Health Benefits of Physical Activity: Implications for Sustainable Communities

California Air Resources Board
California Environmental Protection Agency

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Why look at physical activity and health?

- Physical Activity Guidelines for Americans
- Benefits of sustainable community design
  - Reduced vehicle use
  - Increased mobility
  - Economic growth
  - Conservation of open space
  - Increased physical activity
Built environment designs promote physical activity

- Community designs can improve public health
- Increased physical activity associated with:
  - Green spaces\(^1,2\)
  - Neighborhood walkability\(^3,4,5\)
  - Access and use of public transportation\(^6,7\)

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Health benefits of physical activity

Children and Adolescents
- Aerobic Fitness
- Reduced Disease Risk & Symptoms
- Healthy Weight
- Psychological Well-Being

Adults
- Aerobic Fitness & Functional Health
- Reduced Death & Disease Rates
- Disease Treatment
- Cognitive Health & Psychological Well-Being
Increased physical activity improves health

• Greatest benefit is from sedentary to active
• Continued benefit seen with higher levels of activity
• Increasing activity reduces premature death: similar reduction to quitting smoking

How can adults achieve their physical activity goal?

150 minutes/week of moderate intensity physical activity
Children and active transport

- Higher fitness Levels\(^1,2\)
- Better flexibility\(^1,2\)
- Increased muscular endurance\(^1,2\)
- Lower overweight risk\(^3,4\)

![Overweight Risk Reduction vs. Passive Transport](chart)

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Associated with decreased:

- Premature death\(^1\)
- Strokes and heart attacks\(^2\)
- Cases of type 2 diabetes\(^3\)

Air pollution impacts during physical activity

Current Scientific Consensus

- All populations can benefit from physical activity, but should alter behavior based on air quality
  - Sensitive populations are more impacted by air pollution during physical activity\(^1,2\)
  - Acute and long-term exposure is associated with detrimental cardiovascular and pulmonary effects in healthy and asthmatic children and adults\(^3,4,5,6\)

Air pollution exposure mitigation strategies

• Select less trafficked route

• Avoid walking near the street

• Build green buffers

• Observe School AQI Flag Program

• Support Safe Routes to School Program

• Design communities to promote activity

Next steps

• Support community designs that reduce exposure and promote physical activity

• ARB research on mitigation measures
  – Active transport studies
    • Bicycle commuter
    • Walkability
  – Sustainable communities studies
    • Complete streets
    • Transit stops
    • Sound wall and vegetation
    • Light rail

• Distribution of findings
Thank you

“If exercise could be purchased in a pill, it would be the single most widely prescribed and beneficial medicine in the nation.”

—Robert H. Butler