



# Activité Physique et Santé – Physical Activity and Health

Dr. Brian Martin, MPH  
Specialist FMH in Prevention and Public Health  
Sports Medicine SGSM  
Institute of Social and Preventive Medicine of the University of Zurich

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## Health benefits of physical activity in adults

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

Additionally in older adults:

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

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

↑ 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.

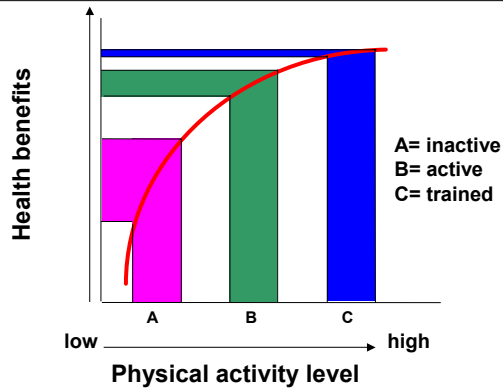
## Pattern of Physical Activity and Health 1/2

- ↑ "The dose-response curves for the major health benefits clearly indicate an inverse relation between the dose of activity and rate of disease."
- ↑ "Although the minimum amount of activity needed to produce a benefit cannot be stated with certainty, nothing would suggest a threshold below which there are no benefits."
- ↑ "Reasonably strong evidence demonstrates that participating in moderate to vigorous physical activity for more than 150 minutes per week is associated with greater health benefits for a variety of health outcomes (...). However, in a number of studies where such a dose response is observed (...), the relation appears to be curvilinear. This means that the absolute increase in benefits becomes less and less for any given increase in the amount of physical activity."

↑ 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.

## Dose-response relationship for physical activity and health



Source: Selton Haskell, 1994

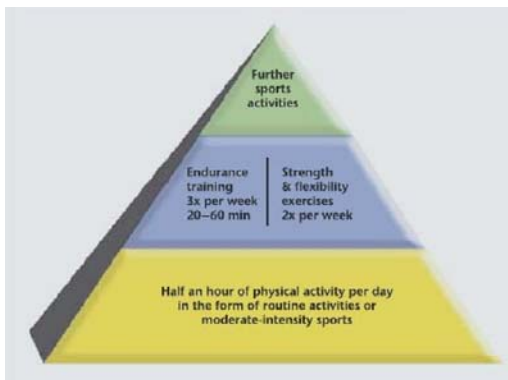
## Pattern of Physical Activity and Health 2/2

- ↑ “Strong evidence indicates that an increase in intensity is associated with greater improvements for some health outcomes compared to those observed with moderate intensity activity (...). However, it should be noted that an increase in intensity was often associated with an increase in volume of activity for many observational and experimental studies, and it is difficult to separate the benefits of each.”
- ↑ “Although the data are limited, the results suggest that for health and fitness benefits, the frequency of activity is much less important than the amount or intensity.”
- ↑ “Some scientific evidence of moderate strength suggests that accumulating 30 or more minutes of moderate- to vigorous-intensity aerobic activity throughout the day in bouts of 10 minutes or longer produces improvements (...). Data on the effects of accumulating activity involving multiple short bouts (...) are very limited.”

↑ 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.

## Swiss HEPA recommendations for adults



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

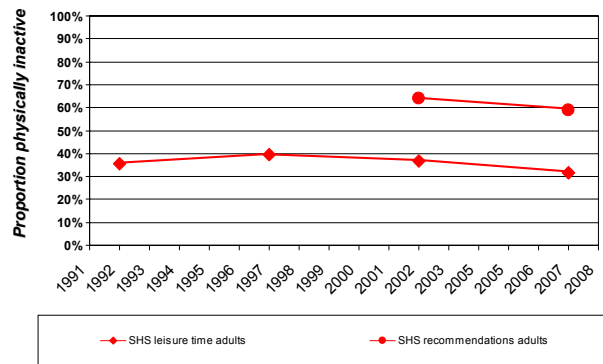
## Swiss HEPA recommendations for school-aged children



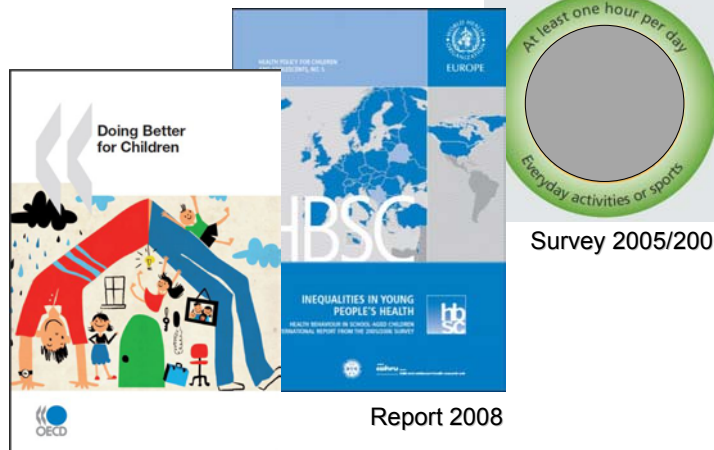
Federal Office of Sport, Federal Office of Public Health, Health Promotion Switzerland, Network HEPA Switzerland 2006



## Physical activity behaviour over time



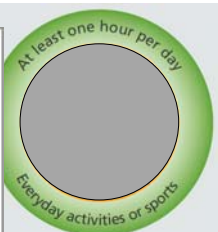
Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43.



Report 2009

Report 2008

Survey 2005/2006



Survey 2005/2006

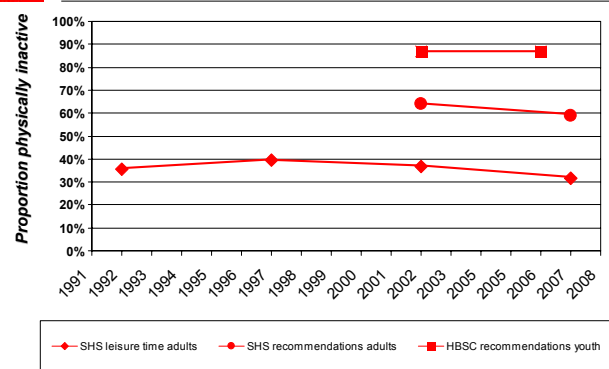


Report 2009

Swiss Report 2009



## Physical activity behaviour over time



Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43.



## Health Behaviour in School-Aged Children 1/2

„(...) The Health Behaviour in School-Aged Children Survey HBSC is the only study to have used an internationally standardised questionnaire which has been validated in a US sample. The respective study showed a correlation of 0.40 with accelerometer data (...). Only 13% of Swiss 11 to 15 year olds in the HBSC 2006 reported meeting the one hour recommendations on every day of the week, only 35% on five days”

Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43.

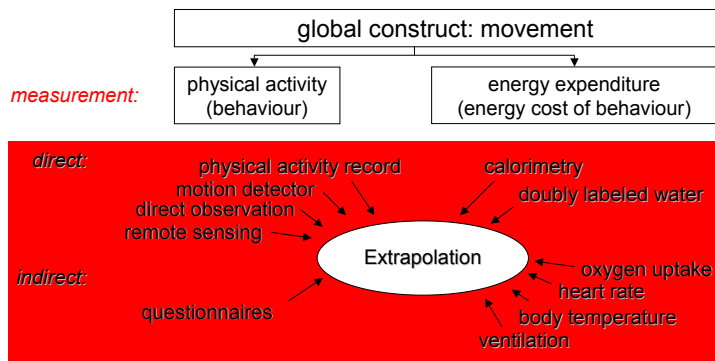


## Health Behaviour in School-Aged Children 2/2

„According to the National Travel Census 2005, Swiss 10 to 14 year olds spent about 80 minutes on a weekday on transport and 55% of their transport stages were by foot, 16% by bicycle. The – also by international comparison – very low proportions in the HBSC and the discrepancy with the Travel Census data could be explained if transport-related physical activity – which is probably less important in the average US context – were less captured by the HBSC questionnaire.”

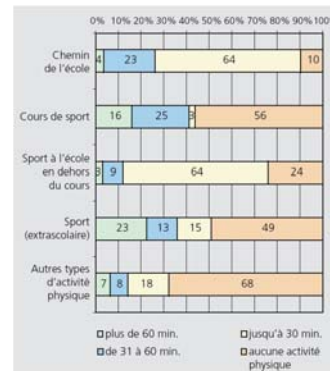
Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43.

## Conceptual framework for the measurement of movement as a global construct



Ainsworth BE, Levy SS. Assessment of Health-Enhancing Physical Activity. In Oja P, Borms J (eds). Health Enhancing Physical Activity. Oxford, Meyer & Meyer Sport (UK) Ltd, 2004

G 15.1: Activité physique et sportive un jour d'école (pourcentage des enfants âgés de 10 à 14 ans)



## Contributions to overall PA behaviour in 10 to 14 year old schoolchildren from Swiss sport survey

„During the week, physical activity behaviour essentially consists of physical education, sports outside of school as well as activities in schoolyards and on the way to school.“

Lamprecht M, Fischer A, Stamm HP. Sport Suisse 2008. Rapport sur les enfants et les adolescents. Macolin, Office fédéral du sport 2008.

## Adjusted mean duration of others than quiet activities measured by accelerometers (min/day, means and 95% confidence intervals)

	6/7 year olds	9/10 year olds	13/14 year olds
Active transportation	54.9 (48.7–61.1)	51.1 (45.4–56.7)	62.52 (54.8–70.3)
Recess*	9.9 (7.2–12.7)	27.5 (23.6–31.4)	37.6 (31.0–44.3)
Vigorously intense unstructured play	42.7 (34.7–50.7)	49.6 (41.4–57.7)	35.7 (27.4–44.0)
PE classes*	21.2 (13.2–29.2)	24.8 (19.3–30.2)	36.3 (28.5–44.2)
Sports training	4.7 (2.3–7.1)	10.8 (6.7–15.0)	16.5 (11.3–21.7)

\* Duration calculated excluding weekends

Bringolf-Isler B, Grize L, Mäder U, Ruch N, Sennhauser FH, Braun-Fahrlander C. Assessment of intensity, prevalence and duration of everyday activities in Swiss school children: a cross-sectional analysis of accelerometer and diary data. *Int J Behav Nutr Phys Act.* 2009 Aug 5;6:50.

## Contributions to PA behaviour in Swiss 10 to 14 year olds Comparison of estimates from questionnaire and accelerometer studies

- Survey -> calculation of mean duration for each contribution (> 60 min -> 90 min; 31 to 60 min -> 45 min; up to 30 min -> 15 min; no activity -> 0 min)
- Accelerometer -> calculation of mean duration over age (age groups 9/10 years and 13/14 years with equal weight)

[min/day]	Survey	Accelerometer
Active transport to school	23.6	-
Active transport		56.8
PE	26.1	30.6
Sports in school (except PE)	16.4	-
Recess		32.6
Sports outside of school	28.8	13.7
Unstructured play		42.6
Other activities	12.6	

Lamprecht M, Fischer A, Stamm HP. Sport Suisse 2008. Rapport sur les enfants et les adolescents. Macolin, OFSPO 2008.

Bringolf-Isler B, Grize L, Mäder U, Ruch N, Sennhauser FH, Braun-Fahrlander C. Assessment of intensity, prevalence and duration of everyday activities in Swiss school children: a cross-sectional analysis of accelerometer and diary data. *Int J Behav Nutr Phys Act.* 2009 Aug 5;6:50.

## Contributions to PA behaviour in Swiss 10 to 14 year olds Comparison of estimates from questionnaire and accelerometer studies

- Questionnaire surveys tend to overestimate structured activities
- Questionnaire surveys tend to underestimate unstructures activities
- According to the contribution of different activities, questionnaire surveys may over- or underestimate overall PA behaviour

[min/day]	Survey	Accelerometer
Active transport to school	23.6	-
Active transport		56.8
PE	26.1	30.6
Sports in school (except PE)	16.4	-
Recess		32.6
Sports outside of school	28.8	13.7
Unstructured play		42.6
Other activities	12.6	
<b>Total</b>	<b>107.5</b>	<b>176.3</b>

Lamprecht M, Fischer A, Stamm HP. Sport Suisse 2008. Rapport sur les enfants et les adolescents. Macolin, OFSPO 2008.

Bringolf-Isler B, Grize L, Mäder U, Ruch N, Sennhauser FH, Braun-Fahrlander C. Assessment of intensity, prevalence and duration of everyday activities in Swiss school children: a cross-sectional analysis of accelerometer and diary data. *Int J Behav Nutr Phys Act.* 2009 Aug 5;6:50.



## Physical activity behaviour in Switzerland (1/3)

„The best available estimates indicate that 32% of adults meet the recommendations for three endurance-type training sessions and another 9% the minimal recommendations of half an hour moderate intensity physical activity on most days of the week. 13% of Swiss adolescents seem to meet the minimal recommendations of one hour on every day of the week, 35% on five days per week...“

Martin BW, Mäder U, Stamm HP, Braun-Fahrlander C. Physical activity and health - what are the recommendations and where do we find the Swiss population? *Schweiz Z Sportmed Sporttraumatol* 2009; 57 (2); 37-43..



## Physical activity behaviour in Switzerland (2/3)

„... These data rely on standardised, nationally representative surveys providing robust estimates, but they are based on self-report instruments of untested, poor or questionable validity against objective measurements of physical activity. No nationally representative data is available on compliance of children with the recommendations... “

Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43..



## Physical activity behaviour in Switzerland (3/3)

„... Established national surveys should be continued to allow the description of trends. In addition, physical activity behaviour of children and other age groups should be assessed using internationally standardised and nationally validated questionnaires and objective measurements. The feasibility of physiological measurements at the population level should be explored.“

Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43..

## Overview of epidemiology and other aspects



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



[www.panh.ch/documents](http://www.panh.ch/documents)

## Details on recommendations and epidemiology



Martin BW, Mäder U, Stamm HP, Braun-Fahrländer C. Physical activity and health - what are the recommendations and where do we find the Swiss population? Schweiz Z Sportmed Sporttraumatol 2009; 57 (2); 37-43.

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

## Sport behaviour in Switzerland



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



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

## Transport behaviour in Swiss children



Sauter D. Mobilität von Kindern und Jugendlichen. Vergleichende Auswertung der Mikrozensus zum Verkehrsverhalten 1994 und 2000. Urban Mobility Research, Zürich, 2005.

Sauter D. Mobilität von Kindern und Jugendlichen. Fakten und Trends aus den Mikrozensus zum Verkehrsverhalten 1994, 2000 und 2005. Bundesamt für Strassen, Bern, 2008.

[www.astra.admin.ch](http://www.astra.admin.ch) -> Themen -> Langsamverkehr -> Materialien

