



University of  
Zurich<sup>TM</sup>

Institute of Social and Preventive Medicine



## How can our societies support physical activity and how can physical activity support our societies?

Brian Martin, MD MPH

Head Physical Activity and Health Unit, Institute of Social and Preventive Medicine

Chairman Agita Mundo, the Global Physical Activity Promotion Network

*Dubai's Third Forum for Physical Activity, 12.-13.03.2013, Dubai*

## THE LANCET



"In view of the prevalence, global reach, and health effect of physical inactivity, the issue should be appropriately described as pandemic, with far-reaching health, economic, environmental, and social consequences."

Physical Activity

The Lancet Physical Activity Series Working Group



33 researchers from 16 countries

### Panel 1: Health benefits of physical activity in adults<sup>3-5</sup>

Strong evidence of reduced rates of:

- All-cause mortality
- Coronary heart disease
- High blood pressure
- Stroke
- Metabolic syndrome
- Type 2 diabetes
- Breast cancer
- Colon cancer
- Depression
- Falling

Strong evidence of:

- Increased cardiorespiratory and muscular fitness
- Healthier body mass and composition
- Improved bone health
- Increased functional health
- Improved cognitive function

conservative  
assumptions

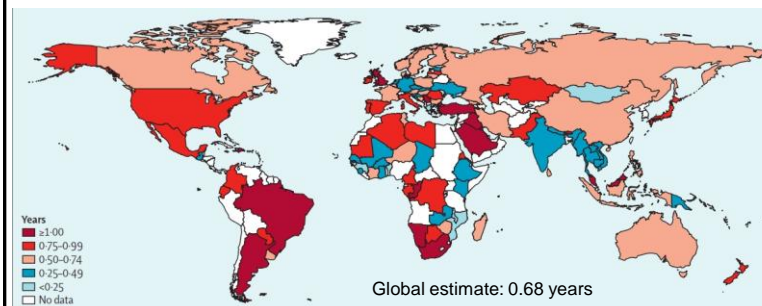
↓  
calculation of  
burden of  
disease

← physical  
inactivity

- 6% to 10% of cases for these diseases worldwide
- 9% of premature mortality worldwide (5.3 million deaths)
- ~ comparable to worldwide effects of smoking or obesity

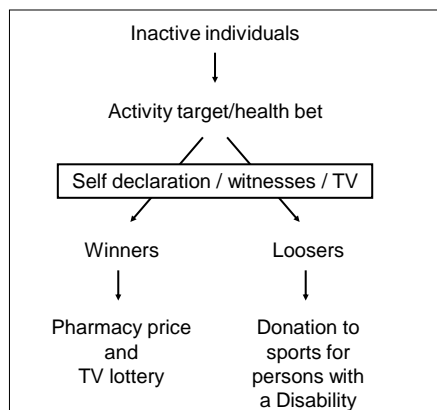
Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT, for the Lancet Physical Activity Series Working Group. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet*. 2012 Jul 21;380(9838):219-29.

## Estimated gains in life expectancy worldwide with elimination of physical inactivity



Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT, for the Lancet Physical Activity Series Working Group. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *Lancet*. 2012 Jul 21;380(9838):219-29.

## General idea <<Health Bet>>



## Launching «Health Bet» in September 2003

- TV health programme «Gesundheit Sprechstunde» with 300'000-500'000 spectators
- Health magazine «Gesundheit Sprechstunde» with circulation 80'000
- Article in in pharmacy magazine
- 170 (-> 180) participating pharmacies/dispensing chemists

→ Expected number of participants: 1'000 to 10'000

Dössegger A, Nützi C, Kienle G, Ackermann B, Stutz S, Martin BW. Experiences in nationwide recruiting for the Allez Hop Physical Activity Programme. . Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 61-64

## Participation «Health Bet» in September 2003

- TV health programme «Gesundheit Sprechstunde» with 300'000-500'000 spectators
- Health magazine «Gesundheit Sprechstunde» with circulation 80'000
- Article in in pharmacy magazine
- 170 (-> 180) participating pharmacies/dispensing chemists

→ 35 bets accepted out of 55 offered

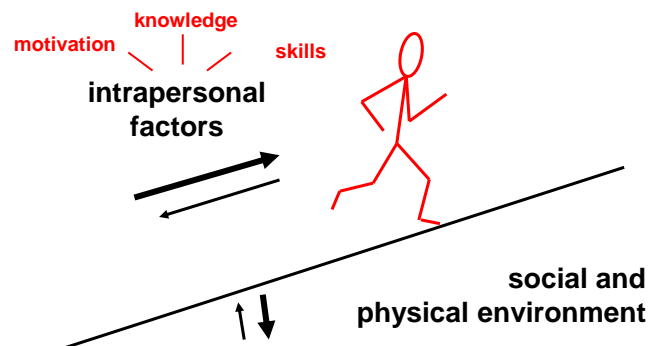
→ 8 winners

Dössegger A, Nützi C, Kienle G, Ackermann B, Stutz S, Martin BW. Experiences in nationwide recruiting for the Allez Hop Physical Activity Programme. . Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 61-64

## Main conclusions from evaluation «Health Bet»

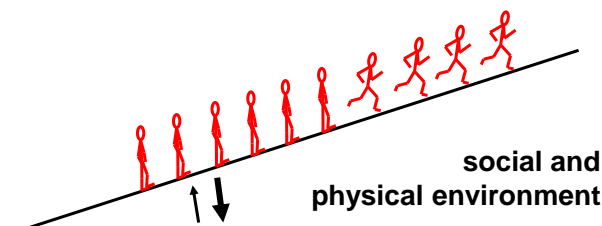
→ It's not simple!

## Determinants of (physical activity) behaviour



Martin BW, Martin E, Mengisen W. Promotion de l'activité physique: définir des stratégies intégrées en Europe. In Inserm. Activité physique et santé. Contextes et effets sur la santé. Expertise collective. Paris, Inserm 2008: 755-768.

## The role of physical activity determinants at the population level



Martin BW, Martin E, Mengisen W. Promotion de l'activité physique: définir des stratégies intégrées en Europe. In Inserm. Activité physique et santé. Contextes et effets sur la santé. Expertise collective. Paris, Inserm 2008: 755-768.

## A conceptual approach to determinants of PA

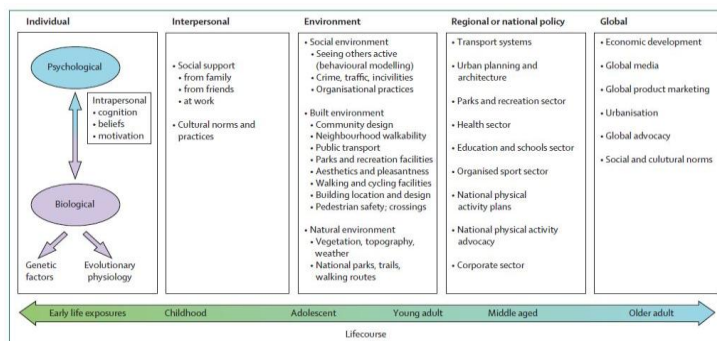
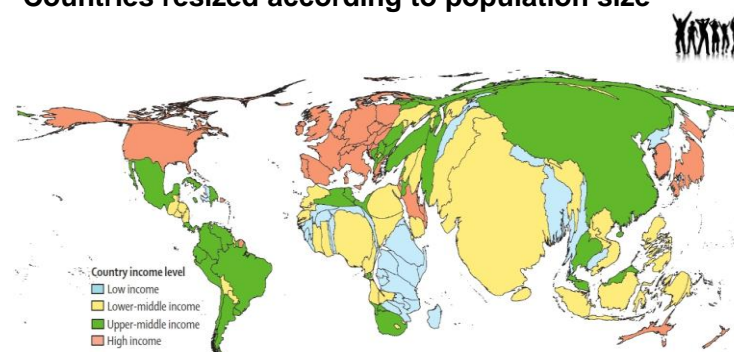


Figure 1: Adapted ecological model of the determinants of physical activity

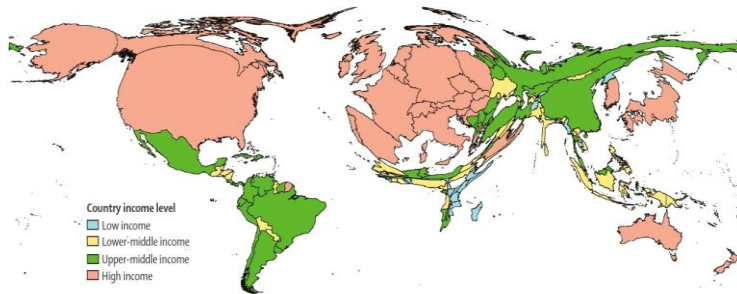
Bauman A, Reis R, Sallis JF, Wells J, Loos R, Martin BW, for the Lancet Physical Activity Series Working Group. Physical Activity 2 - Why are some people physically active and others not? Understanding the Correlates of Physical Activity. Lancet. 2012 Jul 21;380(9838):258-71.

## Countries resized according to population size



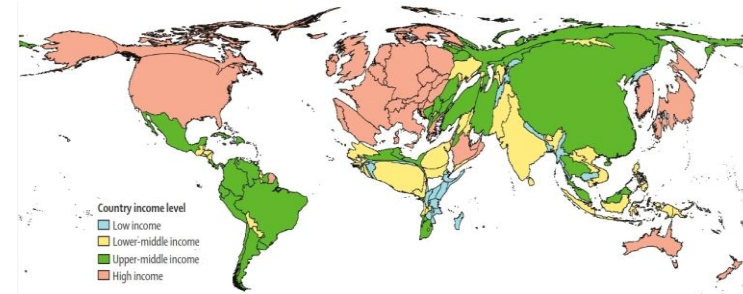
Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

## Countries resized according to car ownership



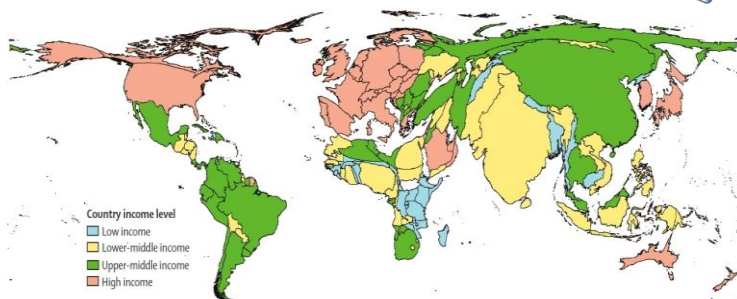
Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

## Countries resized according to Internet use



Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

## Countries resized according to mobile phone use



Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

### Key messages

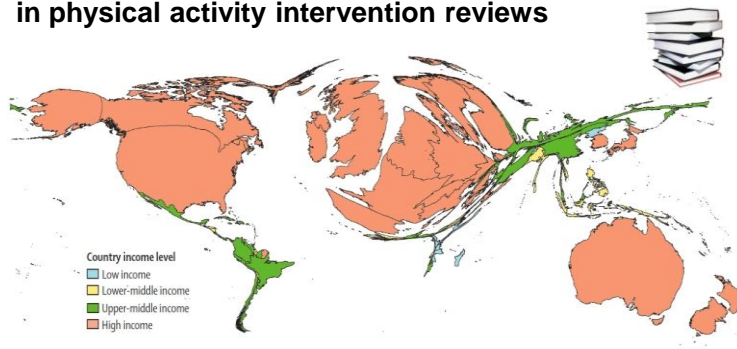
- Non-communicable diseases occur in low-income or middle-income countries
- Physical inactivity accounting for
- The challenges several important shape people's
- Information and access have grown enormously during the past decade; these technologies have the potential to affect physical activity
- Trends in transport improved and negatively and
- On the basis of modelled the effect ownership on p
- The direct and middle-income planned physio
- The greatest potential of supportive p (communication)
- There is a glaring mismatch between where the studies of physical activity interventions have been done and where the potential lies for population-level effects that will truly affect global health (low-income and middle-income countries)

### „The implications of megatrends – key messages“

- „ On the basis of a review of publications about physical activity interventions, **we modelled the effects of megatrends in internet access, mobile phone access, and car ownership on physical activity.**“
- The direct and potentiating **effects of mobile phone technology on physical activity** in middle-income and upper-income countries are **similar in size to the mean effects of planned physical activity interventions** in community and clinical settings.
- The **greatest potential (...)** might be **in the creation of supportive policies in sectors outside health (transportation, urban planning, and communication)**“

Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

## Countries resized according number of citations in physical activity intervention reviews



Pratt M, Sarmiento OL, Montes F, et al, for the Lancet Physical Activity Series Working Group. Physical Activity 4 - The implications of megatrends in information and communication technology and transportation for changes in global physical activity. Lancet. 2012 Jul 21;380(9838):282-93.

## Evidence-based physical activity interventions: lessons from around the world – mean effect sizes

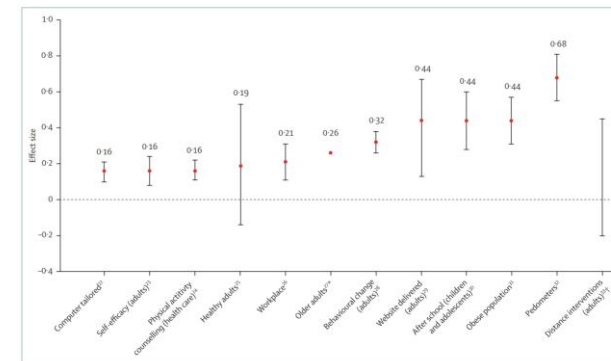


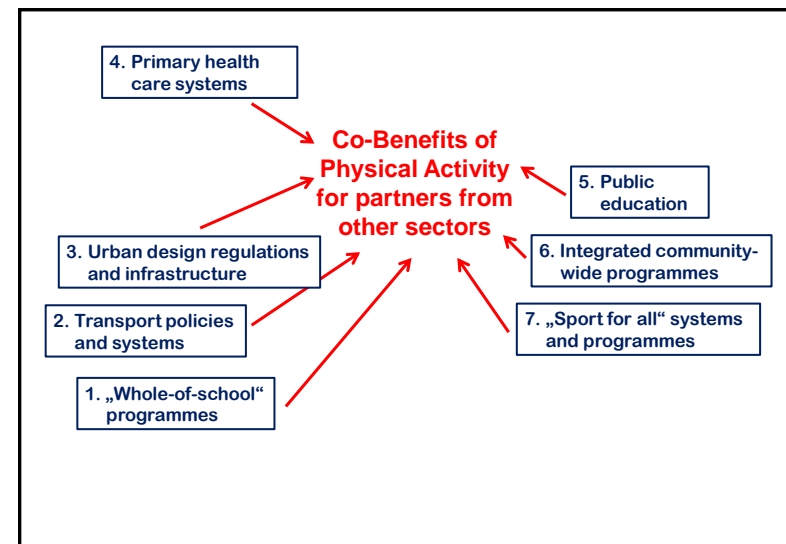
Figure: Mean effect size estimates from original systematic reviews. All are mean effect size and 95% CIs, unless otherwise indicated. \*Index. †Range.

Heath GW, Parra-Perez D, Sarmiento OL, et al, for the Lancet Physical Activity Series Working Group. Lancet. 2012 Jul 21;380(9838):272-81.


### 4. Primary health care systems



### 4. Primary health care systems







**Review**

Effect of school-based interventions on physical activity and fitness in children and adolescents: a review of reviews and systematic update

S Kriemler,<sup>1,2</sup> U Meyer,<sup>1</sup> E Martin,<sup>2</sup> E M F van Sluijs,<sup>2</sup> L B Andersen,<sup>4,5</sup> B W Martier<sup>2</sup>



*Br J Sports Med* 2011;**45**:923–930. doi:10.1136/bjsports-2011-090186


Effects of J+S-kids teachers' training on physical activity during PE lessons in 7 to 9 year old children

Short title: Physical activity during PE lessons in J+S-kids

**Kids Up!**

Physical activity behaviour, coordinative abilities and injuries

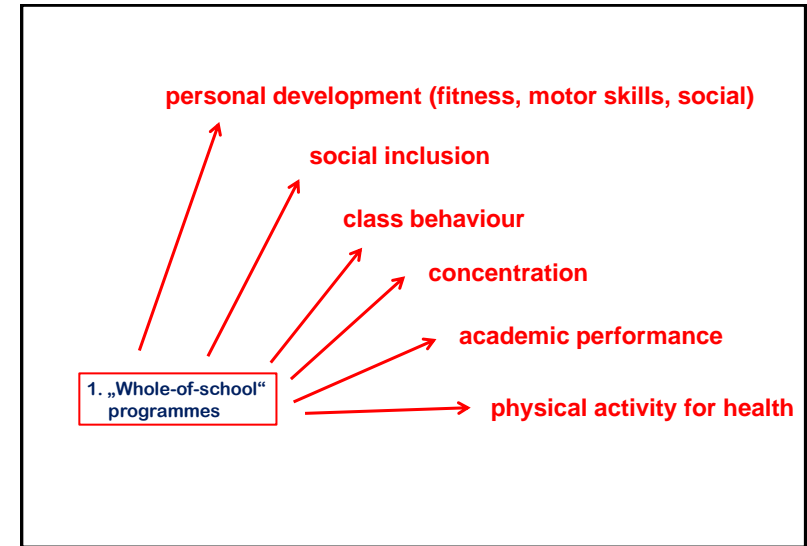


DUBAI'S THIRD FORUM FOR PHYSICAL ACTIVITY  
(12 – 13 / 03 / 2013)

"Physical Activity.... Health Forever"

PROGRAMM

Achmed Abdulrahman      Dubai Education Zone








DUBAI'S THIRD FORUM FOR PHYSICAL ACTIVITY  
(12 – 13 / 03 / 2013)

"Physical Activity.... Health Forever"

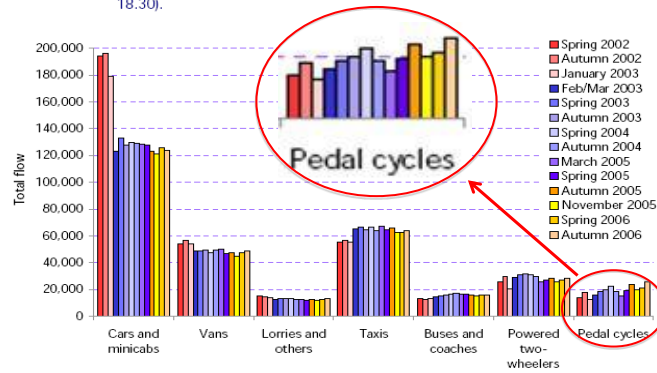
PROGRAMM

Nasser Abu Shehab      Road and Transportation Authority

## London Congestion Charge

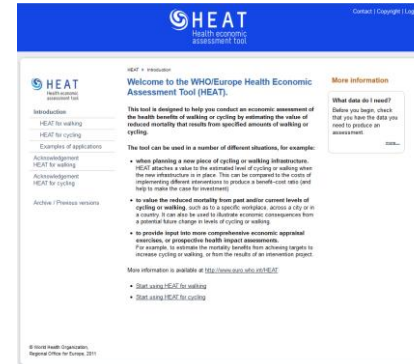
## London Congestion Charge

Figure 2.1 Traffic entering the central London charging zone during charging hours (07.00-18.30).

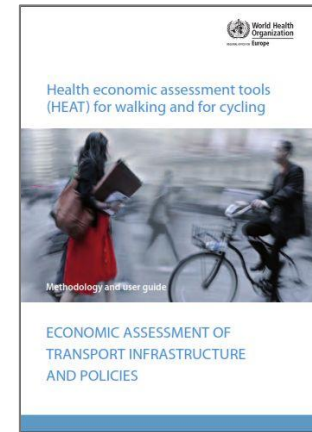


25

## HEAT Health Economic Assessment Tool for Cycling and for Walking

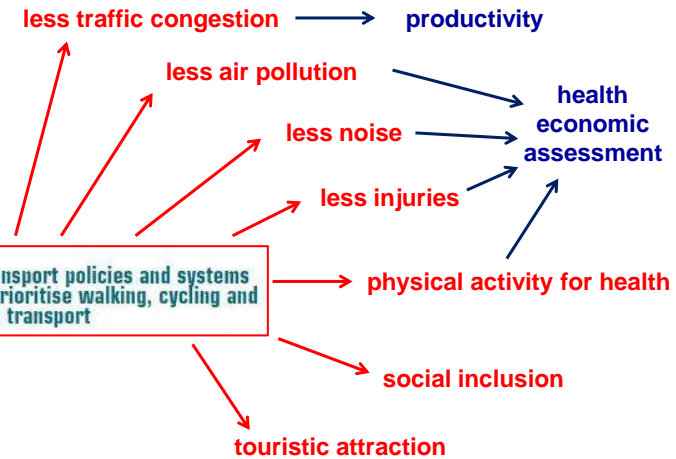


[www.euro.who.int/HEAT](http://www.euro.who.int/HEAT)



## The Ciclovía and Cicloruta Programs: Promising Interventions to Promote Physical Activity and Social Capital in Bogotá, Colombia

Andrea Torres, MPH, Olga L. Sarmiento, MD, PhD, Christine Stauber, PhD, and Roberto Zarama, PhD  
Am J Public Health. 2013 Feb;103(2):e23-30.

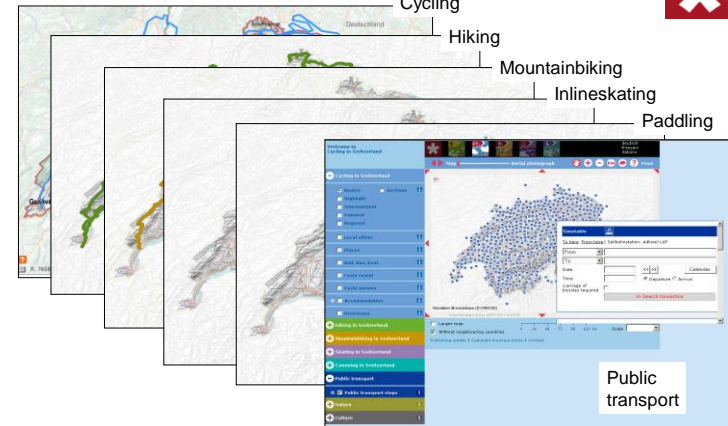


## SwitzerlandMobility



[www.switzerlandmobility.ch](http://www.switzerlandmobility.ch)

## SwitzerlandMobility



[www.switzerlandmobility.ch](http://www.switzerlandmobility.ch)



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

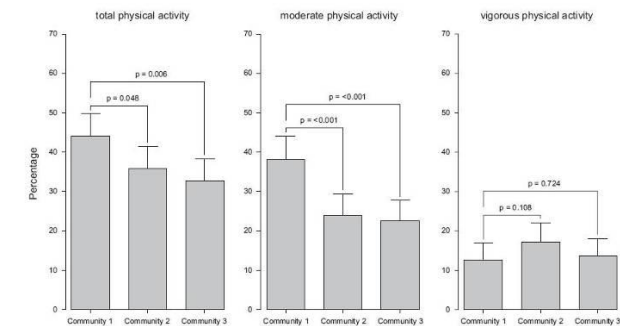
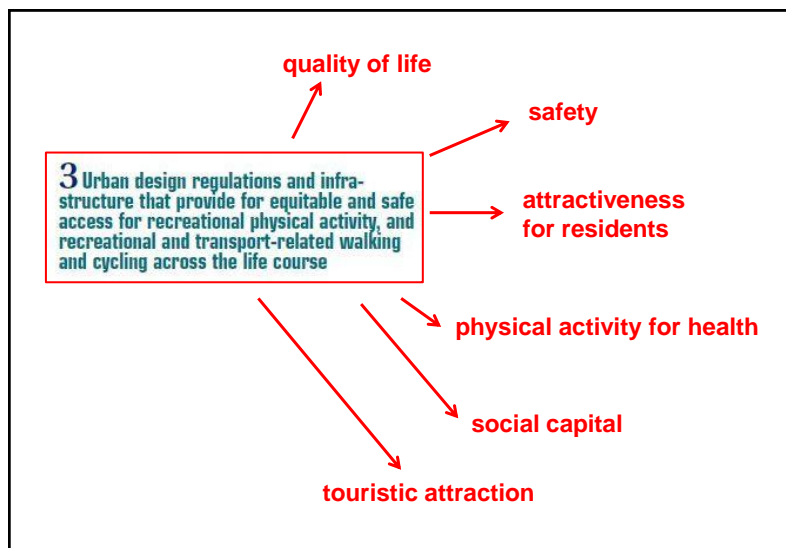


Fig. 1. Age- and sex-adjusted prevalence of sufficient total, moderate and vigorous physical activity by community.

Thommen Dombos O, Braun-Fahrlander 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





**BMJ**  
 BMJ 2012;344:e1389 doi: 10.1136/bmj.e1389 (Published 26 March 2012) Page 1 of 17

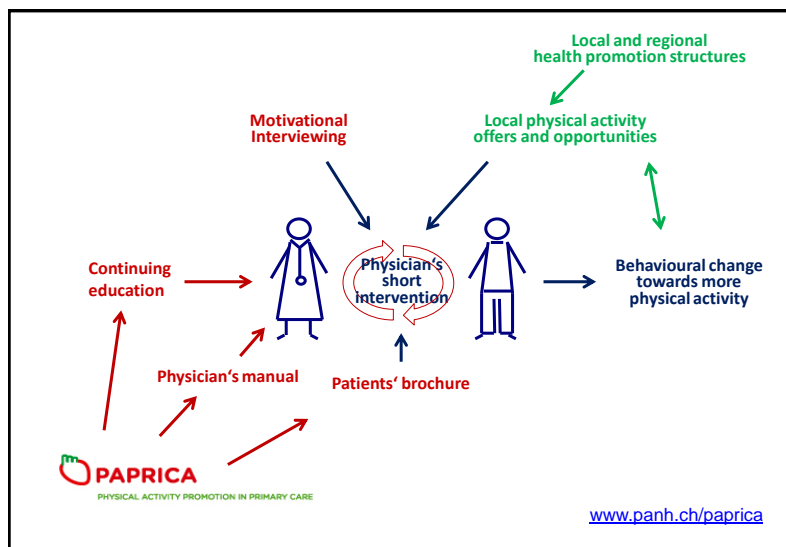
**RESEARCH**

**Effectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials**

**OPEN ACCESS**

Gillian Orrow academic clinical fellow in general practice, Ann-Louise Kinmonth foundation professor of general practice, Simon Sanderson senior clinical research associate, Stephen Sutton professor of behavioural science

**“CONCLUSIONS: Promotion of physical activity to sedentary adults recruited in primary care significantly increases physical activity levels at 12 months, as measured by self report (...).”**



**SGSM SSMS** Schweizerische Gesellschaft für Sportmedizin  
Société Suisse de médecine du sport  
Società Svizzera di medicina dello sport

**Sportmedizin und Reha Schweiz Kongress 2012**  
Congrès Suisse de Médecine du Sport et de Réadaptation 2012  
Congress Centre Kursaal Interlaken 16./19. Oktober 2012

**KOLLEGIUM FÜR HAUSARZTZEHN**  
COLLEGE DE MÉDECINE DE PREMIER RECOURS  
COLLEGO DI MEDICINA DI BASE  
COLLEGE OF PRIMARY CARE MEDICINE

**PAPRICA**  
PHYSICAL ACTIVITY PROMOTION IN PRIMARY CARE

**BEWEGUNGSFÖRDERUNG DURCH DEN HAUSARZT IN DER SCHWEIZ**

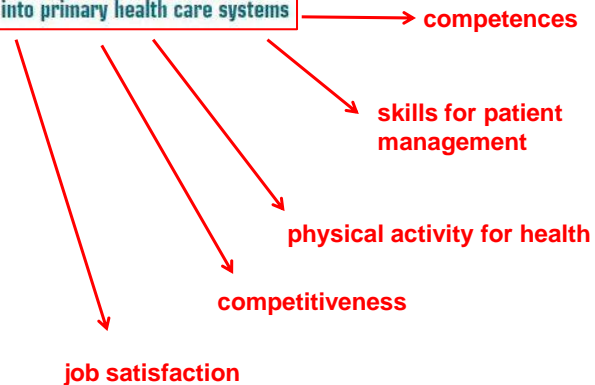
**PROMOTION DE L'ACTIVITÉ PHYSIQUE PAR LE MÉDECIN DE PREMIER RECOURS EN SUISSE**

Pressemitteilung, 17.10.12

Communiqué de presse, 17.10.2012

[www.paprica.ch](http://www.paprica.ch)  
[www.panh.ch/presse](http://www.panh.ch/presse)  
[www.sgsm.ch](http://www.sgsm.ch)

#### 4 Physical activity and NCD prevention integrated into primary health care systems



#### Dr. Luzi Fehrs Krankheits-Tipp Nr. 2:

Vermeiden Sie sorgfältig jede sportliche Betätigung. Gehen Sie nie zu Fuss. Fahren Sie nie Velo. Grundsätzlich verboten ist tiefes Durchatmen - es sei denn, Sie ziehen Rauch ein.

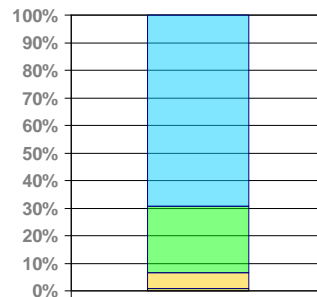
#### Health Promotion Mass Media Campaign by Foundation Health Promotion Switzerland in the year 2000

#### „Dr. Luci Fehr's Illness Tip No 2:

Carefully avoid all forms of sports and physical activity. Never walk. Never use your bicycle. Never ever breathe harder – unless you are inhaling tobacco smoke.“

#### HEPA Survey Switzerland 1999 (n=1529) Physical activity as a health resource

„How important do you think is physical activity for your health?“



Very important	69.3%
Rather important	24.0%
Moderately important	5.7%
Of little importance	0.9%
Not important at all	0.0%
Total	100.0%

Percentages weighted to the Swiss population

Martin BW, Mäder U, Calmonte R. Schweiz Z Sportmed Sporttraumatol. 1999; 47 (4): 165-169.

#### Potential of population wide campaigns

HEALTH EDUCATION RESEARCH

Vol.22 no.3 2007

Pages 406-413

Advance Access publication 13 September 2006

#### Twelve-month effects of Canada on the Move: a population-wide campaign to promote pedometer use and walking

C. L. Craig<sup>1,2\*</sup>, C. Tudor-Locke<sup>1,3</sup> and A. Bauman<sup>4</sup>

## Potential of population wide campaigns

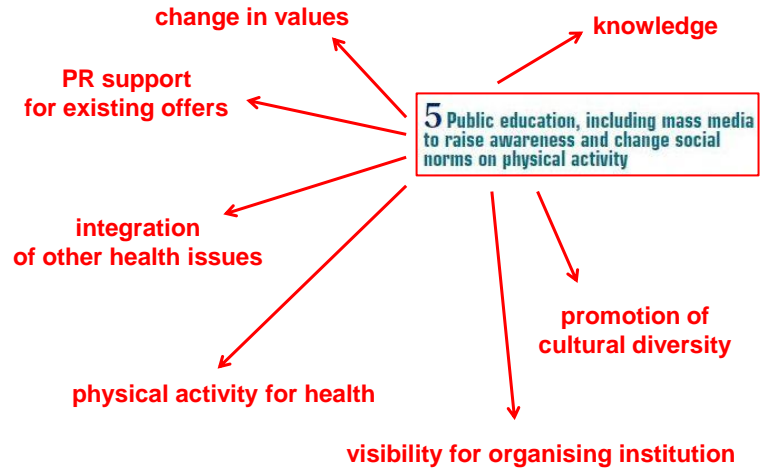
**Abstract** dissemination and adoption of an easy-to-use tool for self-monitoring purposes.

**Introduction**

Message recall and pedometer ownership were associated with increased odds of self-reported walking.

The effectiveness of health promotion to increase walking may be enhanced by combining motivational health-related messages with the dissemination and adoption of an easy-to-use tool for self-monitoring purposes.

In 2002, the Institute of Medicine (IOM) [8]



43

## Time Trends in Physical Activity in the State of São Paulo, Brazil: 2002–2008

VICTOR K. R. MATSUDO<sup>1</sup>, SANDRA M. MATSUDO<sup>1</sup>, TIMÓTEO L. ARAÚJO<sup>1</sup>, DOUGLAS R. ANDRADE<sup>1</sup>, LUIS C. OLIVEIRA<sup>1</sup>, and PEDRO C. HALLAL<sup>2</sup>

<sup>1</sup>Physical Fitness Research Center, CELAFISCS, São Caetano, BRAZIL; and <sup>2</sup>Federal University of Pelotas, Pelotas, BRAZIL

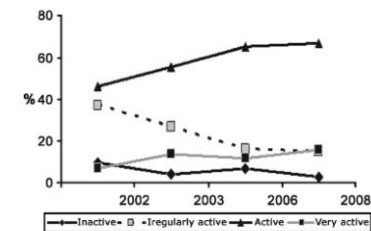


FIGURE 1—Trends of physical activity categories in the state of São Paulo, Brazil (2002, 2003, 2006, and 2008).

Med Sci Sports Exerc. 2010 Dec;42(12):2231-6.

44



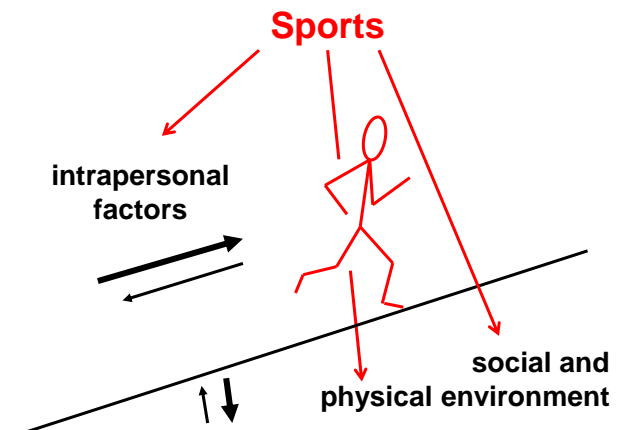
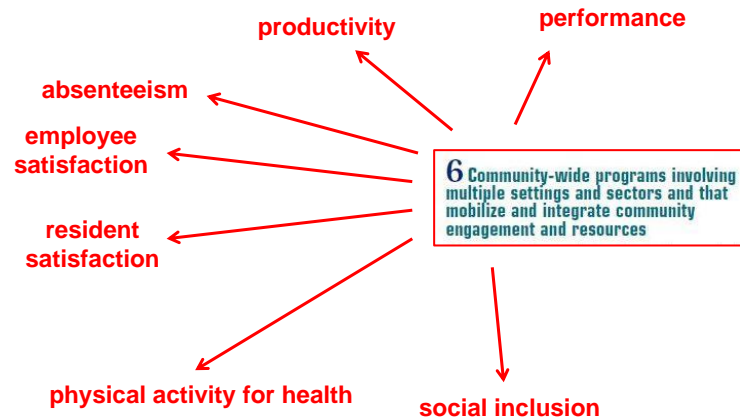
## Bike to work

„Try something new“

Surbeck R, Martin-Diener E, Grize L, Spoerri A, Braun-Fahrlander C. Swiss bike-to-work campaign: Did we reach the intended population? Schweiz Z Sportmed Sporttraumatol, in press.

45

International Congress on Soldier's Physical Performance  
May 18-22, 2005, Jyväskylä, Finland



Martin BW, Martin E, Mengisen W. Promotion de l'activité physique: définir des stratégies intégrées en Europe. In Insem. Activité physique et santé. Contextes et effets sur la santé. Expertise collective. Paris, Insem 2008: 755-768.



## 1832 Foundation of Federal Gymnastics Federation

In addition to fitness and social aspects,  
changing priorities over time:

- Piety
- Radical/liberal political movement
- Military
- Conservative

## 1832 Foundation of Federal Gymnastics Federation

In addition to fitness and social aspects,  
changing priorities over time:

- Piety
- Radical/liberal political movement
- Military
- Conservative
- Pedagogics
- Health

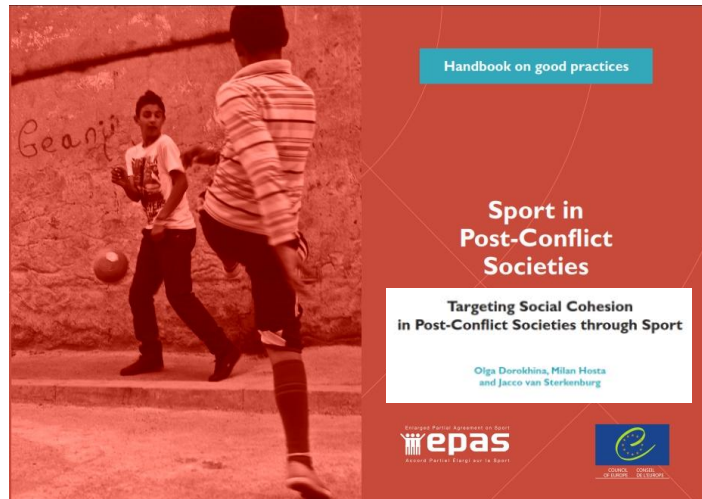
Today Swiss Gymnastics Federation

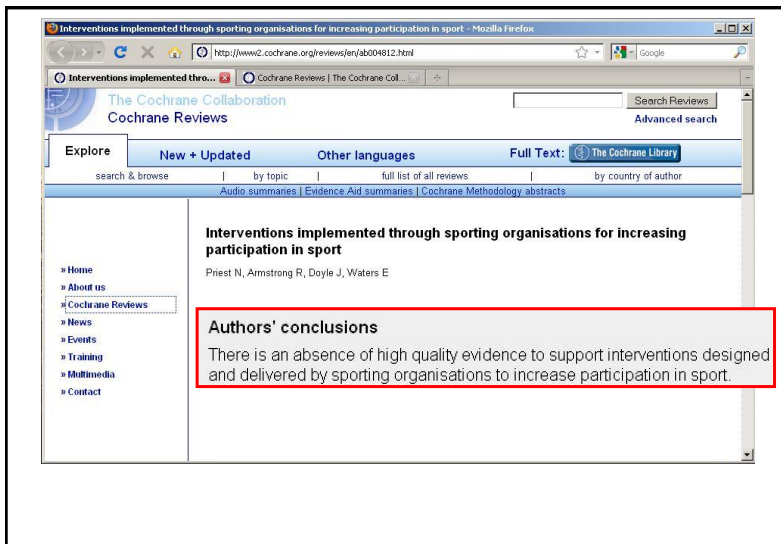
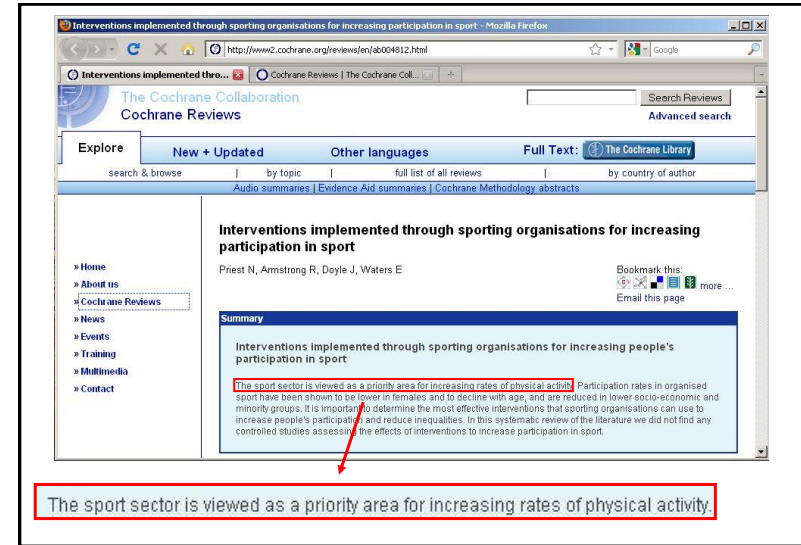
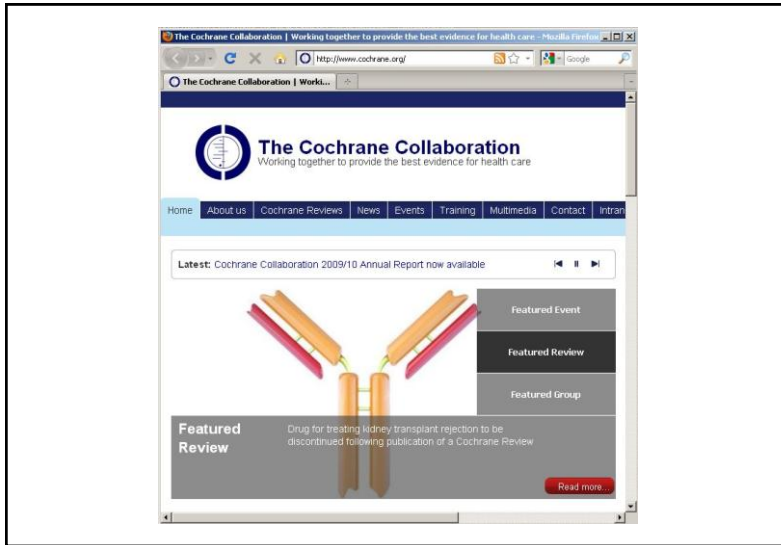
150'000 active adults members, 140'000 youth

Federal Gymnastics Festival every 6 years.

60'000 participants expected in 2013

Aarau, Switzerland, 2010





## Relative risks for being inactive by sport club membership

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

Sport club membership	Men				Women			
	"no sport"		inactive		"no sport"		inactive	
	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>
member	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
non-member	6.6 (5.4-8.1)	6.7 (4.9-8.9)	4.2 (3.5-5.0)	4.6 (3.5-6.0)	7.3 (6.0-8.9)	8.1 (5.7-11.4)	5.3 (4.4-6.5)	4.6 (3.3-6.4)
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

<sup>1</sup> adjusted for all variables displayed in the table except education

All estimates and 95% CI are based on the pooled data using the GEE model with pair-wise log odds ratios for the within-subject correlation. *N*male participants = 1,534; *N*female participants = 1,534

6.7

4.6

8.1

4.6

## Relative risks for becoming inactive by sport club membership

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

Sport club membership	Men				Women			
	becoming "no sport"		becoming inactive		becoming "no sport"		becoming inactive	
	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>	unadjusted	adjusted <sup>1</sup>
remaining member	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
becoming member	1.4 (0.7-2.7)	1.3 (0.4-3.3)	2.1 (1.2-3.7)	2.7 (1.1-6.3)	1.5 (0.8-2.8)	2.7 (1.1-7.0)	2.1 (1.2-3.6)	1.6 (0.7-3.7)
p-value	0.3	0.6	0.01	0.02	0.2	0.04	0.007	0.2
becoming non-member	7.4 (4.9-11.0)	7.8 (4.4-14.0)	5.6 (3.9-8.1)	5.9 (3.4-10.5)	7.0 (4.5-11.1)	11.9 (5.9-24.1)	5.4 (3.5-8.5)	5.1 (2.7-9.6)
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
remaining non-member	9.2 (6.6-13.1)	8 (4.7-12.9)	5.2 (3.7-7.4)	5.1 (3.1-8.4)	10.7 (7.3-15.6)	11.4 (6.4-24.1)	7.9 (5.4-11.3)	6.5 (4.0-11.8)
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

<sup>1</sup> adjusted for all variables displayed in the table except education

<sup>2</sup> OR = 12.7 (2.6-61.5), due to small numbers estimates become unreliable

All estimates and 95% CI are based on the pooled data for the one-year outcome conditional to previous physical activity level using the GEE model with an independent correlation structure for the within-subject association. Only observations were included with data for the preceding wave in individuals previously active in sports (*N*male participants = 95; *N*female participants = 93) or previously inactive (*N*male participants = 933; *N*female participants = 936)

7.8

5.9

11.9

5.1

## The programme Allez Hop



- Weekly lessons during ten week courses, qualified instructors
- National programme
- At the beginning in collaboration with sports clubs and associations; later also with independent instructors

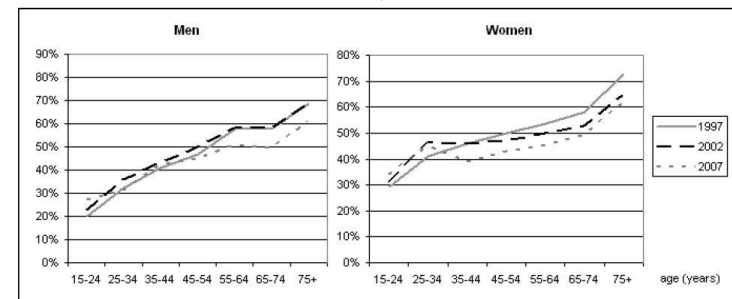
Wanner M, Martin-Diener E, Bauer G, Stamm HP, Martin BW. Allez Hop, a nation-wide programme for the promotion of physical activity in Switzerland: What is the evidence for a population impact after one decade of implementation. Brit J Sport Med 2010.



1997-2008

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

<1 "sweat episodes" during leisure time reported in the Swiss Health Survey (1997: n=12'999; 2002: n=19'698; 2007: n=18'745)



Wanner M, Martin-Diener E, Bauer G, Stamm HP, Martin BW. Brit J Sport Med 2011.



## Changes in sport activities 1999 to 2007

**Table 1** Most popular sports activities in Switzerland in 1999 and 2007 for men and women aged 15–74 years (including those sports named by at least 10% of the population)

	Men (aged 15–74 years)		Women (aged 15–74 years)	
	Level 1999	Level 2007	Level 1999	Level 2007
Bicycle, mountain bike	31.9%	38.4%	31.5%	31.7%
Walking/hiking*	18.2%	29.4%	26.9%	37.9%
Swimming	21.1%	20.7%	31.3%	30.0%
Skiing	19.2%	22.9%	16.9%	20.6%
Jogging/running	19.6%	19.1%	15.7%	14.6%
Fitness training	8.2%	11.2%	14.8%	16.8%
General gymnastics	7.3%	7.7%	26.4%	15.6%

\*Walking/hiking was composed of two-thirds hiking and one-third walking, the latter including 47% Nordic walking, 20% walking and 33% brisk walking in 2007.

Wanner M, Martin-Diener E, Bauer G, Stamm HP, Martin BW. Allez Hop, a nation-wide programme for the promotion of physical activity in Switzerland: What is the evidence for a population impact after one decade of implementation. *Brit J Sport Med* 2010.

Why is there not more scientific evidence for the role of sports?

- Good studies need early planning and long-time commitment
- Designs with control groups are difficult in settings where there is a long-time history of sports

**Dubai would be in an ideal situation to address these issues!**



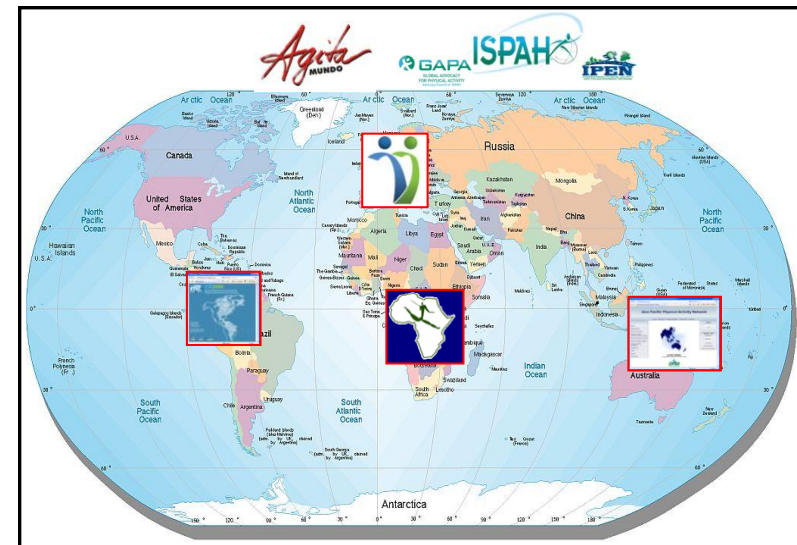
THE LANCET



"In view of the prevalence, global reach, and health effect of physical inactivity, the issue should be appropriately described as pandemic, with far-reaching health, economic, environmental, and social consequences."

Physical Activity

BE ACTIVE 2012







Agita Mundo, the Global Physical Activity Promotion Network  
Network Meeting, 30 October 2012, Sydney



Agita Mundo  
Network Meeting



## Executive Board 2012-2013



**Brian Martin** HEPA Europe; University of Zurich, Switzerland  
(Chairman)



Dubai Sports Council, United Arab Emirates **Nasser Al Rahma**  
**Adrian Bauman** APPAN; University of Sydney, Australia



HEPA Europe; NISB, the Netherlands **Eddy Engelsman**  
**Jasem Ramadan** Department of Physiology, Kuwait University



Tokyo Medical University, Japan **Shigeru Inoue**  
**Vicki Lambert** AFPAN; University of Cape Town, South Africa



RAFA-PANA; CELAFISCS, Brazil **Victor Matsudo**  
(Past Chairman)  
**Mike Pratt** RAFA-PANA; CDC, USA

American College of Sports Medicine ACSM **Jim Whitehead**



For population health, the need for more physical activity is clear

- So why do people need society to be more active? ✓
- How does society influence physical activity? ✓
- How can we motivate partners from other sectors? ✓
- Sport and physical activity promotion - where is the evidence? (✓)
- How can we exchange experiences and work together? ✓

Recommendations for the Dubai Sports Council:

- Continue with the good work
- Keep contributing to international exchange
- Contribute to the scientific evidence on the potential of sports