

# ***Using Research to Create a Less Obesogenic World***

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**Texas Obesity Research Center  
April 9, 2009**

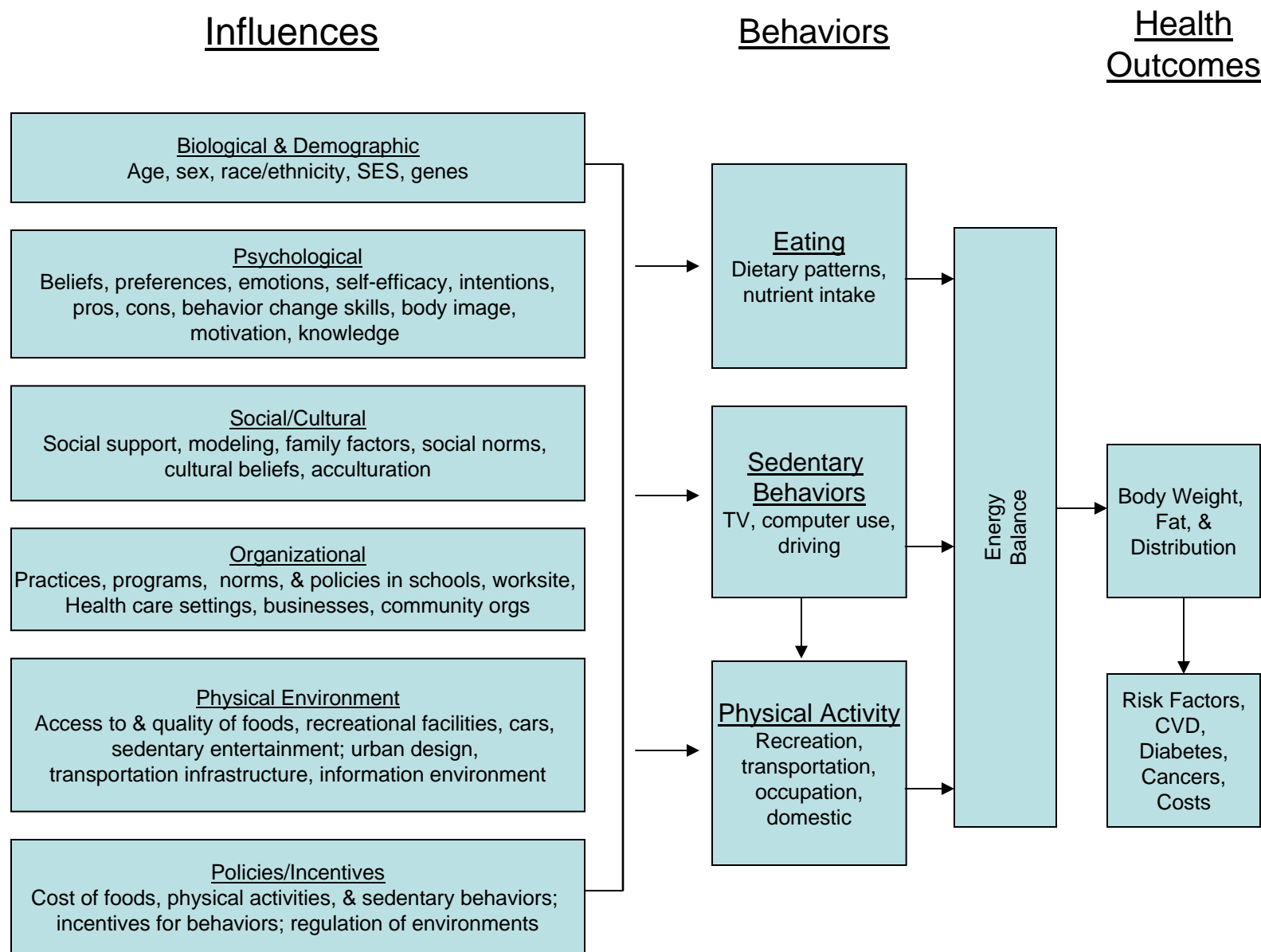
# David visits Houston



# Overview of Presentation

- How to think about the problem: Ecological models of diet and physical activity
- Research on nutrition environments
- Research on PA environments
- What Active Living Research is doing
- Getting research used in policy decisions that affect diet and PA

# NHLBI Ecological Model of Diet, Physical Activity, and Obesity



# What is the public health approach to improving diet and PA?

- Minor investment in programs
- Guided by theories that emphasize psychological & social influences
- Primary goals are education and behavior change skills training targeting individuals
- Low reach, modest effects, poor maintenance
- Fragmented, poorly coordinated, poorly funded approaches
- This is now changing, with RWJF, IOM, & others pursuing multi-level interventions

# Shaping the Culture

## The Weight Loss Industry

- At least \$20B in sales (2002)
- Preying on people's desires for quick fixes
- In 2001, \$100M spent on infomercials alone
- Huge increase in (completely unregulated) dietary supplements
- FTC determined over 55% of ads had false or inadequately supported claims
- Why be active or eat better when "results are guaranteed"?

# Shaping the Culture: What are the influences? Ads as of 2004:

- Food, beverages, candy \$6.8B

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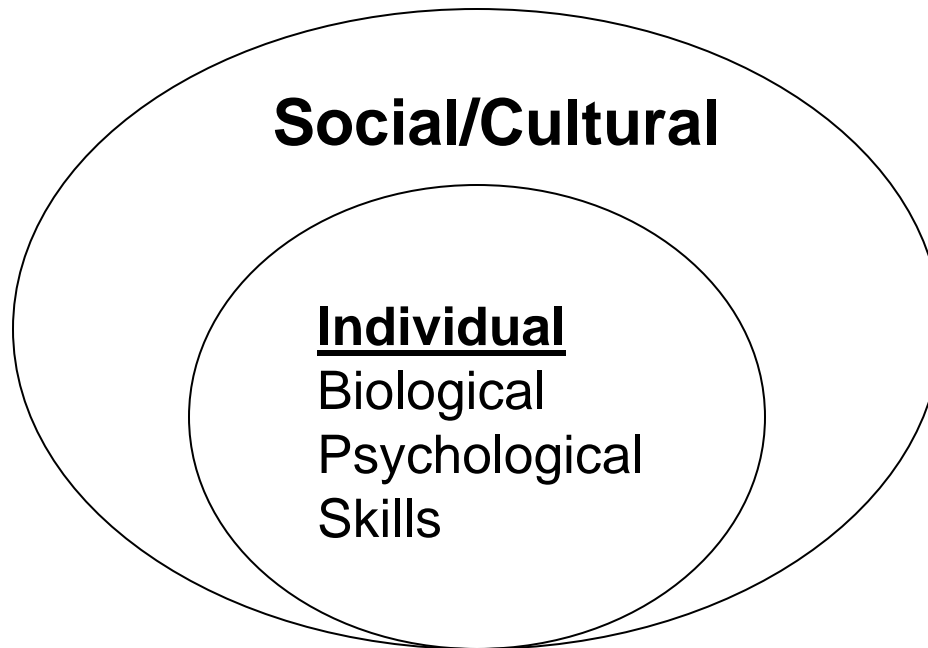
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- Movies, DVDs \$5.3B
- Computers, software \$2.5B

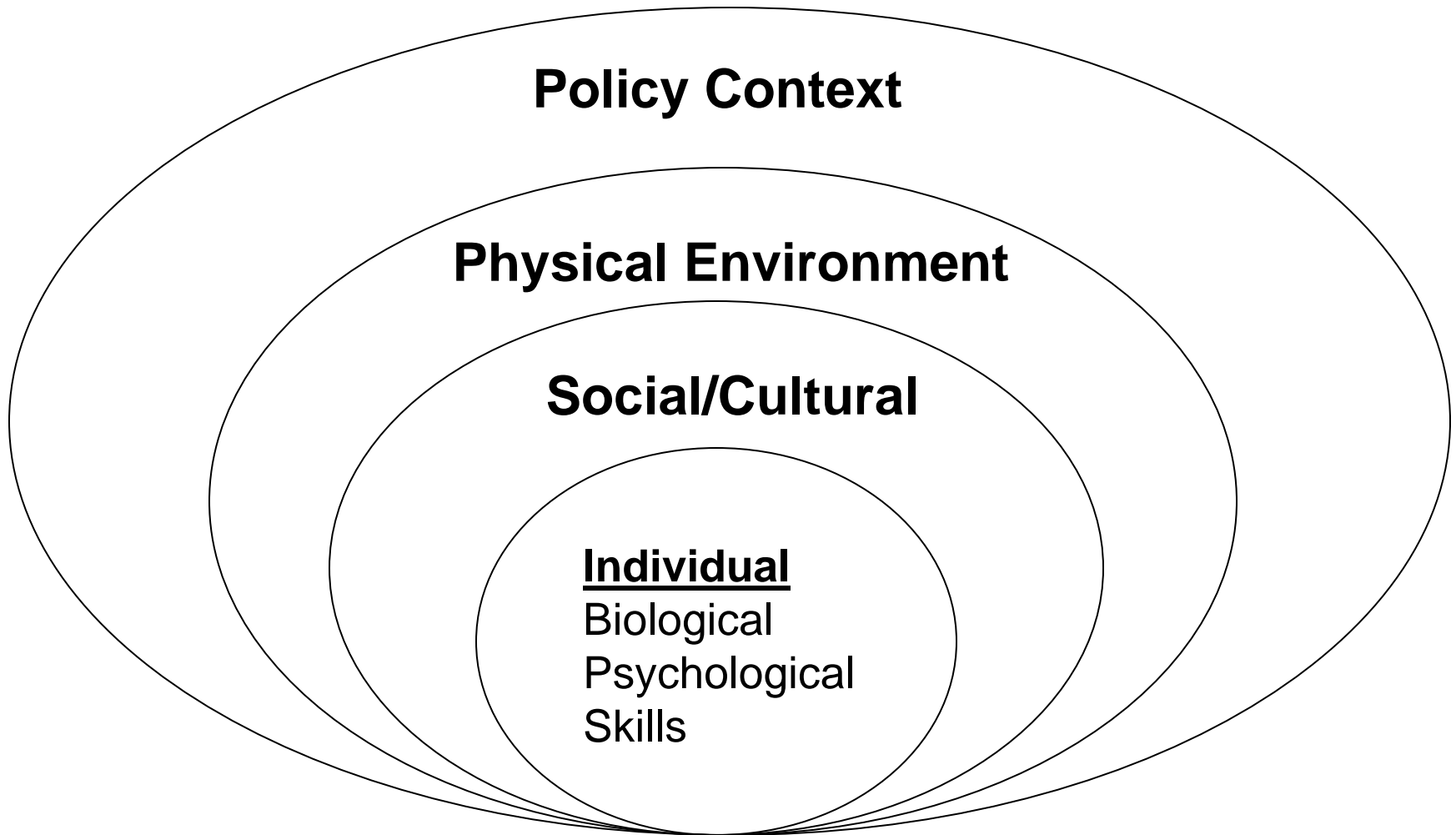
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  - Sporting goods \$0.5B
  - VERB (max of) \$0.0125B

# A Model of Health Behavior



# An Ecological Model of Health Behavior



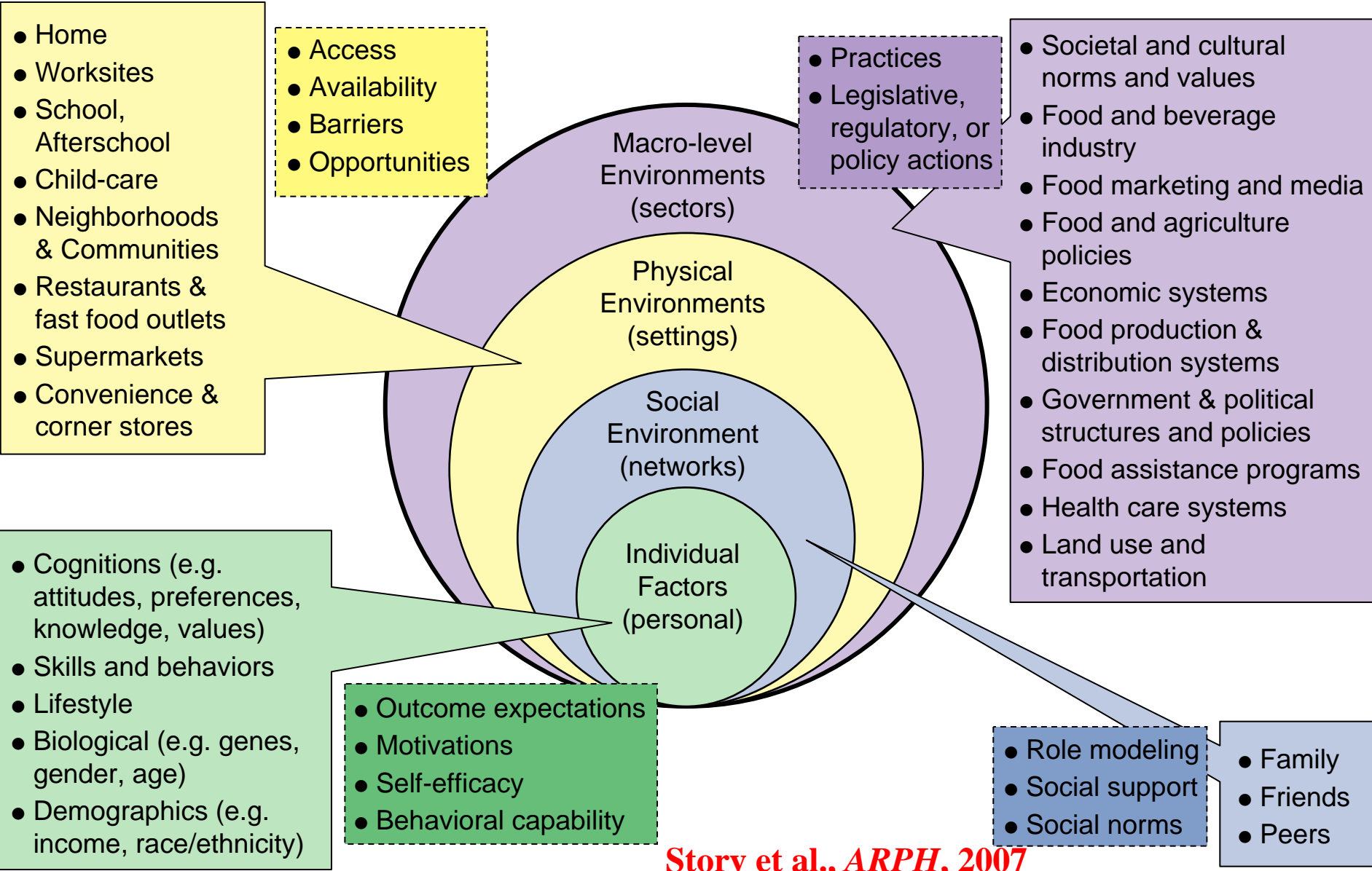
# An Alternative: Ecological Models

- Because there are multiple levels of influence, the most effective interventions should work at **ALL** levels
- Multi-level intervention approaches
  - First, create environments & policies that make healthy choices easy
  - Then, educate & motivate people to make those choices

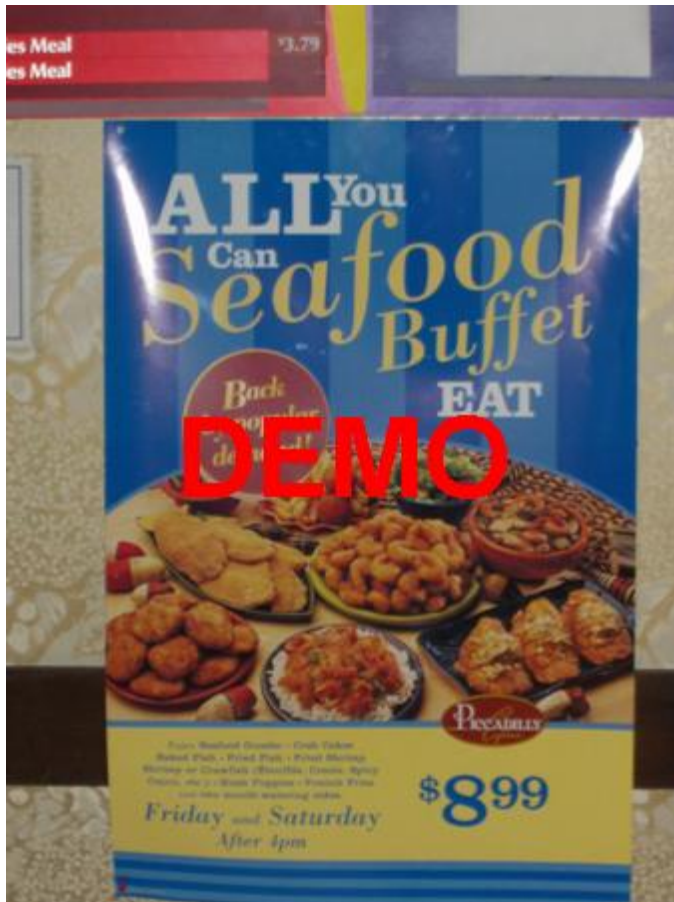
# Promise of Built Environment Changes

- Many believe we have built a world that supports unhealthy habits
  - Neighborhood design requires driving
  - Portion size inflation
  - Fast food restaurants & other eating opportunities have proliferated
  - Many options for sedentary entertainment
- For long-term solutions, built environment changes may be an essential component
- Built environment changes are permanent

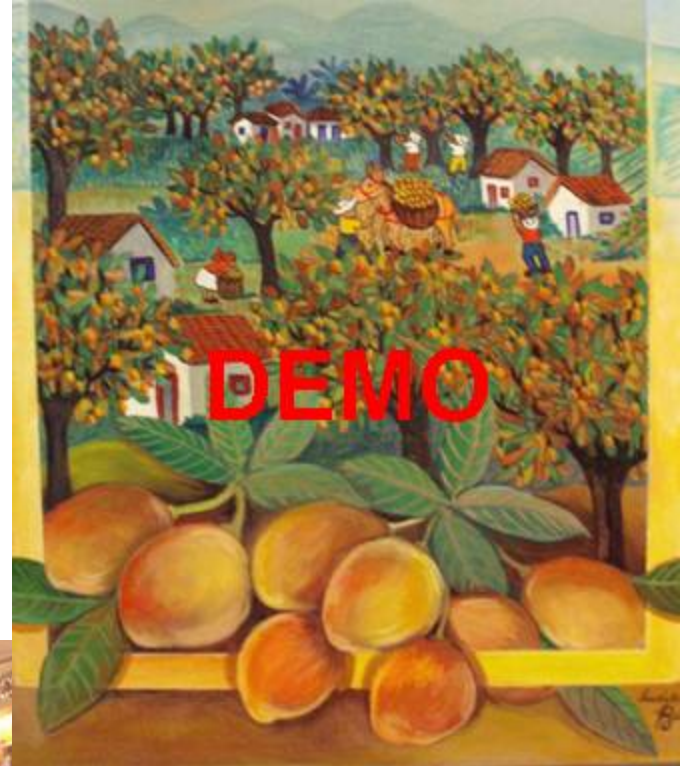
# An Ecological Framework Depicting the Multiple Influences on What People Eat



# What do you see in your food environments?



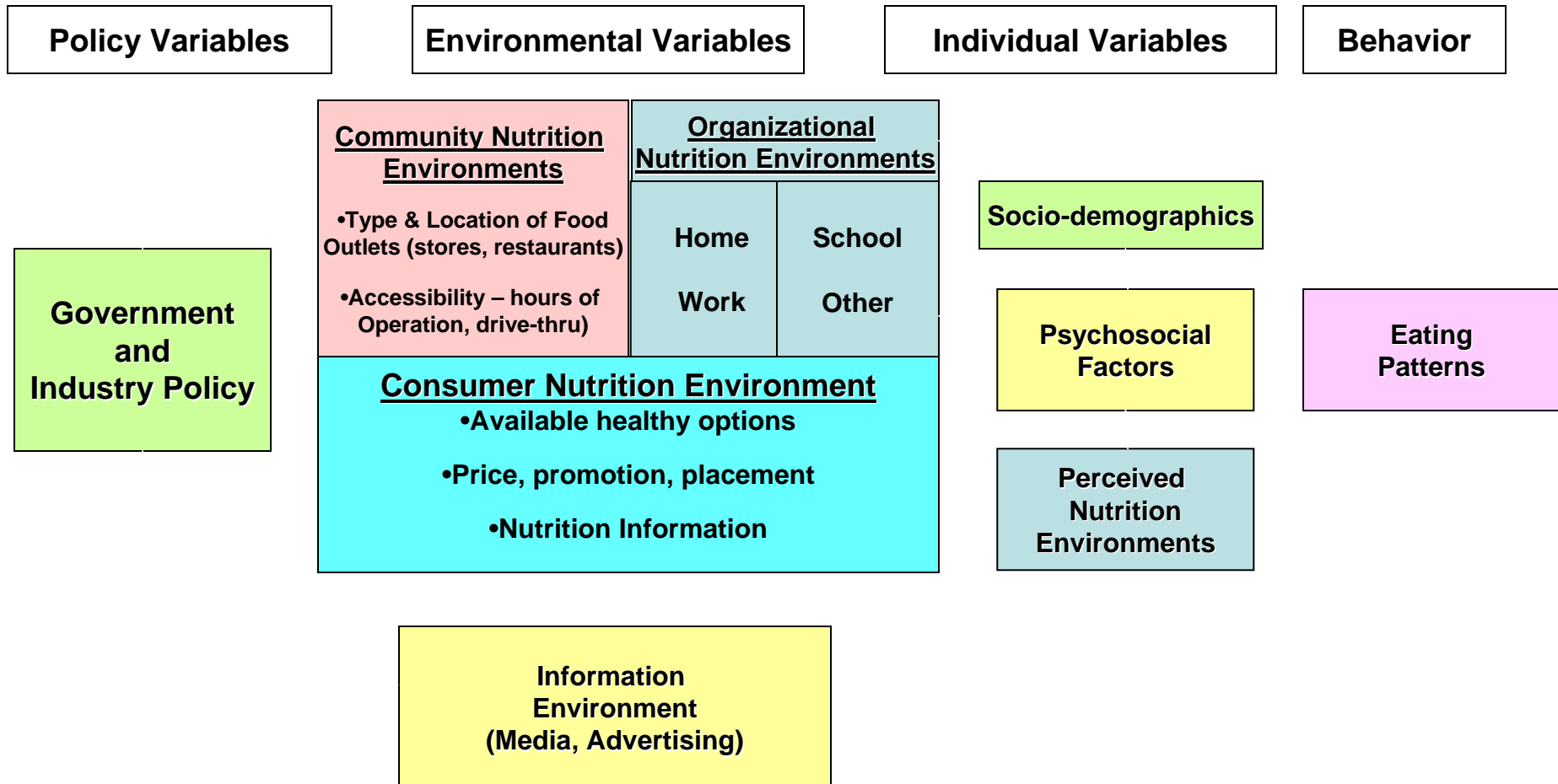






# Model of Community Nutrition Environments

[Glanz, Sallis, Saelens, & Frank 2005]



# Research on Community Food Environments. Sallis & Glanz, Millbank Q, 2009

- African Americans ate more F&V when they lived close to supermarkets (Morland 2002)
- Living close to supermarkets related to
  - Better quality diet (Moore 2008)
  - Lower prevalence of obesity (Morland 2006, Powell 2007)
- Most studies show there are fewer supermarkets in low-income and minority neighborhoods

# Research on Community Food Environments. Sallis & Glanz, Millbank Q, 2009

- Frequency of eating in restaurants is related to poorer diet (Satia 2004) and more weight gain (Pereira 2005)
- Higher concentration of fast food restaurants in low-income areas (Powell 2007)
- Mixed evidence on relation of fast food density to obesity (Papas 2007)

# Research on Consumer Food Environments. Sallis & Glanz, Millbank Q, 2009

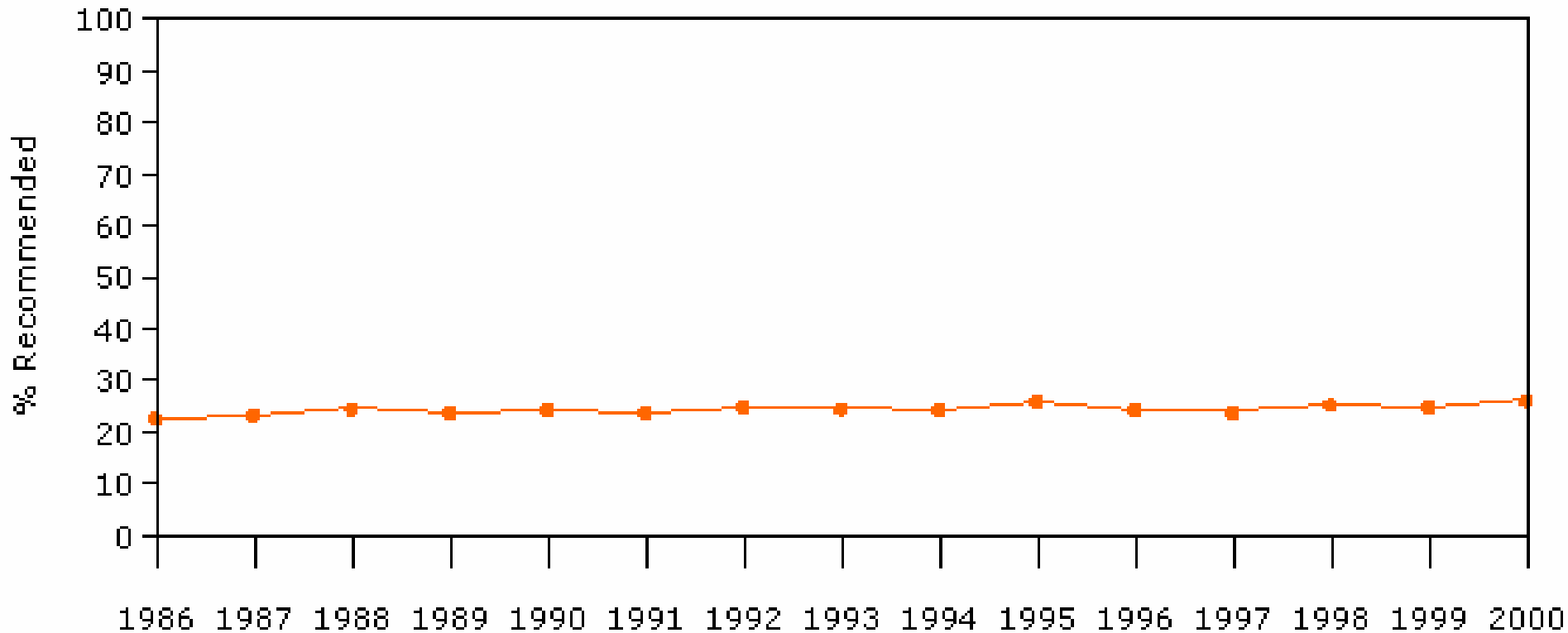
- Fewer healthy food options & higher prices in food stores in low-income areas (Horowitz 2004; Glanz 2007)
- Fast food chain restaurants provide nutrition info, but not at point-of-decision (Saelens 2007; Wootan 2006)
- In a study of 217 Atlanta restaurants, less than 1/3 had any main dishes that could be identified as healthy (Saelens 2007)
- Menu calorie labeling laws are being evaluated in NYC, Seattle, and California

# Physical Inactivity—Should We Care?

- 2 million deaths attributed to inactivity worldwide (WHO, 2002)
- 200,000 deaths attributed to inactivity in the US (Hahn, 1990)
  - Smoking causes about 435,000 deaths
  - Alcohol causes about 100,000 deaths
- 6 % of medical costs in Canada, Australia, Switzerland, Netherlands, US
  - comparable to costs due to tobacco
- Inactivity is playing a role in the obesity epidemic and promoting PA can contribute to solutions

# Promoting exercise has not worked

## Trend in Recommended Physical Activity for U.S. Overall

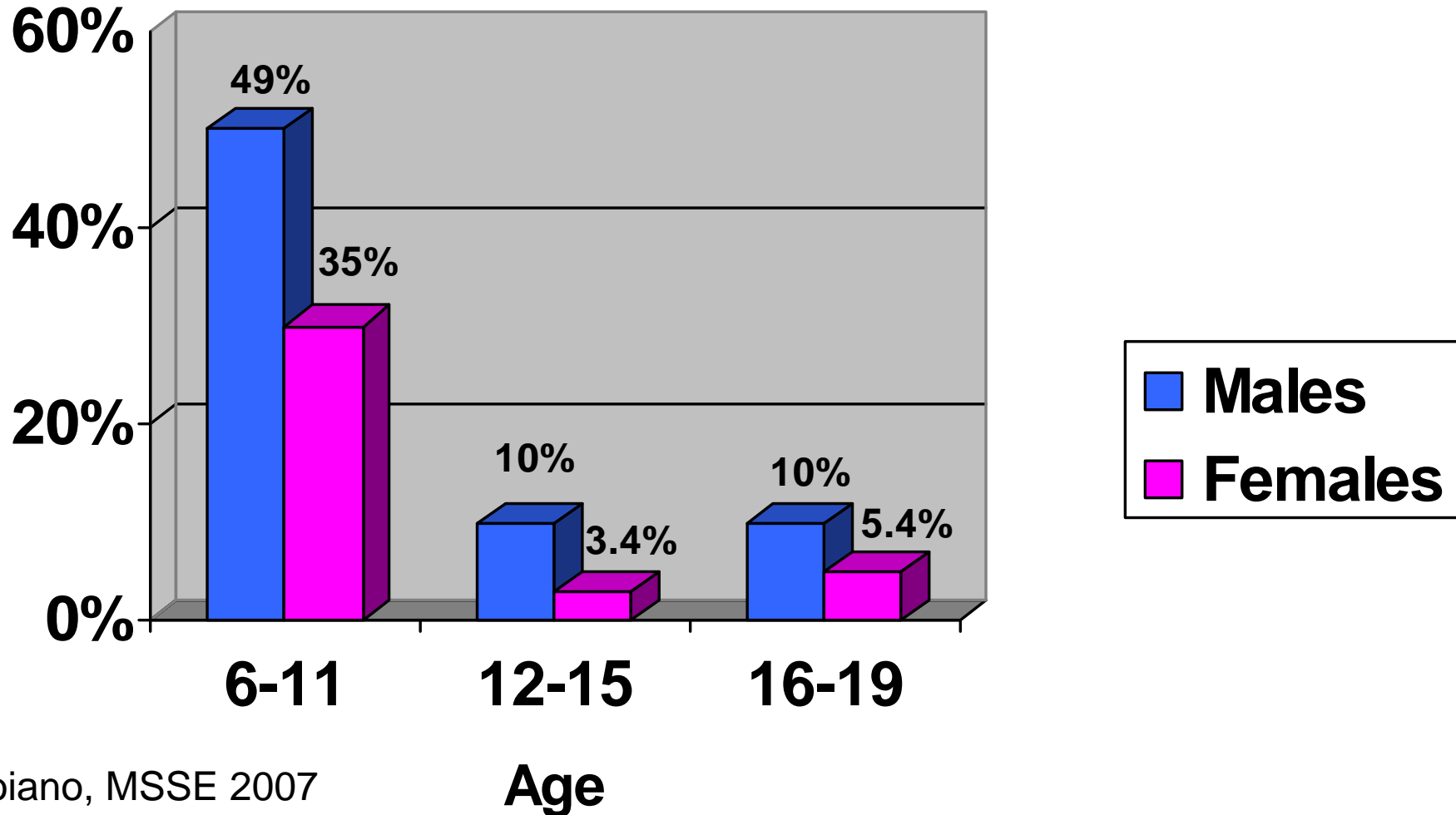


Source: Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System

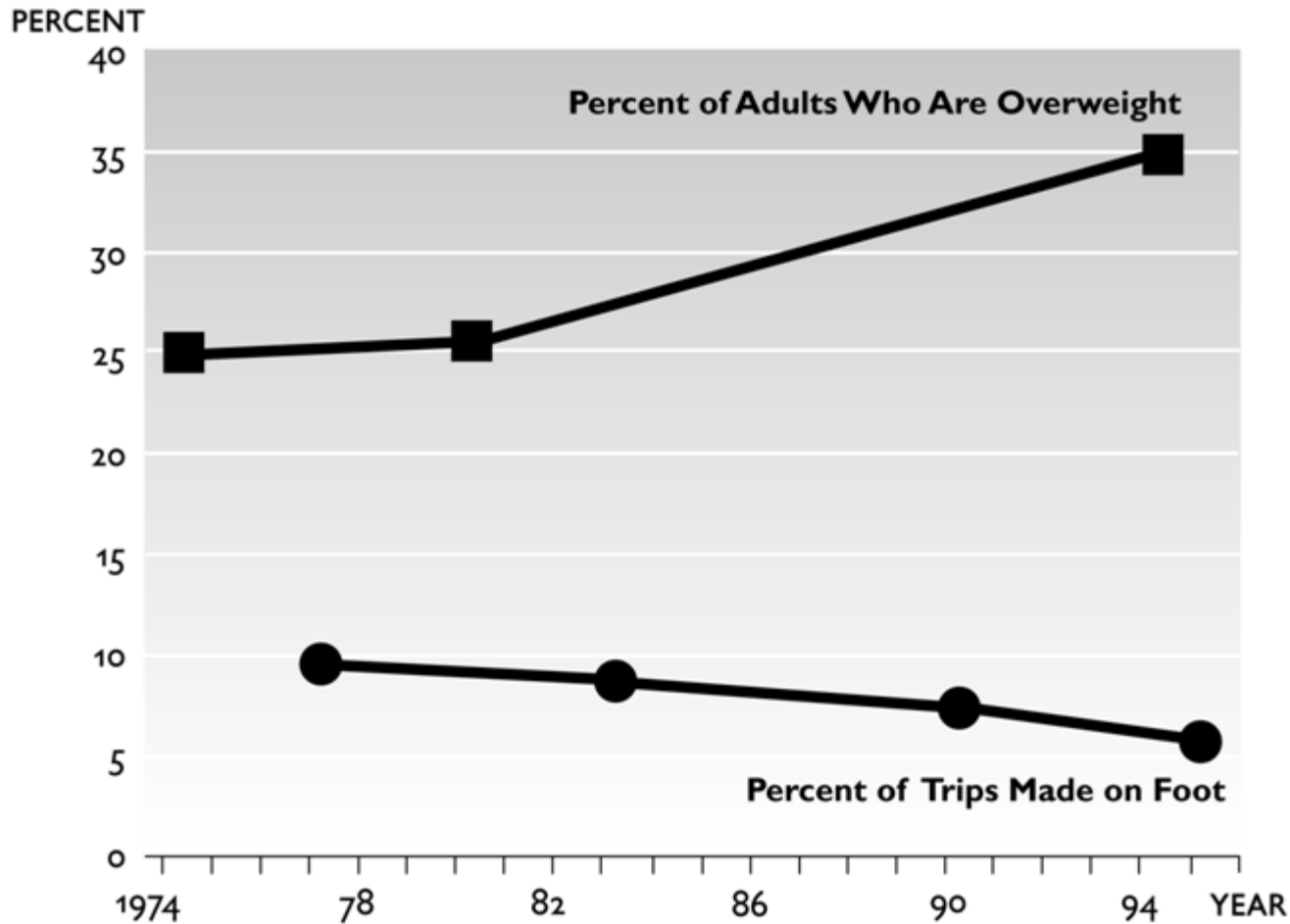


**Percentage of youth ages 6-19 meeting 60 min/day  
physical activity guidelines.**

**Based on accelerometers. NHANES 2003-4**



# Walking for transport & overweight: Adults



Based on data from the Nationwide Personal Transportation Survey and the Centers for Disease Control and Prevention.

# Domains of Activity: The SLOTH Model

Sleep

Leisure



Occupational



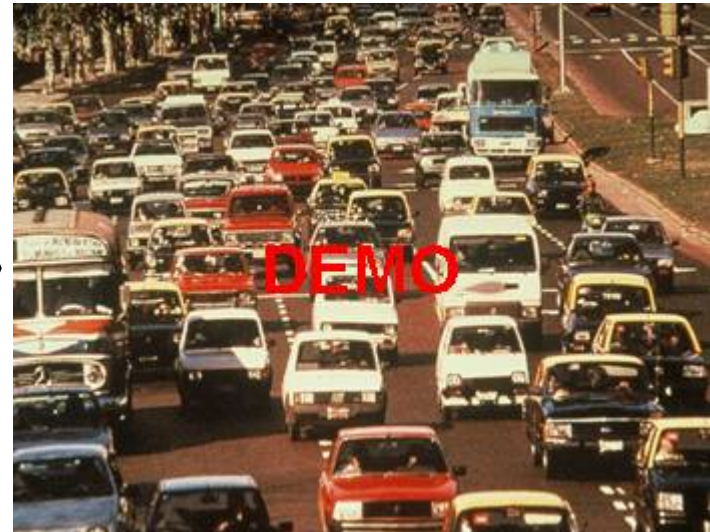
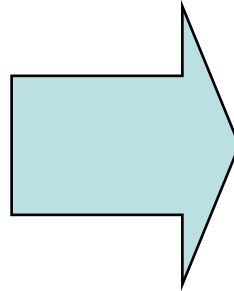
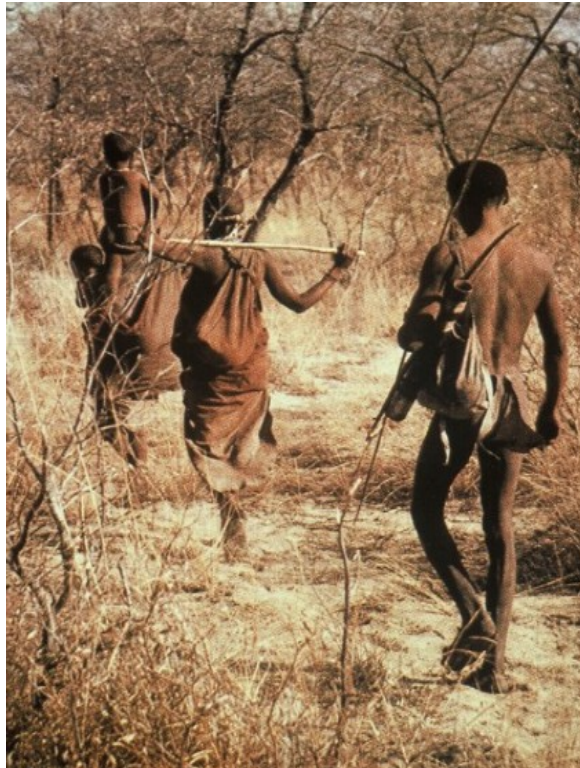
Transportation



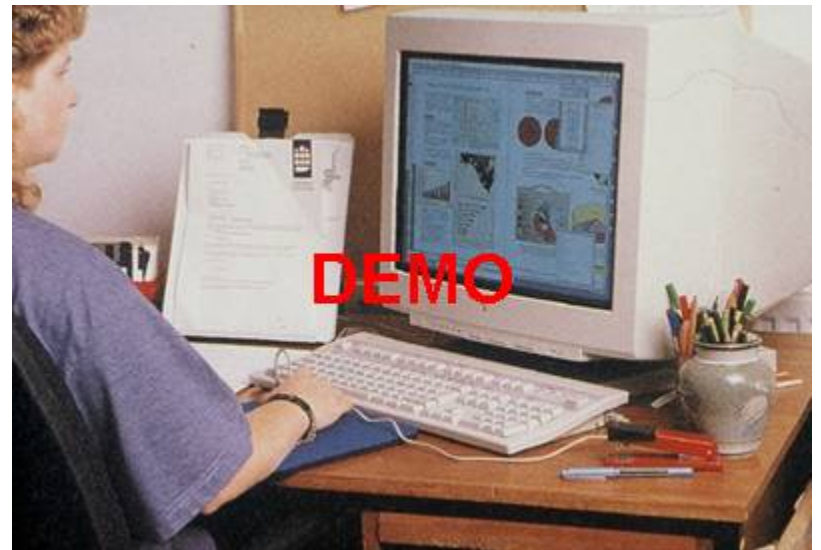
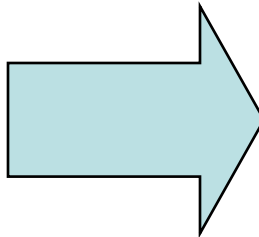
Household



# Physical Activity Transition



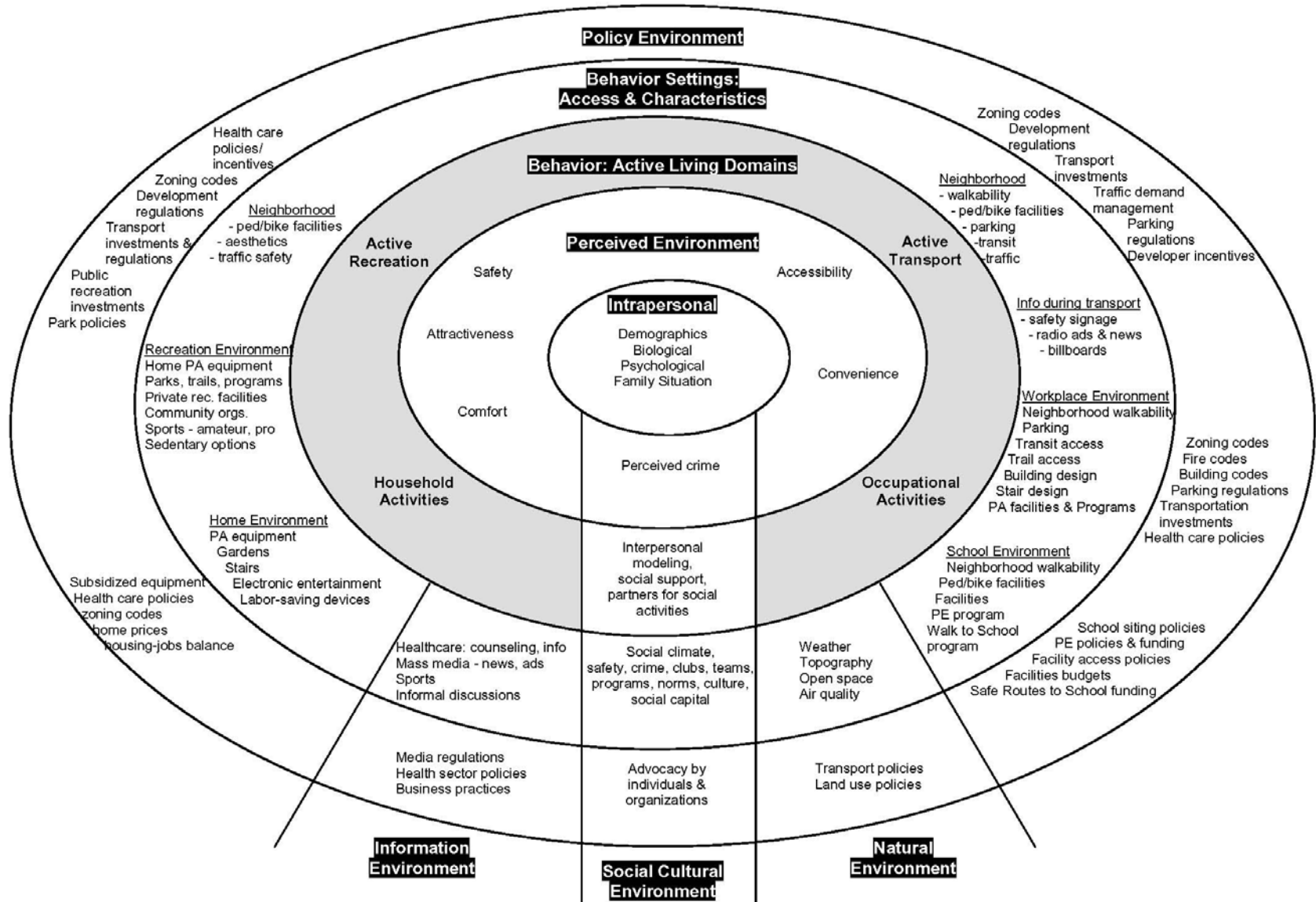
# Changing work practices



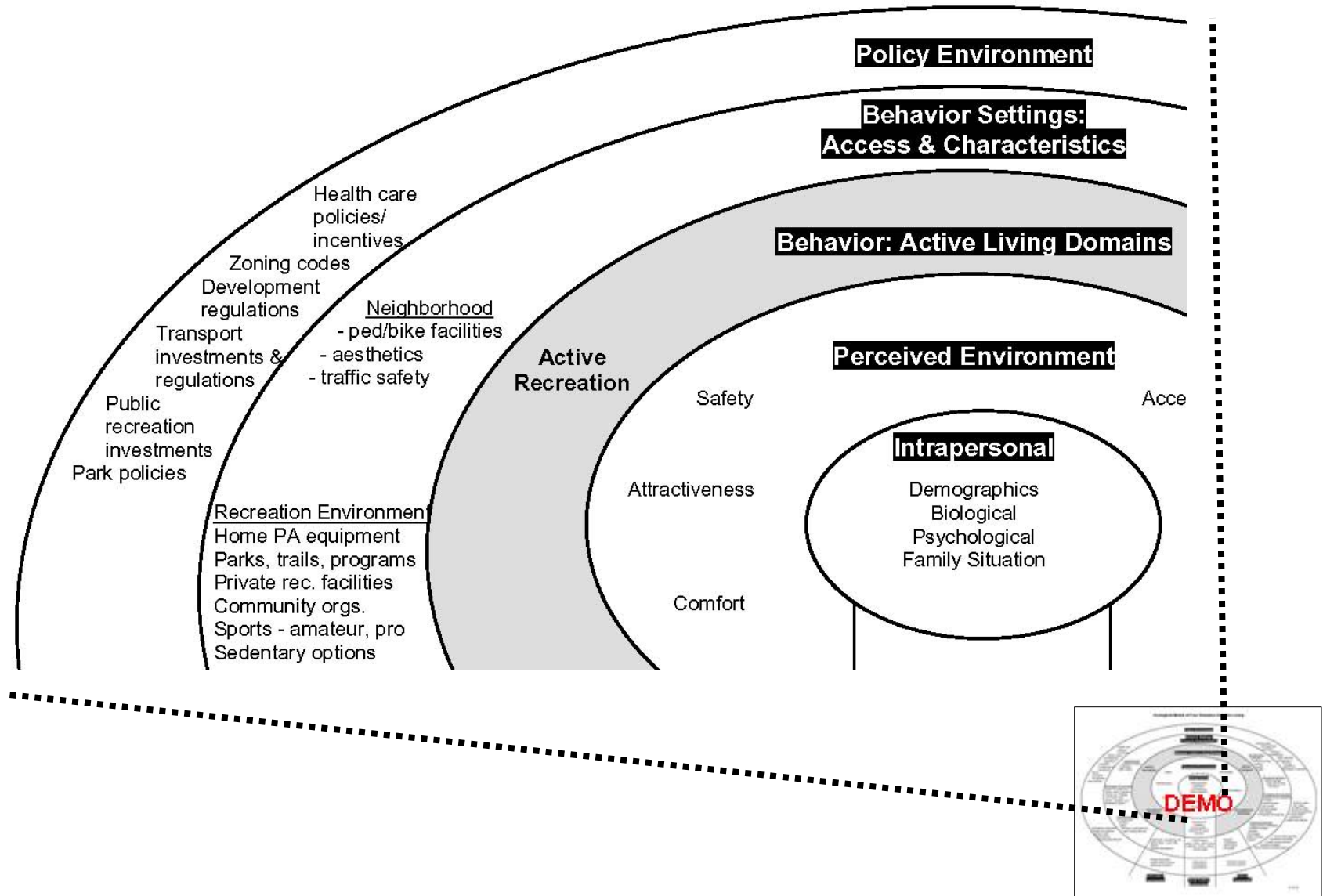
# Increasing sedentary



# Ecological Model of Four Domains of Active Living

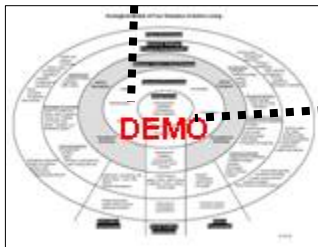
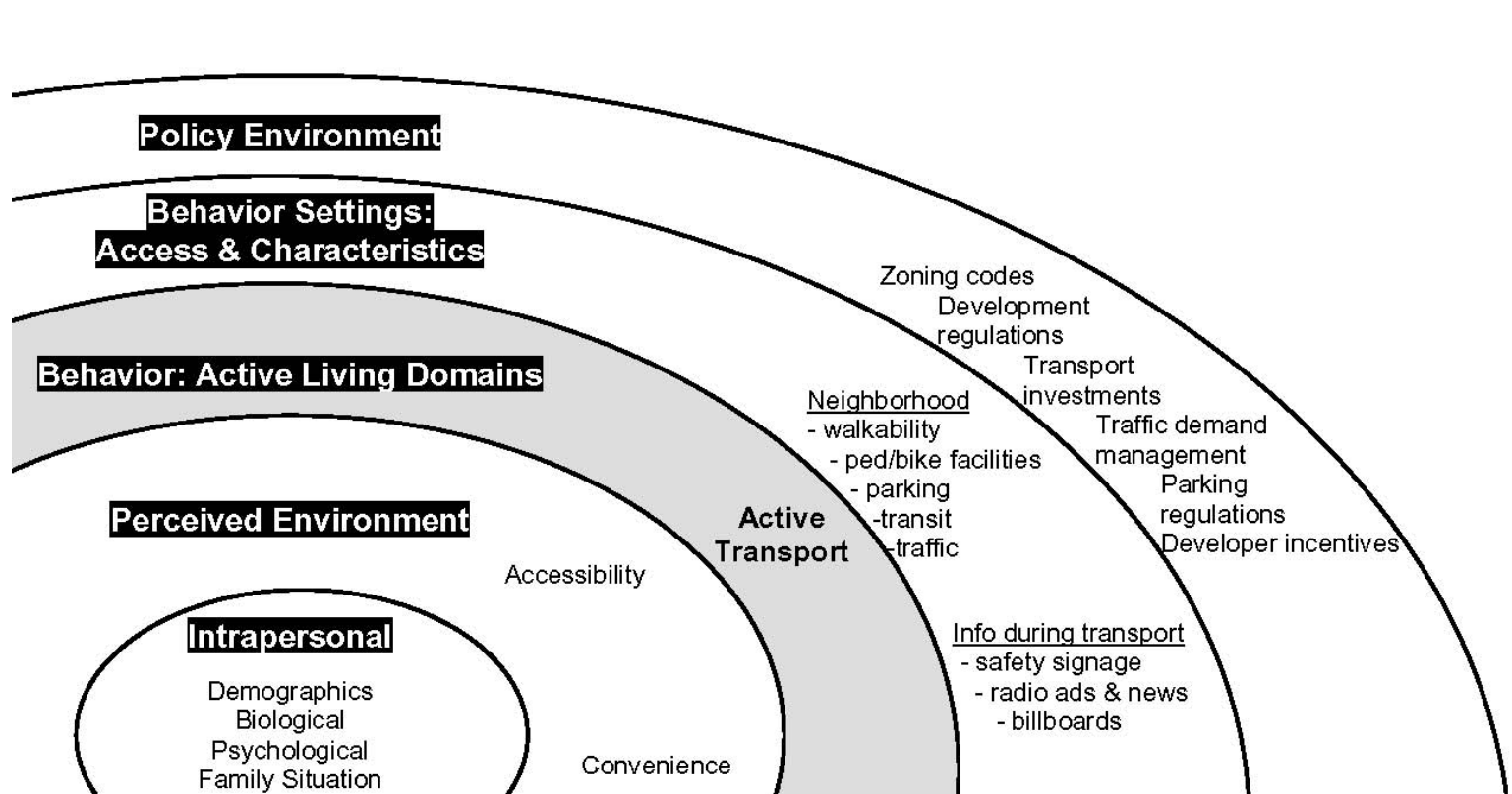


# Ecological Model of Four Domains of Active Living





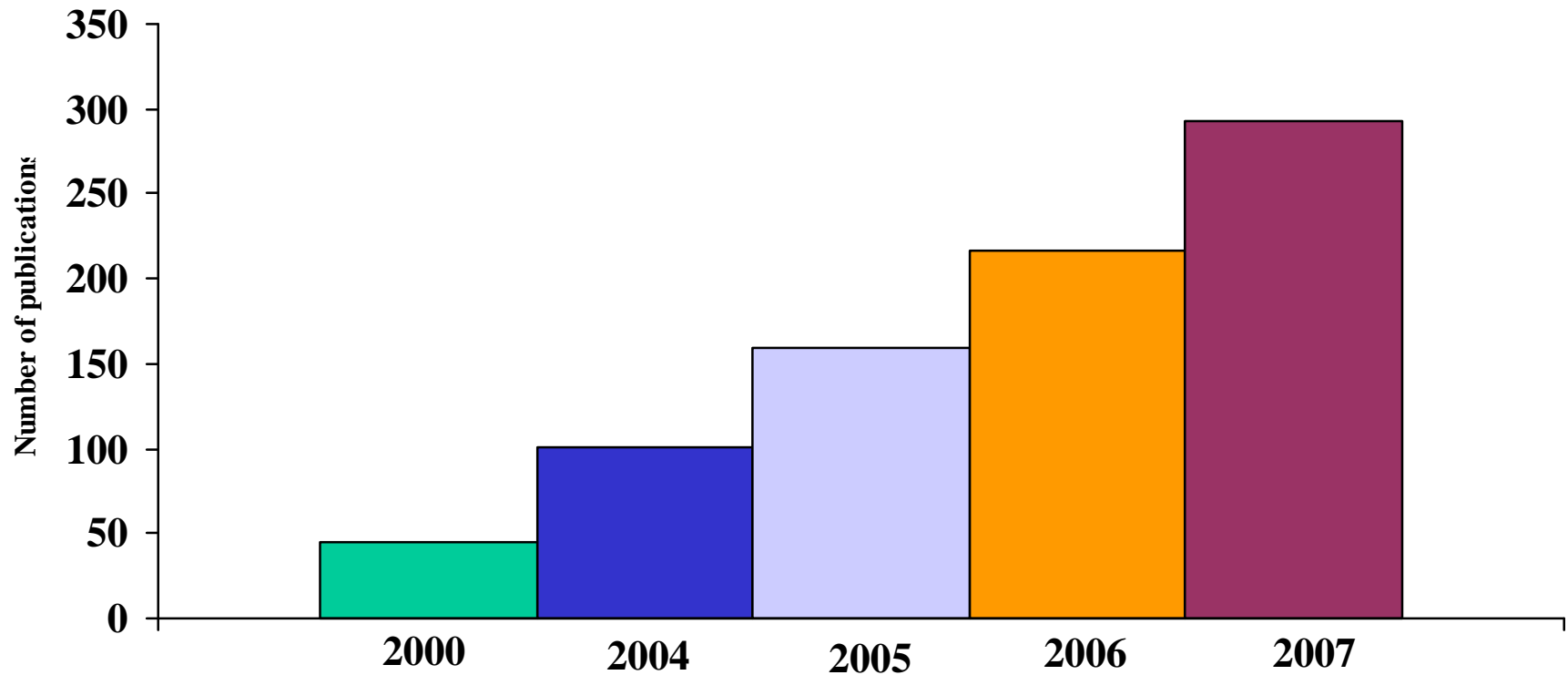
# Ecological Model of Four Domains of Active Living



# Physical Activity Settings

- Neighborhood
  - Mixed use, connected streets
- Transportation facilities
  - Sidewalks, bike lanes, transit
- Recreation facilities
  - Parks, trails, private facilities, aesthetics
- Schools & workplaces
  - Siting, buildings, rec facilities, showers

# Publication trends: Papers on environment & policy related to PA & obesity





“Walkable”: Mixed use, connected, dense



Not "walkable"

↓ street connectivity and

↓ mixed land use

# **The Neighborhood Quality of Life (NQLS) Study: The Link Between Neighborhood Design and Physical Activity**

James Sallis  
Brian Saelens  
Lawrence Frank  
And team

Results published March 2009 in Social Science and Medicine

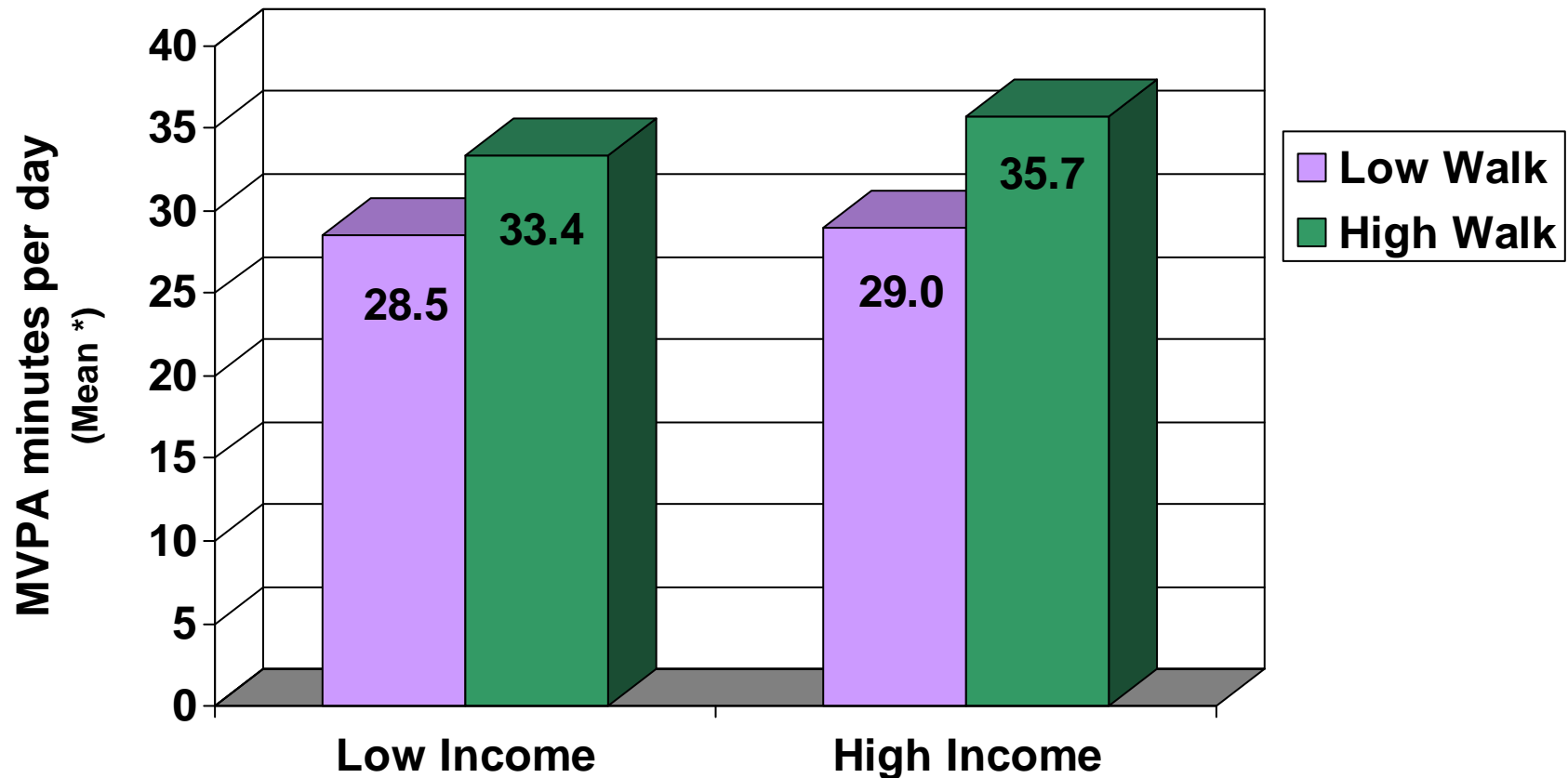


# Accelerometer-based MVPA Min/day in Walkability-by-Income Quadrants

Walkability:  $p = .0002$

Income:  $p = .36$

Walkability X Income:  $p = .57$



\* Adjusted for neighborhood clustering, gender, age, education, ethnicity, # motor vehicles/adult in household, site, marital status, number of people in household, and length of time at current address.

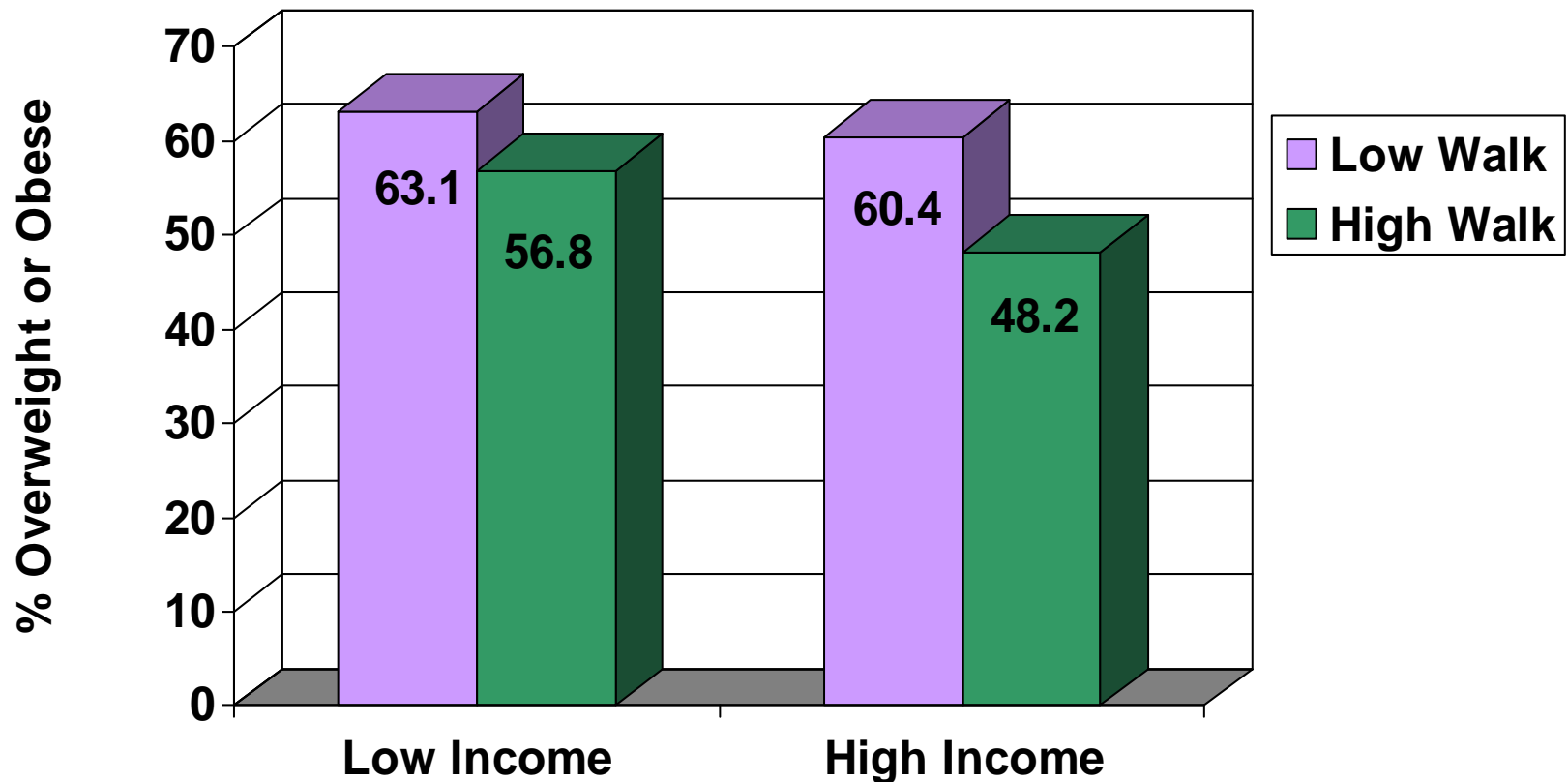


# Percent Overweight or Obese (BMI<sub>>25</sub>) in Walkability-by-Income Quadrants

Walkability:  $p = .007$

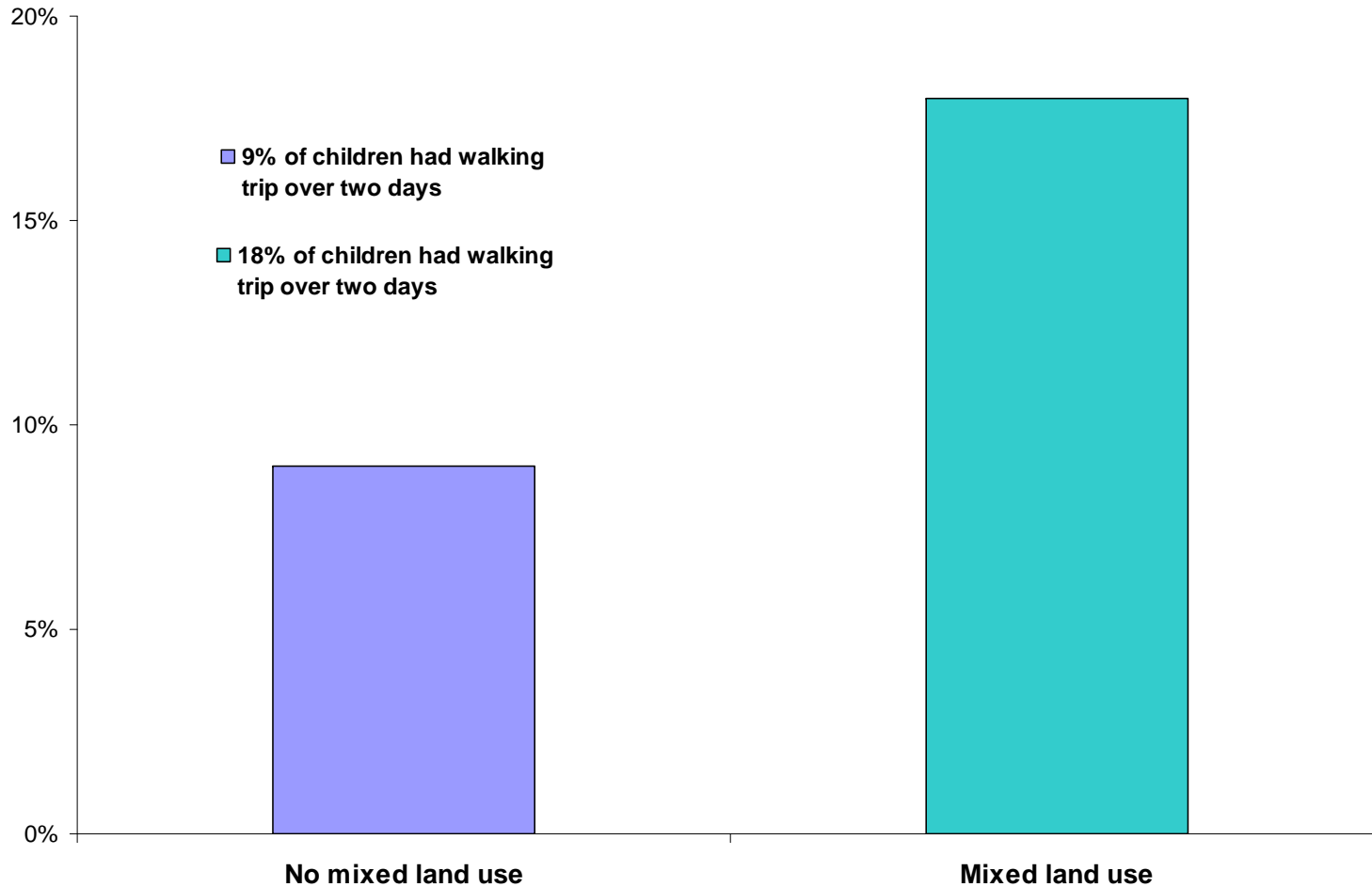
Income:  $p = .081$

Walkability X Income:  $p = .26$



\* Adjusted for neighborhood clustering, gender, age, education, ethnicity, # motor vehicles/adult in household, site, marital status, number of people in household, and length of time at current address.

## Youth ages 5 to 18 years who live in mixed-use neighborhoods walk more for transportation



Frank, Kerr, et al., Am J of Health Promotion, 2007

# Neighborhood Walkability and Active Commuting to School

- 201 parents reported on children aged 4 to 17
- Active commuting to school:
  - 25% in hi-walkable neighborhoods
  - 11% in lo-walkable neighborhoods
- Parent concerns, mostly about traffic, were higher in lo-walkable neighborhoods
- *Kerr, et al. MSSE, 2006*

# Walkable neighborhoods encourage more walking in older adults

- 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.

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



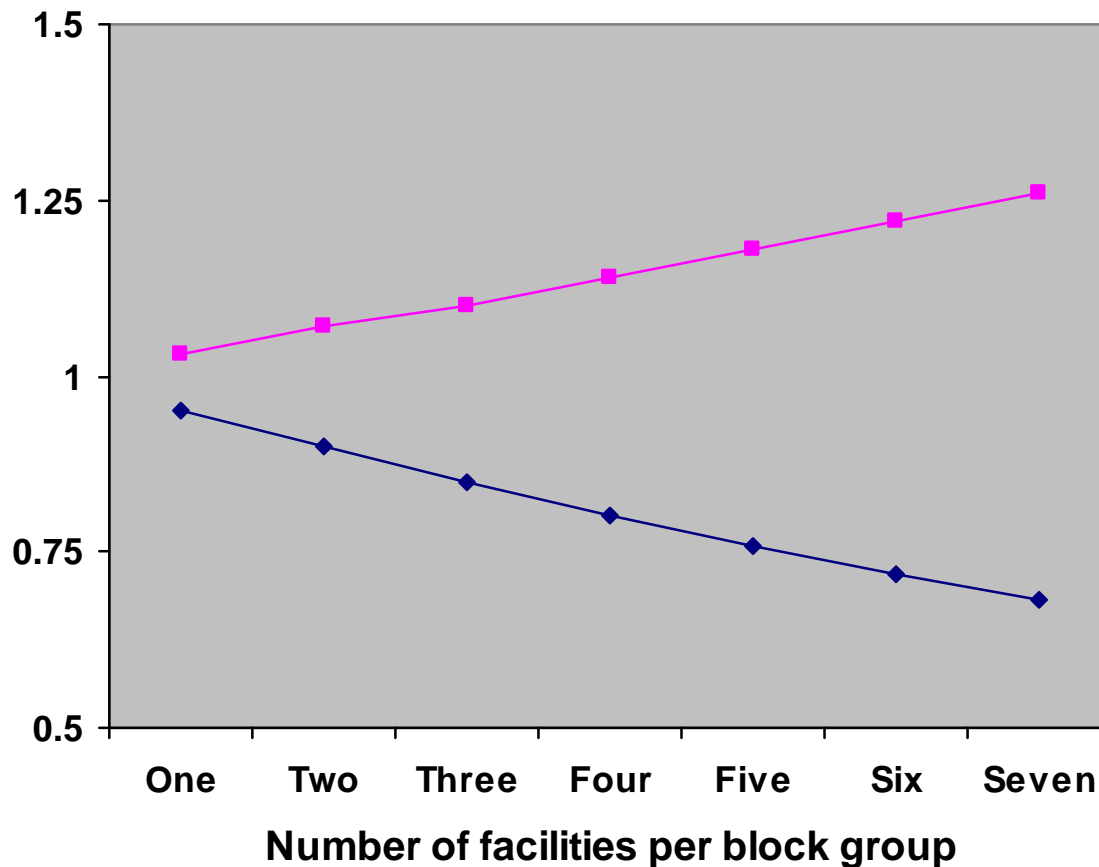
Photo: Michael Ronkin, ODOT



People with access to parks & recreation  
Facilities are more likely to be active

# Access to Recreation Facilities Related to MVPA & Overweight in Youth

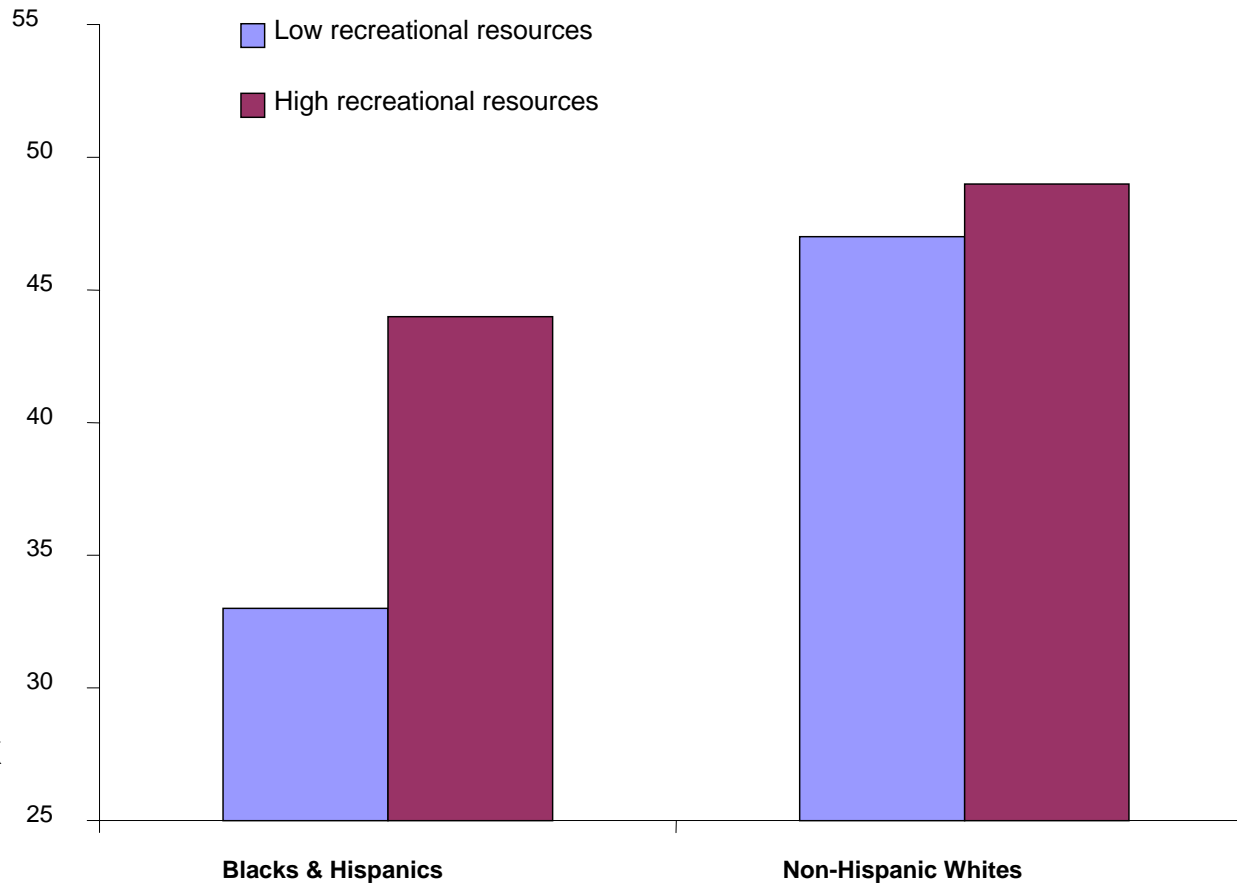
Availability of recreational & PA facilities and relative odds of overweight and bouts of moderate and vigorous physical activity (MVPA)



Gordon  
Larsen  
Pediatr  
2006

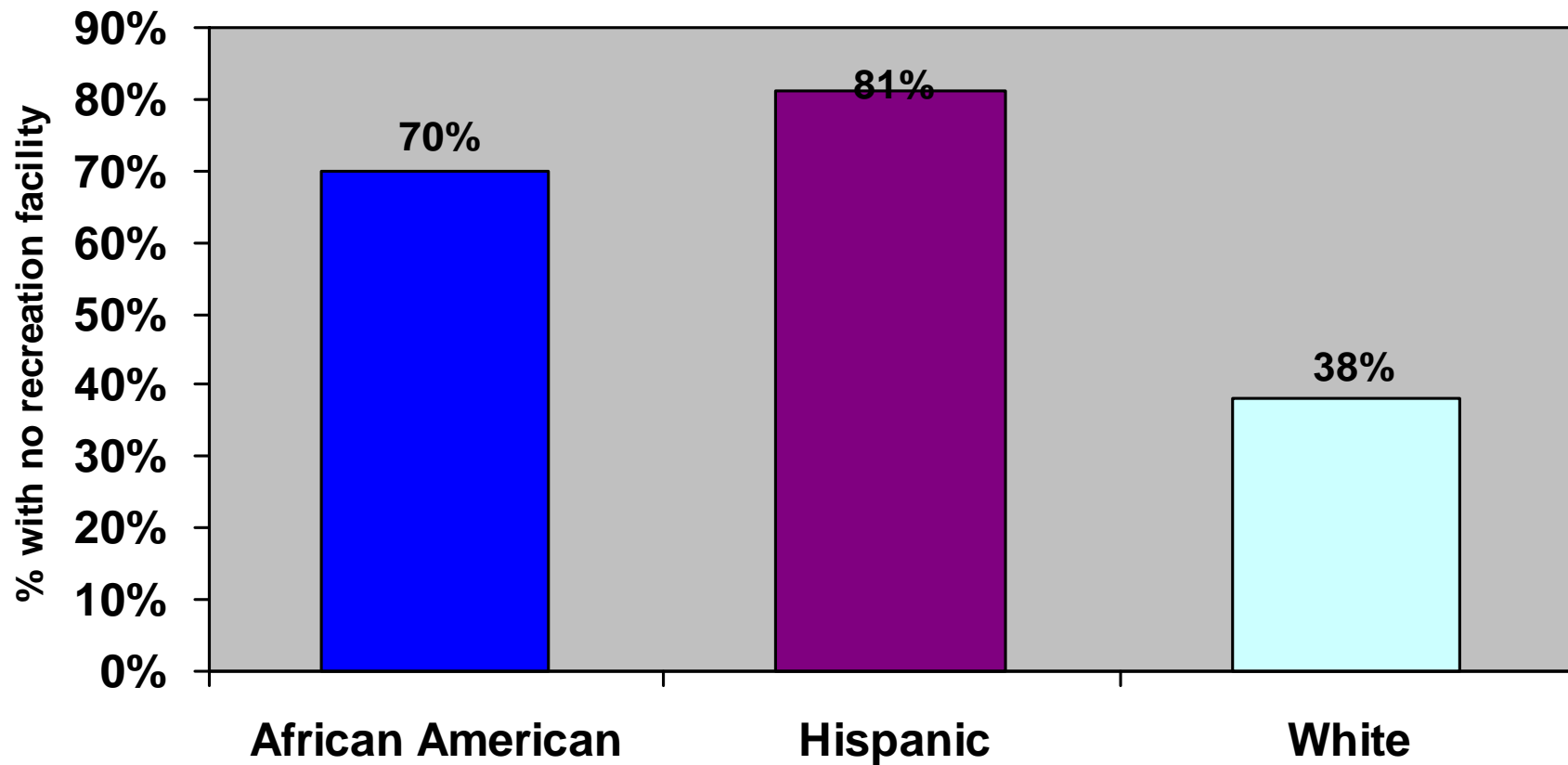
# Recreation Facilities May Be More Important for Minorities

Percent being active with high and low recreational resources within 1 mile of home



Diez-Roux  
2007

## Percent of census tracts without a recreational facility by race/ethnicity

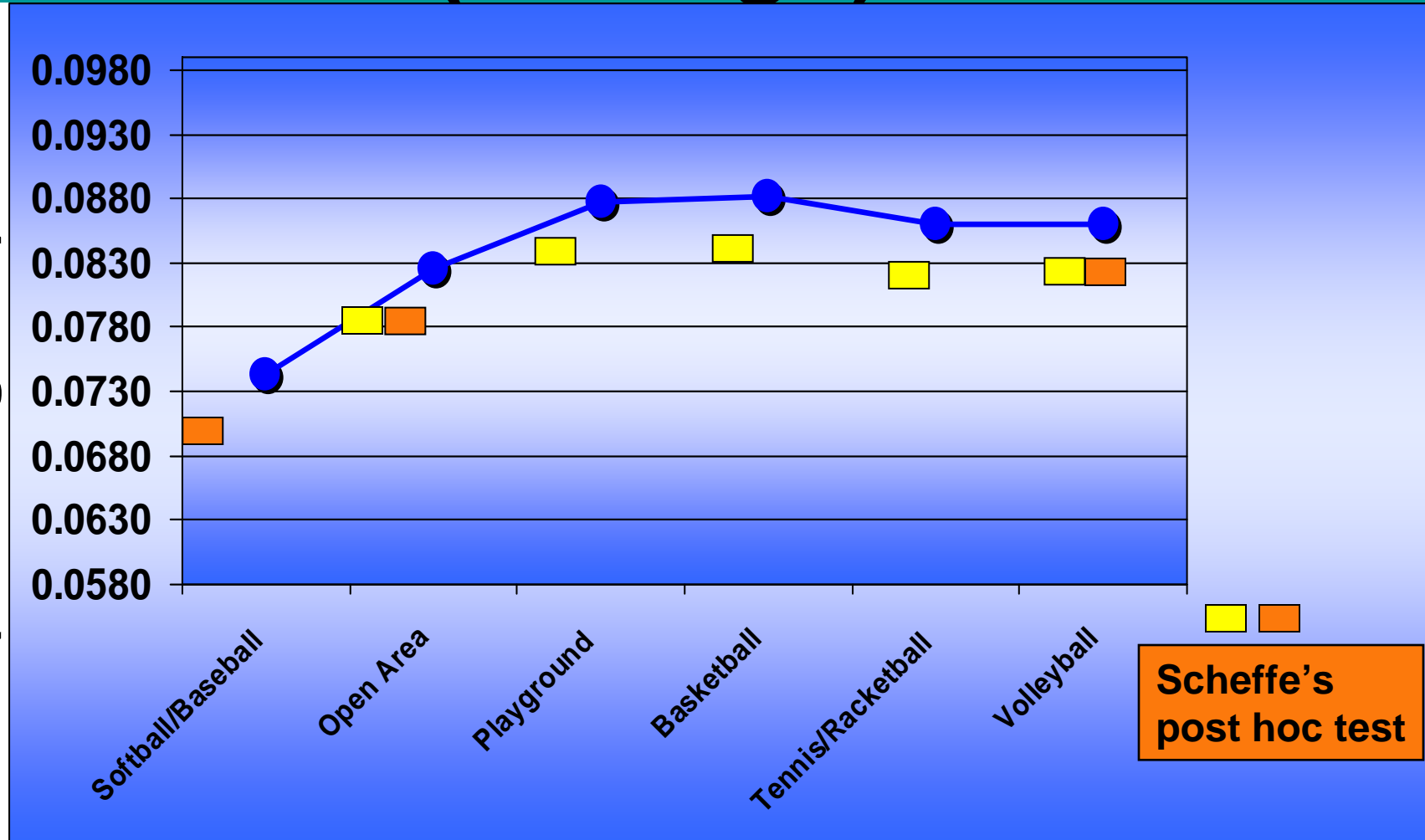


Moore, Am J Prev Med, 2007



# Mean EE by Park Activity Zones (Chicago)

Energy Expenditure  
(Kkcal/kg/min)



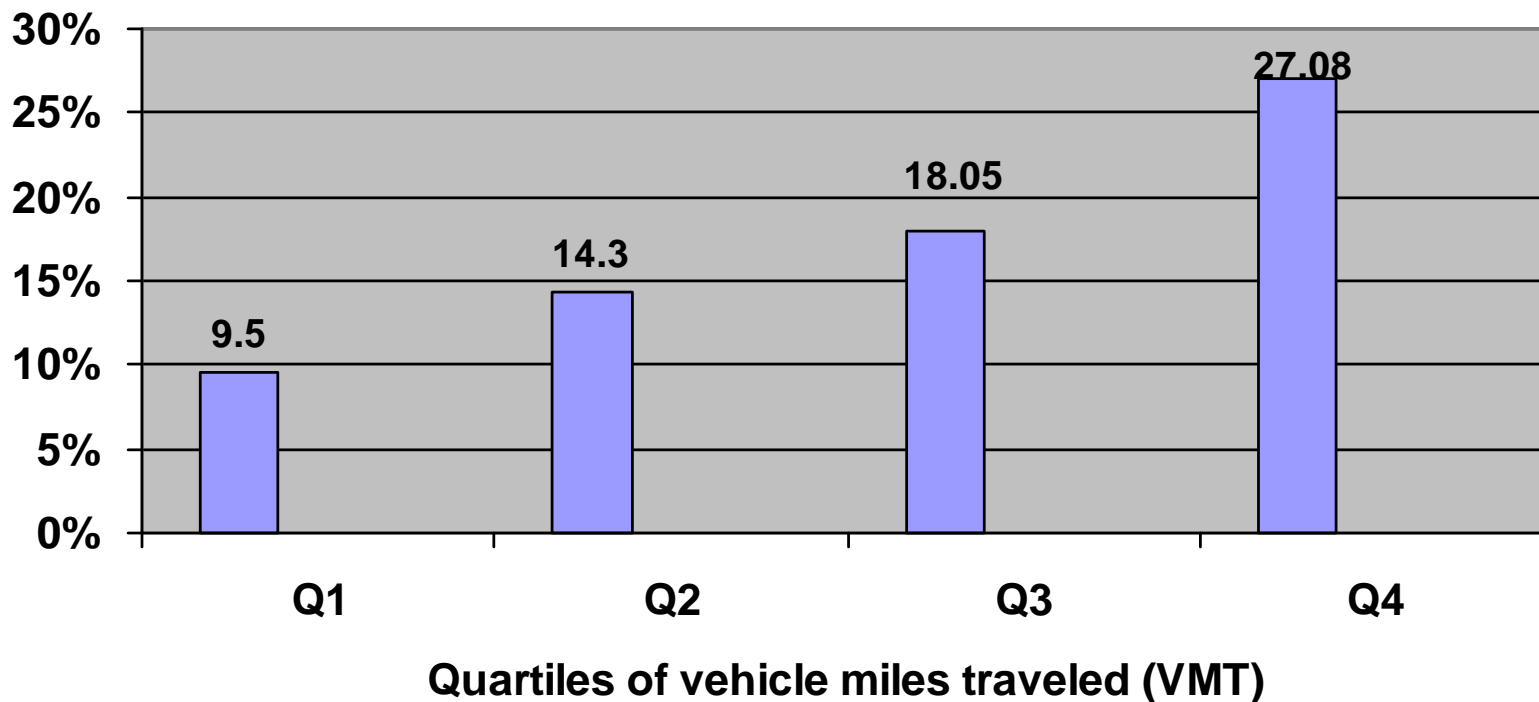
Chicago,  $F = 10.20, p < .001$

# Activity-Friendly Transportation Systems



# Walkability > Driving > Obesity?

The more miles a person travels by vehicle, the more likely they are to be obese



# Where do people bicycle?

The role of infrastructure in determining bicycling behavior



**Jennifer Dill, Ph.D.**  
Center for Transportation Studies

**Distribution of recorded bicycle travel by facility type, compared to network mileage (based on 166 adult cyclists in Portland, OR). Location of travel assessed by GPS.**

	<i>% of all bicycle travel (miles)</i>	<i>% of network</i>
<b><i>Roads without bicycle infrastructure</i></b>	<b>51</b>	<b>92</b>
Primary roads/highways, no bicycle lanes	4	4
Secondary roads, no bicycle lanes	19	13
Minor streets, no bicycle lanes	27	63
Driveways, alleys, unimproved roads	2	12
<b><i>Bicycle Infrastructure</i></b>	<b>49</b>	<b>8</b>
Primary roads/highway, with bicycle lanes	9	3
Secondary roads, with bicycle lanes	14	2
Minor streets, with bicycle lanes	3	1
Bicycle/multi-use paths	14	2
Bicycle boulevards	9	<1
● <b><i>N (miles)</i></b>	<b>7,479</b>	<b>10,564</b>



What PE is—  
too often

What PE should be



# Evidence-Based PE

- Strongly recommended by CDC's community guide
- Healthy People 2010: 50% of class time in MVPA
- Improved quality of PE instruction
- Increased physical activity in PE
- Improved fitness
- Improved sports skills
- SPARK & CATCH evidence-based programs are widely disseminated

# Percentage of Schools That Allowed Access to School Facilities for Physical Activity for Children and Adolescents and Adults\*

<b>Type of Physical Activity</b>	<b>Children and Adolescents</b>	<b>Adults</b>
Community-sponsored sports team	69	47
Supervised open gym or free play	40	31
Community-sponsored classes or lessons (e.g., tennis, gymnastics)	33	23

\*Who were not school employees.

Source: School Health Policies and Programs Study, 2000 and 2006





**Courtesy, Lois Brink, U Colorado Denver**



**Before**



**After**

# Implementation of Texas Senate Bill 19 Physical Activity and Coordinated School Health Policy\*

- **97% awareness of daily or weekly physical activity requirements**
- **179 average minutes of structured student physical activity per week**
  - Exceeding the 135 minutes required by SB19
  - Validated by observations of PE classes
- **Strong implementation of policy was due to:**
  - **Support from local community organizations**
  - **Continued follow-up, evaluation, and refinement**
  -
- **\*Based on interviews with 169 principals, assistant principals, nurses, PE teachers, faculty, and counselors, and teacher reported and direct observation of students' physical activity**
- **Kelder et al, JPHP, 2009**

# Why did local school wellness policies have minimal impact on physical activity in rural Colorado elementary schools?

- Focus on academic achievement and No Child Left Behind
- School board's model policy language was weak and minimalist, resulting in missed opportunities to unite stakeholders
- Principals' lack of knowledge about the Local Wellness Policy
- Lack of financial resources for implementation
- Lack of accountability mechanisms
- **Belansky et al, JPHP, 2009**

# Where is the field now?

- IOM Childhood Obesity Report based on an ecological model
- Transportation Research Board-IOM Panel concluded built environments related to PA
- CDC's Community Guide recommends land use interventions
- International Obesity Task Force guided by ecological model
- WHO diet and physical activity global strategy based on policy & environmental changes

# Active Living Research

## Goals

- Contribute to RWJF's goal of reversing the childhood obesity epidemic by 2015
- Build the evidence base
- Build a vibrant & diverse field of investigators
- Use research to inform policy
- Focus on groups at highest risk
  - African American, Latino, Native American, Asian/Pacific Islander, lower income

# ALR News

- Journal of Public Health Policy. 2/09
- American Journal of Preventive Medicine, 2/09. Report on first 6 years of ALR
- Call for Proposals 9: Due April 28
- Rapid Response Call for Proposals
- ALR-New Connections diversity grants—coming soon
- ALR Conference. February 2010 in San Diego.
  - Theme is Engaging Communities in Active Living Research
  - Call for Abstracts in May

# Resources on [www.activelivingresearch.org](http://www.activelivingresearch.org)

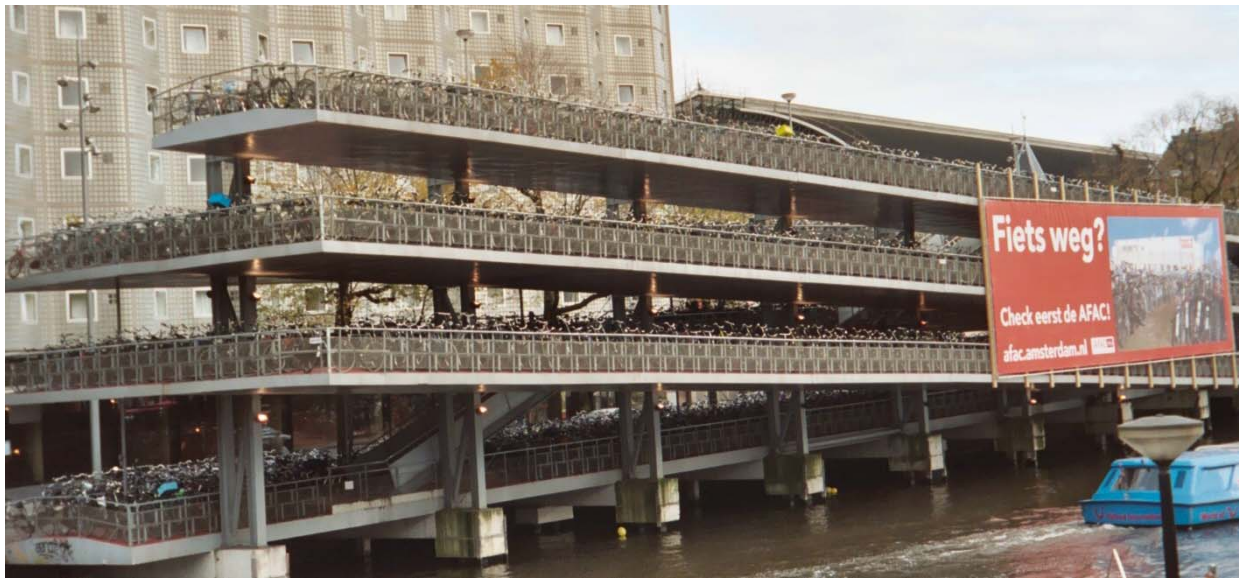
- Slides from annual conferences
- Journal special issues online--free
- Research briefs written for practitioners & policy makers
- Literature database with coded results of 400+ studies: Use for your lit reviews
- Literature searches every 6 months

# Next steps for using research to inform policy

- More research briefs coming soon
- Funding research that directly addresses policy topics
- Communicate findings to policy makers
  - Leadership for Healthy Communities
- Next CFP will likely fund evaluations of advocacy approaches
- Continue to have policy makers at ALR conference



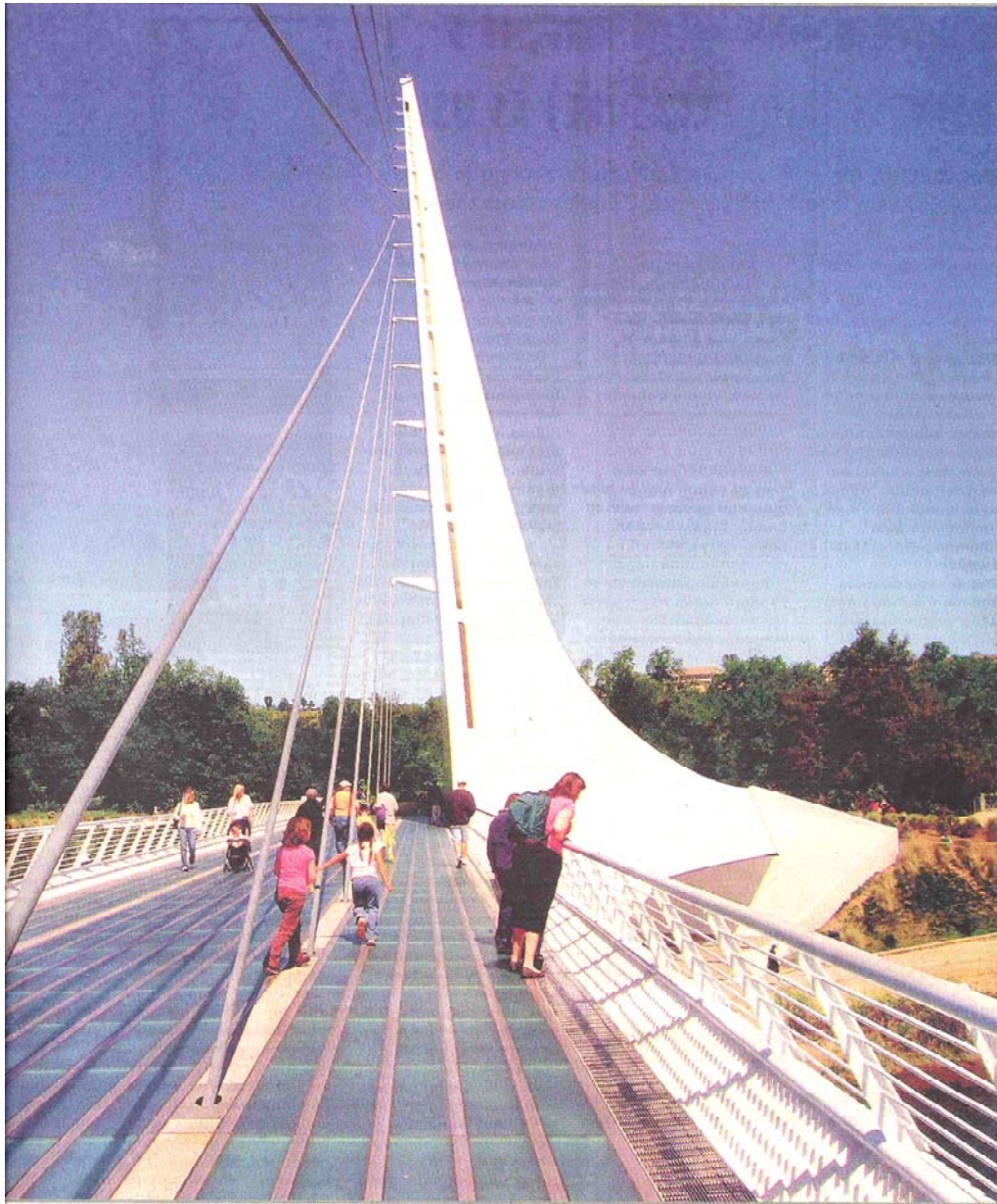
# Amsterdam is a model for being friendly to pedestrians & cyclists



**The  
Incredible  
Bicycle  
Parking  
Structure  
At the  
Train  
Station**

# Bogota, Colombia has invested heavily in walking, cycling, & PA events





Pedestrian Bridge  
Redding, CA.  
“The \$23.5 million  
Pedestrian bridge  
Is now Redding’s  
No. 1 tourist  
Attraction.”  
Mayor Dick  
Dickerson.  
LA Times 6/3/07

# But What Can I Do?

## Make New Friends

- Create walkable communities
- Build transport systems for peds & cyclists
- Good parks in every community
- Schools as active places for students & communities
- Planners, city council, environmentalists
- Transportation engineers, bike/walk grps
- Park dept & advocates
- Education dept, PE teachers, park dept, pediatricians

# But What Can I Do?

## Join with Others

- Organize an interest group or advocacy committee in your current organizations
- Combine diverse groups to develop a local or state coalition
  - A key to success of tobacco control
- Join advocacy groups to amplify your voice and strengthen their efforts
- Get professional help: advocacy, social marketing, lobbying

# But What Can I Do?

## Speak Up--Often

- Be a voice for physically active people and places
- Act locally
  - Attend planning board, city council, school board. Talk to your friends & colleagues
- Write it down
  - Newspapers, elected officials, blogs
- Act globally
  - Advocate for national & international policies for sustainable transportation & development

# Be An Effective Spokesperson

- Know the research & advocate for evidence-based policies
- Develop relationships with decision makers and their staff
- Recognize & celebrate good decisions
- **Be Bold**

# CONFERENCES

- International Conference on Diet and Activity Methods (ICDAM7)
  - **Dates:** June 5-7, 2009 (Pre-Conference Workshops: June 4, 2009)
  - **Location:** Washington, DC (Hyatt Regency Washington on Capitol Hill)
  - **Early Bird Registration Deadline:** March 5, 2009
  - **Website:** <http://www.icdam.org/>
- National Physical Activity Plan Conference
  - **Dates:** July 1-2, 2009
  - **Location:** Washington, DC (The Westin Washington, DC City Center)
  - **Website:** <http://www.physicalactivityplan.org/conference2009.htm>
  - Multi-sector plan being developed that will help Americans become physically active every day.



# Vision for The Future



More of this

Less of this



[www.activelivingresearch.org](http://www.activelivingresearch.org)

[www.drjamesallis.sdsu.edu](http://www.drjamesallis.sdsu.edu)