



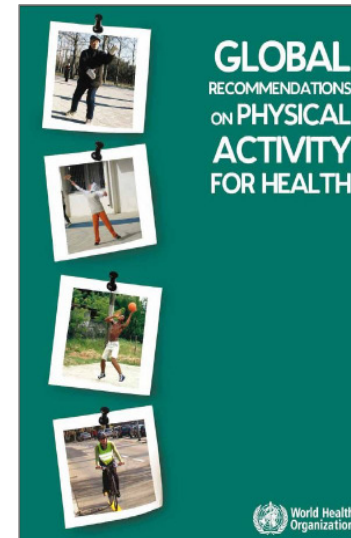
University of
Zurich^{UN}

Institute of Social and Preventive Medicine

Physical activity and safety promotion – from a risk factor approach to joint action

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Physical Activity and Health Unit

*3rd European Conference on Injury Prevention and Safety Promotion
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2010

www.who.int/dietphysicalactivity

Health benefits of physical activity in adults

- | | |
|----------------------------------|--------------------------|
| ↑ Life expectancy | ↓ Coronary heart disease |
| ↑ Cardiorespiratory fitness | ↓ High blood pressure |
| ↑ Muscular fitness | ↓ Stroke |
| ↑ Healthy body mass | ↓ Diabetes type II |
| ↑ Healthy body composition | ↓ Metabolic syndrome |
| ↑ Bone health | ↓ Colon cancer |
| ↑ Sleep quality | ↓ Breast cancer |
| ↑ Health-related quality of life | ↓ Depression |

Additionally in older adults:

- | | |
|----------------------|-------------------|
| ↑ Functional health | ↓ Risk of falling |
| ↑ Cognitive function | |

↑ **strong evidence**
↑ **modest evidence**

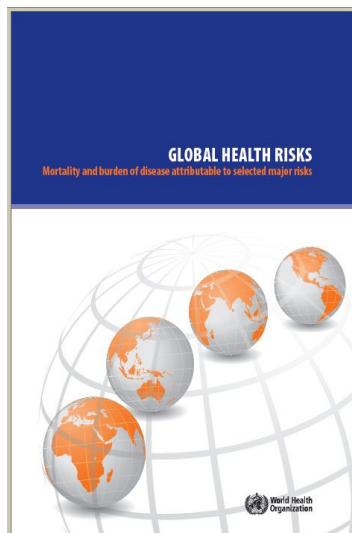
Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC: U.S. Department of Health and Human Services, 2008.

Health benefits of physical activity in children

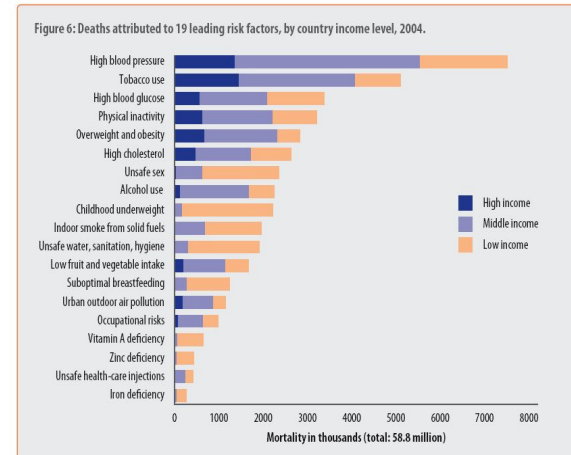
- | | |
|---|-----------------------|
| ↑ Physical fitness | ↓ Body fatness |
| ↑ Cardiorespiratory endurance | ↓ Anxiety symptoms |
| ↑ Muscular strength | ↓ Depression symptoms |
| ↑ Health status | |
| ↑ Favourable cardiovascular risk profile | |
| ↑ Favourable metabolic disease risk profile | |
| ↑ Bone health | |


↑ **strong evidence**
↑ **modest evidence**

Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC: U.S. Department of Health and Human Services, 2008.




2009





5th annual meeting
of HEPA Europe
European network for the
promotion of health-
enhancing physical activity

Report of a WHO meeting
11-12 November 2009
Bologna, Italy




HEPA Europe
European network for the promotion
of health-enhancing physical activity

**Activity reports and
work programmes in the
reports of the annual
meetings**

www.euro.who.int/hepa

1. Why is physical activity important for health?
2. What is known about current levels of physical activity and inactivity?
3. What factors and conditions influence physical activity?
4. What can the health sector and others do to increase physical activity?



Strategies

Physical activity promotion should be based on a number of principles, adapted to the needs of the population (1):

1. Tailoring population-based approaches.
2. Tailoring individual-based approaches.
3. Tailoring the environment for physical activity.
4. Tailoring the environment for physical activity.
5. Tailoring the environment for physical activity.
6. Tailoring the environment for physical activity.
7. Tailoring the environment for physical activity.
8. Tailoring the environment for physical activity.

Cavill N, Racioppi F, Kahlmeier S. Physical Activity and Health in Europe. Evidence for Action. Copenhagen: WHO, 2006.

Analyses of selected approaches



www.euro.who.int/hepa

The Health Economic Assessment Tool HEAT for Cycling

The screenshot shows the HEAT for Cycling interface. It includes input fields for 'Number of trips per day' (set to 10000) and 'Mean trip length (km)' (set to 10). It also has a table for 'Step 2: check the parameters' with values for 'Mean number of trips per day' (10000), 'Mean trip length (km)' (10), 'Population size' (1000000), 'Population density' (1000000), 'Mean population density' (1000000), and 'Mean population density' (1000000). The 'Step 3: read the economic savings resulting from reduced mortality' section shows 'Maximum annual benefits' of EUR 4,289,000 and 'Present value of mean annual benefits' of EUR 2,383,000. The 'Population parameters used to calculate results' section shows 'Population that stands to benefit' of 2500, 'Mean population density' of 1000000, 'Population density' of 1000000, 'Population density' of 1000000, and 'Population density' of 1000000.

www.euro.who.int/hepa

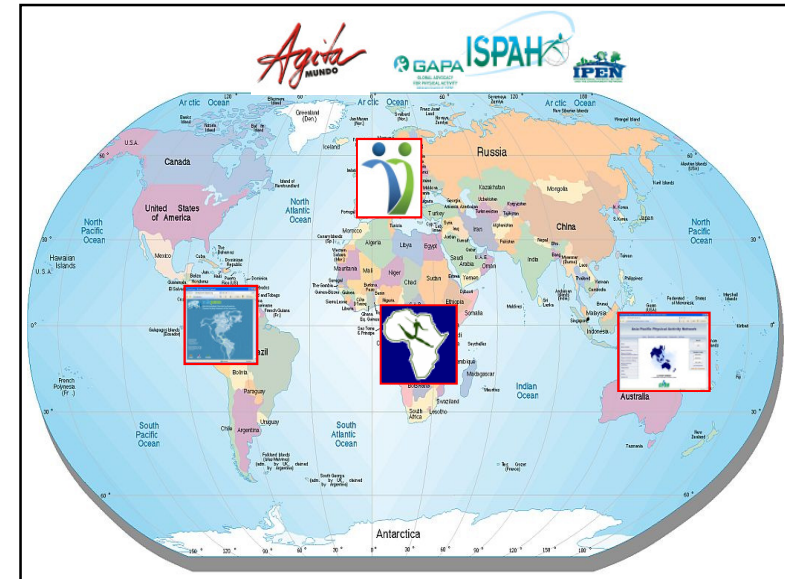
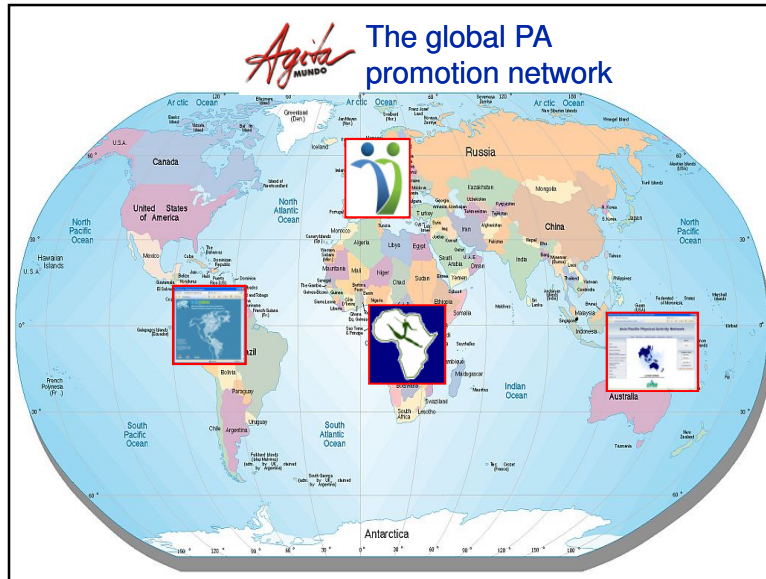
Working groups on specific topics



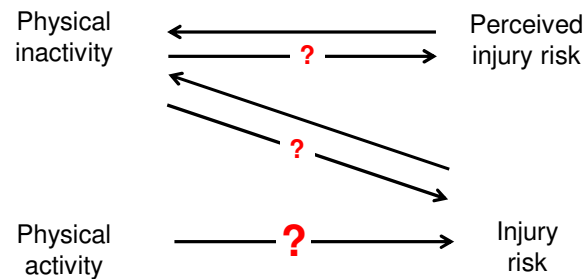
www.euro.who.int/hepa

Regional Networks for Physical Activity and Health

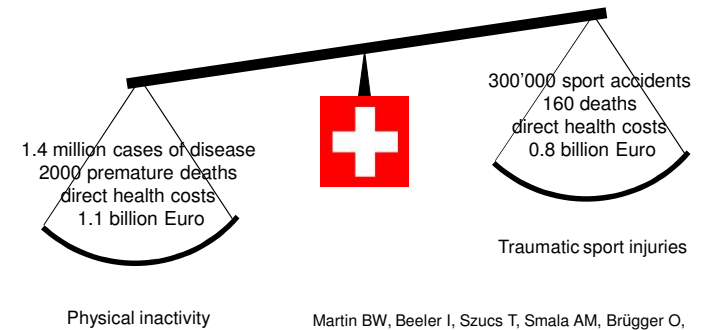




Injuries as a risk factor for physical inactivity and physical activity as a risk factor for injuries

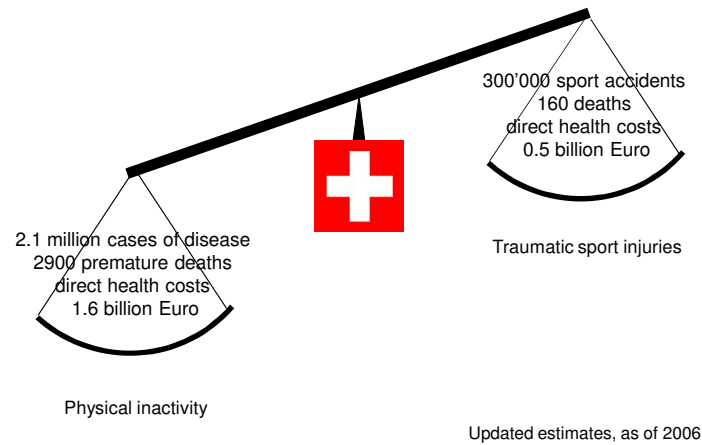


Both physical inactivity and traumatic sport injuries are relevant for public health

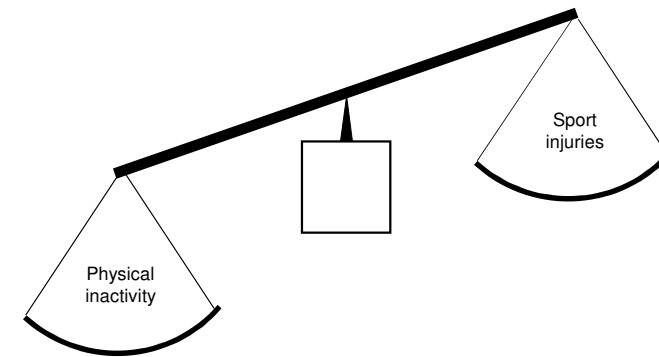


Martin BW, Beeler I, Szucs T, Smala AM, Brügger O, Casparis C, Allenbach R, Raebler PA, Marti B. Economic benefits of the health-enhancing effects of physical activity: first estimates for Switzerland. Schweiz. Schweiz Z Sportmed Sporttraumatol, 2001; 49 (3): 131-133.

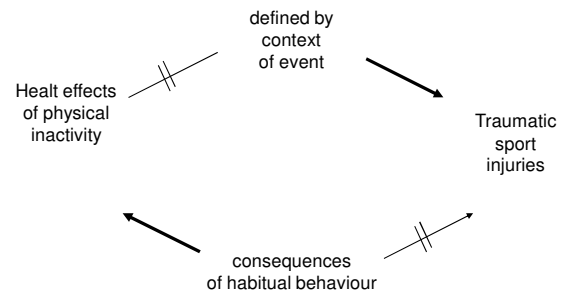
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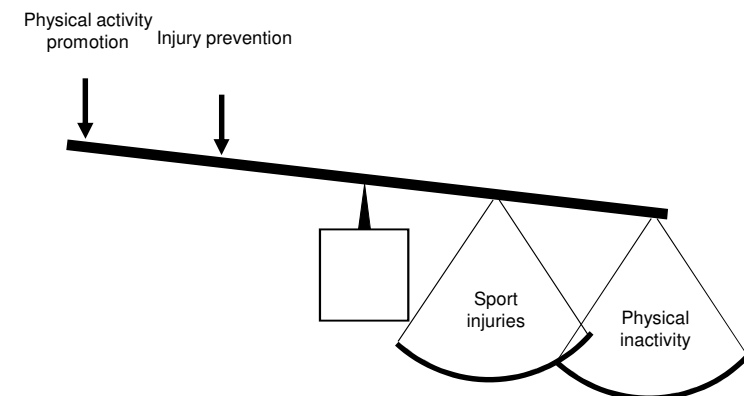
Is this the correct model?



Sport injuries can happen in inactive people!



Is this the correct model?




bfu-report no. 64


Physical Activity Promotion and Injury Prevention

Relationship in sports and other forms of physical activity

Authors:
Eva Martin-Diener, Othmar Brügger, Brian Martin

Berne 2010

 University of Zurich

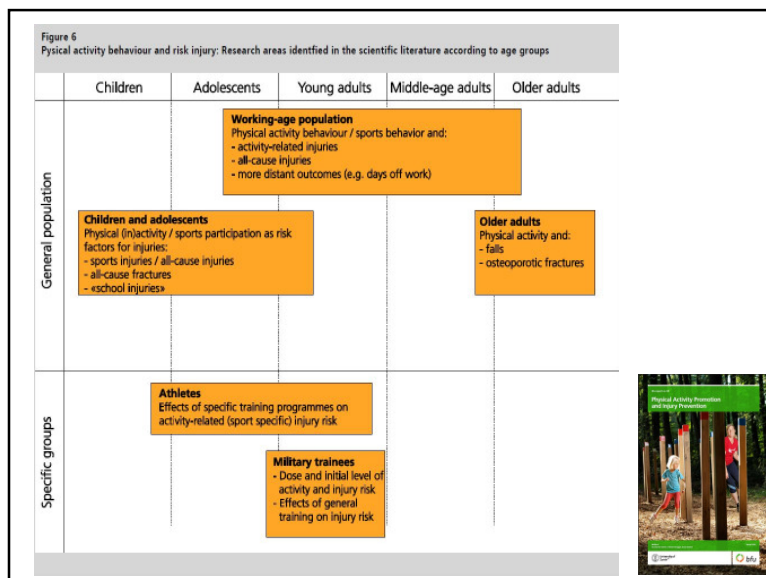
 bfu

Physical Activity Promotion and Injury Prevention

Review starting from evidence in USDHSS Physical Activity Guidelines Advisory Committee Report 2008, further studies identified

Including comments from international institutions (EMGO, CDC)

www.bpa.ch
www.bfu.ch



Prevention of sport injuries. Systematic review of randomised trials.

"All 6 multi-intervention training programs (2809 participants) were effective in preventing sport injuries (risk reduction \geq 50% in 5 studies)"

Aaltonen S, Karjalainen H, Heinonen A, Parkkari J, Kujala UM. Arch Intern Med 2007; 167 (15): 1585-1592

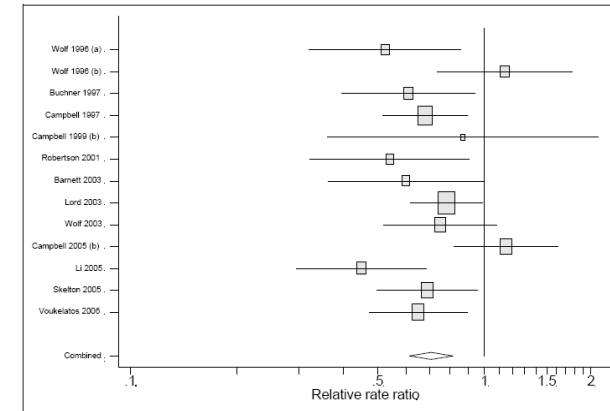
Reductions in overuse and traumatic injury in the US Army between multiple intervention group (n = 1283) and historical control group (n = 2559)

Table 4 Crude and adjusted risk ratios (95% confidence intervals) for the three types of injuries comparing multiple intervention (MI) and historical control (HC) cohorts (risk ratios are HC/MI from Cox regression)

Analysis	Any time loss injury	Time loss overuse injury	Time loss traumatic injury
Men			
Crude	1.13 (0.98 to 1.30)	1.18 (1.00 to 1.40)	1.38 (1.06 to 1.81)
Adjusted	1.46 (1.21 to 1.77)	1.58 (1.26 to 1.99)	1.50 (1.06 to 2.12)
Women			
Crude	1.31 (0.96 to 1.79)	1.65 (1.14 to 2.38)	1.40 (0.75 to 2.62)
Adjusted	1.77 (1.10 to 2.83)	2.52 (1.47 to 4.31)	1.37 (0.57 to 3.29)

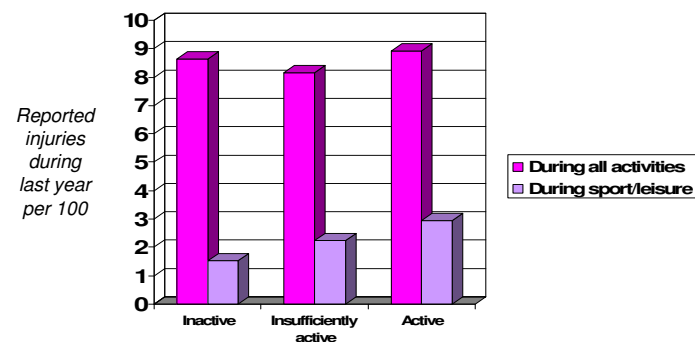
Knapik JJ, Bullock SH, Canada S, Toney E, Wells JD, Hoedebecke E, Jones BH. Influence of an injury reduction program on injury and fitness outcomes among soldiers. *Inj Prev*. 2004 Feb;10(1):37-42.

Effect of exercise interventions to prevent falls in older adults



Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC: U.S. Department of Health and Human Services, 2008. Source: Adapted from Campbell A and Robertson M 2008.

Cumulative incidence of accidents by leisure-time activity level in the US National Health Interview Survey 2000 to 2002 (n=93'159)



Carlson SA, Hootman JM, Powell KE, Macera CA, Heath GW, Gilchrist J, Kimsey CD Jr, Kohl HW 3rd. Self-reported Injury and Physical Activity Levels: United States 2000 to 2002. *Ann Epidemiol*. 2006 Apr 18;

Physical Activity Risk in Children and Adolescents

Apart from a few longitudinal studies, mostly cross-sectional studies attempting to identify risk factors for injuries

Consistent evidence:

participation in sports ⇔ risk of sports-related injuries

Some evidence:

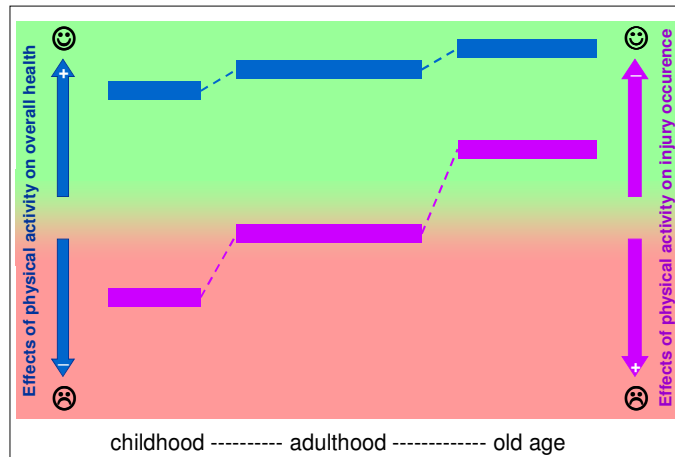
participation in sports ⇔ risk of fractures and injuries from all causes

Limited evidence from few studies:

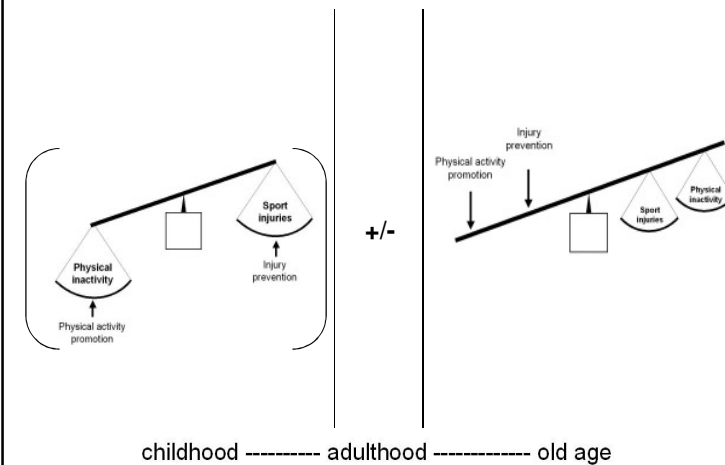
non-sports activities ⇔ injuries from all causes
non-vigorous activities (⇔) protection from fractures



PA promotion and injury prevention in different age groups



PA promotion and injury prevention in different age groups



Draft implementation recommendations for age groups

- **Link up PA promotion and accident prevention**

To avoid an increase in injuries, it is important to accompany PA promotion with all measures of accident prevention

- **Support the right choices in PA promotion.**

Activities should be appropriate for age as well as individual level of fitness and experience

- **Physical activity promotion is accident prevention.**

Multidimensional training programmes seem to be most effective, general measures of accident prevention should be observed.

childhood ----- adulthood ----- old age

Aims of the HEPA Europe/Eurosafe Working Group on HEPA Promotion and Injury Prevention

- To identify the relationship between physical activity promotion and injury prevention
- To develop synergies between physical activity promotion and injury prevention
 - Joint platform of HEPA Europe and EuroSafe:
 - for presentation of evidence
 - for the exchange of experiences
 - for the development of strategies and tools for joint action



1st Meeting of the HEPA Europe/Eurosafe Working Group on HEPA Promotion and Injury Prevention

Participants:

- Eva Martin-Diener
- Wim Rogmans
- Othmar Brügger
- Markus Hübscher
- Jacob Kornbeck
- Michal Molcho
- David Schulz
- Dinesh Seti



- Willem van Mechelen
- Evert Verhagen
- Brian Martin



Zurich, 08.-09.06.2011

1st Meeting of the HEPA Europe/Eurosafe Working Group on HEPA Promotion and Injury Prevention

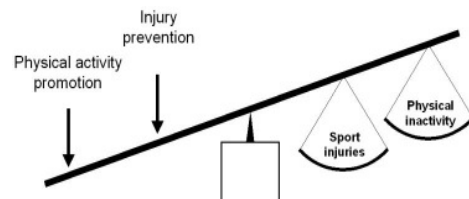
- Information and exchange about current developments
- Consensus to develop a background document on physical activity promotion and injury prevention
- Based on the framework established in the document, development of further products planned such as:
 - capacity building tools
 - a tool kit compiling examples of integrated approaches
 - an inventory of examples of good practice
 - tool sets for specific risk groups
 - guidance on economic appraisal



Zurich, 08.-09.06.2011

Conclusions

- Both physical activity promotion and injury prevention are important public health issues
- Synergies exist and should be strengthened



- Where intervention models already exist, they must be implemented
- Where this is not yet the case, they must be developed