

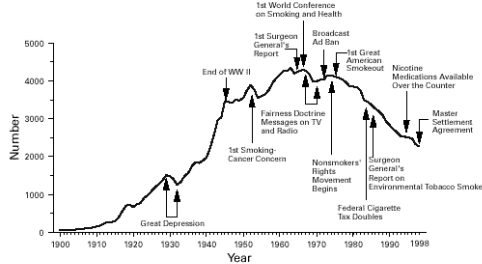
Preventing Obesity through Environmental Approaches

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Today

- History and Background on Active Living Research
- Review what we know about built environment and physical activity levels
- What we do not know

FIGURE 1. Annual adult per capita cigarette consumption and major smoking and health events — United States, 1900–1998



Sources: United States Department of Agriculture; 1986 Surgeon General's Report.
 Research conducted by Ross Brownson, St. Louis University

What do we mean

- An activity-friendly environment is a place that makes it easy to make the choice to be physically active, through planned exercise or routine daily activity

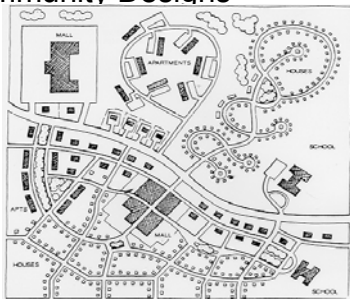
What do we mean

- Walkable neighborhoods are those where it is possible to walk to common destinations such as food stores. They are defined by a mix of homes and stores, connected streets, higher densities and usually feature sidewalks and walking paths.

Community Designs

Suburban development, many cul-de-sacs

Well-connected urban development with mixed land uses



ALR studies come from different literature

- Health literature—wide range of variables studied in relation to recreational PA
- Transportation and urban planning literature—small number of land use variables studied in relation to “non-motorized transport”; walking and cycling for transportation
- Different environments, different aspects of PA, different methods. But a powerful combination.

Neighborhood Form Variables Studied in Transportation and Urban Planning Fields

- Connectivity of the street network
- Land use mixture
- Residential density
- Micro-scale pedestrian design

Saelens, B.E., Sallis, J.F., & Frank, L.D. (2003). Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures. **Annals of Behavioral Medicine, 25**, 80-91.

ALR steps in creating evidence

- Measurement development
- Correlational studies
- Special population correlational studies
- Policy Analysis

Weakness in evidence

- Most studies are correlational or cross-sectional
- Need Intervention and longitudinal studies

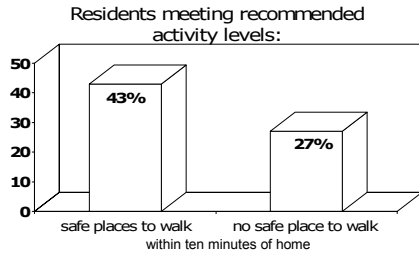
New research abounds



Designing for *Active Recreation*

- People get more physical activity if their neighborhoods provide a high-quality environment for outdoor activity.

Access to facilities helps people get enough activity.



Access to facilities

- People living in areas without many public outdoor recreation facilities were more likely to be overweight.

• *Catlin, T.K. Am. J. Health Promotion of 2003*

- The closer people lived to a bikeway, the more likely they were to use it.

• *Troped, P.J. Preventive Medicine 2001*



Walkable neighborhoods make a difference

- Residents in a highly walkable neighborhood engaged in about

• **70 more minutes per week**

- of moderate and vigorous physical activity than residents in a low-walkability neighborhood.



Walkable neighborhoods encourage more walking

•Older women who live within walking distance of trails, parks or stores recorded significantly higher pedometer readings than women who did not. The more destinations that were close by, the more they walked.



Photo: Michael Roskin, ODOT

King, W., *Am. J. of Public Health* 2003

Walkable neighborhoods have a positive impact on health

On average, walkable neighborhoods encourage 15-30 extra minutes of walking per week... *enough to lose a pound a year.*



Saelens, B.E. *Annals of Behavioral Medicine* 2003

Designing for *Active Transportation*

- Proximity: Are there places nearby to walk to?
- Connectivity: Are there safe and direct ways to make the trip?



Proximity

People are more likely to commute to work on foot or via bicycle if they:



- live in a city center;
- live close to a non-residential building;
- live very close to a grocery or drug store; and
- have good access to public transportation.

Cervero, R. *Transportation Research Record* 2001

Connectivity

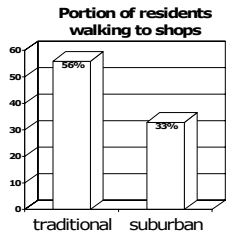
A grid-like street network creates more direct routes & makes it easier to walk.



Illustration: Frank, L.D. *Health & Community Design*

Greenwald, M.J. *Transportation Research Record* 2001

Walkable neighborhoods encourage trips by bike & foot



People in traditional neighborhoods are more likely to walk to nearby shops.

Handy, S.L. *Transportation Research Record* 1996

Walkable neighborhoods have a positive impact on health

Middle-aged men who biked or walked to work **weighed less** and gained weight more slowly, whether or not they engaged in other exercise.

Wagner, A. *Internat. J. of Obesity & Related Metabolic Disorders* 2001



People living in sprawling counties:

- Walk less in their leisure time
- Have higher body mass indexes
- Are more likely to be obese
- Are more likely to have high blood pressure.



Photo: Congress for the New Urbanism

Ewing, R. *Am. J. of Health Promotion* 2003

CDC *The Community Guide* recommendations:

- Use of street-scale urban design to increase physical activity
- Implementation of improved street lighting
- Increase ease and safety of street crossing
- Ensure sidewalk continuity
- Introduce or enhance traffic calming
- Enhance aesthetics of the streetscape

More *Community Guide* recommendations:

- Improved continuity and connectivity of streets and sidewalks
- Local mixed-use zoning and roadway design that promotes destination walking

Active Living Research Conclusions

Living in activity friendly communities could...

- Generate 2 more walk/bike trips per person per week
- Prevent up to 1.7 pounds of weight gain per year
- Positively affect walking/cycling for transportation but not recreation
- Positively impact the total number of minutes of physical activity (40% more physical activity)



Environmental Correlates of Adults' Participation in Physical Activity

17 studies on cross-sectional associations of environmental attributes with physical activity behaviour

<i>accessibility of facilities</i>	positive
<i>aesthetics</i>	positive
<i>opportunities</i>	mixed
<i>safety</i>	weak

Humpel N, Owen N and Leslie E. (2002). Environmental factors associated with adults' participation in physical activity: A Review. *American Journal of Preventive Medicine*, 22, 188-199.

Conclusions from Neighborhood Comparisons in Transportation

Lit.

- On average, studies document 2-3 times higher walk/bike trip rates in traditional versus suburban
 - translates into 1-2 more walk/bike trips per resident per week in traditional neighborhoods
- Living in traditional neighborhood could prevent .8 to 1.7 pounds of weight gain per year
- Neighborhood design mainly affects walking/cycling for transport, not recreation

Saelens, Sallis, & Frank. Review paper. Annals of Behavioral Medicine. March 2003.

Designing to Reduce Childhood Obesity



- More access to healthy foods
- Safe places to walk and play
- Reduced screen time

Environmental Correlates of PA in Children and Adolescents

- 3 studies show being outdoors is best correlate of young children's PA ($r=.74$)
- For children & adolescents, access to programs & facilities are consistent correlates

Sallis, Prochaska, Taylor (Review) MSSE, 2000

Environmental change to increase youth physical activity

•Distance, traffic and crime are all barriers to children walking to school.

•More children walk to school where there are sidewalks.



Koplan, J.P., CDC 2004
Ewing, R. *Transportation Research Record* 2005

Improving safety increases youth activity

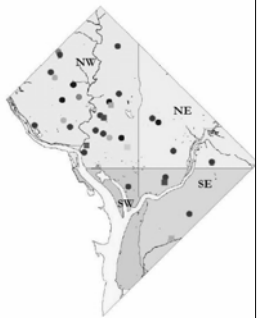


Molnar, B.E., *Am. J. of Health Promotion*, 2004
Tester, J.M. *Am. J. of Public Health*, 2004

•Children were physically active for an extra 49 minutes in safer neighborhoods.
•Children were half as likely to be injured by a car if they lived within a block of a speed hump.

ACCESS TO FOOD

Grocery Store Locations



Research results

- More supermarkets more fruits and vegetable consumption
- Wealthier neighborhoods have 3 to 4 times as many full service supermarkets
- Live in lower income neighborhood consume fewer fruits, vegetables & fish
- More fast foot outlets in low income neighborhoods

What we do not know

- Implementation studies—what are the best practices for moving from evidence to action, research to practice?
- What are the model health codes, planning models and zoning ordinances that are most effective and efficient in created and sustaining these health promoting environment features?
- What are the most cost effective features to promote?

www.activelivingleadership.org

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