Physical Activity Interventions for NCD prevention and health promotion: Settings & Evaluation...”What Works”

Estelle V. Lambert, Research Unit for Exercise Science & Sports Medicine, University of Cape Town Vicki.lambert@uct.ac.za CDC/IUHPE Building Capacity for CVD Health Promotion and Chronic Disease Prevention and Control in Africa,
Objectives of this session:

- to briefly revise some important effects of physical activity on the pathophysiological processes of disease;

- to consider physical activity interventions within a policy framework;

- to become aware of resources which may assist in devising PA interventions as part of NCD prevention and health promotion;

- to examine some examples of “what works” in different settings to promote physical activity;

- to introduce some promising new models and to consider new partners & practitioners
Why physical activity?

(Haskell, MSSE 33(6): S454-458, 2001)
Evidence-Based Public Health Practice: Physical Activity

- Policy Framework
- Surveillance
- Evidence-Based Interventions
- Guidelines
- Evaluation
- Communication
- Partnerships and Networks
“A comprehensive social and political process, not only embracing action directed at strengthening skills and capabilities of the individual but also action directed at changing the social environment and economic conditions.

...is the process of enabling people to increase control over the determinants of health and thereby improve their health. Participation and partnership is essential to sustain health promotion action.”

WHO Glossary, 2003
Socio-ecological model: physical activity & health promotion in settings

- Public Policy: national, state, local laws
- Community: relationships among organizations
- Organizational: organizations, social institutions
- Interpersonal: family, friends, social networks
- Individual: knowledge, attitudes, skills
WHO DPAS strategy & NCD action plan, implementation/monitoring, best practice
### “What works”: Search and evaluation strategies:

<table>
<thead>
<tr>
<th>Interventions within settings</th>
<th>Outcomes</th>
<th>Process &amp; Policy Implications</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Knowledge and Attitudes</td>
<td>Behaviour Change</td>
<td>Clinical markers</td>
</tr>
<tr>
<td></td>
<td>Behaviour</td>
<td>Intervention</td>
<td>Objectives</td>
</tr>
<tr>
<td>Policy &amp; Environment</td>
<td>Nutrition &amp; healthy diet</td>
<td>Intervention</td>
<td>Health</td>
</tr>
<tr>
<td></td>
<td>Diet intake</td>
<td>Program/me</td>
<td>Health promotion</td>
</tr>
<tr>
<td>Mass Media</td>
<td>Fruit intake</td>
<td>Project</td>
<td>Health behaviour</td>
</tr>
<tr>
<td></td>
<td>Fat intake</td>
<td>Campaign</td>
<td>Health practice</td>
</tr>
<tr>
<td>Primary Health Care</td>
<td>Vegetable intake</td>
<td>Initiative</td>
<td>Health knowledge</td>
</tr>
<tr>
<td>Worksite</td>
<td>Diet* habits</td>
<td>Strategy</td>
<td>Health education</td>
</tr>
<tr>
<td></td>
<td>Diet* knowledge</td>
<td></td>
<td>Disease prevention</td>
</tr>
<tr>
<td></td>
<td>Diet* practices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schools</td>
<td>Nutrient intake</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faith-based</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community &amp; web-based</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 937 nutrition studies and 776 physical activity studies after duplicates were removed;

- A total of 261 interventions, represented by the 395 peer-reviewed publications, met the inclusion criteria, with 119 interventions focused on nutrition interventions and 67 on physical activity interventions and 76 combining physical activity and nutrition.
Integrating physical activity into a national plan; multi-sector approach

WHO Global Strategy on Diet, Physical Activity and Health

A guide for population-based approaches to Increasing levels of physical activity

Dr Timothy Armstrong
World Health Organization
Geneva
Integrating physical activity into a national plan; multi-sector approach

Purpose of the Guide

- Assist the Ministry of Health and other stakeholders in the development and implementation of a national physical activity plan and provide guidance on policy options for effective promotion of physical activity at national level and sub-national level.

World Health Organization
Integrating physical activity into a national plan: what is needed?

Key elements

- High level political commitment.
- Integration in national policies.
- Funding.
- Support from stakeholders.
- Cultural sensitivity.
- A coordinating team.
- Integration of physical activity within other related sectors.
National physical activity plan: areas for action in multi-sector approach

### Examples of Areas for Action

<table>
<thead>
<tr>
<th>Areas for action</th>
<th>Examples</th>
<th>Level of action</th>
</tr>
</thead>
</table>
| Policy           | 1. Develop or integrate into national policy the promotion of physical activity, targeting change in a number of sectors.  
2. Review existing policies to ensure that they are consistent with best practice in population-wide approaches to increasing physical activity.  
3. Review urban planning/town planning and environmental policies (national and local level) to ensure that walking, cycling and other forms of physical activity are accessible and safe.  
4. Ensure transport policies include support for non-motorized modes of transportation.  
5. Review labor and workplace policies to ensure they support physical activity in and around the workplace.  
6. Encourage sports, recreation and leisure facilities to take up the concept of sports (and physical activity) for all.  
7. Ensure school policies support the provision of opportunities and programs for physical activity (consider staff as well as children).  
8. Explore fiscal policy that may support participation in physical activity | National population  
National population  
National and sub-population  
National population  
Sub-population  
Sub-population  
Sub-population  
National population |
National physical activity plan: areas for action in multi-sector approach

## Examples of Areas for Action

<table>
<thead>
<tr>
<th>Areas for action</th>
<th>Examples</th>
<th>Level of action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>Implement strategies aimed at changing social norms and improving community understanding and acceptance of the need to undertake physical activity in everyday life.</td>
<td></td>
</tr>
<tr>
<td>environments</td>
<td>1. Encourage environments that promote and facilitate physical activity, supportive infrastructure should be set up to increase access to, and use of, suitable facilities</td>
<td></td>
</tr>
</tbody>
</table>
| Partnerships.     | 1. Ministries of health should take the lead in forming partnerships with key agencies, and public and private stakeholders  
                    2. In partnership, draw up jointly a common agenda and work plans aimed at promoting physical activity  
                    3. Form networks and action groups to undertake advocacy activities and promote access and opportunity for physical activity  
                    4. Create multi-sectorial collaborations  
                    5. Develop shared work plans for strategy implementation with community groups and sports and religious organizations, as appropriate  
                    6. Develop guidelines for appropriate public-private partnership to promote physical activity |                 |

World Health Organization
WHO/CDC Recommended Physical Activity Policy Framework

1. VISION - Sustainability, credibility, data linked to policy, adaptation, equity & social justice

2. MAKING THE CASE
   - High prevalence of inactivity;
   - Burden of disease due to inactivity;
   - Health and social benefits of physical activity;
   - Economic costs of inactivity;
   - As little as 30 min of moderate PA per day.

3. DEFINING THE PROBLEM
   - Prevalence of inactivity;
   - Identify target populations or “at risk” groups;
   - Determinants of physical inactivity;
   - Barriers to physical activity policy and practice.

4. SOLUTIONS
   - Effective evidence-based interventions;
   - Population and public health focus; in multiple domains (sport, transport, leisure, etc.); Use of multiple settings;
   - Regulatory and legislative approaches;
   - Good governance and accountability;
   - Cultural specificity and adaptation; links to health & other priority issues.

5. IMPLEMENTATION & ELEMENTS OF SUCCESSFUL PROGRAMMES
   - Consultation and needs assessment;
   - Written plan and objectives;
   - Surveillance of PA, policy, public opinion, and environments;
   - Stable base of support; clear message and identity;
   - Coalitions, partnerships, leaders, champions, and inter-sectoral action;
   - Multiple intervention sites, populations at all levels, strategies;
   - Integration of PA w/other health promotion initiatives for NCD’s
   - Focus on PA enjoyment and social interaction;
   - Evaluate throughout the process.

6. EVALUATION - Formative, process and impact (outcomes)

Vuka South Africa: Logic Model 2005-2006

Assumptions
The Vuka South Africa Move for Health Campaign will increase the number of South Africans participating in regularly physical activity which is sufficient to achieve a health benefit.

Input
- Tertiary, private, NGO and governmental partnerships
- Consistent message

Outputs: Activities
- Promote the Vuka Move for Health Message
- Accrediting physical activity programmes with Vuka
- Identifying new opportunities for physical activity
- One day celebrations.
- Research and monitoring

Outputs: Participation
- NGO's, community based organisations, private sector, tertiary institutions.
- South African population is the recipients of the message, and would be encouraged to adopt a physically active lifestyle.

Immediate Outcomes:
- Increased awareness of Vuka Message.
- Improved perception of PA – especially in terms of "doability".
- Increased motivation to start becoming / maintaining a PA lifestyle.
- Increased knowledge of the benefits of physical activity.

Intermediate Outcomes:
- Increased awareness of what the Vuka Move for Health message states.
- Policy environment facilitate promotion of PA.
- Sustained implementation of PA programmes.

Outcomes - Impact
- Long Term Outcomes:
  - 'x %' brand awareness.
  - 'x %' knowledge of Vuka Move for Health message.
  - Increased prevalence of PA as measured by DHS 2007.
  - Improved health (NCD prevalence).
  - Increased transport, recreational facilities to encourage PA

Environment
Policy, transport, accessibility to physical activity recreational facilities, education (if most materials are written for example),
Agita São Paulo is a mass media campaign with the primary goal of increasing population levels of PA.

Agita involves over 300 institutions collaborating with multiple stakeholders. Agita’s message is to do 30 min of PA on at least 5 days/wk.

Agita aims to empower existing initiatives by coordinating and promoting activities & interventions in schools, workplaces and for seniors, with an emphasis on fun.

Agita is well-known, with more than half of the local population aware of the campaign.
Agita Galera: logic model example

Figure 1 Logic model for Agita Galera

<table>
<thead>
<tr>
<th>INPUTS</th>
<th>ACTIVITIES</th>
<th>OUTPUTS</th>
<th>OUTCOMES</th>
</tr>
</thead>
</table>

A network of partners: Agita São Paulo program

**Figure 1. Organizational structure of scientific and executive-level partnerships.**

- **Responsible institution**
- **Coordinating institution**

Program for promotion of physical activity

- **Scientific Board**
  - National
  - International

- **Executive Board**
  - Institutional partners (nongovernmental)
  - Institutional partners (governmental)

**Intervention target groups**

- Schoolchildren
- Workers
- Older adults

**Partnerships** among governmental and private sectors and civil society, **strengthening of mutual agendas**; one single objective lending itself to a **diversity of actions; high visibility** in the mass media; **clear messages** that are easy to understand; strategies that are practical, which can be **adapted** to local realities.

Ecological model to promote physical activity: Agita São Paulo program

FIGURE 3. Mobile ecological model to promote physical activity developed by the Agita São Paulo Program showing multiple dimensions of influence on behavior.


### Agita São Paulo: Examples of multi-sectoral activities

<table>
<thead>
<tr>
<th>Specific Actions</th>
<th>Permanent Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Mobilization of 6,000 schools in the state’s public network to celebrate Agita Galera</td>
<td>- Organization of physical activities at schools; among them, Agita Night for students and teachers of night classes</td>
</tr>
<tr>
<td>- Physical Activity Day commemorated on 6 April in the public school network by decree no. 46,664/2002</td>
<td>- Physical activity sessions (stretching and relaxation) at the beginning of the day and at the beginning of some classes</td>
</tr>
<tr>
<td>- Implementation of the Agita Familia program, in which children and their families participate in joint educational and sociocultural weekend activities, such as 30-minute physical activity sessions at the beginning or end of the day. Currently more than 400,000 people and 5,306 public schools are involved in the program.</td>
<td>- School rumbas adopted by some schools, incorporating a variety of Latin rhythms to accompany physical activities</td>
</tr>
<tr>
<td></td>
<td>- Diploma awarded to teacher whose class has the most “movement”</td>
</tr>
</tbody>
</table>

More than 6000 schools participate in **Agita Galera**, schools are the centre of communities in **Agita Familia**, reaches > 400,000 persons
Year-on-year changes in physical activity prevalence in São Paulo, Brazil

### Nutrition & Physical Activity interventions for reducing risk for NCD’s

<table>
<thead>
<tr>
<th>Areas for Action</th>
<th>Strongly recommended</th>
<th>Recommended/Promising</th>
<th>Not likely to be effective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy (Government) &amp; Environment (nutrition &amp; physical activity)</strong></td>
<td><strong>Did You think about taking the stairs?</strong></td>
<td>• Pricing strategies, signage, point-of-purchase prompts in grocery stores, vending machines, cafeterias and restaurants to support healthier choices</td>
<td>• Government programs comprising nutrition education only to vulnerable groups such as low income women</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Multi-targeted approach to encourage walking and cycling to school, commuting and leisure by</td>
<td></td>
</tr>
</tbody>
</table>

“Making the healthy choice… the easy choice”
Physical activity & point of decision prompts: CDC Stairwell Project

Baseline data

Intervention

Paint and c

% Change in trips per occupant from baseline

Bar chart showing:
- Art work: Month 1-3 = 3.7%
- Signs: Month 1-3 = 4.2%, Month >3 = 4.7%
- Music: Month 1-3 = 3.7%, Month >3 = 4.7%

With thanks to: Dr. Fiona Bull

BHF National Centre
physical activity + health

Loughborough University
Environmental factors influencing PA & health promotion to prevent NCD’s

Physical environment

- Accessibility of recreational resources
- Transportation, sidewalks, bike lanes
- Design of public spaces
- Land use, density, street connectivity, and urban form
- Aesthetic quality
  - Stress and psychosocial factors
- Availability and relative cost of “healthy” foods
- Food and tobacco advertising
- Availability of tobacco
- Noise
  - Sleep disturbance and stress
- Air pollution

Social environment

- Safety and violence
- Social support and cohesion
- Social norms

Proximate biological factors

- Blood pressure
- Body mass index
- Diabetes
- Blood lipids
- Stress response
- Others

Clinical cardiovascular disease

Inflammation
- Endothelial function
- Heart rate variability
- Arrhythmia

Behaviors (diet, physical activity, smoking)

FIGURE  Schematic representation of possible pathways linking residential environments to cardiovascular risk.

(Diez-Roux, A. 2003; J of Urban Health 80: 569-589)
Neighborhood Walkability: how to measure? What does it mean?

- Access to Amenities
- Connectivity
- Density
- Walkable Community
- Aesthetics
- Safety
Physical activity: barriers including the built environment (can we extrapolate from Global North?)

Environmental barriers/facilitating factors to physical activity in South Africans
(Tshabangu et al., in preparation)

- 40% Perceive crime in the neighbourhood to be a barrier
- 18% Perceive that they have an offering of recreational facilities close to home
- 8.4% Recognise dedicated cycling and walking paths within their communities
- 40% Have bus-stops or transit stops within 10-15 min walk from their houses;
- 34% Have “destinations” for shopping within walking distance to their homes
Physical activity & built environment: A barrier or a matter of perspective?
Ciclovia..best practice intervention for the social structural environment & PA

Ciclovías Unidas de las Américas (www.cicloviasunidas.org).
Ciclovia..best practice intervention for the social structural environment & PA

Ciclovías Unidas de las Américas
(www.cicloviasonidas.org).

Recreational Ciclovia definition

- Community based regular mass program in which streets are temporary closed to motorized transport allowing only access to individuals for leisure activities at least 2 days per month, at least 1 kilometer within the active period.

- Yearly mass events such as marathons, car free day, marches, bike trips, festivals, parades, and the critical mass event were excluded.

(Andrea Torres, Centers for Disease Control, USA)
Ciclovia Logic model

Ciclovías Unidas de las Américas (www.cicloviasieridas.org).

```
Determinants

- General characteristics of the programs
  - Geographic location
  - Program frequency
  - Extension and street access
  - Parks connectivity
  - Complementary programs (physical activity classes etc)
  - Public transit access
  - Safety

- Scales, sectors and stakeholders
  - Scales: local and national government
  - Sectors: transportation department, parks and recreation, police department, urban planning and health department
  - Stakeholders: non-government and government organizations

- Advocacy actions
  - Activist movements
  - Community group movements
  - Promotion and marketing strategies

Program

Behavior

Outcomes

- Physical activity
  - Ciclovia-Recreativa
  - Recreation

- Physical and social environment
  - Health related quality of life
  - Social capital
  - NCD Prevention
  - Physical/mental health
```

(Andrea Torres, Centers for Disease Control, USA)
Multi-sector process: Ciclovia Bogota-establishing a supportive environment for PA in a LMIC

Political Authority and Stability:
- Consolidation of political and administrative authority for the City of Bogotá (1992 on)
- Leadership by Mayors

Civic Engagement:
- Promote the use of the city
- Change social norms
- Pride in the City of Bogotá

Urban Reform:
- New regulations were implemented in order to improve the built environment, parks and transportation

Administration:
- New ways to manage public space and urban renewal.
- “Better” collaboration and coordination

Special thanks to Dr. Mike Pratt, Centers for Disease Control and Prevention, USA, WHO Collaborating Center for Physical Activity
**Principle components of Cicolvia, Bogota**

**Cicloruta:** Network of 300 kilometers of dedicated bike paths designed to reduce vehicular congestion and air pollution.

**Transmilenio:** Bus Rapid transit system with dedicated roads and lanes and fixed stations.

**Public Space Recovery / Parks:** Reclaiming space for pedestrians lost over the preceding years to street vendors, cars /1,000 district parks linked in a network

Special thanks to Dr. Mike Pratt, Centers for Disease Control and Prevention, USA, WHO Collaborating Center for Physical Activity
Principle components of Cicolvia, Bogota

Ciclovía / Recreovía: Sundays and Holidays, 128 kilometers of the city’s main streets are exclusively open for recreational and sports activities, from 7 a.m. to 2 p.m. Aerobics classes are provided at 19 different points around the city.

Car-free Day: Strategy to reduce vehicular congestion and pollution levels. During this day, citizens employ alternative means of transportation, such as bicycling, walking, or public transport.

Special thanks to Dr. Mike Pratt, Centers for Disease Control and Prevention, USA, WHO Collaborating Center for Physical Activity
Proximal outcomes of Cicolvia, Bogota: traffic congestion

Ciclovías Unidas de las Américas (www.cicloviasunidas.org).

Comparison of the traffic during a 6 hour ciclovía vs. 2 hours after the ciclovía vs. 6 hours of a regular week day in one street in Bogota

<table>
<thead>
<tr>
<th>Ciclovía</th>
<th>After the Ciclovía</th>
<th>Regular week day (Tuesday)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,797 personas</td>
<td>1,004 vehículos</td>
<td>4,865 vehículos</td>
</tr>
</tbody>
</table>

- Bicicletas: 2,999
- Peatones: 481
- Otros Ruedas: 317
- Autos: 775
- Motos: 132
- Buses: 95
- Camiones: 2
- Autos: 3,273
- Motos: 879
- Buses: 589
- Camiones: 124

Resource: Sarmiento & Behrentz 2008

(Andrea Torres, Centers for Disease Control, USA)
Proximal outcomes of Cicolvia, Bogota: noise

Ciclovías Unidas de las Américas (www.cicloviasunidas.org).

Noise level in a street in Bogota

In a regular day the regulations about environmental noise in residential areas are not met. Noise level is 7 times greater than during the Ciclovia (56dBA:Ciclovia vs. 73dBA: (Regular week day Normal))

Resource: Sarmiento & Behrentz 2008
Proximal outcomes of Cicolvia, Bogota: pollution

Ciclovías Unidas de las Américas (www.cicloviasonidas.org).

Particulate Material (PM) in a street in Bogota

In a regular day, the WHO recommendations are exceed and the PM is 13 times greater than the average of PM$_{10}$ during the Ciclovía (5 μg/m$^3$: Ciclovía vs. 65 μg/m$^3$: regular week day).

Resource: Sarmiento & Behrentz 2008

(Andrea Torres, Centers for Disease Control, USA)
What next for Cicolvias?

Ciclovías Unidas de las Américas
(www.cicloviasunidas.org).

Future studies should integrate different sectors such as public health, transportation, urban planning, sports and recreation, environment and architecture. A multi-sectoral task force will go beyond the traditional barriers among disciplines and institutions; to understand more the association between Ciclovias and public health.

(Andrea Torres, Centers for Disease Control, USA)
School transport survey: not cycling to school

Data source: Blaauwberg Bicycle Study (City of Cape Town, 2002)

Figure 4. Reasons for not using a bicycle to school.

(Pretorius and Bester, 2004)
NMT initiatives in South Africa:

The Road to Safety 2001-2005 strategy has as its mission to ensure an acceptable level of quality in road traffic, with the emphasis on road safety, on South African urban & rural road networks.

A key outcome required of this strategy has been identified as “safer pedestrians and cyclists”. The Shova Kalula (Pedal Easy) Project forms part of the programme to promote the safety of cyclists & pedestrians.

(Pretorius and Bester, Proceedings of the 23rd Southern African Transport Conference (SATC 2004))
The mission of BEN is poverty alleviation through the promotion of the use of the bicycle in all of its forms, in order to enhance low-cost non-motorised transport, and improve health through linking exercise and mobility. In collaboration with local and international partners, BEN facilitates the transportation of bicycles from Europe, the Americas and Asia to Southern Africa; the establishment of bicycle workshop projects; distribution of these bicycles to strategically selected groups of recipients; and the planning and introduction of bicycle user paths and integrated linking networks.
BEN- Bicycle Empowerment Network:

- Entrepeneural activities
- Cycle refurbishment & redistribution;
  Small business training
- Bike to school programme
- Cycle to work savings plan for new California bikes
- Non-motorised transport advocacy
LEVERS TO ENCOURAGE CYCLING

- Provision of financial assistance to projects and planning processes which integrate NMT into the transport development programmes;
- Expanding the relations beyond South Africa, e.g. through the Bicycle Partnership Programme and pursue the South-South co-operations;
- Pool resources with key role players, local partners and stakeholders;
- Trade facilitation and reducing import duties / discounted shipping costs (Senegal and Kenya have no import tax on bicycles);
- Political support and commitment of stakeholders;
- Set up a good institutional arrangement and funding mechanism;
- Regulatory and monitoring systems for the implementation of NMT and municipal by-laws that promote multiple modes of transport;
- Prioritise cycling over motorists especially at road intersections; and
- Build a common goal with communities to reinforce the integration of cycling.
3. VISION

The vision of the Department is to maximise the use of bicycle transport services to enable communities to access social and economic opportunities in an affordable, safe, reliable and integrated manner.

4. MISSION

- To ensure that communities experience improving levels of mobility and accessibility by integrating rural, peri-urban and urban people into an effective transport system;

- To facilitate an enabling environment that will mainstream cycling and related intermediate transport operations into public transport system through the provision of an appropriate institutional support mechanism; and

- To develop a cadre of micro-businesses that can manage Shova Kalula bicycle shops independently in the long run.

5. OBJECTIVE

To promote cycling as a low cost mobility solution, which shall enhance rural accessibility and urban mobility to enable the underserved communities to participate in socio-economic opportunities, through developmental support to vulnerable groups as identified in the target group.
Socio-ecological model: physical activity & health promotion in settings
Cost-effective primary health care interventions for the promotion of PA:

<table>
<thead>
<tr>
<th>Areas for Action or Settings</th>
<th>Strongly recommended</th>
<th>Recommended/Promising</th>
<th>Not likely to be effective</th>
</tr>
</thead>
</table>
| Primary Health Care Settings  | • Health risk appraisal, exercise consultation and exercise referral from medical practitioner to community physical activity programme coordinator (Green Prescription); utilizing existing infrastructure ensures cost-effectiveness.  
   • Targeted lifestyle intervention for at-risk individuals, with the primary health care setting (overweight, diabetic, low-income, women, WISEWOMAN) | • Counseling of callers to a health information service e.g. cancer information service. Callers are given a brief proactive message and are followed up with mail comprising health promotion materials  
   • Weight loss programs using health professionals for personal or phone consultations over a period of at least 4 weeks and a self-help program which includes self-monitoring | “Once-off” or minimal contact interventions for nutrition and/or physical activity counseling by medical practitioners or health promoters |
Green Rx: Example of a recommended intervention for PHC settings

- GP or practice nurse screens patient & issues GRx.
- Script is forwarded to nearest GRx Patient Support Person (PSP).
- PSP encourages the patient to become more active:
  - monthly telephone calls for 3-4 months or;
  - face to face meetings for 3-4 months or;
  - group support in a community setting for 3-6 months.
- Patient’s progress is reported back to the referring health professional.

(Elley et al., BMJ 326:2-6, 2003)
Leisure time physical activity and self-reported quality of life improved in those receiving Green Rx (12 mos)- No change in BP, cholesterol or weight.

(Elley et al., BMJ 326:2-6, 2003)
The incremental cost of converting one additional 'sedentary' adult to an 'active' state over a twelve-month period was NZ1,756 dollars in programme costs. (Elley et al., NZ Med J. 2004 Dec 17;117)

Green Rx: Self reported activity is different between groups & sustained

What this study adds

Counselling patients in general practice on exercise is effective in increasing physical activity and improving quality of life over 12 months without evidence of adverse effects

The intervention may reduce blood pressure by an average of 1-2 mm Hg over 12 months

No changes in the risk of coronary heart disease were observed

The intervention is sustainable in usual general practice

Prompting practice staff to deliver the intervention may have increased its effectiveness

(Elley et al., BMJ 326:2-6, 2003)
Areas for Action | Strongly recommended | Recommended/Promising | Not likely to be effective
--- | --- | --- | ---
School-based settings (nutrition & physical activity) | Comprehensive and multi-component school-based interventions of at least 2 years duration | • A more focused approach may also be successful, if accompanied by supportive | • Low intensity interventions (short-term or minimal exposure)

Schools are an established setting for health promotion activity with the advantage of influencing health-related beliefs & behaviors early in the ‘health career’ of learners.

- A food service component
- Parental involvement

and which become institutionalized within the curriculum.
Physical activity promotion to prevent NCD’s: what about worksites?

<table>
<thead>
<tr>
<th>Areas for Action</th>
<th>Strongly recommended</th>
<th>Recommended/Promising</th>
<th>Not likely to be effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worksite-based settings (nutrition &amp; physical activity)</td>
<td>Multi-component, worksite based interventions promoting healthy eating and physical activity; supportive environment including a “healthy “ food service component and worker participation in planning and implementation of the program</td>
<td>Multi-component, worksite based interventions promoting healthy eating and physical activity, with a supportive environment (food service, showers, flexitime, setting and location, incentives and recognition)</td>
<td>Intervention without recognition and reward system, and without supportive environment, and without worker participation</td>
</tr>
</tbody>
</table>
Physical Activity interventions for reducing risk for NCD’s: community support

<table>
<thead>
<tr>
<th>Areas for Action</th>
<th>Strongly recommended</th>
<th>Recommended/Promising</th>
<th>Not likely to be effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community-support Settings (nutrition &amp; physical activity)</td>
<td>• Healthy Lifestyle programmes in homogenous or “high risk” groups such as post-menopausal or obese women; multi-component incorporating education, awareness and behavioural interventions</td>
<td>• Programmes aimed at lowering the barriers for participation (access, cost for training, food baskets)</td>
<td>• After-school physical activity programmes or holiday programmes, without community participation or outside existing infrastructure.</td>
</tr>
<tr>
<td></td>
<td>• Physical activity interventions for senior adults, in meeting places or clubs where seniors typically gather (can be low intensity, peer-led)</td>
<td>• Web-based interventions with interactive “coaching”, targeting specific interest groups (weight loss, diabetes, etc.)</td>
<td>• Community-based programmes developed without community participation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• “Meals on wheels” type nutrition, home-based intervention for senior adults; utilizing existing infrastructure</td>
<td></td>
</tr>
</tbody>
</table>
EFFECTIVENESS OF A COMMUNITY BASED LOW INTENSITY EXERCISE PROGRAM FOR OLDER ADULTS

T.L. KOLBE-ALEXANDER¹, E.V. LAMBERT¹, K.E. CHARLTON²

1. UCT/MRC Research Unit for Exercise Science and Sports Medicine, 2. Nutrition and Dietetics Division, Department of Medicine, University of Cape Town and Chronic Diseases of Lifestyle Unit, Medical Research Council, South Africa. Address for correspondence: Estelle V. Lambert: MRC/UCT Research Unit for Exercise Science and Sports Medicine, Department of Human Biology, Faculty of Health Sciences, University of Cape Town, Sports Science Institute of South Africa, PO Box 115 Newlands, 7725, Email: vlambert@uct.ac.za, Tel: 27-21-6504571, Fax: 27-21-6867530

---

**Design**

EX1
N = 32
Pre 10 Wks 20 Wks

EX2
N = 38
Low intensity seated exercise 2 X per week

CTL
N = 22
Relaxation and social meetings 2 X per week

---

**Systolic BP (mm Hg)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre</th>
<th>10 wks</th>
<th>20 wks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX1</td>
<td>170</td>
<td>160</td>
<td>150</td>
</tr>
<tr>
<td>EX2</td>
<td>160</td>
<td>150</td>
<td>140</td>
</tr>
<tr>
<td>CTL</td>
<td>150</td>
<td>140</td>
<td>130</td>
</tr>
</tbody>
</table>

* P < 0.0002

---

**Sit to Stand (reps)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre</th>
<th>10 Wks</th>
<th>20 Wks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX1</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>EX2</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>CTL</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

* P < 0.002
In a 24 hour period, South Africa municipal parks and recreation join hands with sport and recreation, community organisations and local authorities and complete 24 hour extreme parks - this is the third park completed last year.
Sporting codes identified a need for "grass roots" facilities; sponsorship was sought for the development of the "mobile gym" or "gym in a box"; to date, 23 have been delivered to disadvantaged communities at a cost of R300,000 or $45,000 each; evaluation is underway.

Promising PA initiatives undergoing evaluation: partnering in the sports sector.
Physical activity and health promotion in Africa:

- Little evaluation;
- Minimal dissemination;
- Innovative and promising intersectoral models
Physical activity: New partners for health, who are the “practitioners”?

- Physical educators
- Sports coaches
- Sport for social development programmes
- Religious & culture & youth organizations
Key issues for physical activity on the NCD agenda in Africa

• Data gathering via STEPS focuses attention on physical activity; develops capacity, places it on the national health agenda;

• We need to consider the nature of physical activity accumulation in our settings and in relation to health outcomes, to correctly frame health promotion messages;

• The issue of settings, in particular, schools, workplaces, clinics, churches and cultural activities/events, is especially relevant to promote the practice of physical activity.

• The focus on multi-sectoral approaches in countries undergoing rapid urbanisation and development is key to prevent mistakes of the past, and to contextualise environmental barriers in the Global South;

• There is a need to recognise and recruit from a different and new cadre of practitioners in Africa.

Cautionary note: we must be careful not to “over-medicalise” physical activity.