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## PLATINUM



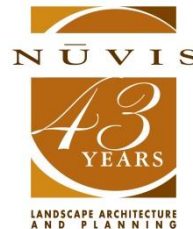
## SILVER



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# **Cities on the Move: Innovations in Active Transportation**

9:15 a.m. – 10:30 a.m.

*Moderator*

**Rachel MacCleery**  
Urban Land Institute

**Joanna Frank**  
Center for Active Design

**James F. Sallis**  
University of California at San Diego and Active Living Research

**Denny Zane**  
Move LA



# Research (You Can Use) on Active Transportation

**James Sallis**

**University of California, San Diego**

**Urban Land Institute: Building Healthy  
Places. February 21, 2014**



**SIDEWALKS AND CROSSWALKS**  
In five states (Fla., Miss., Texas, Wash., Wis.), walking and biking to school increased by

**37%** after sidewalks and crosswalks were improved.



**WALKING SCHOOL BUS**  
In Houston, the number of children walking or biking to school increased by

**125%**

after schools began participating in a Walking School Bus program.



**BIKE LANES**  
After the installation of a new bike lane in New Orleans, the number of cyclists increased by

**225%.**



**CHANGING**  
**Communities**  
**GETS PEOPLE MOVING**

Communities across the country are making improvements to encourage walking, biking, and other forms of physical activity.

**RECREATIONAL FACILITIES**

People who used outdoor fitness equipment in Los Angeles parks exercised

**46%**

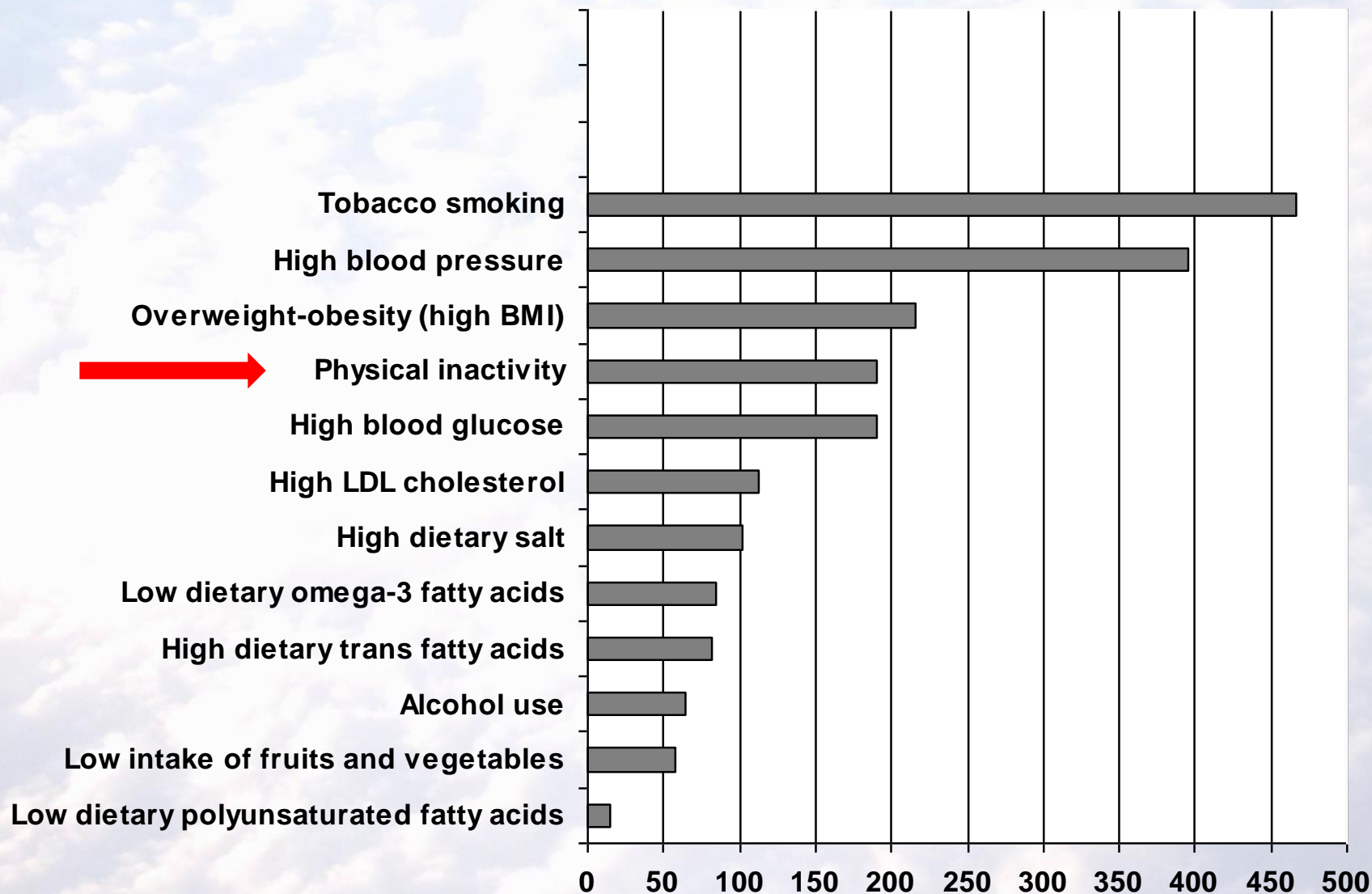
more frequently than those who did not.



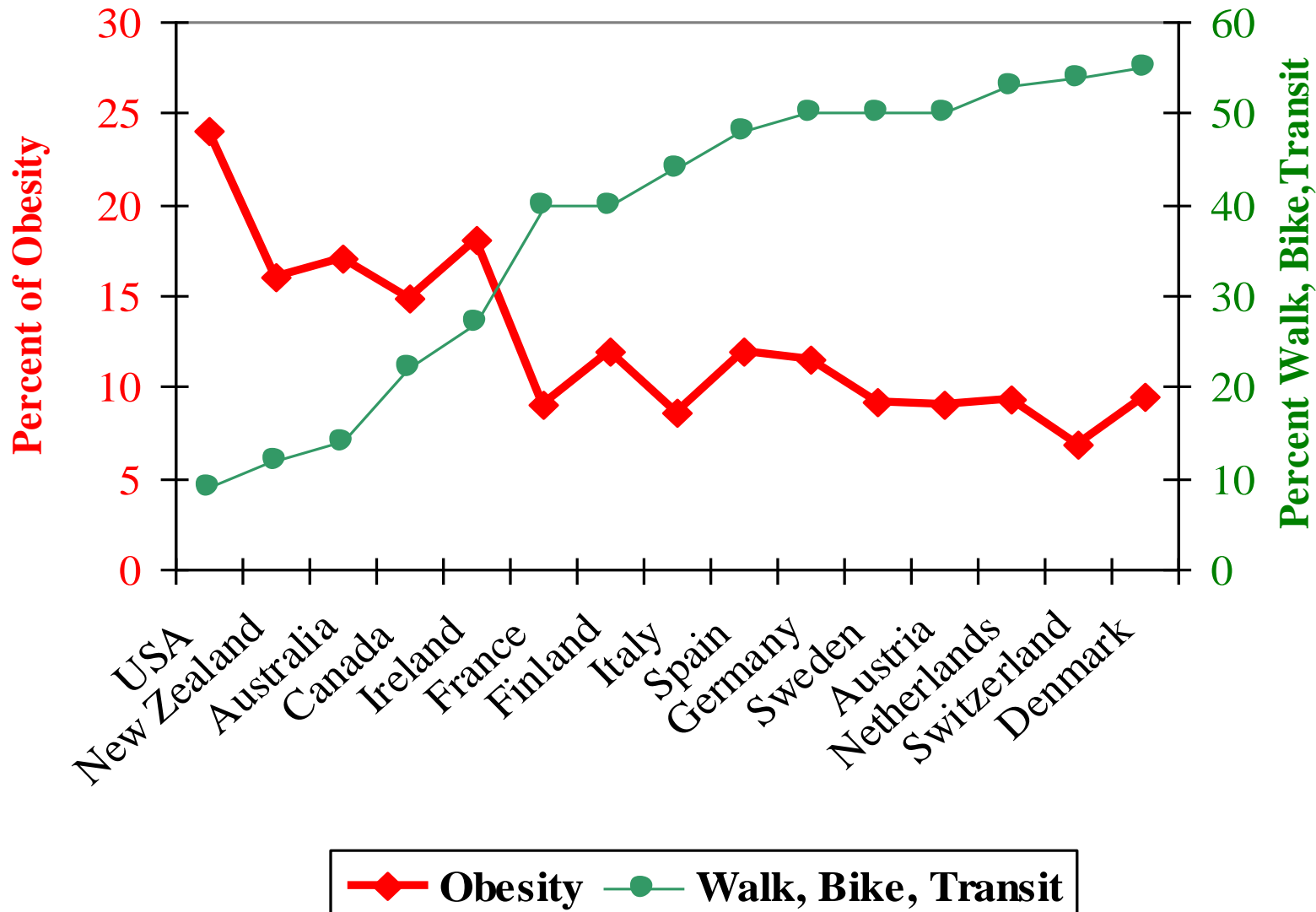
**Active Living Research**  
[www.activelivingresearch.org](http://www.activelivingresearch.org)

Sources: **SIDEWALKS AND CROSSWALKS:** Stewart, O. et al. (2014). Multistate Evaluation of Safe Routes to School Programs. *American Journal of Health Promotion*, 28 (sp3):S89-S96. **WALKING SCHOOL BUS:** Mendoza J.A. et al. (2011). The Walking School Bus and Children's Physical Activity: A Pilot Cluster Randomized Controlled Trial. *Pediatrics*, 128(3): e537-e544. **BIKE LANES:** Parker, K.M. et al. (2013). Effect of Bike Lane Infrastructure Improvements on Ridership in One New Orleans Neighborhood. *Annals of Behavioral Medicine*, 45(1Suppl): S101-S107. **RECREATIONAL FACILITIES:** Cohen, D.A. et al. (2012). Impact and Cost-Effectiveness of Family Fitness Zones: A Natural Experiment in Urban Public Parks. *Health & Place*, 18(1), 39-45.

## Deaths (thousands) attributable to individual risk factors in both sexes



# Obesity is much lower in countries with more walking, cycling, and transit use!







“Walkable”: Mixed use, connected, dense





Not "walkable"

↓ street connectivity and ↓ mixed land use

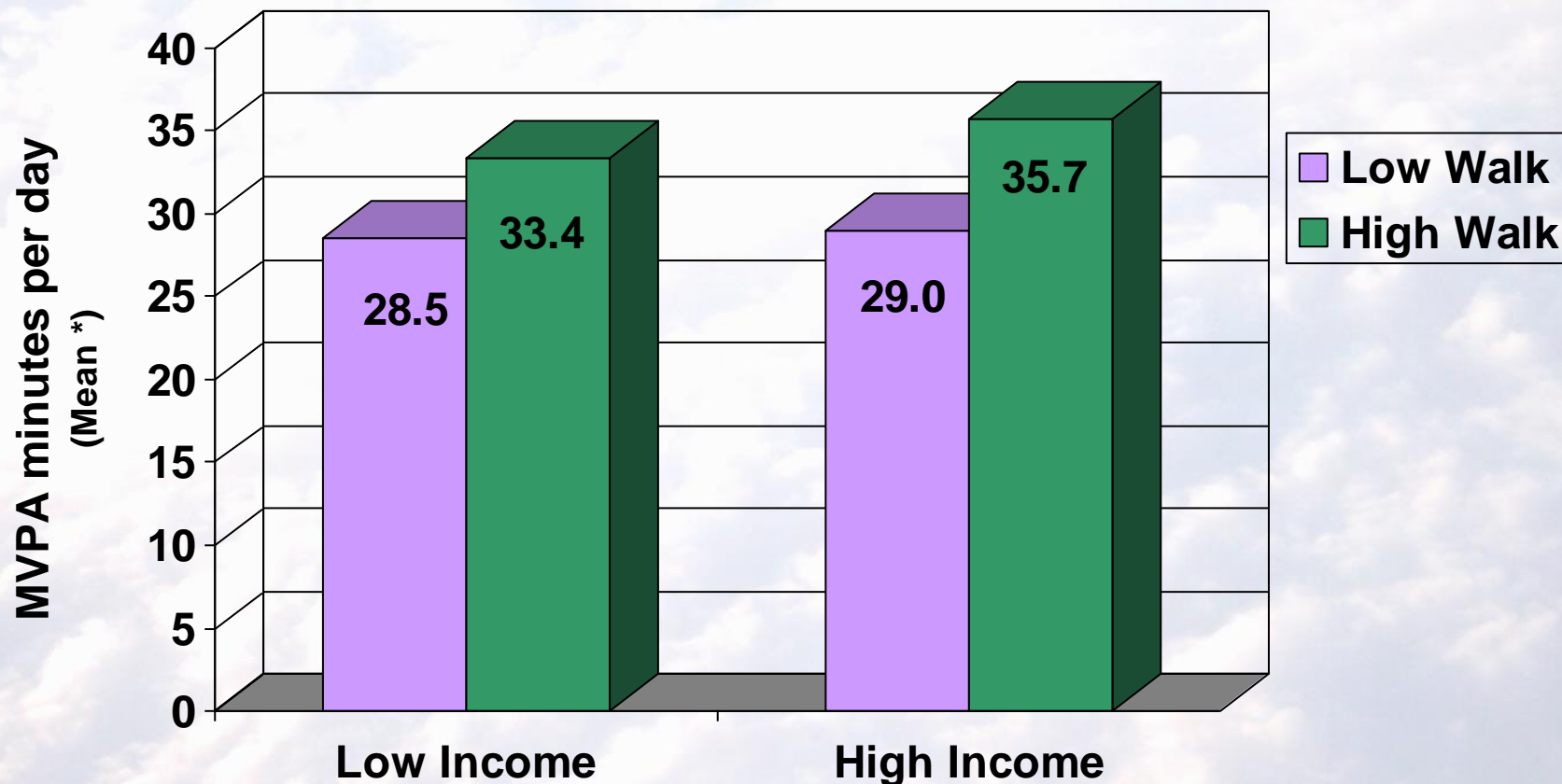


# Adults: Accelerometer-based MVPA Min/day in Walkability-by-Income Quadrants

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.



# Designed for Active Travel

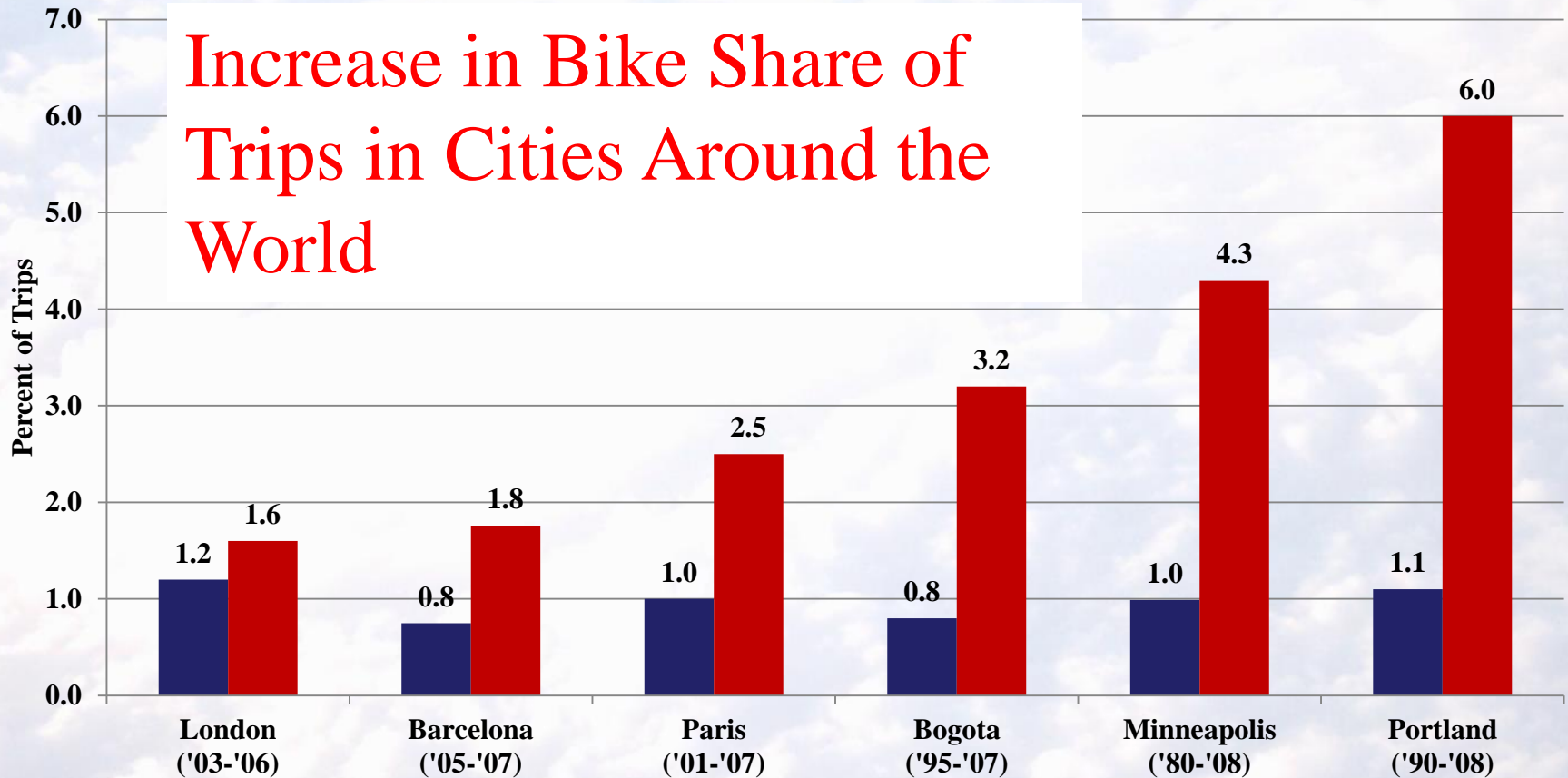




# Not designed for active travel



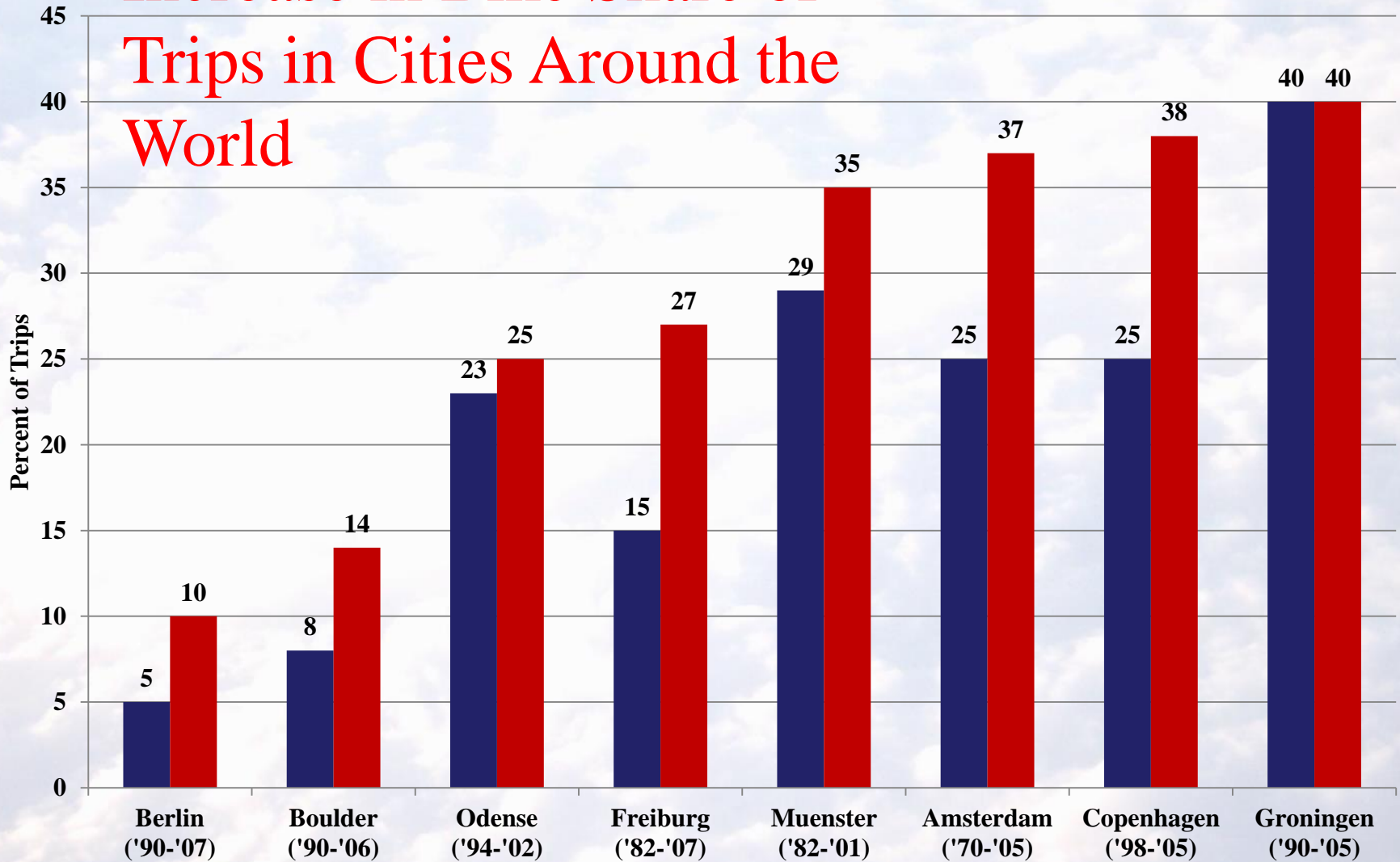
Cities are implementing multi-level, multi-component, multi-year interventions and demonstrating success



Source: Pucher, Dill, and Handy, "Infrastructure, Programs, and Policies to Increase Bicycling," *Preventive Medicine*, Jan 2010, Vol. 50, S.1, pp. S106-S125.



# Increase in Bike Share of Trips in Cities Around the World



Source: Pucher, Dill, and Handy, "Infrastructure, Programs, and Policies to Increase Bicycling," *Preventive Medicine*, Jan 2010, Vol. 50, S.1, pp. S106-S125.

## *Active Living Research*

Using Evidence to Prevent Childhood Obesity  
and Create Active Communities



*Photo by Gary Hack*

## **Business Performance in Walkable Shopping Areas**

With success, enterprises in walkable shopping areas are able to pay higher rents for their space, and housing near walkable commercial areas commonly sells for higher prices than in more distant areas.



# Barriers to Active Transportation

- Zoning laws that require separation of uses and low density
- Transportation policies that favor automobiles over all other modes
- Lending practices that discourage mixed use development
- Please advocate for changes in these policies. Communities designed for active transport have better health, economic, and environmental outcomes

# Active Living Research wants to be your health partner

- We have spent the past 13 years researching active living environments
- We have expertise in all aspects of active living communities and are ready to put our evidence into practice
- We are looking for partners who share our vision for

**Creating the Healthiest Communities in  
America**



# Please use our resources

- Many types of resources at [www.activelivingresearch.org](http://www.activelivingresearch.org)
- Attend Active Living Research Conference
  - March 9-12. San Diego
- Contact me about partnering
  - [jsallis@ucsd.edu](mailto:jsallis@ucsd.edu)

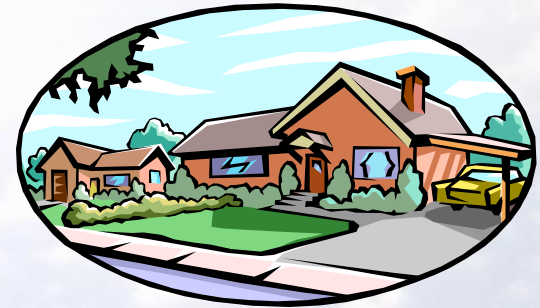
# Elements of An Active Living Community

**Community Design  
Destinations**



**Transportation System**

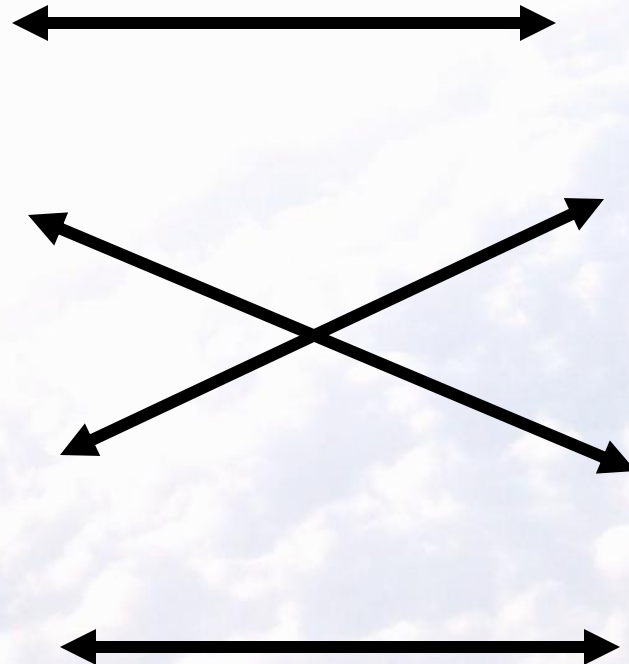
**Home**



**School & Worksite**



**Park & Rec**







# ACTIVE DESIGN IN PRACTICE

Promoting Health Through Design

# History of Health and the Built Environment

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100+ years ago, urban conditions in NYC (and many other cities) created a breeding ground for disease epidemics



A TYPICAL FEVER-SHOP.  
(Reproduced from a Photograph by Anthony.)

## OVERCROWDING

By 1910, the average density in lower Manhattan was 114,000 people/ sq. mi;  
Two wards reached densities > 400,000.  
(Today's density: 67,000/ sq. mi.)



## INADEQUATE SYSTEMS

for garbage, water, and sewer, leading to pervasive filth and polluted water supplies.

## MAJOR EPIDEMICS

Air/droplet-borne diseases:

**TB**

Water-borne diseases:

**Cholera**

Vector-borne diseases:

**Yellow-fever**



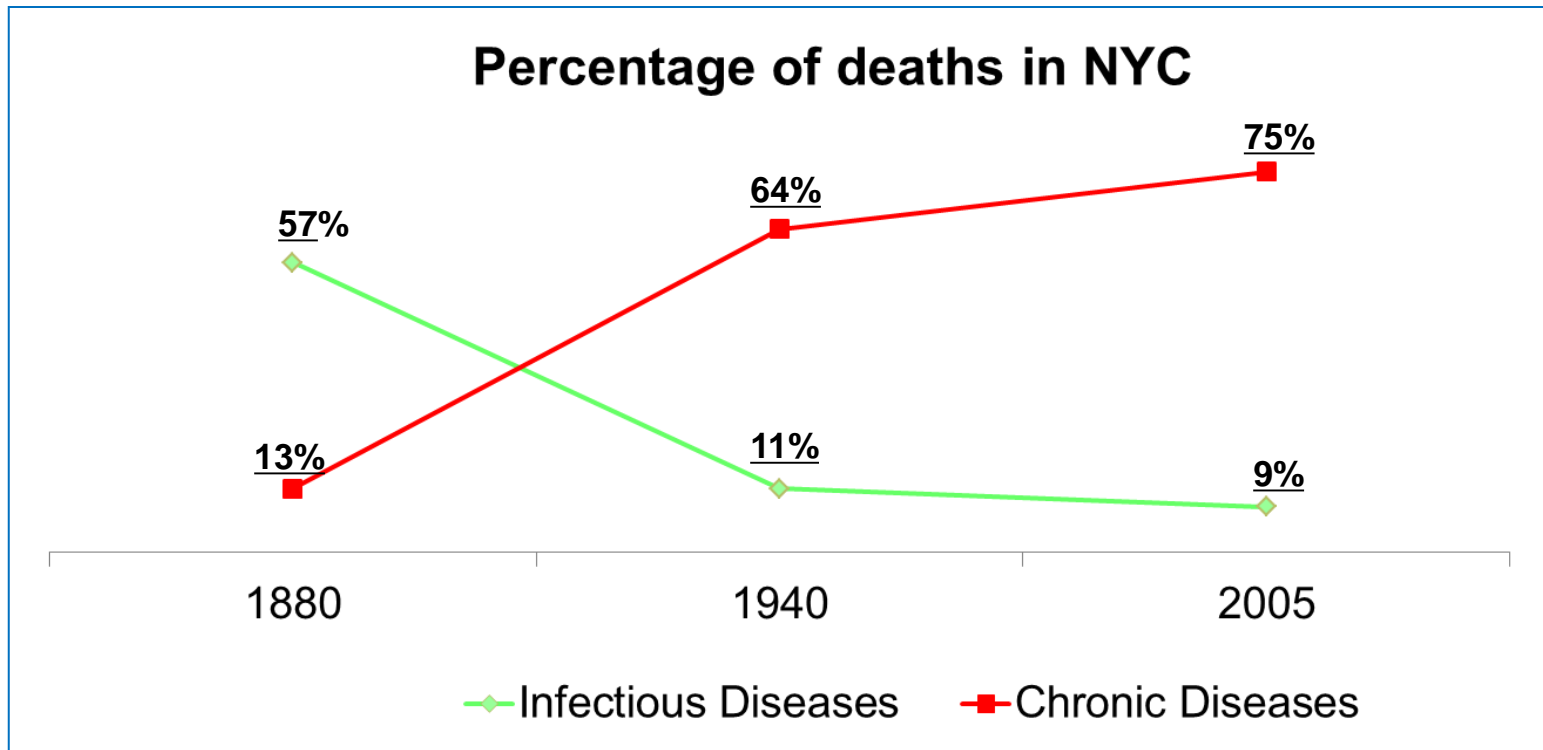
# The Design Response

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- 1842 ● New York's **water system** established – an aqueduct brings fresh water from Westchester
- 1857 ● NYC creates **Central Park**, hailed as “ventilation for the working man’s lungs”, continuing construction through the height of the Civil War
- 1881 ● Dept. of Street-sweeping created, which eventually becomes the **Department of Sanitation**
- 1901 ● **New York State Tenement House Act** banned the construction of dark, airless tenement buildings
- 1904 ● First section of **Subway** opens, allowing population to expand into Northern Manhattan and the Bronx
- 1916 ● **Zoning Ordinance** requires stepped building setbacks to allow light and air into the streets

# The results: Infectious disease rates plummeted



- Today, **chronic disease** accounts for 75% of deaths.
- In 2005, 133 million Americans – **almost 1 out of every 2 adults** – had at least one chronic illness.



# Risk factors contributing to obesity and chronic disease

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Lancet study published in 2012 suggests that

**“A lack of exercise is now causing as many deaths as smoking across the world”**



Source: **The pandemic of physical inactivity: global action for public health.** Prof Dr Harold W Kohl PhD a, Cora Lynn Craig MSc b, Prof Estelle Victoria Lambert PhD c, Prof Shigeru Inoue MD d, Jasem Ramadan Alkandari PhD e, Grit Leetongin MD f, Sonja Kahlmeier PhD g, for the Lancet Physical Activity Series Working Group

# Design and Physical Activity

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People haven't changed – but our environment has

Each hour spent in a car contributes a 6% risk in obesity and chronic disease while each km walked contributes a 5% decrease in risk

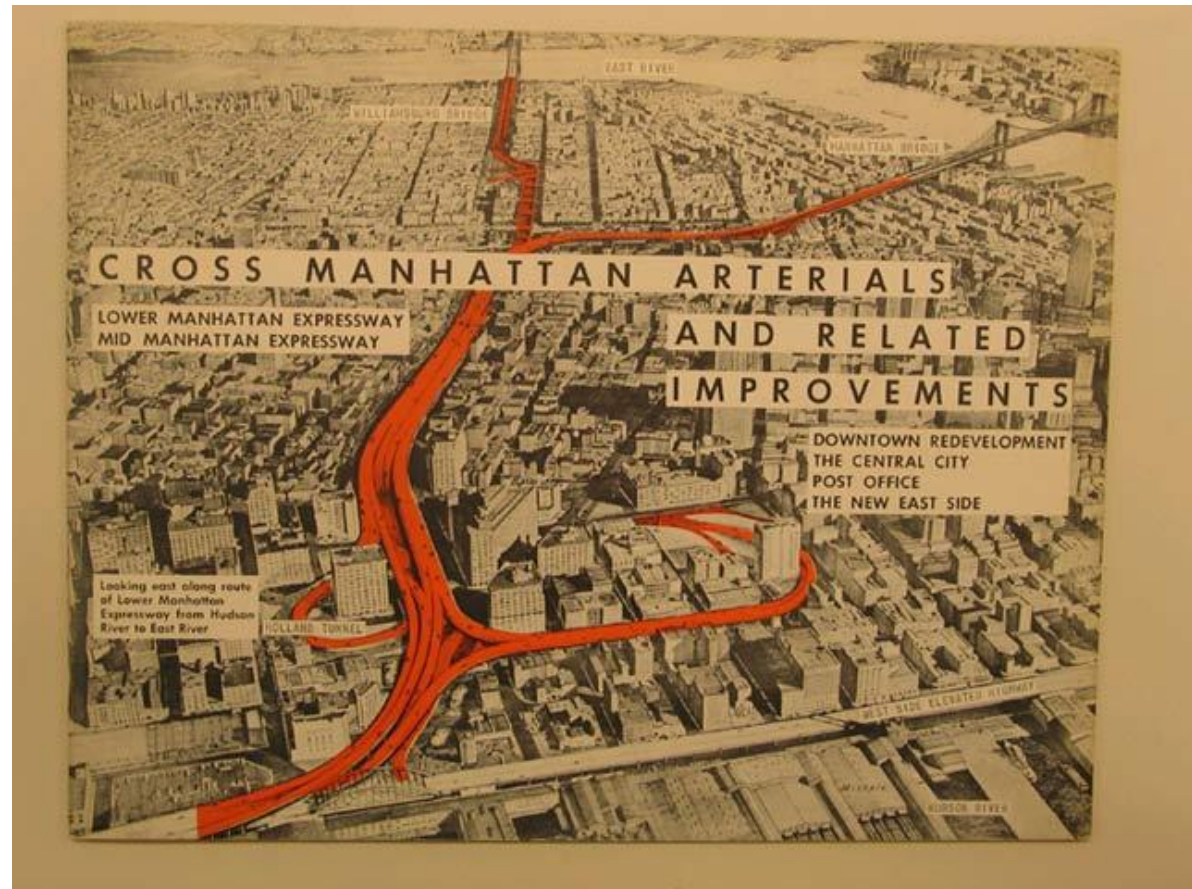




# It's Time to Change

The last time we really changed the way we designed our cities was in **response to the automobile, over HALF A CENTURY ago!**

*If a business did not update its practices and processes in over **50 years** it would be out of business today!!!*



# Key Concepts

## Active Transportation



## Active Recreation



Forest Hills Community House | WXY Architecture

## Active Buildings



Glen Oaks Branch Library | Marble Fairbanks Architects

## Healthy Food Access



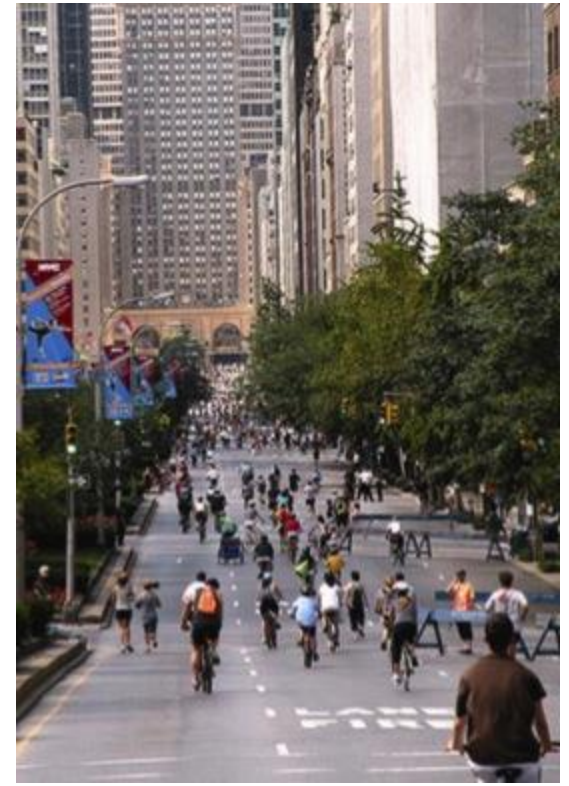


# Design and Physical Activity

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Creating or improving access to places for physical activity can result in a **25% increase in number of people who exercise at least 3 times per week**

Creating a more enticing and walkable public realm can result in a **161% increase in physical activity** (e.g. walking and biking)



# Mixed Land Use + Multiple Modes of Transport

Destinations within walking or biking distance: According to an ALR study, residents of communities with a mix of shops and businesses within easy walking distance have a 35 percent lower risk of obesity than residents of communities that do not have these services within easy walking distance

**Designing for Active Transportation, San Diego: Active Living Research, February 2005**





# Active Transportation – Moving People

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# Pedestrian environment / traffic calming

## Universal accessibility

- Safe and attractive spaces for walking and sitting
- Reduced pedestrian crossing distances



# Bicycle network and infrastructure

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- **Interconnected bikeways,**
- **Dedicated bike lanes as part of Complete Streets**
- **Attractive signage, wayfinding, and secure bike parking**





# Safety Benefits of Street Improvements

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- **30% reduction in traffic fatalities**
- **58% decrease in injuries to all street users (9<sup>th</sup> Ave)**
- **10% growth in bus and subway ridership**
- **262% increase in commuter cycling**
- **5% reduction in motor vehicle registrations**
- **25% decline in citywide traffic volumes**





# Economic benefits

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DOT study of shows:

- **49% fewer commercial vacancies at Union Square plaza**
- **172% Increase in retail sales at Pearl Street plaza and 14% increase in Sales at fronting businesses**
- **8<sup>th</sup> and 9<sup>th</sup> Ave Complete Street 49% increase in retail Sales**



# Contributing to the Pedestrian Realm

- Maximize variety, detail, texture and continuity on the lower 1-2 floors of the building façade
- Provide multiple entries and appropriate transparency
- Building massing: vertical divisions, variety, and rhythms

Increased foot traffic results in lower vacancy rate and increased retail sales





# Building exteriors: Streetscape improvements

- Benches, public art, trees and other greenery to enhance the pedestrian experience.





# Contributing to the Pedestrian Realm

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- **Research in the Netherlands and Japan indicated that people were more likely to walk or cycle to work if the streets were lined with trees and live longer and feel better as a result.**

Van den Berg, A.E., Koole S.L., and Van der Wulp N.Y. (2003). 'Environmental preferences and restoration: (how) are they related?' *Journal of Environmental Psychology* 23, 135-146.



# Bicycle Parking and Storage

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**Just 15 minutes of cycling (2.5 miles) twice a day burns the equivalent of 10 lbs per year**

Source: MyPyramid.gov: [How many calories does physical activity use?](#)

**Secure bike storage with easy access**





# Programming to Support Active Transportation



# Contact Information

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**CENTER FOR ACTIVE DESIGN**  
[www.centerforactivedesign.org](http://www.centerforactivedesign.org)

**Joanna Frank – Executive Director**  
[joanna@centerforactivedesign.org](mailto:joanna@centerforactivedesign.org)



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