to walk with increases the likelihood of choosing active travel modes while on campus

Penn State factors

- ❖ 86.8% would rate the Penn State campus as at least somewhat pedestrian friendly
- ❖ 50.3% would rate campus as a least somewhat bicycle friendly
- ❖ When asked if students were familiar with the rules on campus regarding bicycles, 37.7% answered that they were not at all familiar with the rules while 41.0% said they were at least somewhat familiar or very familiar.

Community & environment

- ❖ Distance from campus is one of the strongest predictors for active travel
- ❖ 21.9% ranked weather as the most important factor for mode choice
- ❖ Having a bike rack available at their place of residence increased the likelihood of being an active traveler
- ❖ The top three reasons for not being confident with biking skills on campus or in State College:
  - o 23% said because of how crowded it is with pedestrians
  - o 23% said because of the vehicle traffic
  - o 17.8% said because of safety concerns

❖ Other reasons were:

   o Fear of Collisions (7.8%); Not familiar with the area (6.7%); Lack of bike lanes (5.6%); Not an experienced biker (4.4%)

❖ Students who had a CATA pass included in their lease had lower active travel than those who did not.

Differences by neighborhood

❖ Neighborhood with the highest number of trips to/from campus via car is Radio Park (~10/week)

❖ Neighborhood with the highest number of trips to/from campus via walking is Downtown (~14/week)

❖ Neighborhoods with the highest number of trips to/from campus via public transit is Radio Park & Lemont (~5 trips/week)

❖ Neighborhood with the highest number of trips to/from campus via bike is College Heights (~2/week)

❖ Residents of Park Forest had the highest % of students who knew about the bike lanes/routes in their neighborhood while Westerly Parkway residents were most likely to use the bike lanes/routes in their neighborhood

❖ Terrain was the most significant barrier for students living in Houserville

❖ Lemont residents were also most likely to indicate that the lack of on-street bike lanes/off street paths, heavy traffic and sidewalks impacted their travel to campus

❖ Students with higher perceived levels of fitness and who were regular active travelers to campus were more likely to accurately predict active travel time to campus.

Faculty & Staff (Employee) Active Travel

Rates of AT

- ❖ On average faculty and staff reported 0.88 trips a week using active modes; 0.42 trips biking, 0.46 trips walking
- ❖ Women drive more than men, while men bike more than women
- ❖ There are higher rates of active travel and bus use in the youngest age groups
- ❖ Non-Hispanic Whites walk, bike and drive more and take the bus less often than other racial/ethnic groups
- ❖ Faculty and staff were more likely to report access to a bicycle than students

Mode of travel by Gender

Mode of Travel by Age Group
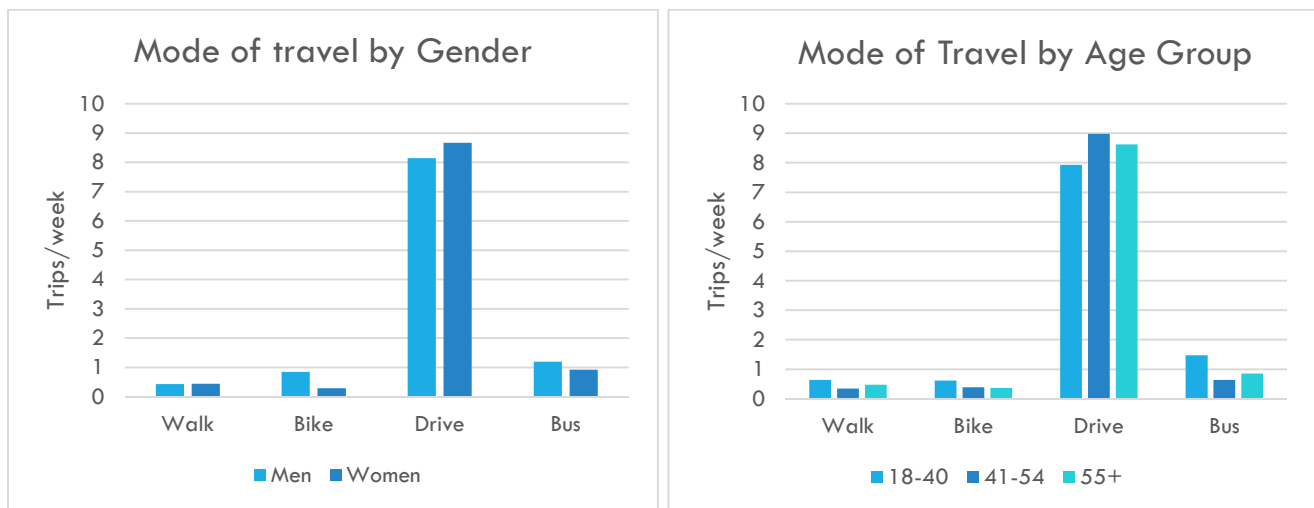
Individual differences

- ❖ Weight status is related to active travel; there are higher rates of walking and biking among normal weight individuals compared with overweight faculty/staff who have higher rates of driving and bus travel
- ❖ Those reporting that they were more fit had higher rates of active travel
- ❖ Health status was a barrier to active travel for more faculty/staff than students
- ❖ Perceiving greater health related benefits associated with active travel was associated with more participation in it
- ❖ Having greater confidence in your biking skills was associated with more active travel
- ❖ Faculty/staff reported greater self-efficacy/confidence for active travel in State College and on campus compared with students

Social

❖ If your spouse actively travels, you are more likely to be an active traveler

❖ Speaking with a coworker or spouse about active travel also increases the likelihood of active travel

❖ Parent active travel is also related to greater child active travel to school

❖ Having one or more child decreases the likelihood of a parent actively traveling, especially among women.

  ○ Among parents who can successfully active travel, having spousal support is essential. Having access to supports to make it easier to actively transport children is also important (e.g. bike trailers, tag along bikes).

❖ Office culture norms are important- If you perceive that your coworkers are active travelers, the rate of active travel increases

❖ 14% said that if other faculty and staff started walking or biking to campus more than they would too

What % of your coworkers AC to work?
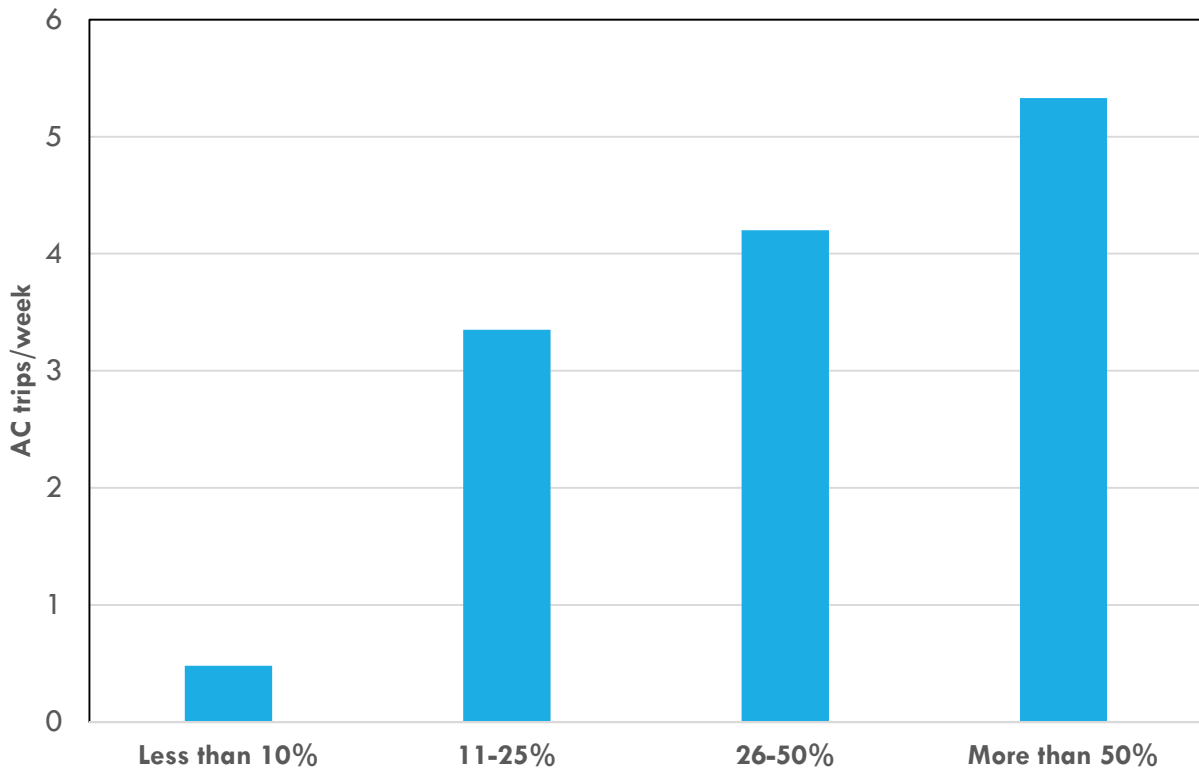
Penn State related factors

- ❖ Biking parking availability and parking availability and cost were significantly related to active travel to campus for employees

- ❖ 18% said that if Penn State offered more incentives for active travel then they would actively travel more

- ❖ For women, appearance at work and access to locker rooms/showers was more likely to impact mode choice

Has a campus parking pass

Length of Walk From Parking Space
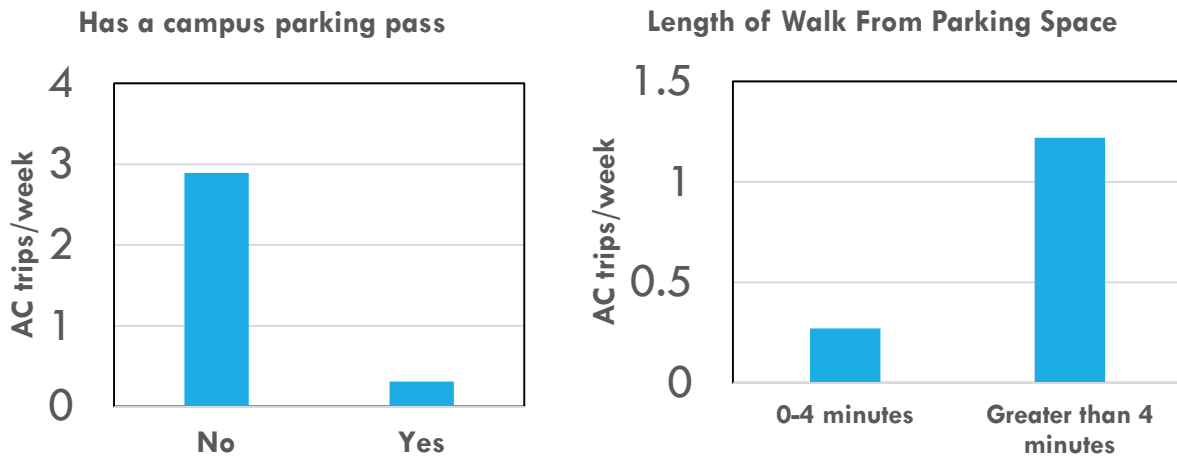
Community & environment

- ❖ Distance remains the most important predictor of active travel
- ❖ Staff report living further from campus than faculty
- ❖ Faculty/staff perceive that campus is less pedestrian friendly and more bike friendly compared with students
- ❖ Weather was less of a barrier to active travel for employees compared with students
- ❖ Sidewalk availability and maintenance, and traffic were more significant influences on active travel compared with students
- ❖ Faculty and staff were more likely to overestimate the amount of time it would take to actively travel to campus compared with students.
- ❖ Women, older employees, and people who indicated that parking available was a significant barrier to them were less likely to be accurate in assessing active travel time to campus.
- ❖ Faculty/staff who were regular active travelers were more accurate about the time it would take to actively travel to campus.

Differences by neighborhood

- ❖ Neighborhood with the highest number of trips to/from campus via car is Centre Hall (~10/week)
- ❖ Neighborhood with the highest number of trips to/from campus via walking is College Heights (~4 trips/week)
- ❖ Neighborhoods with the highest number of trips to/from campus via public transit is Shinglestown (~3 trips/week)
- ❖ Neighborhood with the highest number of trips to/from campus via bike is College Heights (~2.5/week)
- ❖ Terrain was the most significant barrier for faculty/staff living in Shinglestown and Vairo Blvd/Toftrees
- ❖ The availability of sidewalks, on-street bike lanes and off street paths was a more significant factor for faculty/staff compared with students
- ❖ Traffic was the most significant factor for those employees in Houserville

Active Lions intervention

The Active Lions Intervention, supported by Penn State's Sustainability Institute Reinvention Fund, was launched in April 2014. The goal of the project was to increase active travel to and on campus for Penn State students, faculty and staff. The project included 3 main components: 1) a smartphone app to support active travel, 2) a media campaign to promote active travel and 3) social media to increase awareness and provide encouragement. The evaluation component of the project ran from April 2014 to April 2015.

Outcomes for the overall campaign

Surveys conducted in Arpil 2014 (pre-intervention) and April 2015 (post-intervention) revealed an increase in the percent of trips as active travel for students. No changes were noted for faculty/staff. Individuals who had heard of Active Lions and those who followed Active Lions on social media had a higher percent of their trips as active travel.

The Active Lions smartphone app

The app was developed based on research found in this report and other formative data collection. The features included were: route planning, trip logging, goal setting, rewarding information (incl. calories burned, money saved, pounds of carbon offset) and campus specific active travel information. The smartphone app had 510 users during the evaluation period, resulting in 2002 sessions and 16,681 page views. User feedback indicated that the most useful features were route planning, bike parking and rewarding information.

The social media and marketing components

Active Lions Facebook and Twitter pages offered information, encouragement, tips, local event/activity information, testimonials from Penn State students and employees and interactive contests. The campaign accumulated 177 Facebook followers and 103 Twitter followers over the year. Engagement was greatest for educational posts (e.g. fun facts or tips) and interactive postings (e.g. asking questions). Marketing strategies included online advertising, participating in on-campus events and postcards available at local student apartment complexes, the student health center and transportation office.
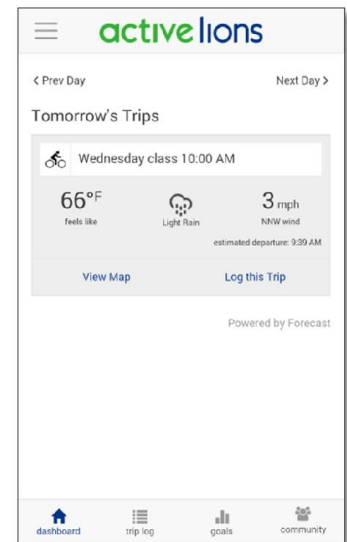
References

Bopp, M., Derananian, C., & Campbell, M. E. (2013). Differences in Active Commuting Among Younger and Older Adults. *J Aging Phys Act*. doi:2012-0236 [pii]

Bopp, M., Kaczynski, A. T., & Campbell, M. E. (2013). Social Ecological Influences on Work-Related Active Commuting Among Adults. *Am J Health Behav, 37*(4), 543-554.

Bopp, M., Kaczynski, A. T., & Campbell, M. E. (2013). Health-Related Factors Associated with Mode of Travel to Work. *Journal of Environmental and Public Health*, 1-9. doi:10.1155/2013/242383

Bopp, M. (2014). Social and physical environmental influences on active travel among college students. *Annals of Behavioral Medicine, 47*(S1), s38.

Bopp, M., Behrens, T. K., & Velecina, R. (2014). Associations of Weight Status, Social Factors, and Active Travel Among College Students. *American Journal of Health Education, 45*(6), 358-367. doi:10.1080/19325037.2014.948652

Bopp, M., Bopp, C., & Schuchert, M. (2015). Active Transportation to and on Campus is Associated With Objectively Measured Fitness Outcomes Among College Students. *J Phys Act Health, 12*(3), 418-423. doi:10.1123/jpah.2013-0332

Bopp, M., Sims, D., Colgan, J., Rovniak, L., Matthews, S. A., & Poole, E. (2015). An Examination of Workplace Influences on Active Commuting in a Sample of University Employees. *J Public Health Manag Pract*. doi:10.1097/PHH.0000000000000337

Bopp, M., Sims, D., Rovniak, L., Matthews, S. A., Poole, E., & Colgan, J. (2016). There's an app for that: Development of a smartphone app to promote active travel to a college campus. *Journal of Transport and Health*. doi:10.1016/j.jth.2016.02.007

Campbell, M. E., & Bopp, M. (2013). An Examination of the Relationship of Interpersonal Influences With Walking and Biking to Work. *J Public Health Manag Pract*. doi:10.1097/PHH.0b013e31828a83e6

Sims, D., & Bopp, M. (under review). Examining influences on active travel by sex among college students. *Women and Health*.

Sims, D., & Bopp, M. (under review). An Examination of Active Commuting in Underserved Populations. *Journal of Transport and Health*.

Sims, D., Bopp, M., Rovniak, L., Matthews, S. A., & Poole, E. (under review). Predicting discordance between perceived and estimated walk and bike times among university faculty, staff, and students. *Journal of Transport and Health*.

Wilson, D., Bopp, M., Colgan, J., Sims, D., SA, M., Rovniak, L., & Poole, E. (in press). A Social Media Campaign for Promoting Active Travel to a University Campus. *Journal of Healthcare Communications*.