Places to Walk: Convenience and Regular Physical Activity

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Regular physical activity fosters good physical and mental health.[1] Described as "today's best buy in public health,"[2] one needs to accumulate only 30 minutes per day, 5 days per week, of moderately intense physical activity, such as brisk walking.[3] For almost everyone, walking is a familiar activity performed in the conduct of normal daily activities. Nevertheless, only 25% to 30% of Americans report doing activities that meet current recommendations for physical activity, and 30% to 40% report no participation in physical activities away from their work.[4,5] These data have not changed over at least the past decade.[5]

The availability[6–8] and awareness[9] of places conducive to physical activity are associated with higher levels of physical activity. To guide our efforts to promote regular physical activity, we used the Georgia Behavioral Risk Factor Surveillance System to determine (1) whether adult Georgians were aware of safe and convenient places for walking, (2) what places they most commonly envisioned, and (3) whether the proximity of those places was associated with self-reported physical activity behaviors.

METHODS

Data were collected via the Georgia Behavioral Risk Factor Surveillance System, a random-digit-dialed telephone survey of health-related behaviors of adults aged 18 years and older.[10] The 2001 questionnaire (available at http://www.cdc.gov/brfss/pdf-ques/2001brfs.pdf) asked about the frequency and duration of both moderate and vigorous physical activity. Respondents were categorized as meeting current recommendations for activity or not (moderate activity for at least 30 minutes per day, 5 days per week, or vigorous activity for at least 20 minutes per day, 3 days per week).

In Georgia, we added questions about safe and convenient places to walk. Respondents were informed that they would be asked "about places where people can walk for exercise or recreation, such as trails, parks, sidewalks, and treadmills" and that the survey was concerned with "their convenience and safety for you, whether or not you actually use them." Respondents were then asked, "Is there a place you could go where you would feel safe walking for exercise or recreation?" If they responded, "yes," they were asked, "What is the most convenient place? Is it . . . ?," and they were read the places listed in Table 1. If the place was their neighborhood or a home treadmill, we assumed that the respondent could walk to the place in less than 10 minutes. All others were asked, "How many minutes would it take to get there from your home?" and "How would you get there?" Three categories of convenience were created based on time and mode of travel to the place: (1) less than 10 minutes walking, (2) less than 10 minutes not walking, and (3) 10 minutes or greater regardless of mode.

In 2001, 4532 persons responded to the survey. Responses were weighted to provide population-based estimates for Georgia. Data were analyzed with SUDAAN software to account for the complex survey design.[11] Tests for linear trend across categories of convenience were done according to the method of Fisher and Yates.[12]

TABLE 1—Walking Places, by Time and Method to Reach Place: Georgia Behavioral Risk Factor Surveillance System, 2001

Walking Places	N	Time and Method to Reach Place: <10 Min Walk % (95% CI)	<10 Min Do Not Walk % (95% CI)	≥10 Min All Methods % (95% CI)
No place to walk	382	NA	NA	NA
Some place to walk	3949	47.1 (45.1, 49.1)	21.1 (19.5, 22.8)	31.8 (45.1, 49.1)
Not home based	2472	16.2 (14.2, 18.2)	33.5 (31.0, 36.0)	50.3 (47.7, 52.8)
Public park	1017	13.3 (10.5, 16.0)	35.4 (31.5, 39.2)	51.4 (47.4, 55.5)
School track	416	10.7 (7.2, 14.2)	43.0 (37.2, 48.9)	46.1 (40.3, 52.0)
Gym or fitness center	279	11.1 (5.5, 16.6)	29.6 (22.2, 37.0)	59.4 (51.5, 67.3)
Walking or jogging trail	263	28.5 (21.5, 35.6)	31.7 (24.9, 38.5)	39.7 (32.7, 46.8)
Shopping mall	120	[a]	21.5 (12.2, 30.9)	72.0 (60.8, 83.1)
Other place[b]	377	30.6 (23.1, 38.1)	25.0 (18.6, 31.4)	44.2 (36.3, 52.2)
Home based	1477	100.0[c]	0[c]	0[c]
Neighborhood streets or roads	680	100.0[c]	0[c]	0[c]
Neighborhood sidewalk	638	100.0[c]	0[c]	0[c]
Treadmill at home	159	100.0[c]	0[c]	0[c]

Note. % = percent weighted to Georgia population; CI = confidence interval; NA = not applicable, no walking place reported.
[a]Not calculated, <10 respondents in cell.
[b]No specific information was obtained about other place.
[c]Assumed to be 100% or 0%.

RESULTS

An estimated 91.8% (95% confidence interval [CI]=90.8%, 92.8%) of Georgians had a place where they would feel safe walking for exercise or recreation. The most commonly reported place was neighborhood streets or sidewalks (32.0%; 95% CI=30.2%, 33.8%), followed by public parks (26.8%; 95% CI=25.0%, 28.6%), school track (10.2%; 95% CI=9.1%, 11.4%), gym or fitness center (7.8%; 95% CI=6.6%, 9.0%), walking or jogging trail (6.6%; 95% CI=5.7%, 7.6%), treadmill at home (4.1%;

TABLE 2—Percent Meeting Physical Activity Recommendations, by Walking Place and Time and Method to Reach Place: Georgia Behavioral Risk Factor Surveillance System, 2001

	Time and Method to Reach Place				
Walking Places	All Times All Methods % (95% CI)	<10 Min Walk % (95% CI)	<10 Min Do Not Walk % (95% CI)	≥10 Min All Methods % (95% CI)	*P* for Trend
No place to walk	27.4 (21.2, 33.7)	NA	NA	NA	
Some place to walk	41.5 (39.4, 43.6)	43.0 (40.1, 46.0)	42.5 (37.9, 47.0)	38.1 (34.3, 41.9)	.04
Not home based	41.6 (38.9, 44.3)	49.4 (42.5, 56.3)	42.5 (37.9, 47.0)	38.1 (34.3, 41.9)	.005
Public park	39.6 (35.6, 43.6)	51.8 (40.3, 63.4)	39.2 (32.6. 45.7)	36.7 (31.1, 42.3)	.02
School track	42.7 (36.5, 48.8)	48.4 (30.2, 66.5)	47.8 (38.3, 57.3)	36.8 (28.1, 45.6)	.26
Gym or fitness center	45.3 (37.2, 53.4)	52.7 (25.0, 80.5)	54.2 (38.9, 69.5)	37.4 (28.3, 46.4)	.30
Walking or jogging trail	45.1 (37.5, 52.7)	51.6 (35.9, 67.2)	45.0 (31.4, 58.5)	40.2 (29.1, 51.3)	.24
Shopping mall	32.1 (21.0, 43.1)	[a]	48.4 (22.4, 74.5)	28.5 (16.8, 40.3)	
Other place[b]	43.4 (35.6, 51.1)	46.1 (33.0, 59.1)	27.5 (14.7, 40.4)	49.4 (36.0, 62.7)	.73
Home based	41.3 (38.1, 44.6)	41.3 (38.1, 44.6)	NA	NA	
Neighborhood streets or roads	41.8 (37.0, 46.6)	41.8 (37.0, 46.6)	NA	NA	
Neighborhood sidewalk	41.3 (36.3, 46.3)	41.3 (36.3, 46.3)	NA	NA	
Treadmill at home	39.7 (29.8, 49.6)	39.7 (29.8, 49.6)	NA	NA	

Note. % = percentage weighted to Georgia population; CI = confidence interval; NA = not applicable, no respondents in cell.
[a]Not calculated, <10 respondents in cell.
[b]No specific information was obtained about other place.

95% CI=3.3%, 4.9%), or shopping mall (2.9%; 95% CI=2.2%, 3.5%). Omitting those whose place was their neighborhood or treadmill at home, 49.7% (95% CI=47.2%, 52.3%) reported that they could reach the place in less than 10 minutes; 75.9% (95% CI=73.6%, 78.1%) reported that they would drive there, and 22.4% (95% CI=20.2%, 24.6%) reported that they would walk.

Including persons whose place to walk was their neighborhood or home treadmill, 47.1% (95% CI=45.1%, 49.1%) of persons could walk to their place in less than 10 minutes (Table 1). However, fewer than 15% of the persons whose place was a public park, school track, gym or fitness center, or shopping mall could walk to their place in less than 10 minutes.

Persons reporting a place to walk were significantly more likely to meet current recommendations for regular physical activity (41.5%; 95% CI=39.4%, 43.6%) than were those reporting no place to walk (27.4%; 95% CI=21.2%, 33.7%) (Table 2). There was a direct relation between the convenience of the walking place and the proportion of respondents meeting current activity recommendations. The trend across categories of convenience was significant for all places combined, places not home based, and public parks (Table 2). The same direct pattern was seen for other specified places, but the trend was not significant.

DISCUSSION

Most adult Georgians can envision a safe and convenient place for walking. In addition, a direct relation exists between the convenience of the place and meeting activity recommendations. Those able to walk to the place in less than 10 minutes are most likely to be active. These data support previous reports[6–8] indicating the value of convenient places for activity. Our findings provide specificity to that knowledge by confirming the association between awareness of places and physical activity practices,[9] noting that neighborhood streets and sidewalks and public parks are the most commonly reported safe and convenient places for walking,[8] noting the association between self-reported convenience (time and method of getting to place) and physical activity, and suggesting that the association holds for most places included in the survey.

Our conclusions might be strengthened if we had evidence that the respondents actually used the place they envisioned for walking. However, the questions we asked were simple, have construct validity, and, based on their association with self-reported behaviors, have predictive validity. It is programmatically helpful to know that most Georgians can envision and identify a safe and convenient place to walk.

The data suggest that proximity is an important factor in the identification of a safe and convenient place to walk. The most commonly mentioned place was the respondent's neighborhood. Public parks were the next most commonly mentioned place. Efforts to design new and to retrofit old neighborhoods with sidewalks and streets that make them easily walkable and the development of nearby park space would appeal to residents and be beneficial from a public health perspective. ■

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This brief was accepted April 10, 2003.

Contributors

K.E. Powell and L.M. Martin recognized the opportunity to obtain helpful programmatic information and designed the questions. L.M. Martin and P.P. Chowdhury analyzed the data. K.E. Powell drafted the article that was revised by all 3 authors.

Acknowledgments

The Georgia Behavioral Risk Factor Surveillance System is supported in part through Centers for Disease Control and Prevention Cooperative Agreement U58/CCU400591.

Human Participant Protection

The Georgia Behavioral Risk Factor Surveillance System was determined to be exempt from institutional review board review.

References

1. *Physical Activity and Health: A Report of the Surgeon General.* Atlanta, Ga: Centers for Disease Control and Prevention; 1996.

2. Morris JN. Exercise in the prevention of coronary heart disease: today's best buy in public health. *Med Sci Sports Exerc.* 1994;26:807–814.

3. Pate RR, Pratt M, Blair SN, et al. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA.* 1995;273:402–407.

4. Schoenborn CA, Barnes PM. Leisure-time physical activity among adults: United States, 1997–1998. *Adv Data Vital Health Stat.* April 7, 2002;325.

5. Centers for Disease Control and Prevention. Physical activity trends—United States, 1990–1998. *MMWR Morb Mortal Wkly Rep.* 2001;50(9):166–169.

6. Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity, a systematic review. *Am J Prev Med.* 2002;22(4S):73–107.

7. Humpel N, Owen N, Leslie E. Environmental factors associated with adults' participation in physical activity: a review. *Am J Prev Med.* 2002;22:188–199.

8. Giles-Corti B, Donovan RJ. The relative influence of individual, social, and physical environment determinants of physical activity. *Soc Sci Med.* 2002;54:1793–1812.

9. Leslie E, Owen N, Salmon J, et al. Insufficiently active Australian college students: perceived personal, social, and environmental influences. *Prev Med.* 1999;28:20–27.

10. Frazier EL, Franks AL, Sanderson LM. Behavioral risk factor surveillance data. In: *Using Chronic Disease Data: A Handbook for Public Health Practitioners.* Atlanta, Ga: Centers for Disease Control and Prevention; 1992:1–17.

11. *SUDAAN User's Manual, Release 8.0.* Research Triangle Park, NC: Research Triangle Institute; 2001.

12. Fisher RA, Yates F. *Statistical Tables for Biological, Agricultural and Medical Research.* 5th ed. Edinburgh, United Kingdom: Oliver & Boyd; 1938.