



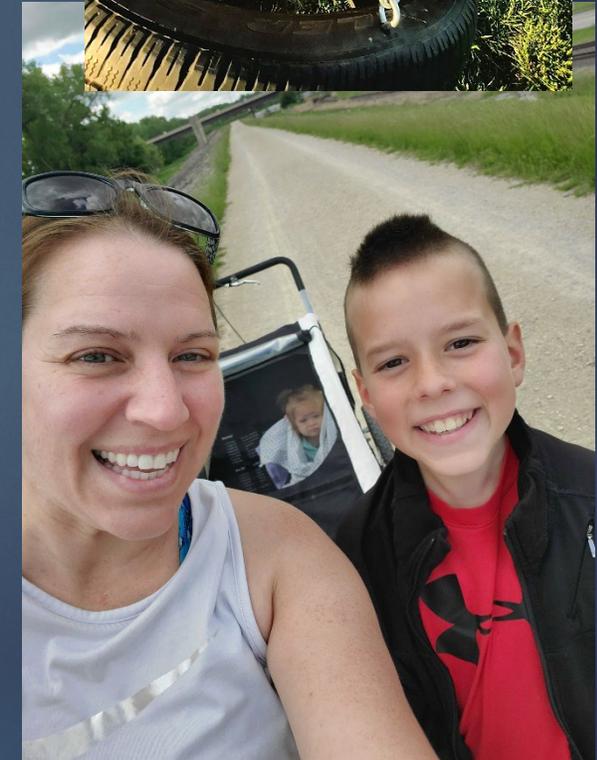
# The Mental and Physical Health Benefits of Exposure to Nature and Nature-based Physical Activity

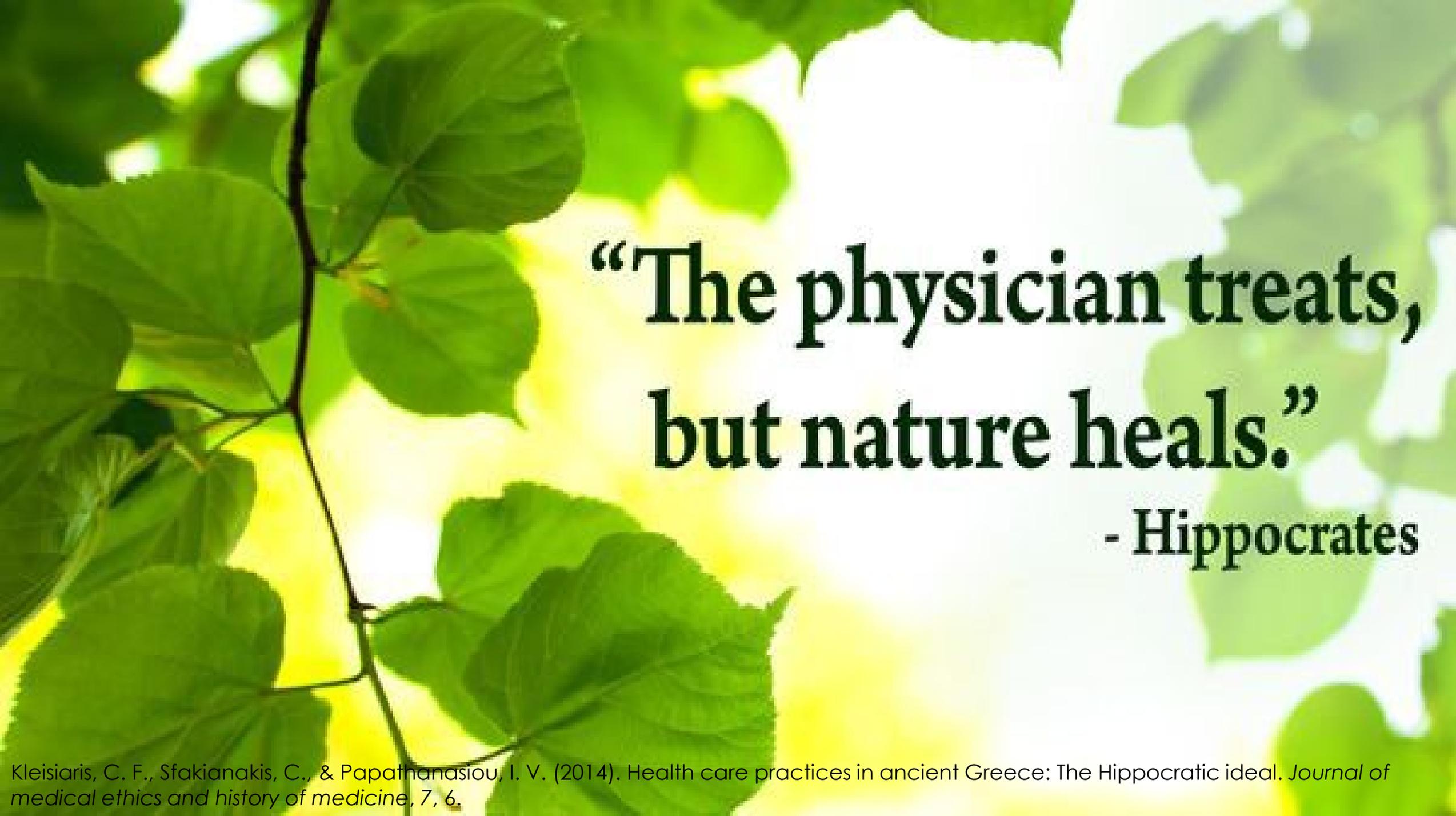
DR. GINA BESENYI

WEIGHING IN QUARTERLY MEETING JUNE 2021

# Just a bit about Gina ...

- Completed B.S. in Kinesiology and MPH in Physical Activity and Nutrition at Kansas State University
- PhD in Health Promotion, Education, and Behavior from University of South Carolina
- Research interests: how the built environment, especially parks and recreation resources, promote physical activity and prevent disease
- Physical Activity Research in Community Settings (PARCS) Laboratory
- [bit.ly/PARCSLab](http://bit.ly/PARCSLab)





**“The physician treats,  
but nature heals.”**

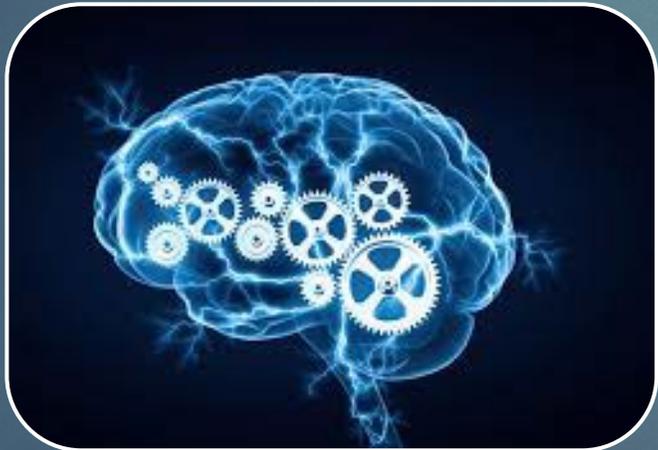
**- Hippocrates**



**Physical**



**Mental**



**Cognitive**

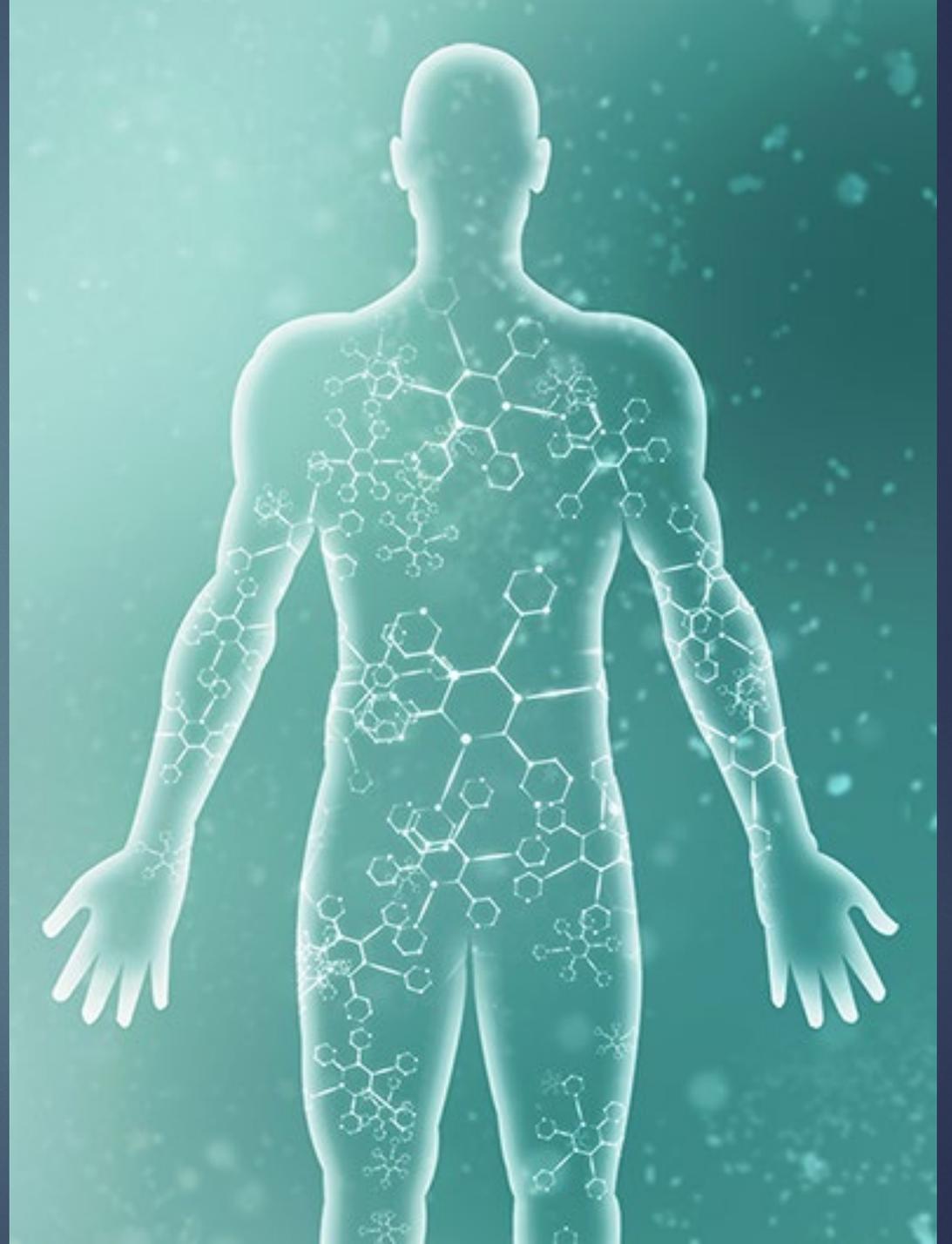


**Social**



## Physical Benefits

- ↓ Blood pressure
- ↓ Heart rate
- ↑ HRV
- ↓ HDL cholesterol
- ↓ Oxidative stress (Cortisol, Alpha-amylase)
- ↑ Immune system
- ↑ Parasympathetic/ ↓ Sympathetic nerve activity
- ↑ Metabolism
- ↓ BMI



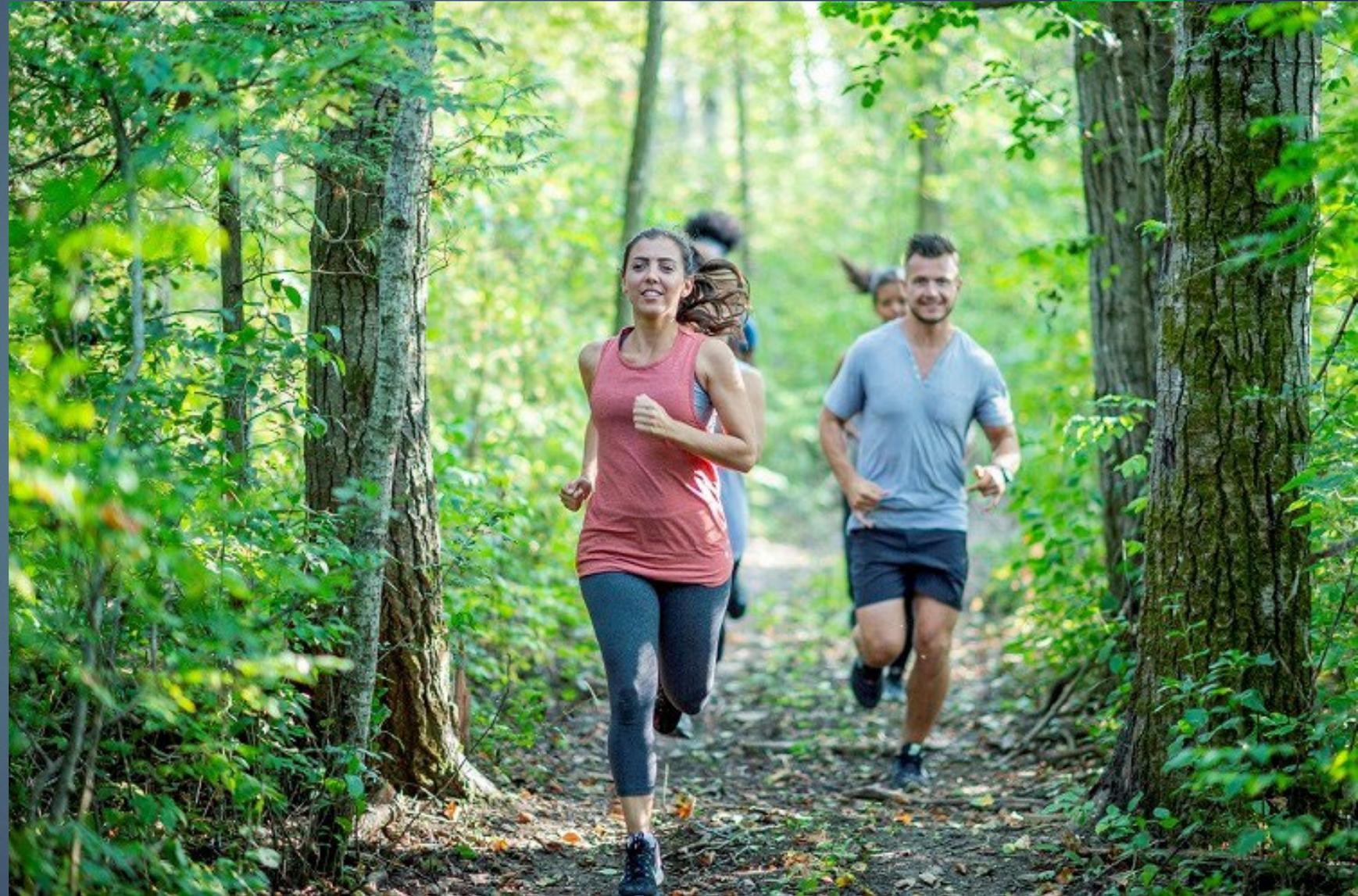
## Risk/Prevalance of Disease

- ↓ Obesity
- ↓ Metabolic syndrome
- ↓ Asthma
- ↓ CVD
- ↓ Stroke
- ↓ Diabetes
- ↓ Mortality



## Mental Benefits

- ↑ Well-being
- ↑ Mood
- ↑ Energy
- ↑ Affective Response
- ↑ Relaxation
- ↑ Self-esteem
- ↑ Quality of Life
- ↓ Stress
- ↓ Anxiety
- ↓ Rumination
- ↓ Depression





## Cognitive Benefits

- ↑ Memory
- ↑ Attention
- ↑ Social interaction time
- ↑ Brain development
- ↑ Intelligence/academic performance
- ↑ Perception of effort of exercise
- ↑ Frequency/duration of exercise
- ↑ PA Enjoyment/Satisfaction
- ↑ Improved Long-Term PA Adherence





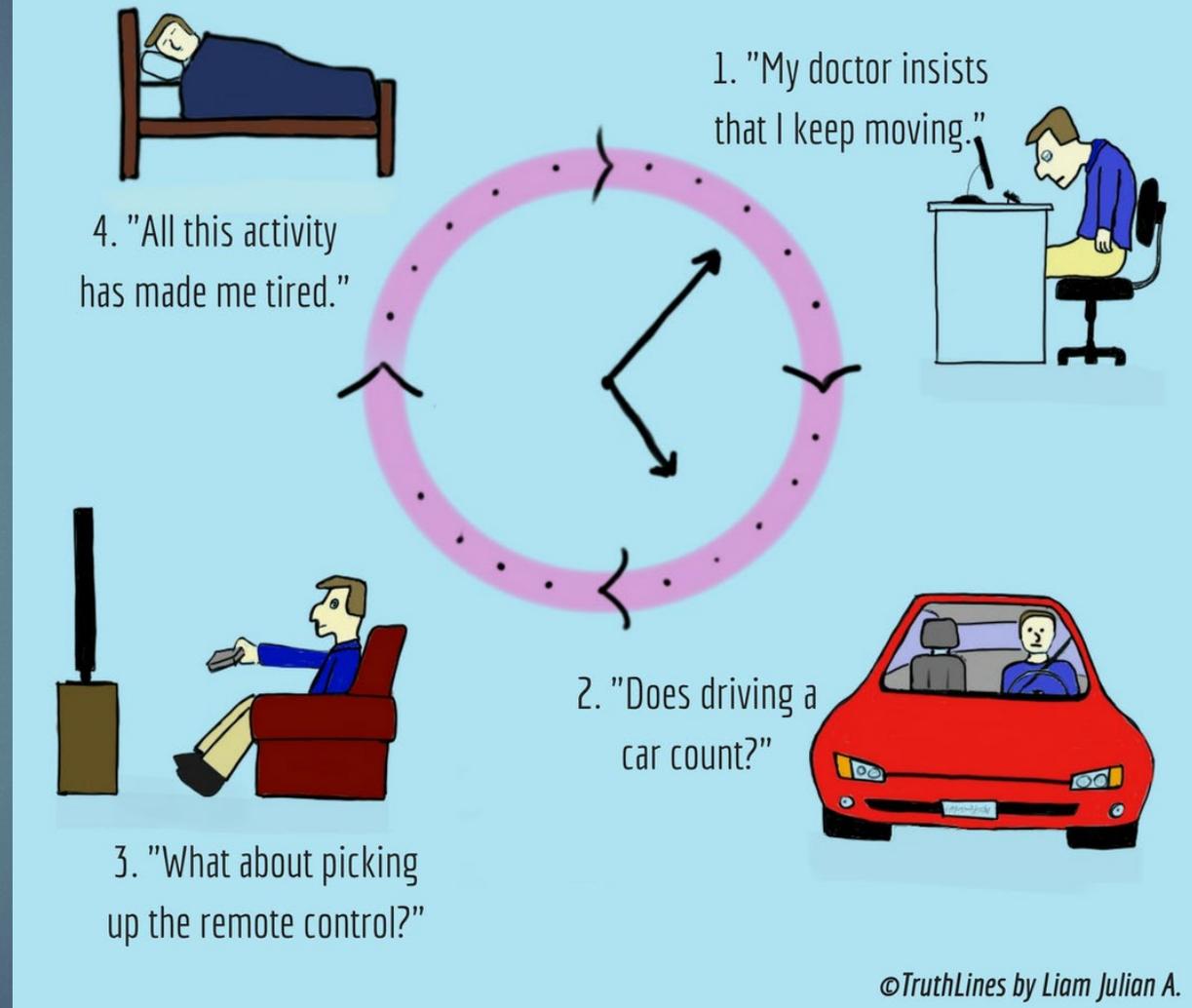
## Social Benefits

- ↑ Socialization opportunities
- ↑ Social support
- ↑ **Social capital**
- ↑ Social cohesion
- ↑ Social mobility

▶ The average American spends 93% of his or her time indoors.

▶ 87% of their life is indoors, 6% of in automobiles.

▶ That's only 7% of your entire life outdoors!

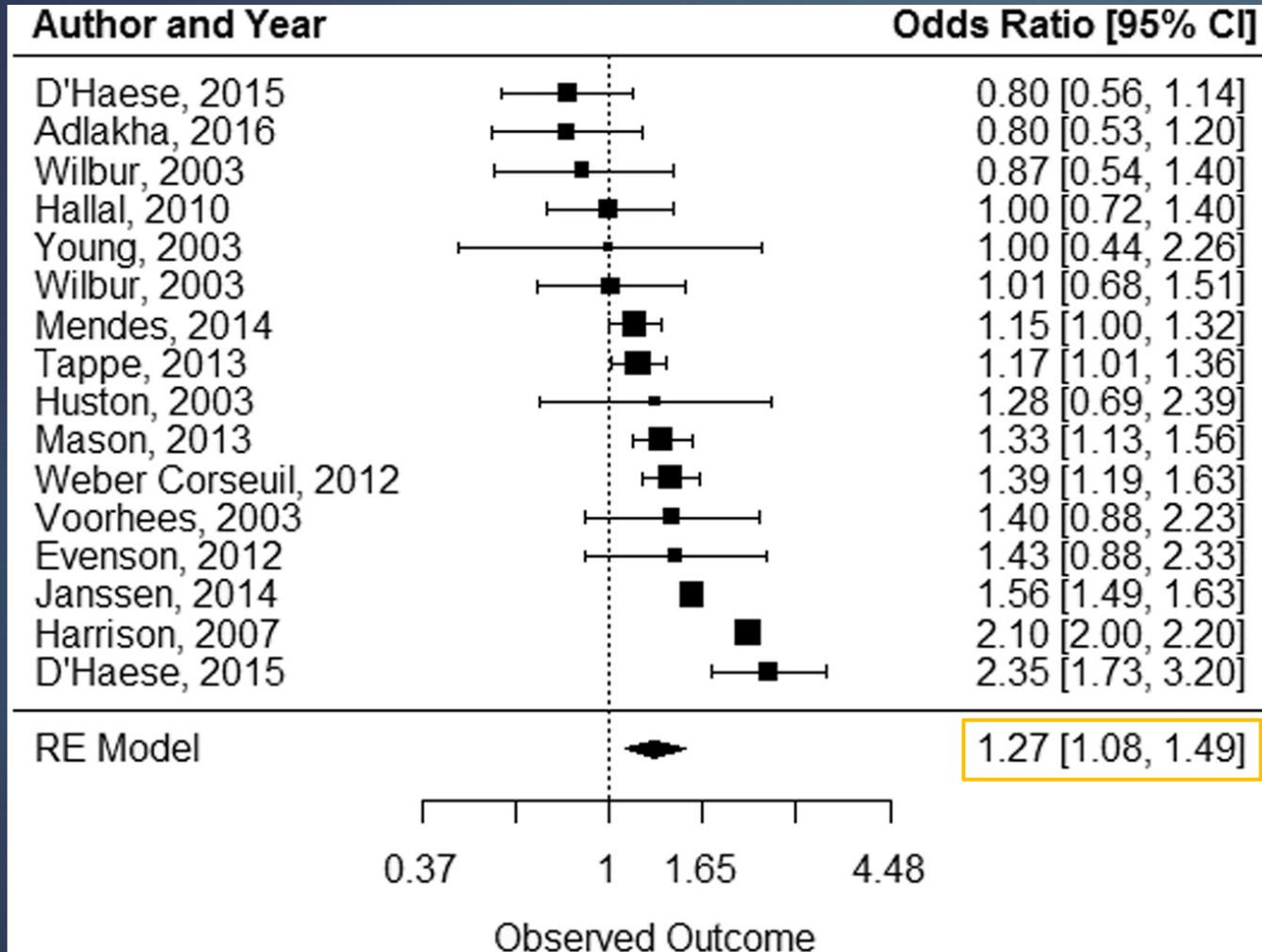


# Safety as a Constraint on Outdoor Physical Activity

- Safety fears can negatively impact participation in physical activity, especially among women
- Solitary activities perceived as more unsafe than same-gender or mixed-gender groups
- Several potential consequences of safety concerns:
  - reduced participation
  - modified participation patterns
  - altered locations, change in partners
  - decreased enjoyment
  - reduced spontaneity, increased planning
- Built environment research has addressed both safety from crime and traffic-related safety and their impact on physical activity

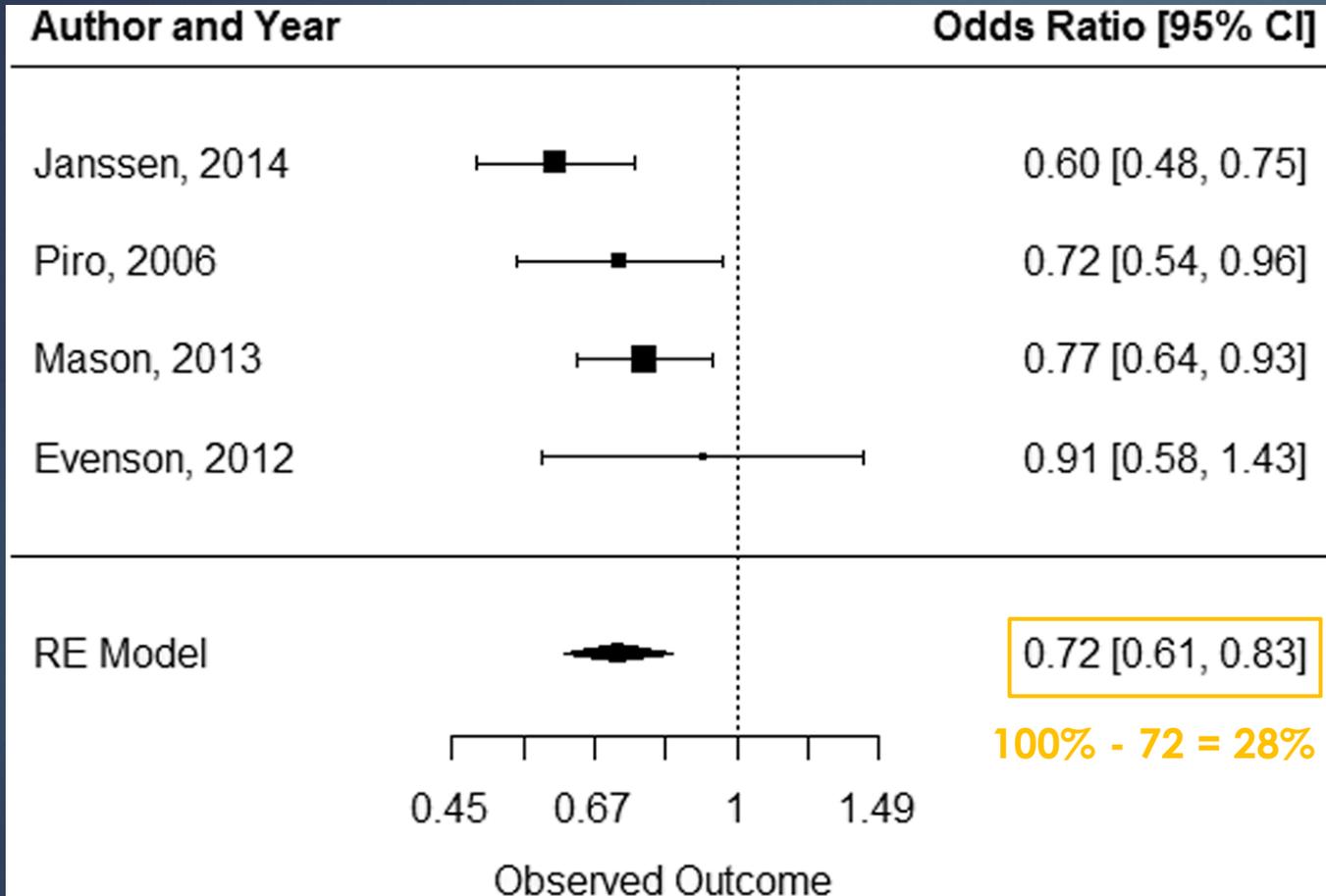


# Crime, Perceived Safety, and Physical Activity



16 effects from 15 studies suggest that participants who report feeling safe from crime have a **27% greater odds** of achieving higher levels of PA (OR = 1.27 [1.08, 1.49])

# Crime, Perceived Safety, and Physical Activity



Objective Crime: The cumulative results of four effects suggest that those living in areas with higher police-reported crime have a **28% reduced odds** of higher levels of PA (OR = 0.72 [0.61, 0.83])

# Safety and Physical Activity Among Older Adults

- 3499 older adults (74-75 years) in Oslo Health Study
- Respondents divided into those engaging in less than 1 hour/week vs. 1+ hours/week of physical activity
- Perceptions of neighbourhood safety and number of **cases of violence** in neighbourhood per 1000 inhabitants
- **Perceived** neighbourhood safety significantly related to physical activity among women
- **Actual** neighbourhood safety significantly related to physical activity among men



Piro, F. N., Næss, O., & Claussen, B. (2006). Physical activity among elderly people in a city population: The influence of neighbourhood level violence and self perceived safety. *Journal of Epidemiology & Community Health*, 60(7), 626-632.

# Built Environment and Traffic Safety

- Design modifications to streets and the streetscape can substantially improve the actual and perceived safety for walking and biking



# Improving Safety of Physical Activity Environments

- Lighting, alarms, phones along trails and paths and in parks
- Frequent, flexible transit stops
- “Eyes on the street” housing designs
- Organized neighbourhood watch/walking groups
- Sidewalks on both sides of streets
- Bicycle lanes on streets
- Traffic calming mechanisms

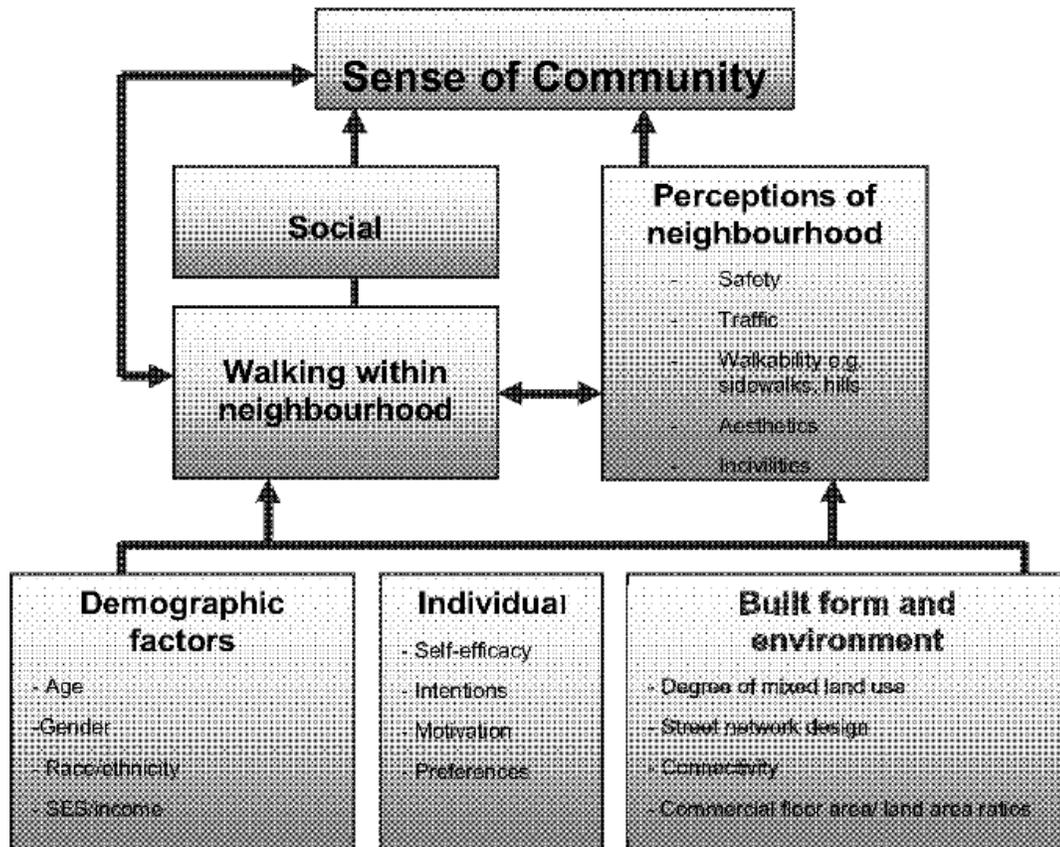


# Neighborhood Connectedness and Social Capital

- **Social capital** related to improved physical and mental health
- Social capital also **associated with reduction in crime**, economic development, and other positive individual and communal outcomes
- Living in a more **walkable neighborhood** associated with significantly greater social capital



# Sense of Community



**Fig. 1.** Conceptual model of the association between neighborhood environment, walking and sense of community.

- ▶ Sense of Community positively associated with **leisurely walking**, home ownership, **seeing neighbors when walking**, and the presence of interesting sites.
- ▶ SofC also related to **retail set back from streets**, parking space, urban design.
- ▶ More **mixed use and perceptions of steep hills** inversely associated with SofC

## Built Environment and Collective Efficacy

- Living in a neighborhood with more parks strongly related to higher levels of reported collective efficacy; number of alcohol outlets related to lower efficacy
- “Certain environmental features may set the stage for neighborhood social interactions, thus serving as a foundation for underlying health and well-being” (p. 198).



# Improving Neighbourhood Connectedness of Physical Activity Environments

- Neighbourhood walking/activity groups
- “Front porch” housing designs
- Local activity hubs
  - community centres, libraries, parks
  - retail, commercial complexes (small scale)
    - restaurants, services, stores, etc.
- Neighbourhood events



## Summary

- Spending time outdoors being physical activity is good for your physical, mental, cognitive, and social wellbeing
- Safety from crime and traffic related to increased outdoor physical activity
- More walkable neighbourhoods appear to engender greater levels of social capital, perhaps from planned and unplanned interaction among residents
- Community connectedness, including factors such as knowing and trusting neighbours, involvement in organizations and events, and overall community satisfaction (as well as safety), can positively impact active living behaviors
- Environments and policies that promote safety and connectedness in outdoor spaces can have direct and indirect effects on both physical activity and overall health

# Thank you! Questions?

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# Park Prescription (ParkRx) Programs

Designed *in collaboration with healthcare providers and community partners* and utilize parks, trails, and open space to improve individual and community health.



Ask your Doctor about a

# Park Prescription

How much Physical Activity do you need?

150 minutes  
moderate  
aerobic activity

or

75 minutes  
moderate  
aerobic activity

or

Mix  
moderate and  
vigorous



Muscle  
strengthening  
2+ days a  
week



Find an activity you look forward to!

- Hiking
- Biking
- Yoga
- Fishing
- Walking
- Sports

Any time spent outside is more PA than sitting on your couch!

# Park Rx

Worksheet

## How much activity do I need?

### Moderate-intensity aerobic activity

Anything that gets your heart beating faster counts.



AND

### Muscle-strengthening activity

Do activities that make your muscles work harder than usual.



Tight on time this week? Start with just 5 minutes. It all adds up!

### Outdoor Physical Activity Goals:

1. What types of outdoor activities do I like to do (e.g., walking, basketball)? \_\_\_\_\_
2. How long/often can I do these activities (e.g., 15 minutes 2x per week)? \_\_\_\_\_
3. How long can I do these activities (e.g. 30 minutes)? \_\_\_\_\_
4. Identify 1-2 parks where you could do these activities (see back of worksheet)

### What barriers do I have for outdoor activities?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

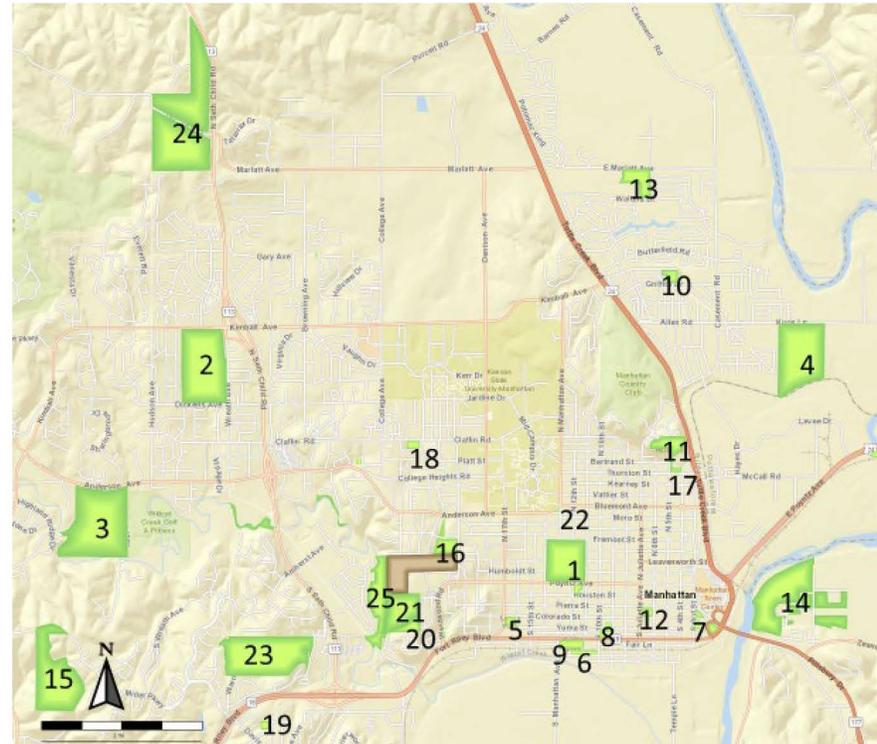
My plan to overcome these barriers: \_\_\_\_\_

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# Manhattan, KS Parks



1. City Park
2. CiCo Park
3. Frank Anneberg Park
4. Northeast Community Park
5. Longs Park
6. Sojourner Truth Park
7. Blue Earth Plaza
8. Douglass Park
9. Griffith Park
10. Northview Park
11. Bluemont Hill Park
12. Colorado Park
13. Eisenhower Baseball Complex
14. Fairmont Park
15. Future Parkland
16. Girl Scout Park
17. Goodnow Park
18. Pioneer Park
19. Stagg Hill Park
20. Sunset Neighborhood Park
21. Sunset Zoo
22. Triangle Park
23. Warner Park
24. Washington Marlatt Memorial Park
25. Wildcat Creek Linear Park

For more information on amenities, hours and rules, visit [www.mhkprd.com](http://www.mhkprd.com)