Population-based approaches to physical activity promotion

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Physical inactivity in men 15+ years


Physical inactivity in women 15+ years


Cardiovascular diseases
Harmful use of alcohol
Diabetes
Unhealthy diets

Tobacco use
Chronic respiratory diseases
Physical inactivity
Cancers

2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases
Swiss HEPA recommendations for adults

Federal Office of Sport, Federal Office of Public Health, Health Promotion Switzerland, Network HEPA Switzerland 1999

"old" leisure time recommendations

Sufficiently active

Physical activity behaviour over time

Proportion physically inactive

adult population with less than 1 leisure time "sweat episode" per week

1. "Whole-of-school" programmes
2. Transport policies and systems
3. Urban design regulations and infrastructure
4. Primary health care systems
5. Public education
6. Integrated community-wide programmes
7. "Sport for all" systems and programmes

GAPA, a council of the International Society for Physical Activity and Health ISPAH
www.globalpa.org.uk

Cardiovascular risk factors and changes in PA in children

<table>
<thead>
<tr>
<th>Variables</th>
<th>Adjusted difference at follow-up*</th>
<th>Coefficient (95% CI)</th>
<th>P-value</th>
<th>ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skinfolds (mm)</td>
<td>-0.12 (-0.21 to -0.03)</td>
<td>0.009</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Shuttle run (stages)</td>
<td>0.17 (0.01 to 0.32)</td>
<td>0.06</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Total physical activity (counts/min)</td>
<td>0.21 (-0.21 to 0.63)</td>
<td>0.31</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>In school</td>
<td>0.92 (0.35 to 1.50)</td>
<td>0.003</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>Out of school</td>
<td>-0.14 (-0.51 to 0.22)</td>
<td>0.41</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Total MVPA (min/day)</td>
<td>0.44 (0.05 to 0.82)</td>
<td>0.03</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>In school</td>
<td>1.19 (0.78 to 1.60)</td>
<td>0.001</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Out of school</td>
<td>-0.06 (-0.39 to 0.27)</td>
<td>0.72</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Physical quality of life</td>
<td>0.42 (1.23 to 2.06)</td>
<td>0.61</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Psychological quality of life</td>
<td>0.59 (-0.85 to 2.03)</td>
<td>0.42</td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

*Adjusted for grade, sex, and a number of confounders. P-values, except for school-time, adjusted for grade, sex, and a number of confounders. ICC: intraclass correlation coefficient.RM: relative metabolic activity.

Youth+Sports
Established by federal law in 1972
(constitutional vote in 1970)
"The aim of the institution youth+sports is to develop young people of 14 (since 1994: 10; since 2001: 5) to 20 years of age in sports and to guide them to a healthy lifestyle"

Emphasis on sports for all
### 2008: pilot project Youth+Sport Kids (5-10 years)
2009: national programme Youth+Sport Kids (5-10 years)
additional budget of 20 million Swiss Francs (17 million Euro)

- **Children/Adolescents (10–20)**: 550’000
- **Active Instructors**: 53’200
- **Courses / Camps**: 48’000
- **Federal subsidies to organizers**: 35 million Euro
- **Total public money invested**: 70 million Euro
- **Certified instructors**: 107’784
- **Certified coaches**: 15’269
- **Certified experts**: 5’358
- **People in Training (instr. / coaches)**: 47’000
- **Training Courses**: 2’516

**SwitzerlandMobility**

Comparison of inhabitants' physical activity behaviour in Zermatt (Community 1), Crans-Montana und Verbier

- **Public transport**
- **Cycling**
- **Hiking**
- **Mountainbiking**
- **Inlineskating**
- **Paddling**

Thommen Dombois O, Braun-Fahrländer Ch, Martin-Diener E. Comparison of adult physical activity levels in three Swiss alpine communities with varying access to motorized transportation. Health & Place, 2007; 13(3): 757-66

[www.switzerlandmobility.ch](http://www.switzerlandmobility.ch)
The approach of HEAT Cycling and Walking

• addressed to transport planners and decision makers
• easy, practical tools
• quantifying the health benefits of reduced mortality associated with regular physical activity due to cycling or walking

Systematic reviews on effects of cycling and walking

• Cycling
  • Longitudinal study in Copenhagen (Andersen et al. Arch Intern Med. 2000)
    – 3h bike commuting per week* → RR 0.72 for total mortality

• Walking
    – 29 mins. walking per day* → RR 0.78 for total mortality

* Corrected for co-variates including leisure time physical activity

The development of HEAT Cycling and Walking

• Systematic reviews of the literature
• Development of options and guidance for more harmonized methodology
• Development and test of draft tools
• Consensus meetings with international advisory groups

• Development of final tools:
  • guidance document
  • systematic review
  • online tool HEAT walking and cycling
  • publication on applications
  • booklet (->)

HEAT Health Economic Assessment Tool for Cycling and for Walking

www.euro.who.int/HEAT
Basic functioning of HEAT

Volume of walking/cycling per person
duration/distance/trips/steps
(entered by user)

Protective benefit: reduction in mortality as a result of walking/cycling

Volume of walking/cycling

Reference volume of walking/cycling

Population that stands to benefit
(entered by user or calculated from return journeys)

General parameters

Intervention effect, build-up period, mortality rate, time frame
(changeable default values)

Estimate of economic savings
using VSL
(changeable default values)

** RR = relative risk of death in underlying studies
walking: 0.78; cycling: 0.72.

Volume of cycling per person calculated based on 3 hours/week for an estimated 36 weeks/year at an estimated speed of 14 km/hour in Copenhagen. Volume of walking based on 29 minutes/day at 4.8 km/hour.

Protective benefit = Volume of walking/cycling
Reference volume of walking/cycling

Population that stands to benefit
(entered by user or calculated from return journeys)

General parameters

Intervention effect, build-up period, mortality rate, time frame
(changeable default values)

Estimate of economic savings
using VSL
(changeable default values)

HEAT for Cycling illustrated in its former Excel version

Step 1: enter your data (all users must fill in the red fields)

Number of trips per day

Mean trip length (km)

10,000

4

Step 2: check the parameters

Mean number of days cycled per year

0.9

Proportion of trips that are one part of a return journey (or ‘round trip’)

0.5

Proportion undertaken by people who would not otherwise cycle

Mean proportion of working-age population who die each year

Value of life (in Euros)

Discount rate

5.0%

Population parameters used to calculate results

Population that stands to benefit

2750

Expected deaths in the local population

16.08

Protective benefit, according to actual distance traveled

0.17

Users saved

2.83

Step 2: read the economic savings resulting from reduced mortality

Maximum annual benefit

Savings per km cycled per individual cyclist per year

EUR 0.81

Savings per individual cyclist per year

EUR 7.06

Savings per trip

EUR 3.39

Mean annual benefit:

Present value of mean annual benefit:

Based on the following assumptions (see user guide for details)
5% discount rate

5 year build-up of benefit and 1 year build-up of uptake, averaged over 10 years

www.euro.who.int/HEAP
HEAT Applications

• Since May 2011:
  – over 2,500 visits
  – from almost 60 countries

• Part of official transport assessment toolbox:
  – in 2 countries (Sweden, England)
  – under consideration in 1 more (France)

• Applied in project evaluations, status quo and scenario analyses

Example 3: North-East Active Travel Group and Sustrans, UK

• Modelling of potential value of investment in active travel
  – reducing obesity
  – increasing physical activity – HEAT
  – other non-health related savings

• Presented at seminar with senior health and transport professionals

• Demonstrating potential economic benefits of active travel interventions catalyzed strong reaction

• Agreement to fund project on active school travel

• Subsequently, £5mio. of investment in sustainable transport from Local Sustainable Transport Fund secured

PA promotion in primary care

• Since 1990s development of interventions based on international experiences, but adapted to local situation

  ➡️ Good acceptance in patients, GPs and other primary care staff
PA promotion in primary care

• Since 1990s development of interventions based on international experiences, but adapted to local situation
  ➔ Good acceptance in patients, GPs and other primary care staff
  ➔ Indications for effectiveness


But: difficulty to recruit primary care partners


PA promotion in primary care

• Development of professional communication materials and procedures for large scale implementation
• Based on existing experiences, expert opinion, qualitative and quantitative research


Opinions and Attitudes of a Sample of Swiss Physicians about Physical Activity Promotion in a Primary Care Setting

Barriers to counseling – (...) most important ones: lack of
time, competition between the
different topics of health
promotion and preventive
medicine, lack of reimburse-
ment, lack of clear guidelines,
lack of knowledge about
downstream structures, lack of
structural support to facilitate
behavioral changes in patients
(architectural and in town
planning), or physician’s fear
to be perceived as a «health
moralist» (...)”

Schweizerische Zeitschrift für «Sportmedizin und
Sporttraumatologie» 55 (3), 97–100, 2007

Opinions and Attitudes of a Sample of Swiss
Physicians about Physical Activity Promotion in
a Primary Care Setting

Attitudes towards Physical Activity Promotion in Primary Care
HEPA survey Switzerland 2004, n=811

“For you, how relevant is your GP’s advice concerning your individual
physical activity behaviour?”

<table>
<thead>
<tr>
<th>Desire for advice</th>
<th>Importance of advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much welcomed</td>
<td>47.5 %</td>
</tr>
<tr>
<td>Rather welcomed</td>
<td>32.0 %</td>
</tr>
<tr>
<td>Indifferent</td>
<td>7.1 %</td>
</tr>
<tr>
<td>Rather disapproved</td>
<td>5.9 %</td>
</tr>
<tr>
<td>Clearly disapproved</td>
<td>7.5 %</td>
</tr>
<tr>
<td></td>
<td>50.5 %</td>
</tr>
<tr>
<td></td>
<td>30.8 %</td>
</tr>
<tr>
<td></td>
<td>10.5 %</td>
</tr>
<tr>
<td></td>
<td>4.2 %</td>
</tr>
<tr>
<td></td>
<td>4.0 %</td>
</tr>
</tbody>
</table>

very relevant         |
rather relevant        |
moderately relevant    |
of little relevance    |
not relevant at all

Bize R, Surbeck R, Padlina O, Peduzzi F, Cornuz J, Martin B. Promotion of physical activity in the primary

PA promotion in primary care

• Development of professional communication materials
  and procedures for large scale implementation
• Based on existing experiences, expert opinion,
  qualitative and quantitative research
• Joint project with Swiss College of Primary Care Medicine

⇒ College’s decision based on evidence based approach and possibility to participate in elaboration of final product

Bize R, Surbeck R, Padlina O, Peduzzi F, Cornuz J, Martin B. Promotion of physical activity in the primary

PA promotion in primary care

• Development of professional communication materials
  and procedures for large scale implementation
• Based on existing experiences, expert opinion,
  qualitative and quantitative research
• Joint project with Swiss College of Primary Care Medicine
• Testing in 19 primary care practices in French speaking
  and 6 in German speaking Switzerland

Bize R, Surbeck R, Padlina O, Peduzzi F, Cornuz J, Martin B. Promotion of physical activity in the primary
Continuing education

Physician’s manual

Patients’ brochure

Motivational Interviewing

Local and regional health promotion structures

Local physical activity offers and opportunities

Physician’s short intervention

Behavioural change towards more physical activity

www.panh.ch/paprica

Interventions implemented through sporting organisations for increasing participation in sport

Pead N, Armstrong R, Doyle J, Walker E

Summary

Interventions implemented through sporting organisations for increasing people’s participation in sport

The potential to intervene in sporting organisations is significant. Participation rates in organised sport is generally lower in certain socio-economic groups, with participation rates lower in socio-economic groups. It is important to determine the most effective interventions that sporting organisations can use to encourage people to participate in a sporting organisation. The systematic review of interventions that increase participation in sport, and the any conflicts, issues and recommendations for future research, can be found online at www.panh.ch/paprica.

Authors’ conclusions

There is an absence of high quality evidence to support interventions designed and delivered by sporting organisations to increase participation in sport.
Physical activity levels and determinants of change in young adults: a longitudinal panel study

Dorith Zimmermann-Soursis, Miret Warner, Irwin Zimmermann, Brian W Martin

Table 4 Odds ratios for being physically inactive in young males and females

<table>
<thead>
<tr>
<th>Sport club membership</th>
<th>&quot;no sport&quot;</th>
<th>inactive</th>
<th>&quot;no sport&quot;</th>
<th>inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remaining member</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>6.7</td>
<td>4.6</td>
<td>8.1</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Adjusted for all except education
All estimates and 95% CI are based on data using the gSE model with pairwise log odds ratios for within-subject correlation

Table 5 Odds ratios for becoming physically inactive in previously active young males and females

<table>
<thead>
<tr>
<th>Sport club membership</th>
<th>becoming &quot;no sport&quot;</th>
<th>becoming inactive</th>
<th>becoming &quot;no sport&quot;</th>
<th>becoming inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remaining member</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>7.8</td>
<td>5.9</td>
<td>11.9</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Adjusted for all variables displayed in the table except education
All estimates and 95% CI for pairwise log odds ratio are based on data using the gSE model with an independent correlation structure for within-subject associations. Odds ratios were included with data on the preceding wave in individuals who were active in sports the previous wave (751/955 (78.8%)).
Overview of documents and developments

Population impact of a nation-wide physical activity programme with 200'000 participants

Physical inactivity levels in Switzerland

The NCD Alliance
Putting non-communicable diseases on the global agenda
Monitoring exposures, cont.

- Blood pressure/hypertension
  - Target: 25% relative reduction in prevalence of raised blood pressure
  - Indicator: Age-standardized prevalence of raised blood pressure among persons aged 30+
- Obesity
  - Target: No increase in obesity prevalence
  - Indicator: Age-standardized prevalence of obesity among persons aged 25+

Tobacco smoking
- Target: 40% relative reduction in prevalence of current tobacco smoking
- Indicator: Age-standardized prevalence of current tobacco smoking among persons aged 15+

Alcohol
- Target: 15% relative reduction in alcohol per capita consumption (APC)
- Indicator: APC of pure litres of alcohol among persons aged 15+

Dietary salt intake
- Target: Mean adult population intake of salt less than 5 grams per day
- Indicator: Age-standardized mean adult population intake of salt per day

Indicators and targets for 2025 for the global monitoring framework for NCDs

- Mortality between ages 30 and 79 due to CVB, cancer, diabetes, and chronic respiratory disease
  - Target: 25% reduction
- Overweight/obesity (adult, youth, adolescents)
  - Target: 25% reduction
- Blood pressure/hypertension
  - Target: 25% reduction
- Tobacco smoking
  - Target: 50% reduction
- Alcohol
  - Target: 30% reduction
- Dietary salt intake
  - Target: 50% reduction
- Total fruit and vegetable intake
  - Target: 50% increase
- Sugar intake
  - Target: 30% reduction
- Other country-specific indicators of NCDs and related factors including social determinants of health

We call upon Member States, WHO and other interested partners, to endorse the inclusion of the global target and indicator on physical inactivity in the core set of the NCD monitoring framework.