

Factors Differentiating Active vs. Non-Active Commuters to Campus



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Background

- Current public health guidelines call for 30+ minutes per day of moderate-intensity activity (Haskell et al., 2007)
 - As little as 10 minutes per episode
- Active commuting offers a promising means to integrate physical activity into daily routines
- Active commuting is positively associated with several health benefits, including reduced risk of obesity and cardiovascular disease (Lindstrom, 2008; Hamer & Chida, 2008)
- Many benefits to active commuting: health, environmental, social, economic
- Little research has examined differences between active and non-active commuters, especially among adults



Study Purpose

- To examine correlates of active commuting to campus at a large university with a goal of better understanding and fostering increased transportation-related physical activity.



Methods

- Online survey distributed via email lists, direct mailings, extra credit assignment
- Questions asked about:
 - personal characteristics
 - gender, age, role on campus
 - overall physical activity participation
 - BRFSS moderate and vigorous question formats
 - active commuting behaviors
 - # of times walk to campus per week
 - # of times bike to campus per week
 - active commuting influences
 - distance (minutes) to most common place on campus by walk or bike
 - facilitators and barriers



Study Participants

- 726 useable responses
 - 345 students (46%)
 - 226 faculty (32%)
 - 155 staff (22%)
- 327 males (45%), 399 females (55%)
- Mean age = 34.1 years
- 347 participants walked to campus at least once per week (47.8%)
- 130 participants biked to campus at least once per week (17.9%)



Analyses

- Logistic regression used to predict (separately) if a participant walked or biked to work on average at least once per week according to:
 - gender
 - age group (18-25, 26 and up)
 - role at university (faculty, staff, student)
 - overall physical activity level
 - distance to campus
 - facilitators for active commuting
 - barriers to active commuting



Results

Participant	Walk Once/Week		Bike Once/Week	
Characteristic	OR	95% CI	OR	95% CI
Female	1.14	(.85, 1.54)	.50*	(.34, .74)
Older than 25 yrs	.09*	(.06, .12)	.58*	(.39, .85)
Faculty (vs. student)	.10*	(.07, .15)	.86	(.56, 1.31)
> 20 min distance	.03*	(.02, .05)	.15*	(.08, .30)
Meets PA reccs	1.83*	(1.38, 2.55)	2.67*	(1.87, 3.35)

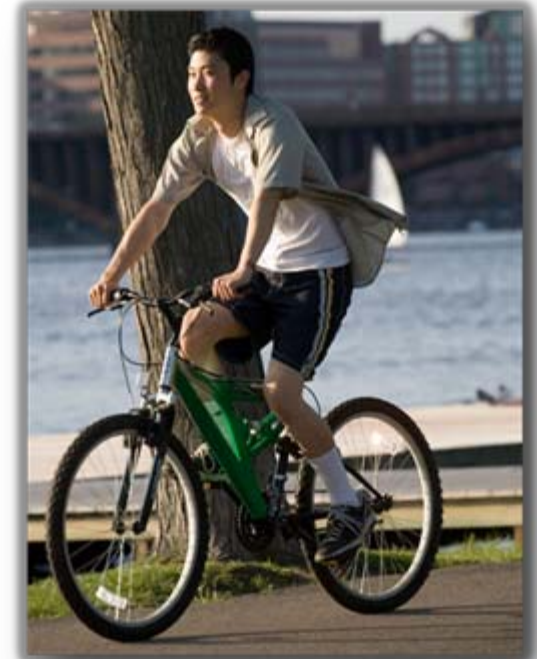
- Gender unrelated to walking, but females less likely to bike to campus
- Participants older than 25 years less likely to both walk and bike to campus
- Faculty much less likely than students to walk, but not bike, to campus
- Living greater than a 20-minute walk or bike ride from campus associated with decreased odds of walking or biking, respectively
- Participants who met current recommendations for physical activity more likely to both walk and bike to campus

Results

Barrier or Facilitator	Walk Once/Week		Bike Once/Week	
	OR	95% CI	OR	95% CI
Time	.31*	(.21, .44)	.61*	(.40, .92)
Traffic	1.22	(.87, 1.72)	.99	(.63, 1.56)
Weather	.71*	(.53, .97)	1.58*	(1.03, 2.42)
Environment	1.84*	(1.33, 2.53)	4.45*	(2.96, 6.69)
Health	1.71*	(1.27, 2.31)	2.80*	(1.86, 4.21)
Economic	1.37	(.98, 1.91)	2.91*	(1.94, 4.36)
Safety	.82	(.51, 1.31)	.58	(.28, 1.19)
Parking	1.94*	(1.41, 2.67)	1.17	(.78, 1.76)

Results

- Participants who rated **time constraints** as an important factor affecting their commute mode choice were less likely to walk and bike to campus
- Walking and biking more likely among people concerned about the **environment**
- On-campus **parking concerns** related to increased walking
- **Economic** concerns related to increased biking
- Traffic and safety not significant concerns affecting walking or biking



Discussion

- Findings shed light on demographic, attitudinal, and behavioral differences between active and active commuters
- Limitations include: cross-sectional data prevents causal conclusions; well-educated, active sample
- In at least one past study of college students' commuting behaviors (Sisson & Tudor-Locke, 2008):
 - cyclists spend more than 30 min more per day in moderate-to-vigorous PA
 - median distance cyclists lived from campus = 0.4 miles (~2 min!)
- Meron et al. (2008) – walking/cycling to work at least 30 min per day related to:
 - being more active overall; younger age (<46 years)
 - motivations of avoiding parking hassles; less expense; increasing health; clean air



Discussion

- Future research should expand upon built and policy environment influences on active commuting (Rodriguez et al., 2006)
- Need to rigorously evaluate active commuting interventions:
 - bike share programs
 - bike giveaways to incoming students
 - engineering improvements (e.g., bike lanes, trails, sidewalk connectivity)
 - public transit development/expansion
 - insurance or parking savings
 - active commuting challenges
 - media campaigns with different messages



Discussion

- Other issues for future investigations of active commuting behavior and influences:
 - Does active commuting to school carry over into adulthood?
 - Does active commuting achieve a sufficient amount and intensity of physical activity for health benefits?
 - depends on fitness level, mode, distance, route, etc. (Shephard, 2008)
 - Does active commuting supplant other physical activity?
 - Do gender differences in active commuting exist (and why)?
 - Female students less likely to cycle to campus (Winters et al., 2007)
 - Female cyclists prefer off-road routes with maximum separation from motorized traffic (Garrard et al., 2008)
 - What is the best combination of active commuting-related benefits to emphasize in public health campaigns? (e.g., enviro, health, economic, etc.)
 - How should we best measure active commuting behavior, especially cycling?
 - Other questions ...

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