Physical Activity Promotion – What is the evidence?

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Is Physical Activity Important?

“Given what we know about the health benefits of physical activity, it should be mandatory to get a doctor’s permission not to exercise.”

— Dr. P-O Astrand
“The American people may be the first to make a complete dissociation between living and leisure, regarding it as wrong to have to make any physical effort in order to live, but quite right to compensate by straining themselves in (planned) exercise.”

Henry Fairlie
Cross-Cutting Federal Initiatives in Prevention

Healthy People 2010

Guide to Clinical Preventive Services

Put Prevention Into Practice

Priorities for Prevention

Leading Health Indicators

Guide to Community Preventive Services
Challenges for Prevention

• Many potential services, limited clinical time
• Not everything that might work does work
• Some services have potential harms as well as benefits
• Widely recommended services should be supported by good evidence
Counseling to Promote Physical Activity
Analytic Framework

Influencing Factors: Health care system, practice setting

Population

1. Assess physical activity

2. Adverse effects

3a. Sedentary

3b. Counsel to increase physical activity

4. Increase/maintain physical activity

5a. Adverse effects

5b. Other positive behavior changes

Physically active

KBE, 8/22/00
Best Evidence on Effectiveness

The Activity Counseling Trial: A Randomized Controlled Trial
JAMA, August 8, 2001 Vol. 286, No. 6

• More intense counseling programs were more effective with women than brief advice for increasing physical fitness.
• In men, the counseling programs were no more effective than brief advice for increasing fitness.
**Best Evidence on Harms**

The Activity Counseling Trial: A Randomized Controlled Trial

JAMA, August 8, 2001 Vol. 286, No. 6

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**Table 4. Possible Adverse Events Reported by Participants as Occurring During 24 Months of Intervention and Follow-up, by Randomized Group**

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Advice Group (n = 292)</th>
<th>Assistance Group (n = 293)</th>
<th>Counseling Group (n = 289)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musculoskeletal event during or following exercise†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any event</td>
<td>161 (55)</td>
<td>181 (62)</td>
<td>184 (64)</td>
</tr>
<tr>
<td>Event requiring a physician visit</td>
<td>89 (30)</td>
<td>109 (37)</td>
<td>103 (36)</td>
</tr>
<tr>
<td>Event requiring hospitalization</td>
<td>10 (3)</td>
<td>13 (5)</td>
<td>7 (2)</td>
</tr>
<tr>
<td>Potential cardiovascular event‡</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any event</td>
<td>80 (27)</td>
<td>89 (30)</td>
<td>82 (28)</td>
</tr>
<tr>
<td>Event requiring a physician visit</td>
<td>55 (19)</td>
<td>53 (18)</td>
<td>57 (20)</td>
</tr>
<tr>
<td>Event requiring hospitalization</td>
<td>17 (6)</td>
<td>21 (7)</td>
<td>8 (3)</td>
</tr>
</tbody>
</table>

*All values are expressed as No. (%).
†Includes leg or arm pain, swollen or sore joint, strained muscle, tendon, or ligament, and fractured bone.
‡Includes chest pain, difficulty breathing, and dizziness or loss of consciousness.
Current Recommendation by US Preventives Services Task Force

- The evidence is insufficient (I) to recommend for or against behavioral counseling in primary care settings to promote physical activity.
How Do I Find This Information?

- Website
  - [www.ahrq.gov](http://www.ahrq.gov) for the full evidence report
Preventive Services

Access to scientific evidence, recommendations on clinical preventive services, and information on how to implement recommended preventive services in clinical practice.

**U.S. Preventive Services Task Force (USPSTF)**
An independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services.

**Put Prevention Into Practice (PPIP)**
A program to increase the appropriate use of clinical preventive services, such as screening tests, immunizations, and counseling, which are based on USPSTF recommendations.

**Reviews & Recommendations**
Quick Menu, Topic Index

**Tools & Resources**
Health Care Systems/Clinicians
Monday, April 16, 2001

Welcome! You are connected to the National Guideline Clearinghouse™ (NGC), a public resource for evidence-based clinical practice guidelines. NGC is sponsored by the Agency for Healthcare Research and Quality (formerly the Agency for Health Care Policy and Research) in partnership with the American Medical Association and the American Association of Health Plans. Click on About NGC to learn more about us.

Start your search by typing keywords into the search box on this page, or click on a Browse NGC link or on Detailed Search.

A Non-Frames/Text Only version of the site is also available.
Cross-Cutting Federal Initiatives in Prevention

Healthy People 2010

Guide to Clinical Preventive Services

Put Prevention Into Practice

Priorities for Prevention

Leading Health Indicators

Guide to Community Preventive Services
Physical Activity
The Guide to Community Preventive Services (Community Guide)

- Independent Non-federal Task Force
- A Process
  - Systematic reviews of the literature
  - Assessments of study quality
  - Summary of outcomes
- Community Guide – gold standard for reviews of population based interventions
- A Product
  - Evidence-based recommendations
  - Book
  - Website (www.thecommunityguide.org)
Evidence-based Interventions to Promote Physical Activity

- Informational
  - Community-wide campaigns
  - Point-of-decision prompts
- Behavioral and social
  - School-based PE
  - Social support in community settings
  - Individually adapted behavior change
- Environmental and policy
  - Enhanced access with outreach
  - Community-scale urban design
  - Street-scale urban design/land use
Evidence-based Interventions to Promote Physical Activity

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Importance

• Environmental/policy interventions are the “New Frontier”
• Encompass many constructs of Ecological Models
  – especially the physical environment for promoting physical activity
  – provide the ‘framework’ for other intervention strategies
• We need better guidance on what works and how to intervene
Community-scale urban design and land use policies and practices

- Defined as: Urban design and land use policies and practices that support physical activity in geographic areas, generally several square kilometers in area or more.
- Examples of interventions include
  - Infrastructure projects to improve *continuity* and *connectivity* of streets, sidewalks, and bike lanes
  - Local zoning regulations and roadway design standards that promote *destination walking* and co-location of residential, commercial, and school properties
Community Developments

Suburban development, many cul-de-sacs

Well-connected urban development with mixed land uses
Community Guide Recommendation: Community-scale urban design and land use policies

- The Task Force recommends community-scale urban design and land use policies and practices to promote physical activity based on sufficient evidence of effectiveness.
- Evidence was considered sufficient based on:
  - Sufficient effect size
  - Consistency of results: ↑ levels of PA associated with improved continuity and connectivity of streets and sidewalks; ↑ levels of PA associated with local mixed-use zoning and roadway design that promotes destination walking
- Other supporting evidence
  - Dose-response across levels of exposure
  - Face validity
  - Other potential benefits include ↑: air quality, social capital, consumer choice, and green space
Street-scale urban design and land use policies and practices

• Defined as: Urban design and land use policies that support physical activity in small geographic areas, generally limited to a few blocks.

• Intervention Characteristics: policy instruments and practices such as:
  – Implementation of improved street lighting
  – Infrastructure projects to:
    • Increase ease and safety of street crossing
    • Ensure sidewalk continuity
    • Introduce or enhance traffic calming
    • Enhance aesthetics of the streetscape
Community Guide recommendation:
Street-scale urban design

• The Task Force *recommends* use of street-scale urban design to increase physical activity based on sufficient evidence of effectiveness.

• Evidence was considered sufficient to make a recommendation based on sufficient effect size and consistency of results.

• Other supporting evidence
  – Face validity
  – Other potential benefits such as: ↑ social capital, ↓ stress, ↑ green space, and ↓ crime
Interventions Typically Occur in Combination

- Difficult to separate out individual components
  - low-density, single land use, cul-de-sac street design, few or no sidewalks, long distances to destinations
  - High density, mixed housing, continuity of streets, presence and continuity of sidewalks, short distances to destinations.
Create/Enhance Access to Places for Physical Activity Plus

Informational Outreach

• Creating/enhancing walking/biking trails or exercise facilities
• Increasing access to existing facilities by reducing barriers (e.g., safety, affordability)
• Training & social support
• “Combined package”
Evidence-based Interventions to Promote Physical Activity

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  – Street-scale urban design
  – Enhanced access with outreach
Community-wide Campaigns

- Large-scale, high intensity, high visibility
- Multi-media (e.g., TV, radio, newspapers, movie theaters, billboards, mailings)
- Multi-component (e.g., support groups, risk factor screening, community events, environmental changes)
- “Combined package”
Wheeling Walks – Community-wide Campaign

- Intervention was conducted April 17 2001 to June 9 2001 in Wheeling West VA (8 weeks)
- Directed to sedentary and irregularly active adults aged 50-65 years
- **Message Development**: pre-testing efforts
- **Intervention**: paid advertising, special public relations events designed to generate additional media coverage, public health educational activities at work sites, churches and local organizations
- **Outcome Measure**: pre-and post-intervention, brisk walking and moderate and vigorous intensity exercise behavior was assessed (total number of minutes per week)
  - walking (5 or more days and 150 min)
  - moderate (5 or more days and 150 min)
  - vigorous (3 or more days and 60 min)
- sedentary (do not meet any of the above CDC/ACSM recommendations)
Evidence-based Interventions to Promote Physical Activity

- **Informational**
  - Community-wide campaigns
  - Point of decision prompts

- **Behavioral and social**
  - School-based PE
  - Social support in community settings
  - Individually adapted behavior change

- **Environmental and policy**
  - Community-scale urban design
  - Street-scale urban design
  - Enhanced access with outreach
“Point-of-Decision” Prompts

• Motivational signs placed by elevators and escalators
• Encourage stair use for health/weight control
• Single component

There are 1440 minutes in every day... schedule 30 of them for physical activity.
The CDC Stairwell Project

- Sequential environmental changes – new painting/carpet; artwork; motivational signs; music
- Proximity sensors – counters
- Results: Motivational signs/music – 8.9% increase for both, independently assessed
Evidence-based Interventions to Promote Physical Activity

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Enhanced Physical Education

• Modified curricula and policies
• Designed to make PE classes longer or have students be more active during class
• Changed activities taught or modified game rules
The focus of SPARK is the development of healthy lifestyles, motor skills and movement knowledge, and social and personal skills.

It is expected that SPARK Physical Education/Physical Activity students will:
- Enjoy and seek out physical activity.
- Develop and maintain acceptable levels of physical fitness.
- Develop a variety of basic movement and manipulative skills so they will experience success and feel comfortable during present and future physical activity pursuits.
- Develop the ability to get along with others in movement environments (e.g., share space and equipment, employ the "golden rule" of competition—be a good sport, and demonstrate cooperative behavior).

http://www.sparkpe.org/index.jsp
CATCH

• CATCH Physical Education will:
  – Provide meaningful movement experiences which target individual fitness and skill levels of all learners.
  – Increase moderate-to-vigorous physical activity in physical education class.
  – Promote adequate amounts of physical activity now and throughout life.
  – Maximize time on task and learning opportunities.
  – Engage students in fun and motivating activities.

• http://www.sph.uth.tmc.edu/chppr/catch/
Social Support in Community Settings

• Build, strengthen, and maintain social networks that support behavior change
• Settings include communities, work-sites, universities
• ‘Buddy’ systems
• Contracting
• Walking groups
Woman’s Walk Program

• The goal of the intervention program was for each woman to achieve and maintain a minimum walking distance of 11.2 km/wk (7 miles/wk).
• The women could walk on their own or with one of the walking groups that was organized by the study and conducted by one of the study's exercise leaders (A.M.K.).
• At the end of the trial, women in the walking group had significantly ($P$ range, .006 to .03) higher levels of physical activity on subjective and objective measures of physical activity.
Individually-Adapted Health Behavior Change

- Goal setting and self-monitoring
- Building social support
- Behavioral reinforcement
- Structured problem solving
- Relapse prevention
- Delivered in group settings or by mail, phone, or directed media
• Project WALK is a home-based mail and telephone study designed to promote walking among sedentary women of color.
• Behavioral (Intervention) Group – For 8 weeks, women received four different materials through the mail: two pamphlets published by the American Heart Association (AHA), “Exercise and Your Heart” and “Silent Epidemic: The Truth About Women and Heart Disease”; The Stanford Walking Kit; and one-page tip sheets on how to overcome specific barriers presumed to be salient to ethnic minority women (e.g., child care, safety, time constraints).
Community Guide:

- Should not be viewed as the sole source for informed decision-making
- Are not conceptualized to address the needs of the community, cultural appropriateness, and political considerations
- Will be most useful when used in conjunction with local community needs assessment and planning
How Do I Find It?

- Publications
  - MMWR Reports & Recommendations (R&R) series
  - American Journal of Preventive Medicine – special supplements
- Websites
  - www.thecommunityguide.org
  - www.cdc.gov/nccdphp/dnpa/physical/index.htm
Combined Intervention Model

- **Primary Care**
  - Increase Physical Activity (PA)
  - Refined Physical Activity Assessment to create individual behavior change

- **Community Interventions**
  - Educator or Medical Asst. refers to
    - Increased Access
    - "Buddy System"
    - Social Support
      - Walking trails
      - Worksite facilities
      - Park & Rec facilities
      - Health forums, seminars, risk screening, informational outreach & programs
      - Activity Education & Advocacy - Environmental Support
      - Exercise groups
      - Church - walking clubs

- **Insufficient Evidence**
Sample Current Assessment Tools

- PACE (Patient-centered Assessment & Counseling for Exercise and Nutrition)
  
  PACE Project, San Diego State University

- PAR-Q (Physical Activity Readiness Questionnaire)
Refined Assessment Tool

- Physical activity level and readiness to change
- Tailored activity plan
- Matched to community interventions
- Use of centralized health educator or promoter
Health educator assessment process

1. Become active in daily life (walking trails near home, take stairs)
2. Find time to exercise
   - Gym
   - No Gym
3. Partner Model
   - (ie. walk w/ neighbor)
4. Structured community group activities
5. Individual Coaching

SAFER • HEALTHIER • PEOPLE ™
Conclusions

• Evidence is inconclusive that counseling in the primary care setting alone increases activity.

• A number of interventions in the community have been shown to be effective in promoting physical activity.

• Future research is needed that combine clinical and community interventions.