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KNOWLEDGE AND UNDERSTANDING OF PHYSICAL ACTIVITY RECOMMENDATIONS

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How would you define Physical Activity?

What are/have been your best experiences with physical activity and sport and the worst ones? Why?

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Health is an educational fact

… and promoting active living in people at all ages is, before all, an educational challenge

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1) Health, physical activity and sedentary behaviours: the evidences
2) In search of definitions and meanings
3) What activity and how much practicing
4) Conclusion: from knowledge to practice

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PART 1

Health, PA and sedentary behaviours

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IT IS A MATTER OF PRIORITIES AND CHOICES, A SONG

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… A SONG

TI FA STARE BENE, Caparezza

Ehi! Ho bisogno almeno di un motivo che mi faccia stare bene
Sono stufo dei drammi in tele, delle lamentele, delle star in depre
Del nero lutto di chi non ha niente a parte avere tutto …

Con le mani sporche fai le macchie nere
Vola sulle scope come fan le streghe
Devi fare ciò che ti fa stare
Devi fare ciò che ti fa stare bene
Soffia nelle bolle con le guance piene
E disegna smorfie sulle facce serie
…

- I need at least one reason to feel good!
- You have to do what makes you feel good!

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1. Health & Physical Activity

2. Sedentary lifestyle
3. Benefits of physical exercise
4. Children and physical activity

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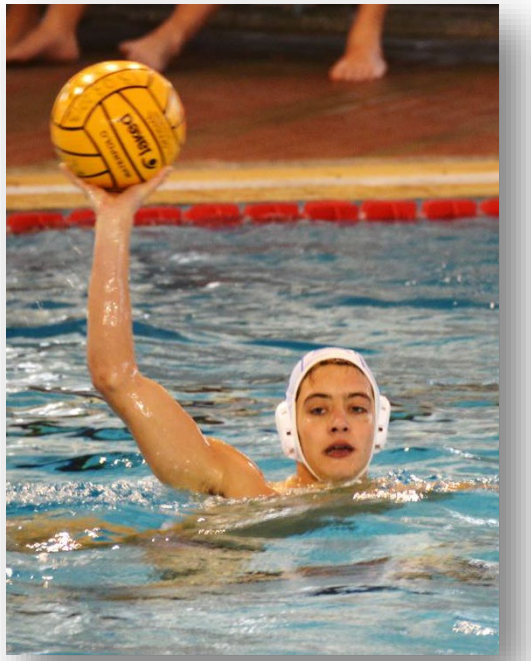

Physical activity and health, why?

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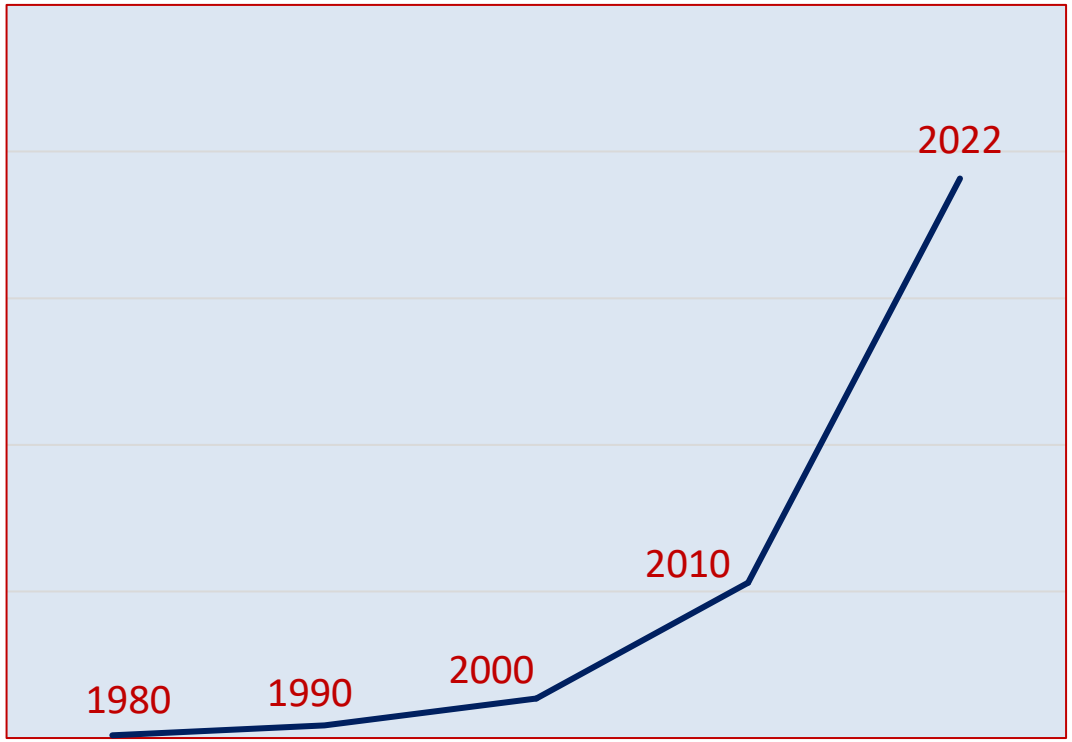
PA & Health: the volume of research



213 papers in *peer reviewed journals* in 1980

912 in 1990

2.593 in 2000

8.886 in 2010

33.057 in 2021

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World Health Organization

"HEALTH is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity."

(WHO, 1948)

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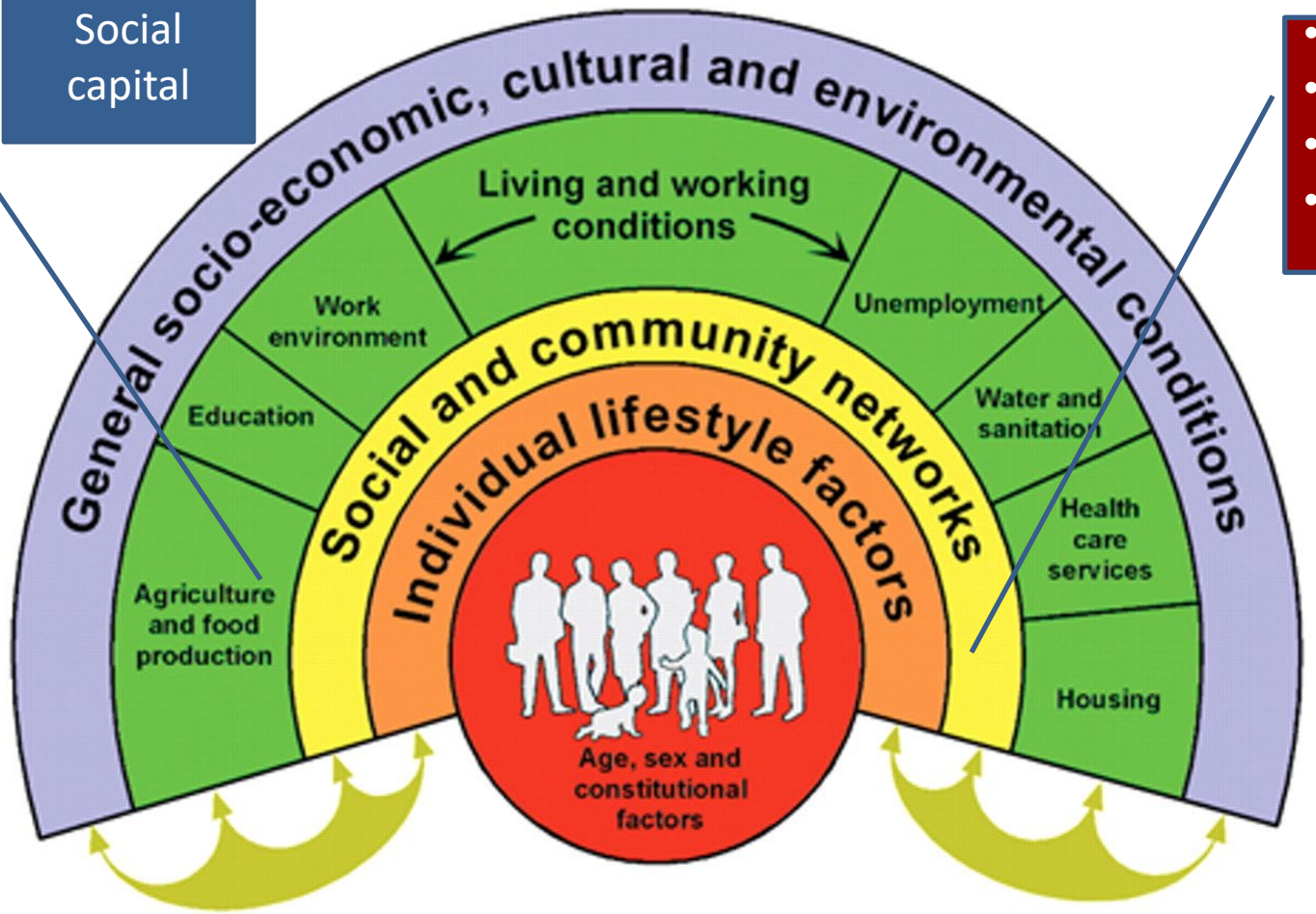
The Socio-Ecological Model of Health

https://www.youtube.com/watch?v=f495YKIfuaw

Social capital



- Physical activity
- Nutrition
- Media consumption
- Control/reduction of risk factors

Adapted from Dahlgren & Whitehead, 1993

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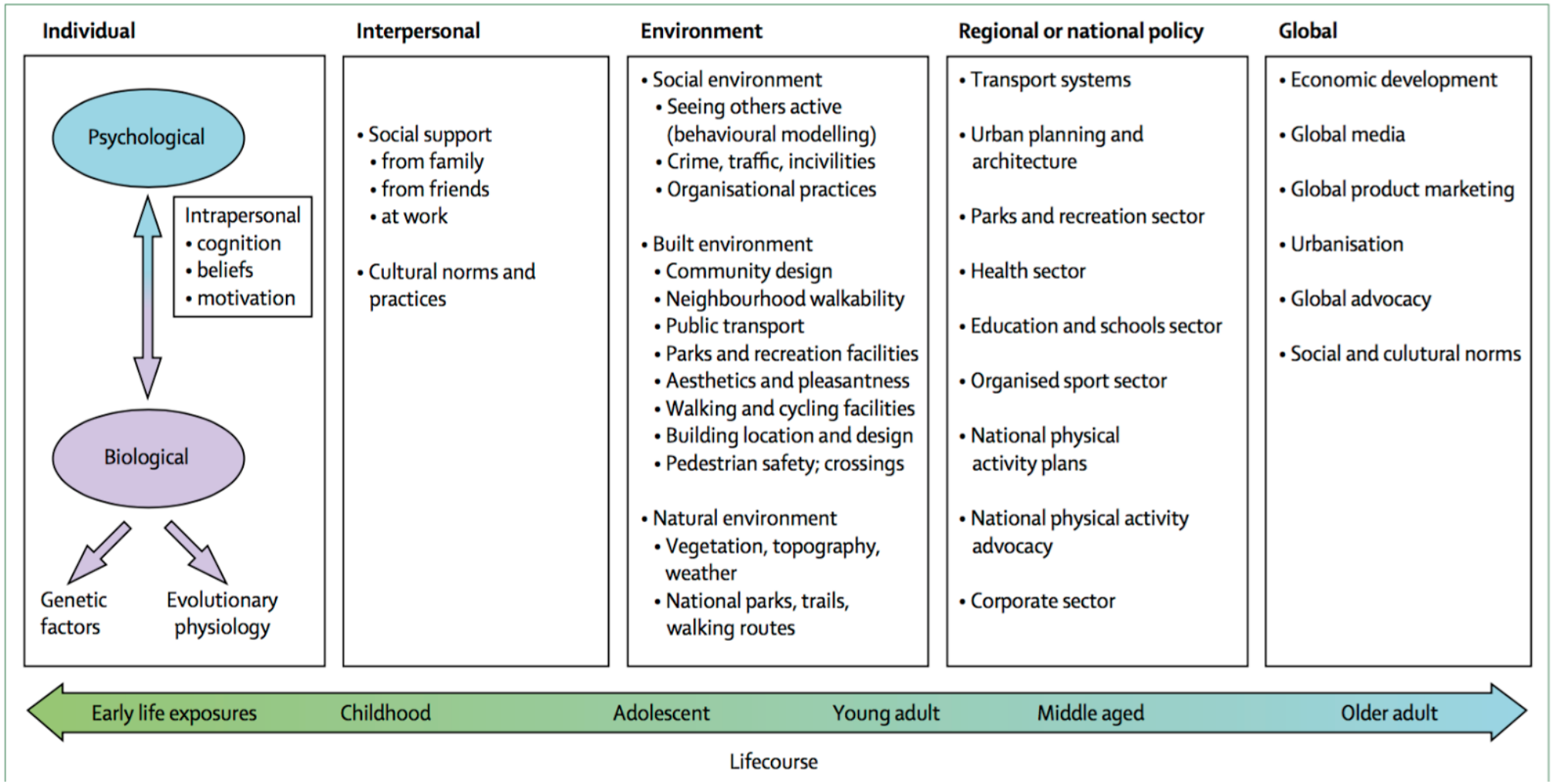
The Socio-Ecological Model of Health by Sallis & Bauman



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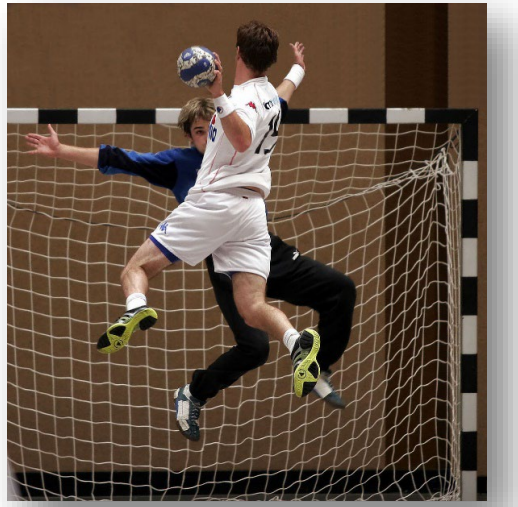

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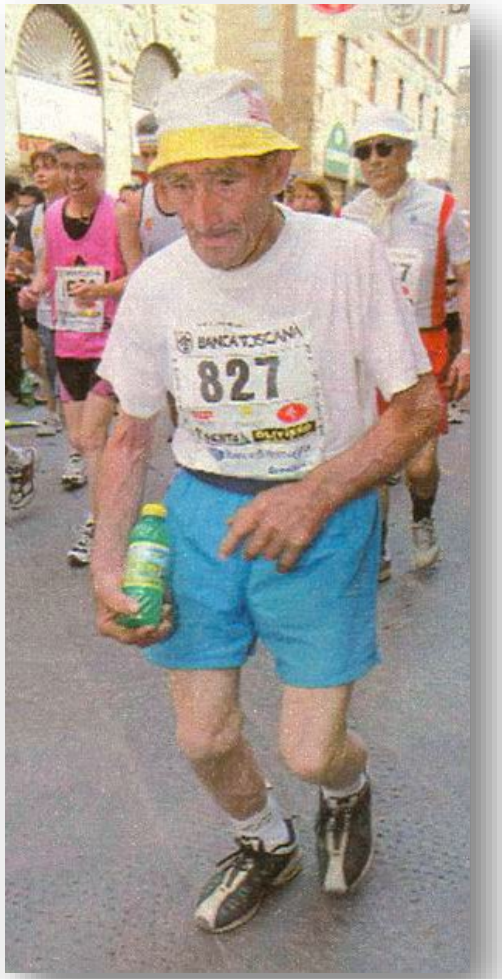
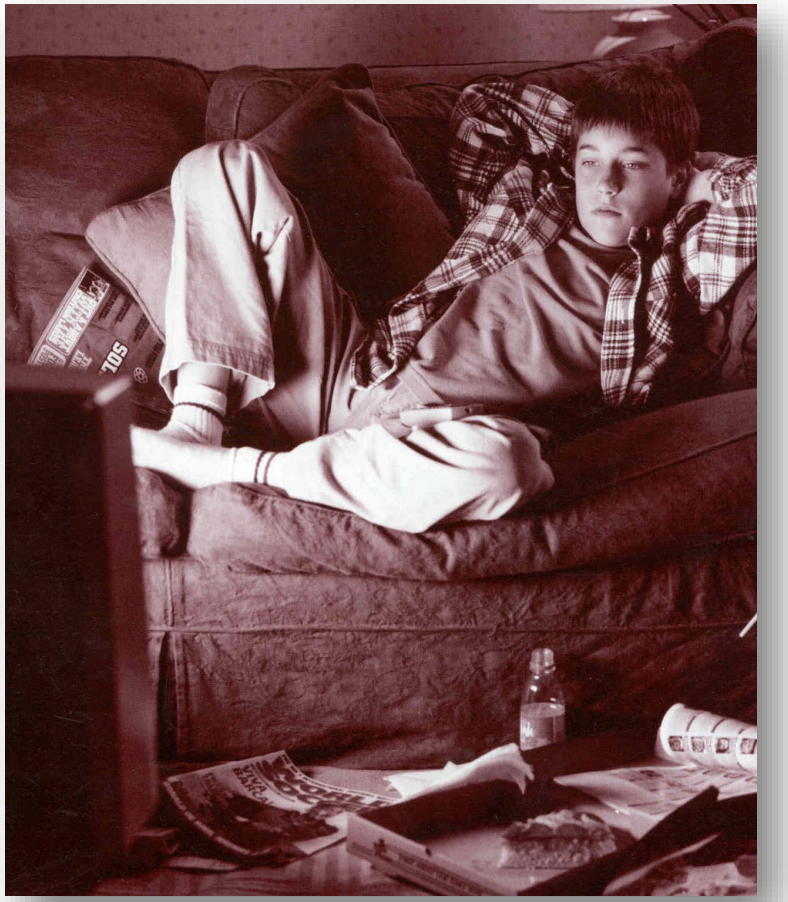
ACTIVE





SEDENTARY

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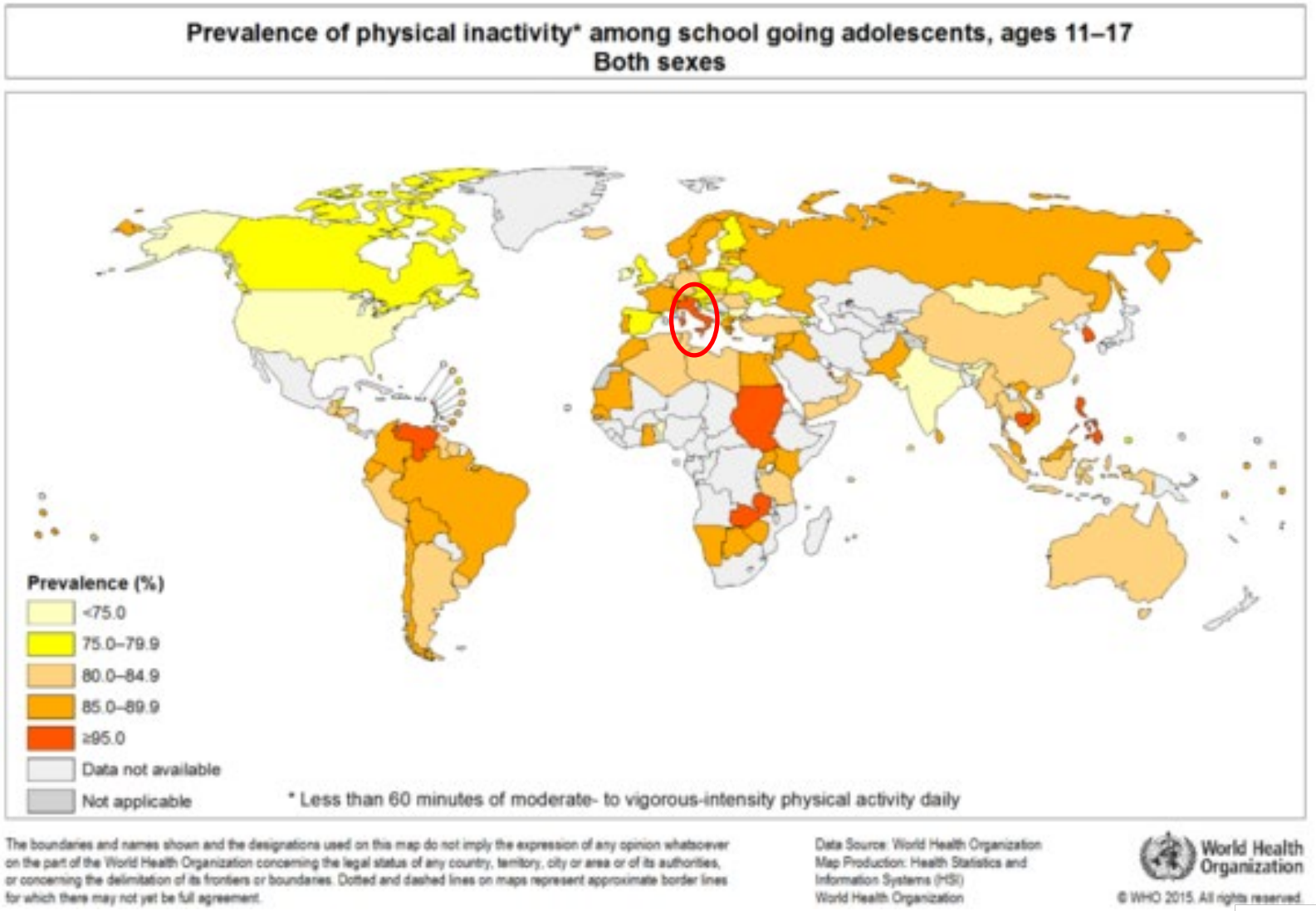
PHYSICAL INACTIVITY IN ADOLESCENTS



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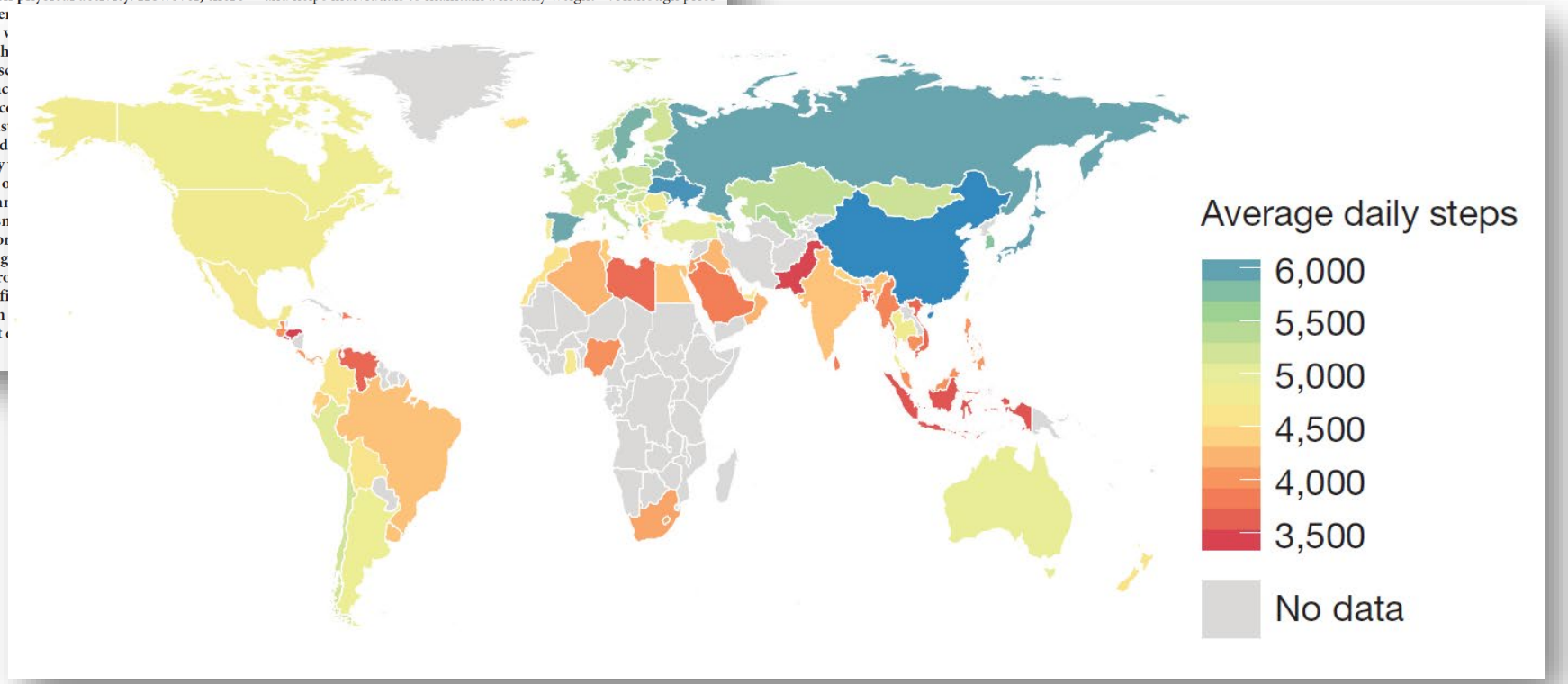
PA worldwide inequalities

Large-scale physical activity data reveal worldwide activity inequality

Tim Althoff[1], Rok Sosič[1], Jennifer L. Hicks[2], Abby C. King[3,4], Scott L. Delp[2,5] & Jure Leskovec[1,6]

To be able to curb the global pandemic of physical inactivity[1–7] and the associated 5.3 million deaths per year[2], we need to understand the basic principles that govern physical activity. However, there is a lack of large-scale measure across free-living populations wide usage of smartphones with physical activity at the global s of 68 million days of physical ac a window into activity in 111 c inequality in how activity is dis this inequality is a better pred population than average activity contributes to a large portion c Aspects of the built environ a city, are associated with a sm lower activity inequality. In mo throughout the day and throug and body mass index (BMI) gr activity found for females. Our fi public health policy and urban activity inequality and the built activity and health.

Physical activity improves musculoskeletal health and function, prevents cognitive decline, reduces symptoms of depression and anxiety, and helps individuals to maintain a healthy weight[4,7]. Although prior



Nature, 2017

Smartphone data from over 68 million days of activity by 717,527 individuals in 111 countries across the world

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PA worldwide inequalities (2)

The average number of steps/day recorded was 4.961, with inequality in how activity is distributed within countries (in Italy the average value was 5.296 steps/day) and within men and women (with women moving significantly less than men do).

Country Name	#subjects	Mean Steps	Activity Inequality	#male	#female	#genderNA	Median Age	#AgeNA
United States	388124	4774	0.303	94707 (48.9)	98971 (51.1)	194446 (50.1)	34	168610 (43.4)
United Kingdom	55110	5444	0.288	15144 (54.8)	12508 (45.2)	27458 (49.8)	33	23557 (42.7)
Canada	26895	4819	0.303	7022 (49.2)	7250 (50.8)	12623 (46.9)	34	10962 (40.8)
Australia	26644	4941	0.304	6858 (51.4)	6479 (48.6)	13307 (49.9)	34	11075 (41.6)
Japan	20386	6010	0.248	6696 (76.2)	2090 (23.8)	11600 (56.9)	38	9016 (44.2)
China	17427	6189	0.245	7553 (61.3)	4769 (38.7)	5105 (29.3)	28	5097 (29.2)
Germany	12234	5205	0.266	4740 (72.8)	1775 (27.2)	5719 (46.7)	34	4666 (38.1)
India	11148	4297	0.293	4092 (79.0)	1086 (21.0)	5970 (53.6)	33	4818 (43.2)
France	8185	5141	0.268	2833 (67.2)	1384 (32.8)	3968 (48.5)	33	3435 (42.0)
Russia	7911	5969	0.262	2071 (59.9)	1385 (40.1)	4455 (56.3)	28	3104 (39.2)
Spain	6723	5936	0.261	2496 (70.8)	1027 (29.2)	3200 (47.6)	36	2538 (37.8)
Netherlands	6239	5110	0.261	2092 (64.1)	1171 (35.9)	2976 (47.7)	35	2311 (37.0)
Mexico	5695	4692	0.279	1497 (65.0)	806 (35.0)	3392 (59.6)	32	2831 (49.7)
Italy	5567	5296	0.275	1724 (68.3)	801 (31.7)	3042 (54.6)	36	2528 (45.4)
Singapore	5411	5674	0.249	1567 (62.3)	947 (37.7)	2897 (53.5)	35	2273 (42.0)
Sweden	5177	5863	0.246	1309 (52.1)	1202 (47.9)	2666 (51.5)	34	2277 (44.0)

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Our society moves too little!

- ✓ The recommended quantity is **10.000 steps/day**, about double of the calculated averages in Italy!
- ✓ It has been calculated that at age 12 the boys and girls, on average, are sedentary for approx. **7** and **7.3** hours per day respectively, and sedentary behaviour increases continuously with age.
- ✓ **This results in increased risk for the development of non-communicable diseases and reduced life expectancy. So that the promotion of physical activity and the reduction of sedentary behaviour has become one of the key priorities for international health agencies, such as WHO,**

In industrialised countries:

- ✓ About half the population is not sufficiently physically active;
- ✓ 1 in 2 people who starts an exercise programme drops it after 3-6 months.

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$$BMI = \frac{\text{Weight (Kg)}}{\text{Stature (m}^2\text{)}}$$

BMI	Nutritional status
< 18.5	Underweight
18.5 - 24.9	Normal weight
25.0 - 29.9	Overweight
30.0 - 34.9	Obesity class I
35.0 - 39.9	Obesity class II
≥ 40	Obesity class III

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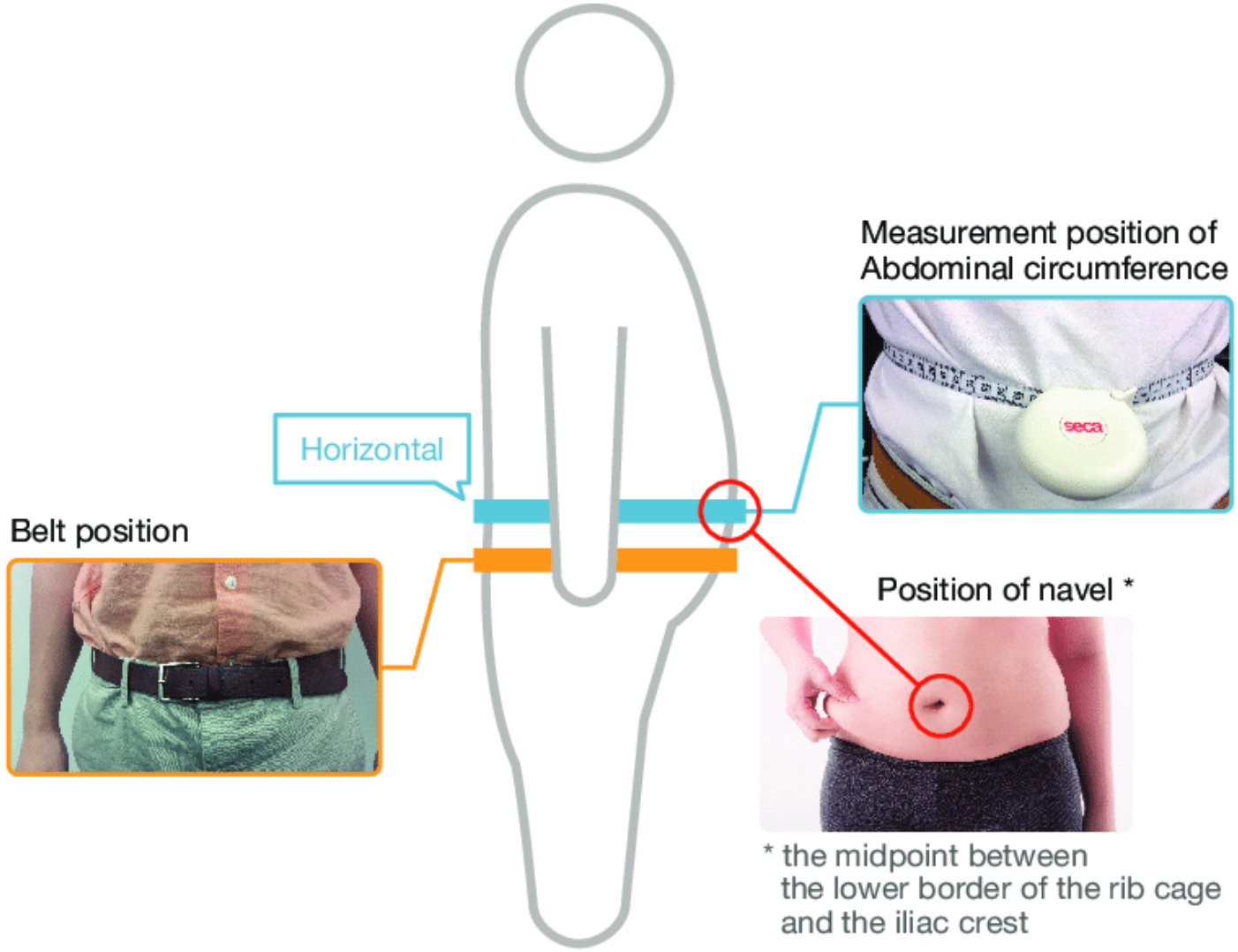
Waist circumference

Waist circumference risk area:

88 cm women

102 cm men



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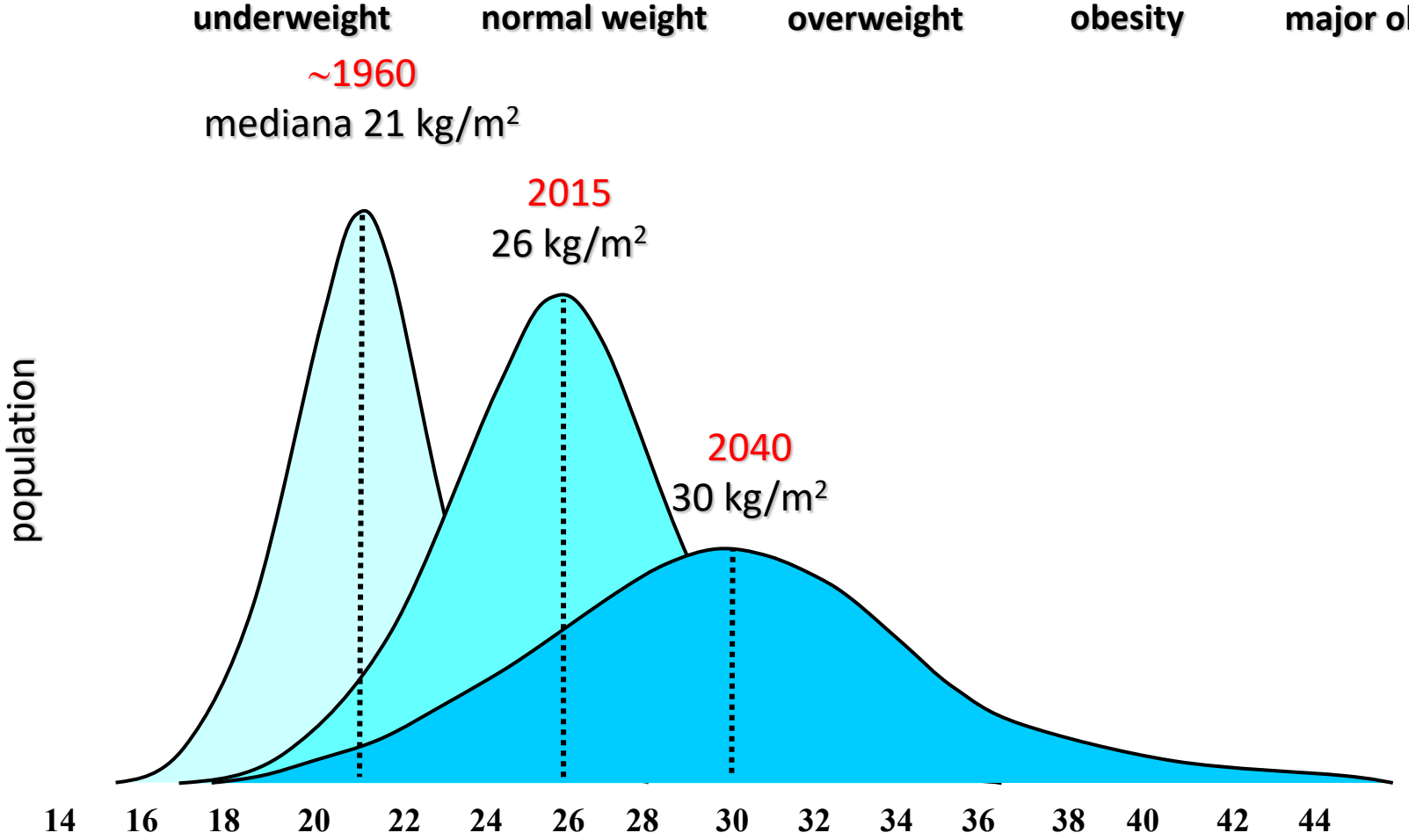
The overweight society

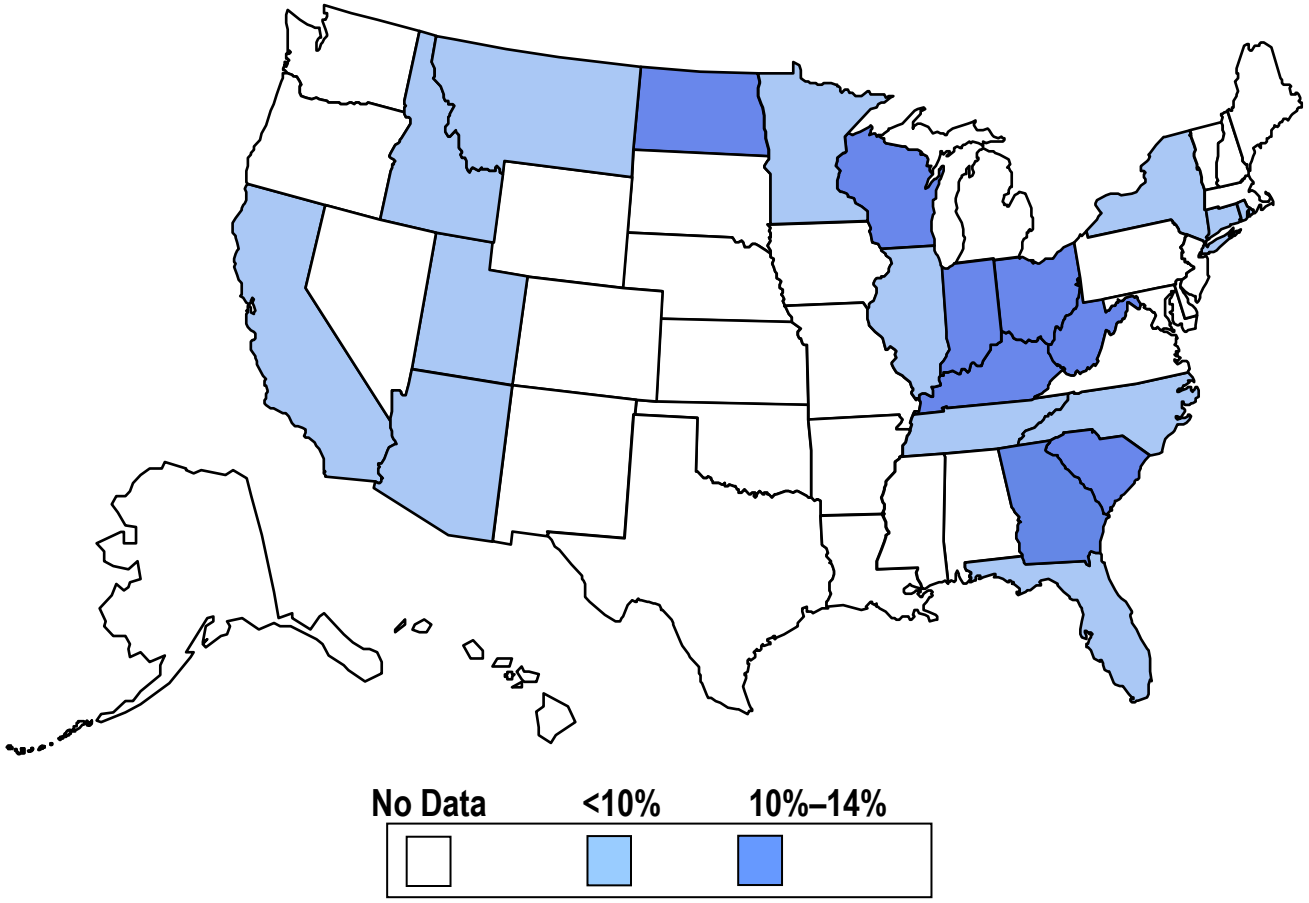


BMI = kg/m²

Obesity trends* in adults in the U.S.

BRFSS (Behavioral Risk Factor Surveillance System), 1985

(*BMI ≥30)



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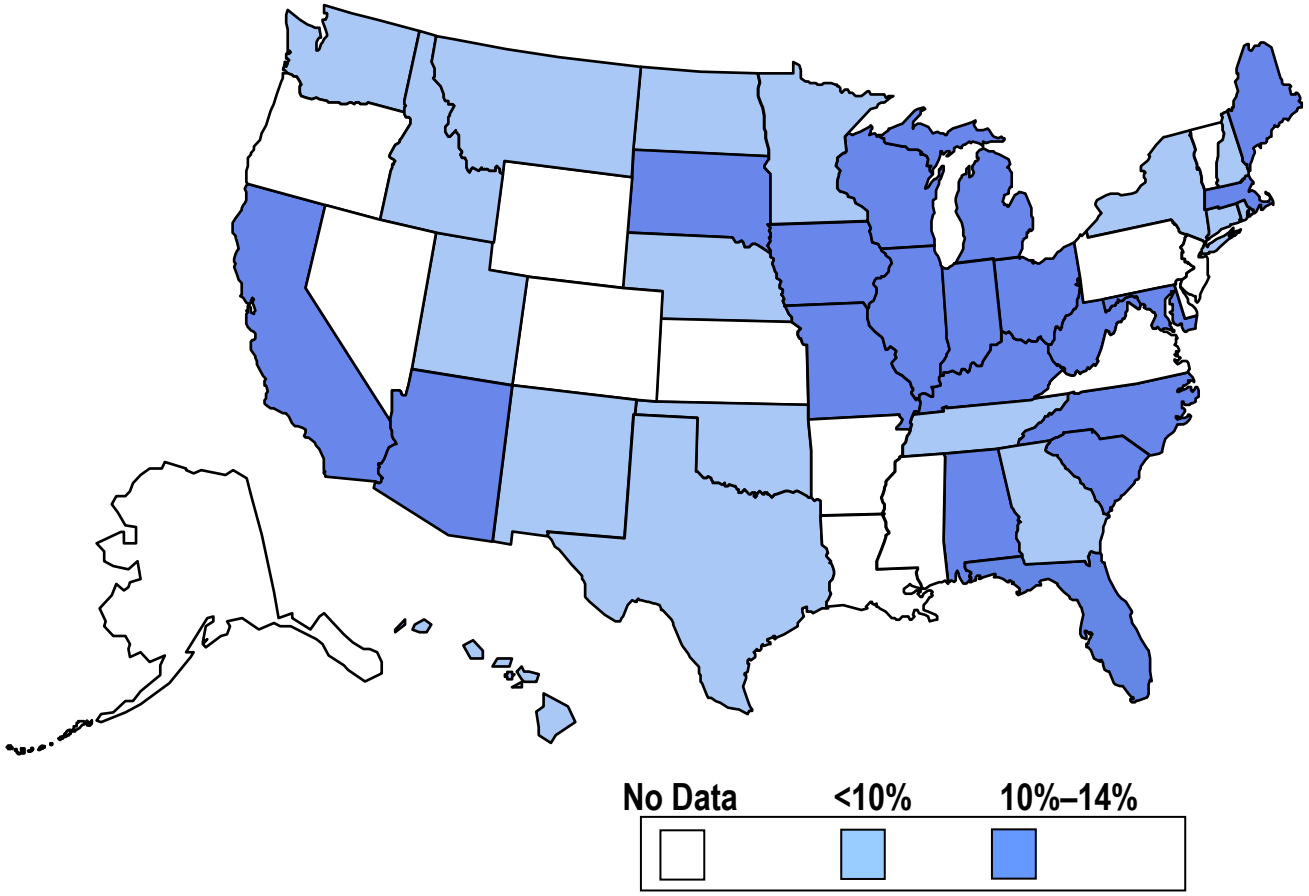
BRFSS, 1988



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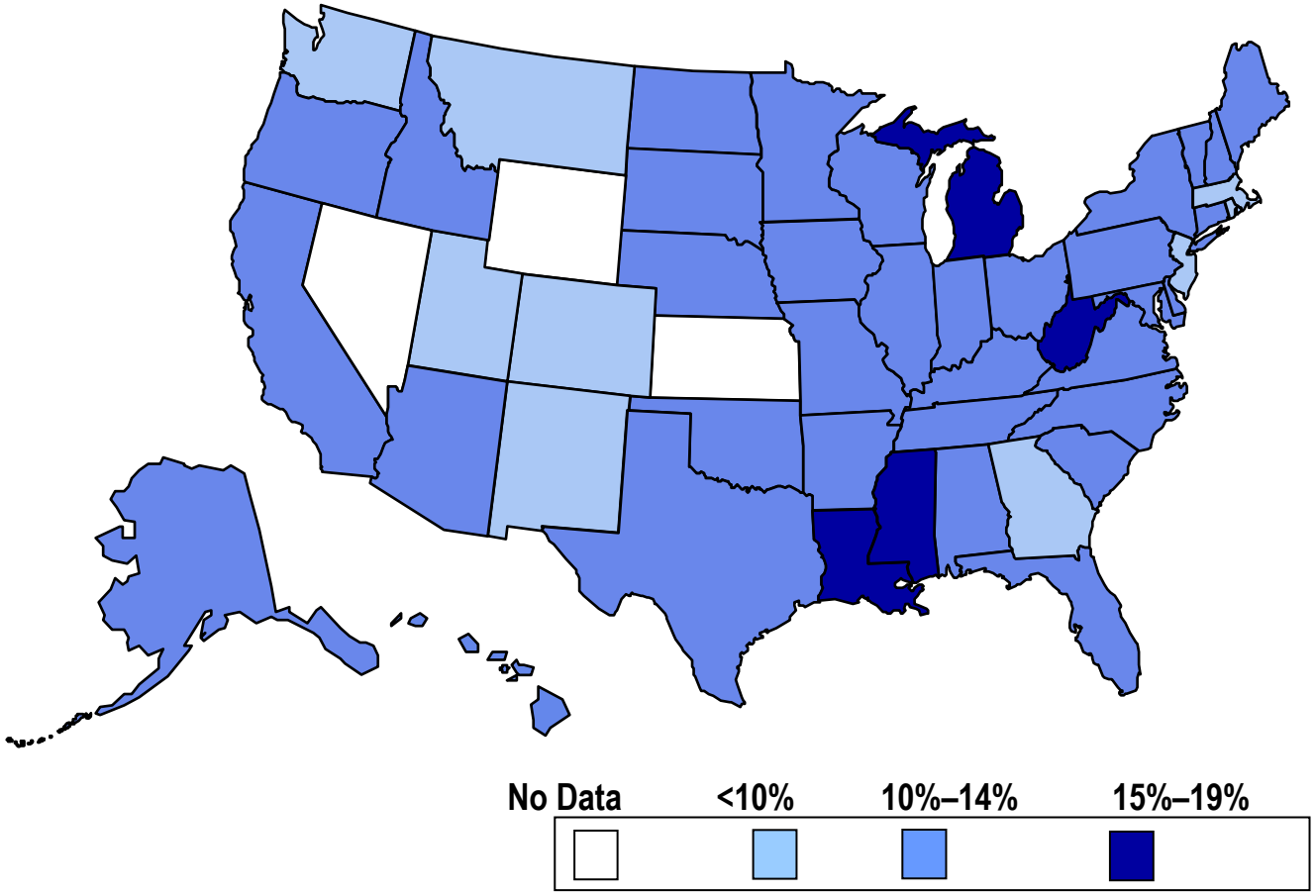

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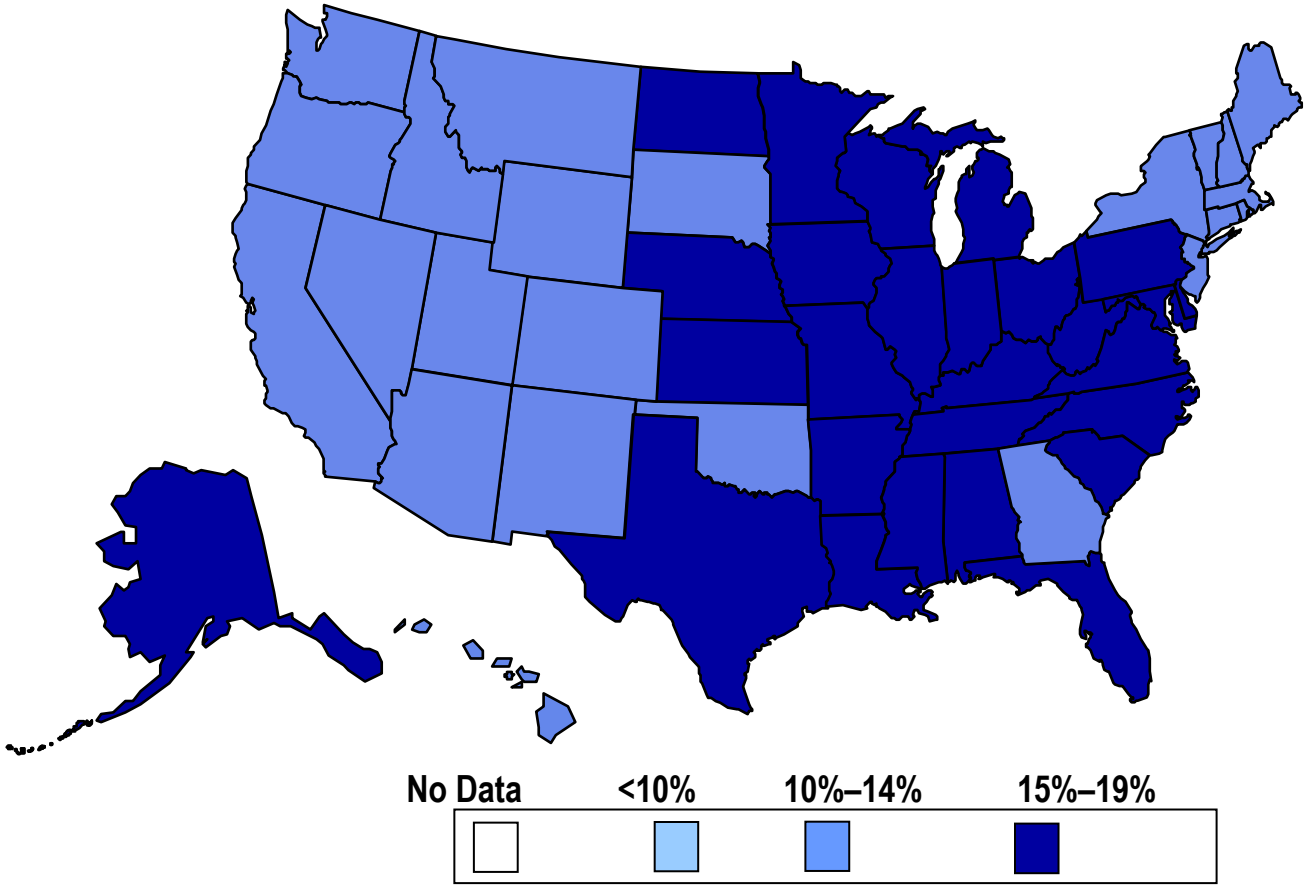

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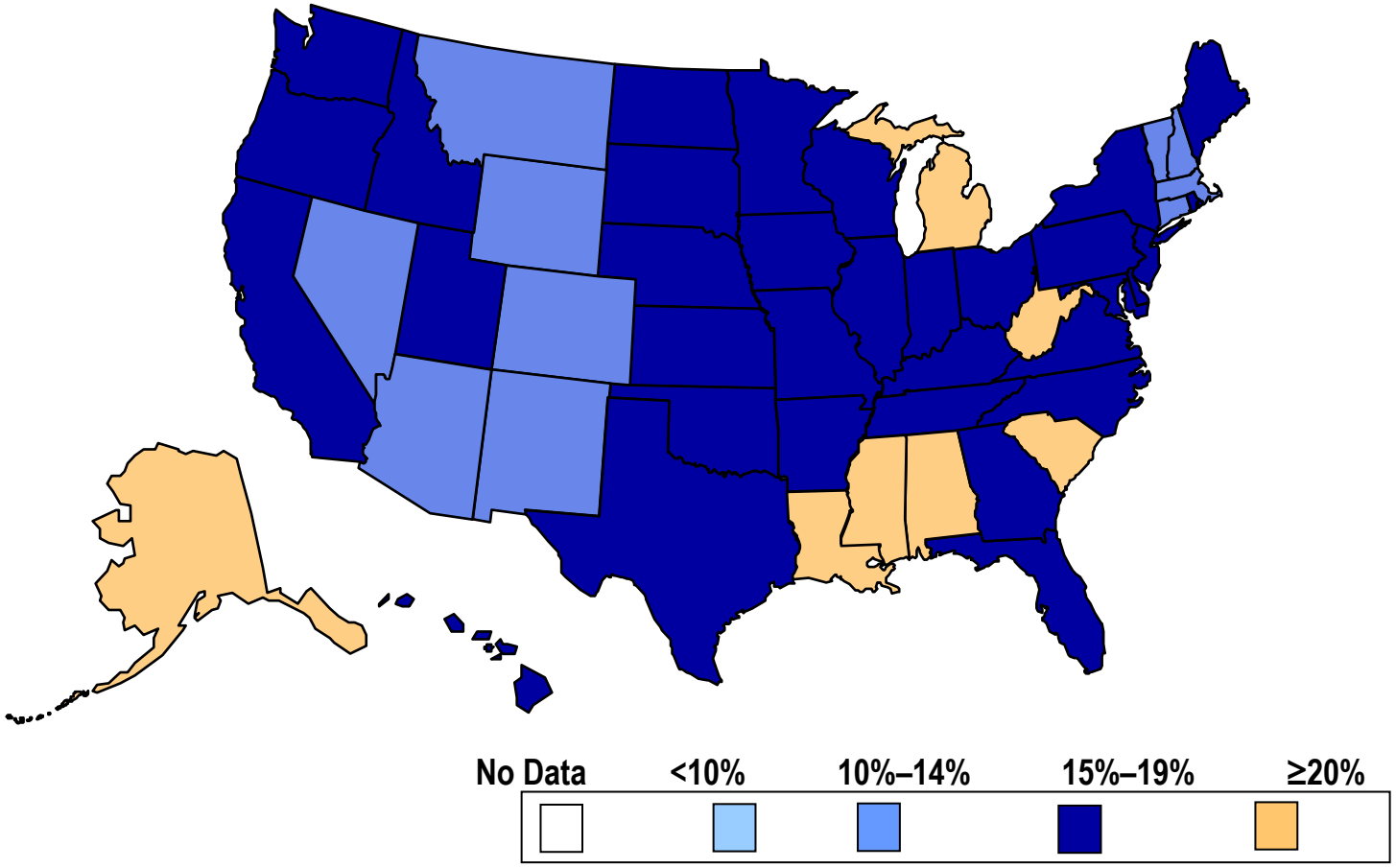
BRFSS, 1998



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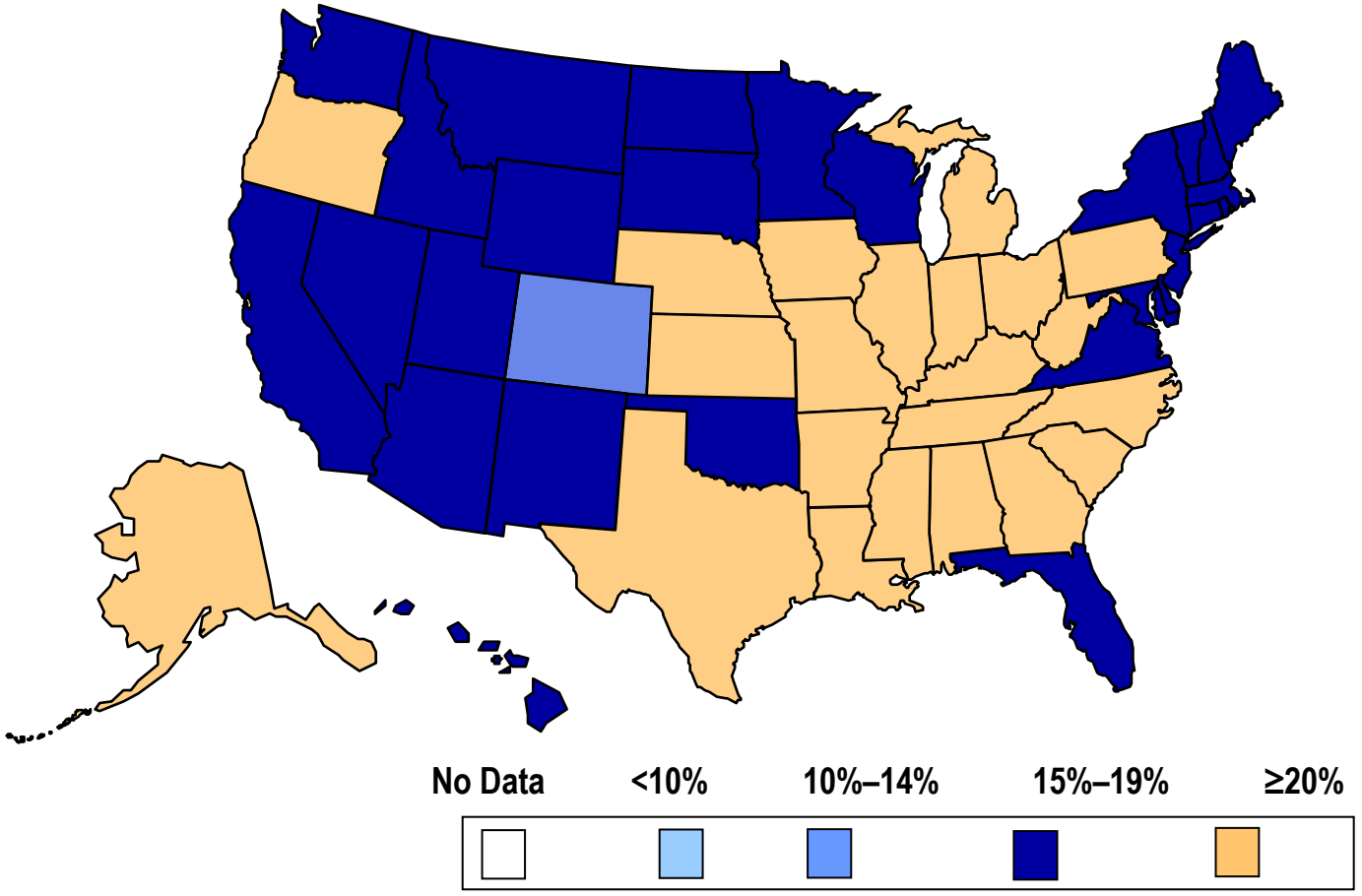
BRFSS, 2000



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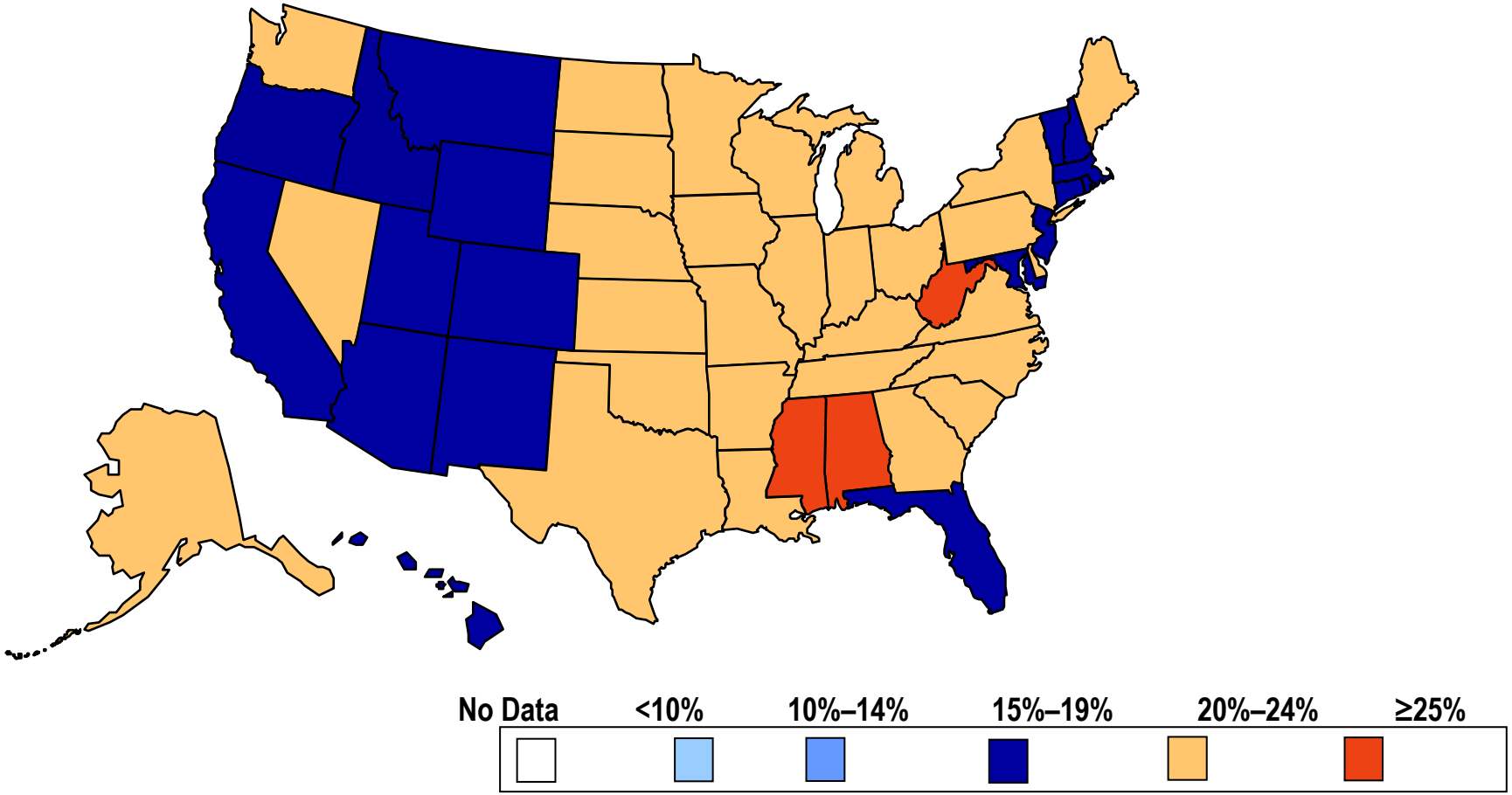
BRFSS, 2002



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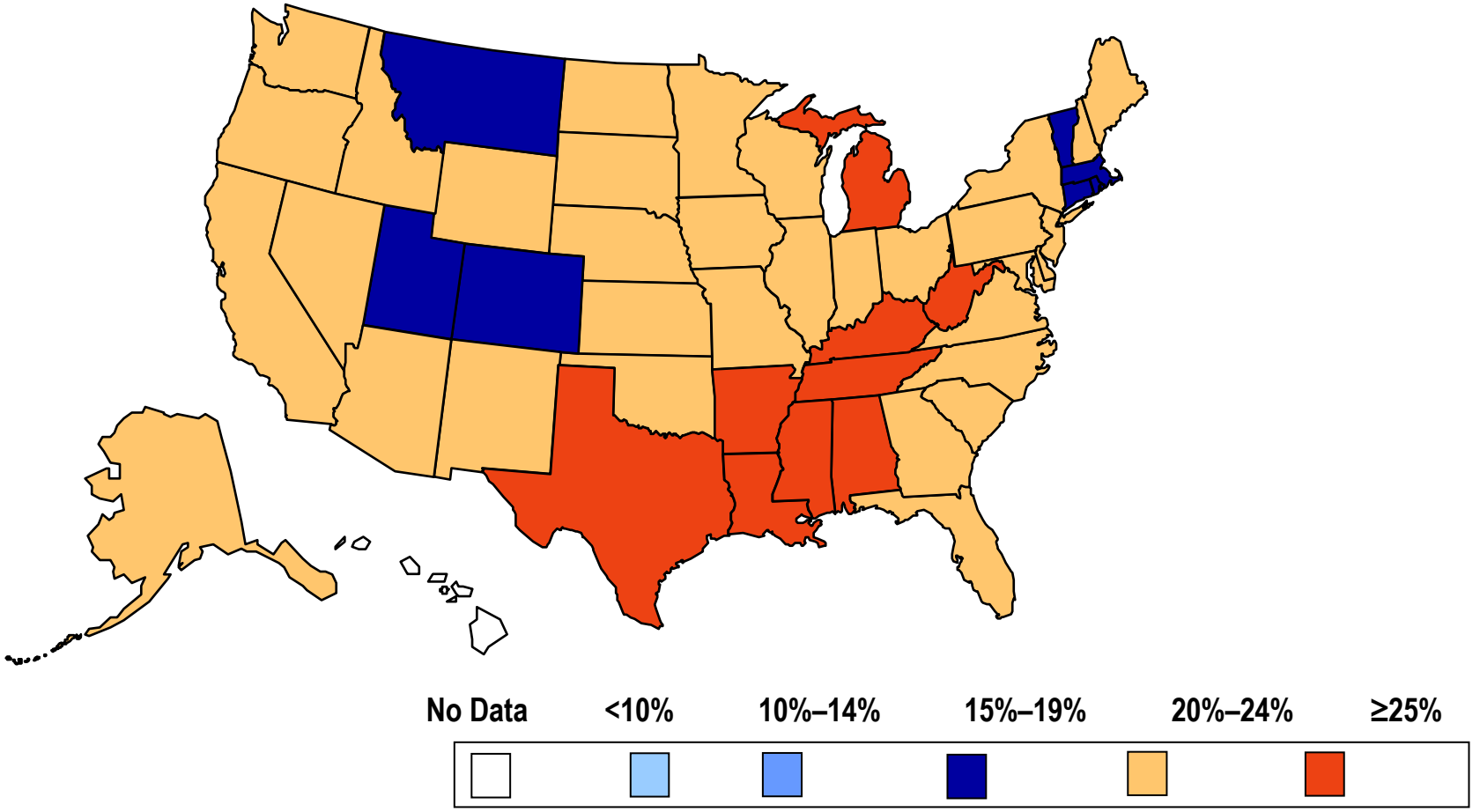
BRFSS, 2004



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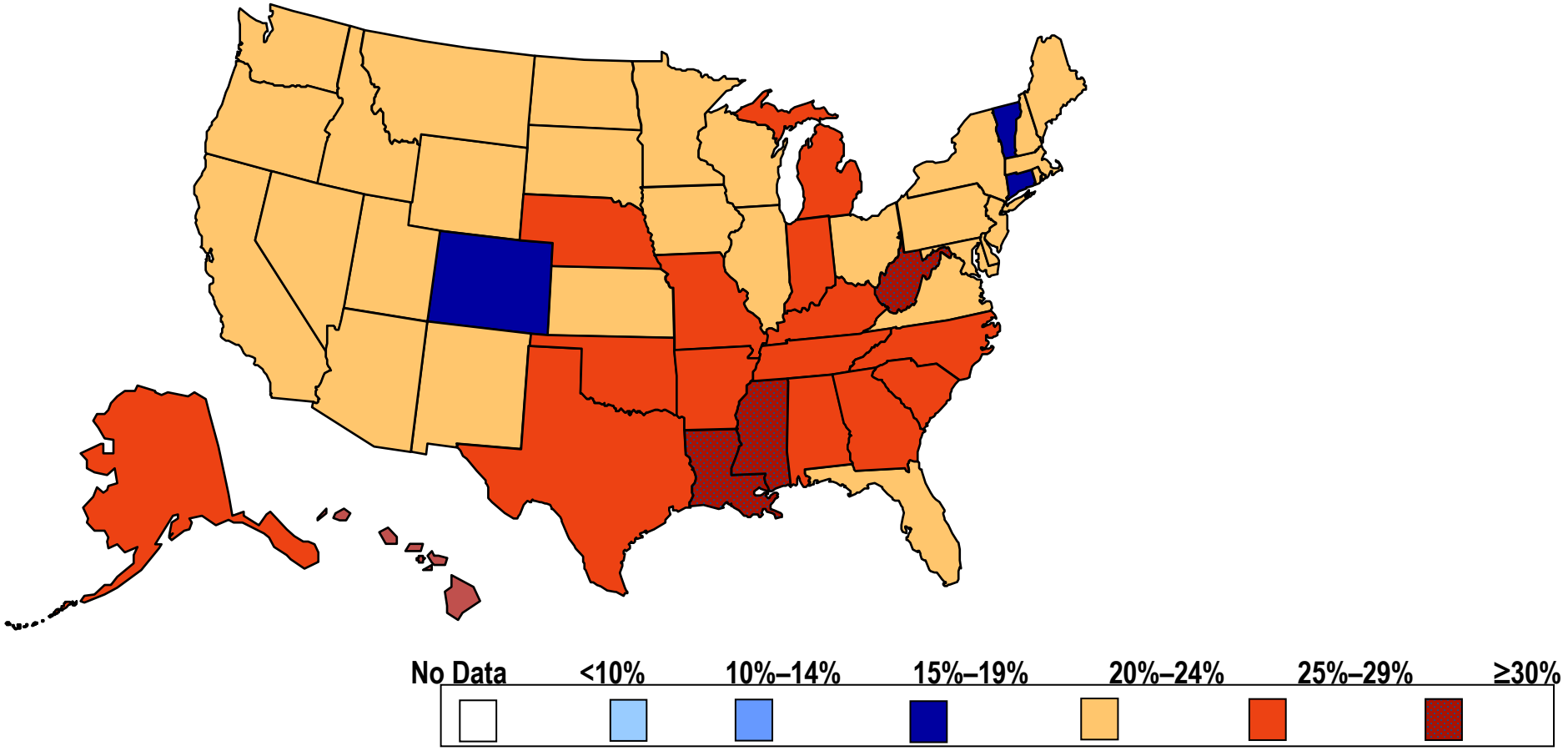
BRFSS, 2006



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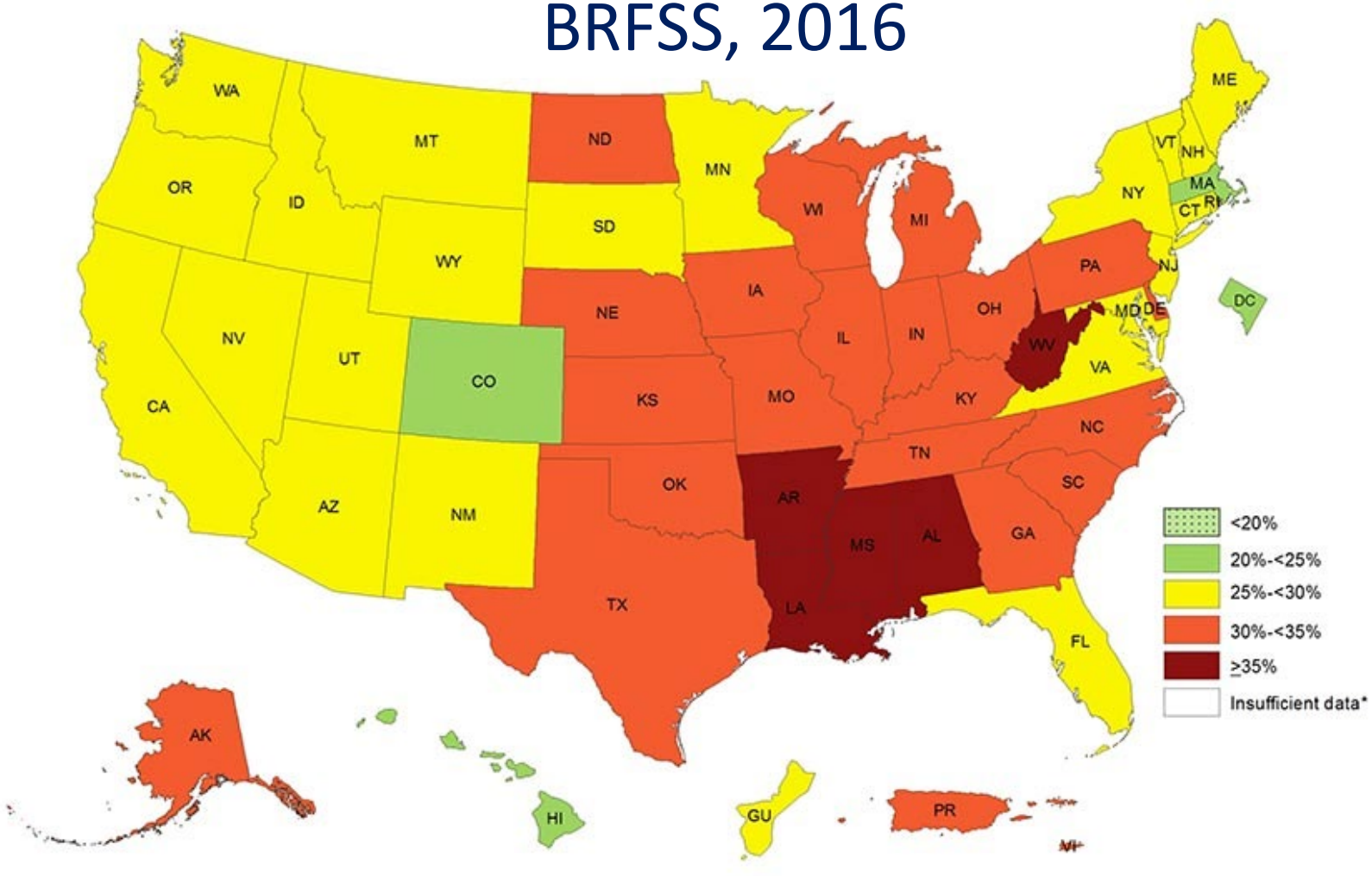
BRFSS, 2016



Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory.
Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

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The ideal gym?

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The ideal sport!

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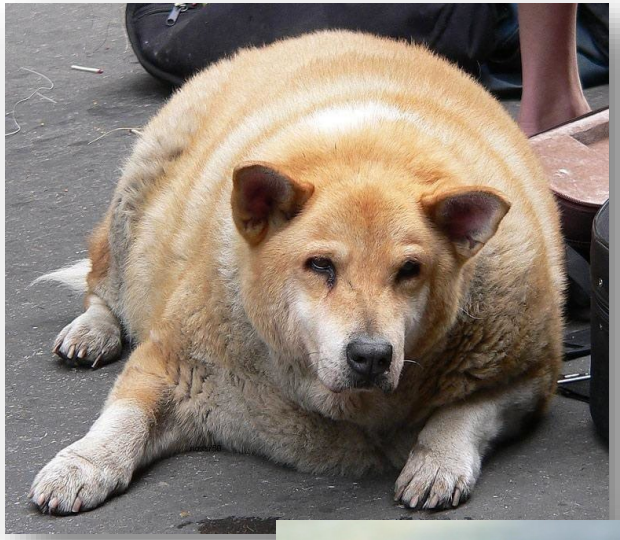
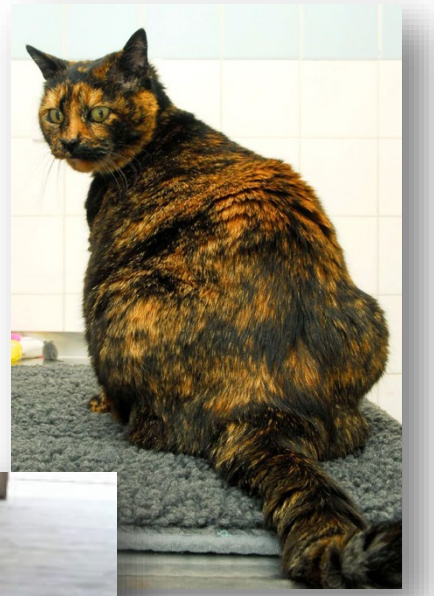
Not only humans!





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1. Health & Physical Activity
2. Sedentary lifestyle

3.Benefits of physical exercise

4. Children and physical activity

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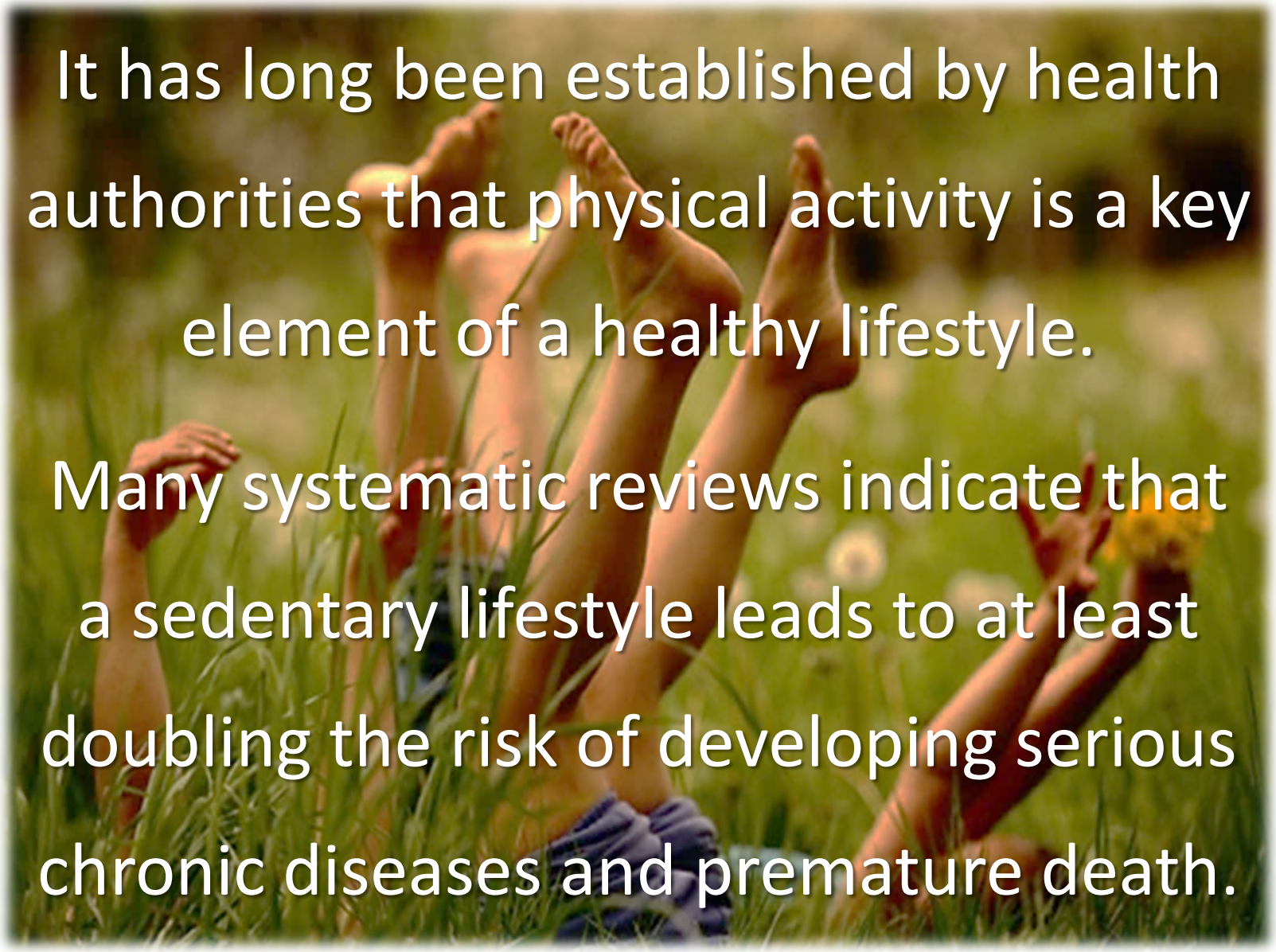

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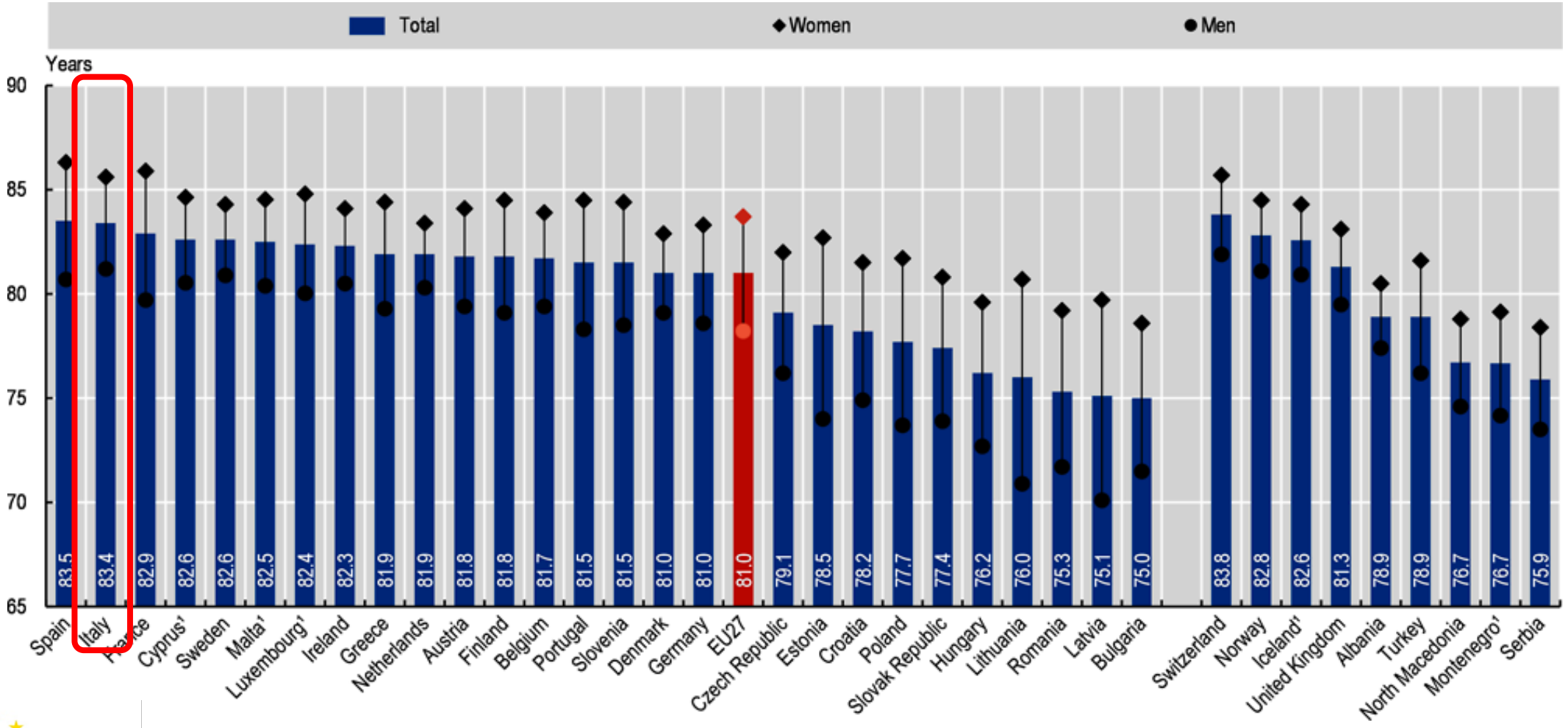
HEALTHY LIFE EXPECTANCY IN EUROPE



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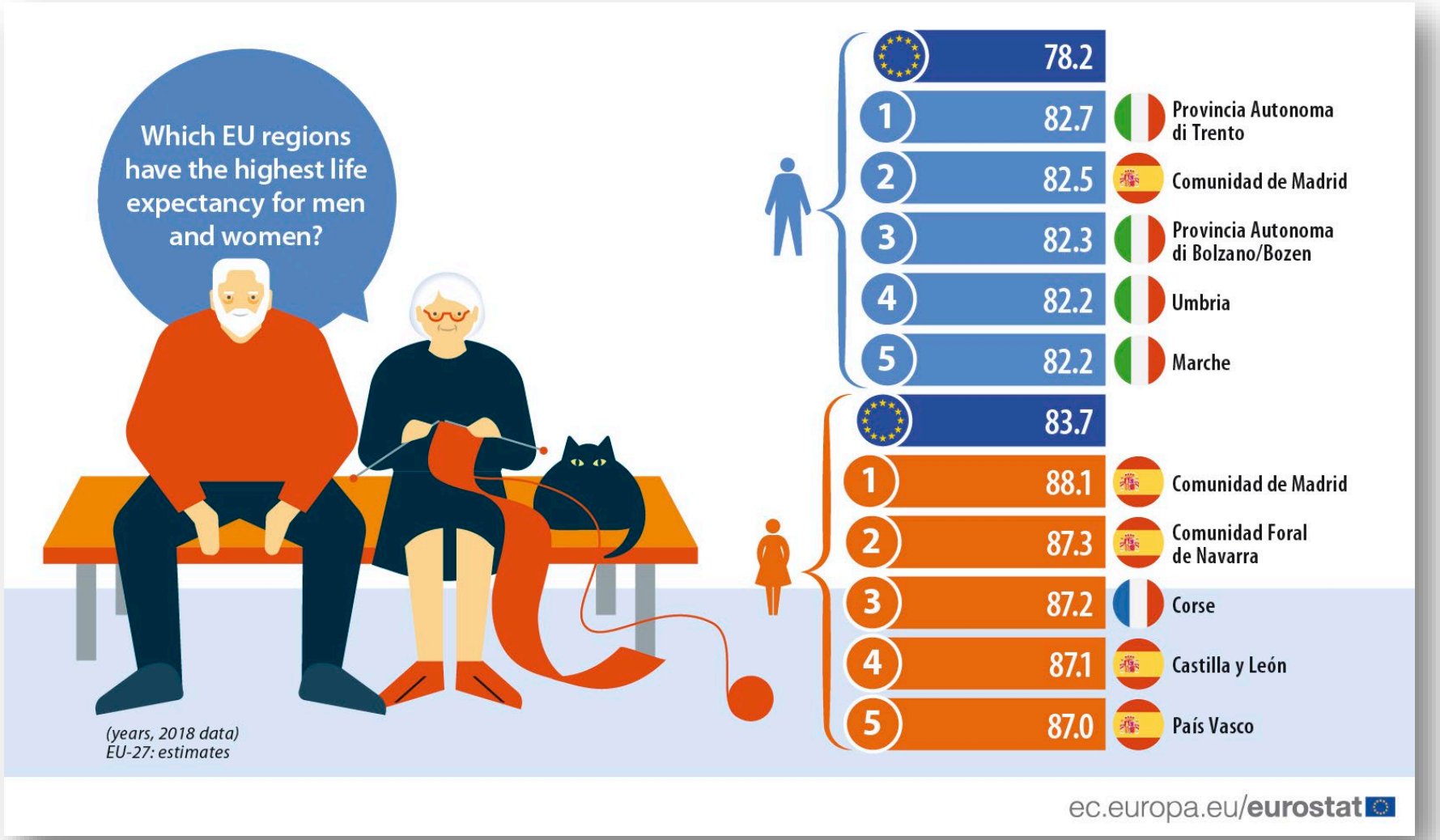
HEALTHY LIFE EXPECTANCY IN EUROPE



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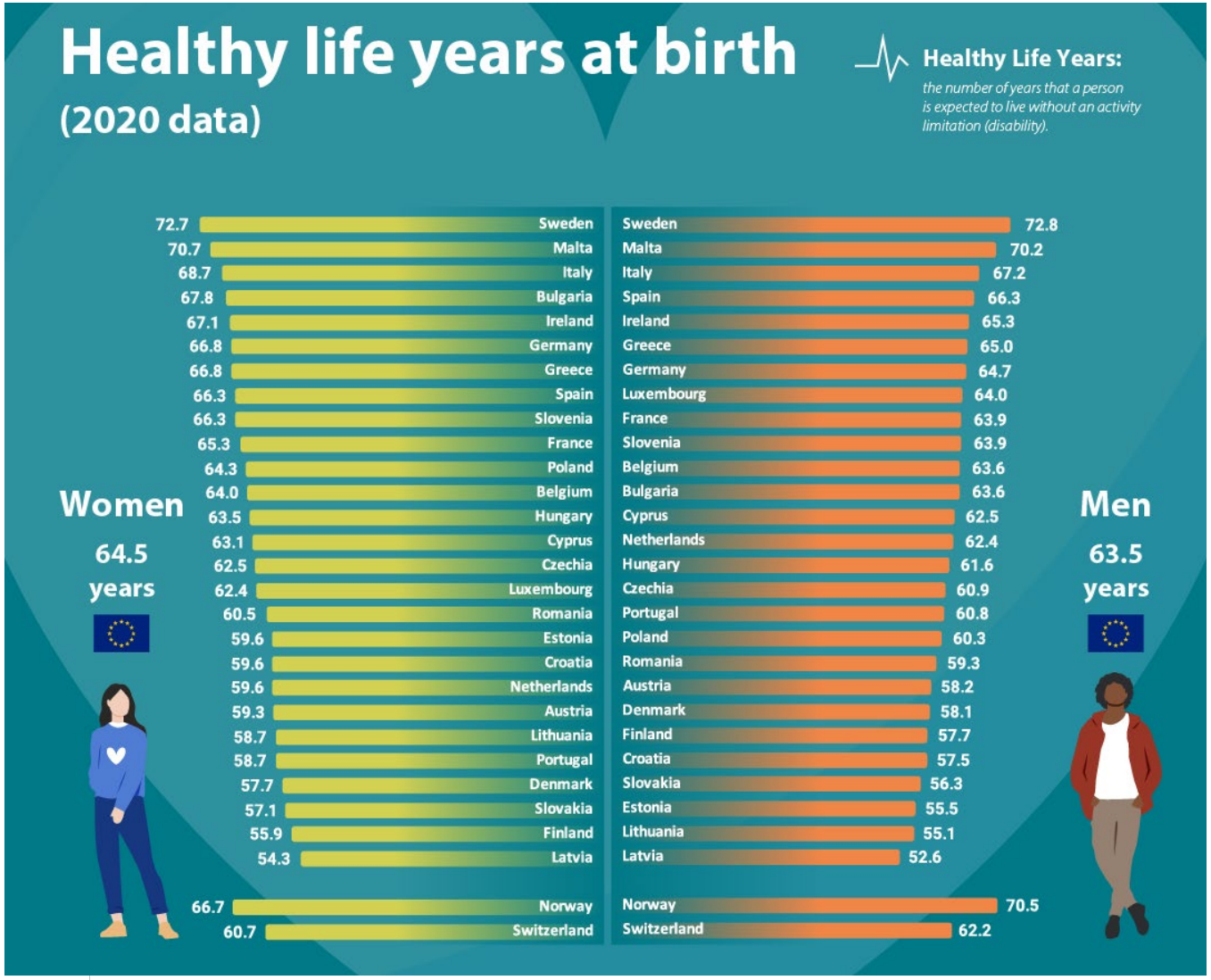
HEALTHY LIFE EXPECTANCY IN EUROPE



ec.europa.eu/eurostat

Italy

Men = 67.2 years

Women = 68.7 years

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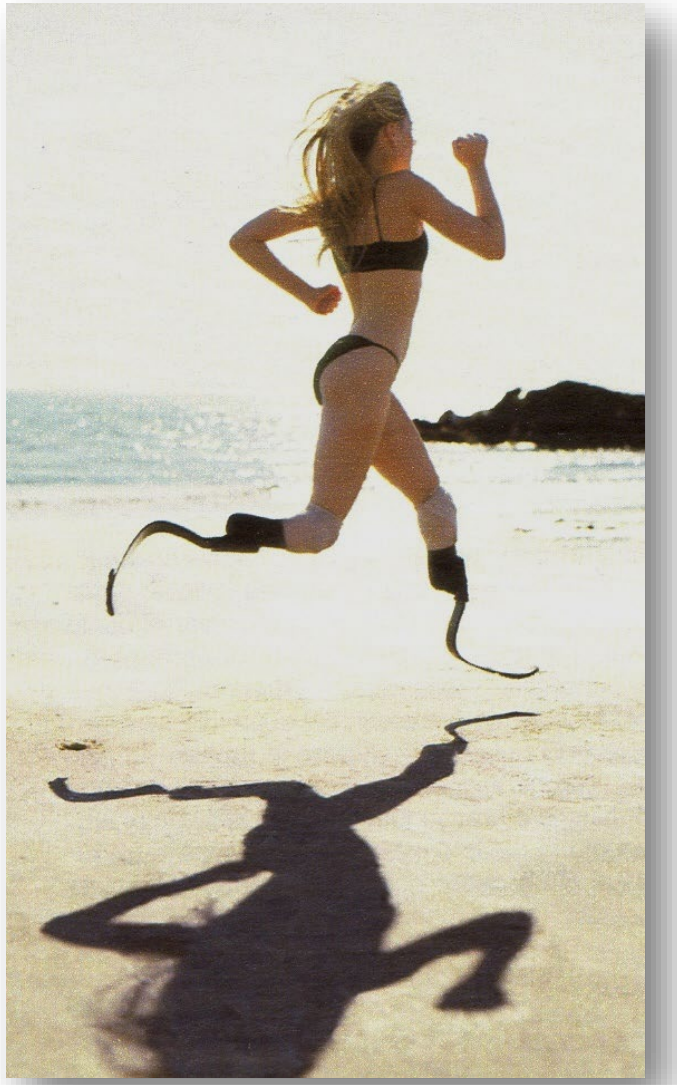
The main benefits of exercise



Musculoskeletal
- ↑ Muscular strength and endurance
- ↑ Bone mass

Obesity
- Sustained weight loss

Cardiovascular
- ↓ Hypertension
- Improvement of blood lipids
- ↑ VO2 max
- ↑ Maximum cardiac output
- ↓ Resting and sub-maximal heart rate
- ↑ Peripheral oxygen extraction

Endrocrine
- Increased glucose tolerance

Emotional
- Increased sense of well-being

Neurological
- Increased balance and coordination
- ↑ Pain threshold

Elderly people
- ↑ Increased margin of safety
- ↑ Functional capacity

Women
- ↓ Pre-menstrual syndrome
- ↓ Symptoms of endometriosis
- Decreased effort in travail

People with disability
- ↑ Quality of life
- ↑ VO2 max
- ↓ Medical complications (possible)

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Physical activity and cognitive functions

SCIENCE AND SOCIETY

Be smart, exercise your heart: exercise effects on brain and cognition

Charles H. Hillman, Kirk I. Erickson and Arthur F. Kramer

Abstract | An emerging body of multidisciplinary literature has docu… beneficial influence of physical activity engendered through aerobic… selective aspects of brain function. Human and non-human animal st… shown that aerobic exercise can improve a number of aspects of cog… performance. Lack of physical activity, particularly among children in the… world, is one of the major causes of obesity. Exercise might not only help… their physical health, but might also improve their academic perform… article examines the positive effects of aerobic physical activity on cog… brain function, at the molecular, cellular, systems and behavioural levels… number of studies support the idea that physical exercise is a lifestyle… might lead to increased physical and mental health throughout life.

Participation in physical activity has been associated with the reduction of a number of physical (for example, cardiovascular disease, colon and breast cancer, and obesity) and mental (for example, depression and anxiety) disorders across the adult lifespan[1]. Despite mounting evidence for the importance of physical activity, 74% of adults in the United States do not meet the recommended guideline of at least 30 minutes of moderate-intensity physical activity on most days of the week[1,7]. Recent evidence further indicates that children are growing increasingly sedentary and unfit, and that these lifestyle factors are related to an earlier onset of several chronic diseases (such as type II diabetes and obesity), which typically do not emerge before adulthood[2]. As a result, recent estimates have indicated that younger generations, for the first time in United States history, might live less healthy lives than their parents[3–5]. The economic cost of this sedentary lifestyle is enormous in both developed and developing countries, with estimates indicating that inactivity was associated with 2.4% of healthcare expenditures in 1995 (REF. 6) and ~US$76 billion in medical costs in the year 2000 (REF. 7). Canadia… concur, as 2.5% (or $2.1 billion)… direct healthcare costs for the ye… related to physical inactivity[6].

In addition to the physical an… impact of physical inactivity, a g… of literature has linked physical … improvements in brain function… enriched environments, includi… exercise equipment (such as runn… has a positive effect on neuronal… on the neural systems that are in… learning and memory, indicating… cally active behaviours influence… function and the supporting bra… tures[8]. A similar perspective has… in human research[9]; with recent… neuroimaging techniques shown… exercise leads to evident changes… structure and function. These fi… allow for a better understanding… implications of specific lifestyle … cognitive health.

Although the roots of a min… connection can be traced back … the ancient Greek civilization, …

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investigation of the relation between physical activity and cognition began in the 1930s. Evidence for a relationship

Review Article

Pediatric Exercise Science, 2003, 15, 243-256
© 2003 Human Kinetics Publishers, Inc.

The Relationship Between Physical Activity and Cognition in Children: A Meta-Analysis

Benjamin A. Sibley and Jennifer L. Etnier

The purpose of this study was to quantitatively combine and examin… sults of studies pertaining to physical activity and cognition in childr… ies meeting the inclusion criteria were coded based on design and de… characteristics, subject characteristics, activity characteristics, and … assessment method. Effect sizes (ESs) were calculated for each stud… overall ES and average ESs relative to moderator variables were th… lated. ESs (n = 125) from 44 studies were included in the analysis. Th… ES was 0.32 (SD = 0.27), which was significantly different from zero… cant moderator variables included publication status, subject age, an… cognitive assessment. As a result of this statistical review of the litera… concluded that there is a significant positive relationship between … activity and cognitive functioning in children.

Physical education is a field that advocates a holistic appro… development. This approach emphasizes that the mind and body … and that anything that happens to one will affect the other. Physi… therefore believe that the "whole child" comes to school to be edu… this requires both mental and physical training. The relationship bet… activity and mental functioning is of particular interest in the scho… cause such a large portion of the school day is spent working in … domain. In the 1950s and 1960s, there were a great number of st… plored the mind-body relationship. However, since that time there h… tively few studies in this area (18). According to Kirkendall (18), … 1950s and 1960s were likely conducted in an attempt to justify th… exercise and physical education (PE) in our schools. However, i… became widely accepted that PE programs are needed for their phy… and therefore, the need to justify these programs for their cogniti… longer existed.

It seems that the need to justify exercise and PE programs in t… returned. PE programs are being cut from our schools in favor of "c… subjects. According to the School Health Policies and Programs Study … 2000; 4), "the percentage of schools that require physical education … declines from around 50% in grades 1 through 5, to 25% in grade 8, … grade 12" (pp. 291-292). Also, according to the Centers for Diseas…

The authors are with the Department of Kinesiology, Arizona State Un… AZ.

PeerJ

Exercise and dietary program-induced weight reduction is associated with cognitive function among obese adolescents: a longitudinal study

Chun Xie[1], Xiaochun Wang[1], Chenglin Zhou[1], Chang Xu[1] and Yu-Kai Chang[2]

[1] School of Kinesiology, Shanghai University of Sport, Shanghai, Shanghai, China
[2] Graduate Institute of Athletics and Coaching Science, National Taiwan Sport University, Guishan Township, Taoyuan County, Taiwan

ABSTRACT

Objective. The present study was to determine the effect of a combined exercise and dietary program on cognitive function as well as the relationship between the program-induced weight change and cognitive function alterations.
Design. The study applies a quasi-experimental design.
Methods. Fifty-eight adolescents with obese status (body mass index, BMI >28 kg/m^2) were assigned to either an experiment (n = 30) or control group (n = 28). Participants in the experiment group received a scheduled program with a specific exercise protocol (two sessions per day, six days per week) and diet plan for four consecutive weeks; the control group was instructed to maintain their normal school activities. The primary outcome measures were anthropometric data and flanker task performance.
Results. The combined program led to reduced BMI with maintenance of the incongruent accuracy in the experiment group, but the incongruent accuracy decreased in the control group after the four-week period. Additionally, the change in weight status between post- and pre-test measurements was inversely correlated with the change in incongruent accuracy.
Conclusion. The combined exercise and dietary program resulted in decreased weight and enhanced executive function in the obese adolescents, and the weight alteration may be considered the mediator between the intervention and executive function.

Subjects Kinesiology, Psychiatry and Psychology
Keywords Body mass index, Diet, Executive function, Physical activity

INTRODUCTION

Obesity in children and adolescents is a crucial health concern due to its epidemic proportions globally, with 17% of the 2- to 19-year-old population in the United States (*Ogden et al., 2016*) and approximately 15% of the pediatric population in China being classified as overweight and obese (*Ji, Chen & China WGoO, 2013*). According to the Global Burden of Disease Study 2013, the prevalence of obesity in children and adolescents has changed substantially in both developed and developing countries (*Ng et al., 2014*). Obesity is likely to continue from childhood and adolescence to adulthood (*World Health Organization, 2016*) and is associated with an increased risk of premature mortality and

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Additional Information and Declarations can be found on page 12

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OPEN ACCESS

AF influences cognitive functions and supports brain structures.

Exercise brings obvious changes in the structure and function of the brain.

There is evidence at molecular, cellular, behavioural and systemic levels that practising AF brings cognitive benefits.

This evidence underlines the importance of promoting AF throughout the life course also to prevent and counteract cognitive and neurological decline.

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Physical activity and memory

eNeuro

New Research

Cognition and Behavior

Early-Age Running Enhances Activity of Adult-Born Dentate Granule Neurons Following Learning in Rats

Olga Shevtsova,[1] Yao-Fang Tan,[1] Christina M. Merkley,[1] Gordon Winocur,[2,3] and J. Martin Wojtowicz[1]

DOI:http://dx.doi.org/10.1523/ENEURO.0237-17.2017

[1]Department of Physiology, University of Toronto, Toronto, Ontario M5S1A8, Canada, [2]Rotman Research Institute, Baycrest Centre, Toronto, Ontario M6E2E1, Canada, and [3]Department of Psychology, Trent University, Peterborough, K9J7B8, Canada

Abstract

Cognitive reserve, the brain's capacity to draw on enriching experiences during youth, is believed to protect against memory loss associated with a decline in hippocampal function, as seen in normal aging and neurodegenerative disease. Adult neurogenesis has been suggested as a specific mechanism involved in cognitive (or neurogenic) reserve. The first objective of this study was to compare learning–related neuronal activity in adult-born versus developmentally born hippocampal neurons in juvenile male rats that had engaged in extensive running activity during early de
was to investigate the long-te
response later in adulthood. Th
sufficient to build a reserve tha
effect of early running on adu
contextual memory, in a manne

Key words: adult neurogenesis

Significance Statement

The role of adult neurogenesis in learning and memory is under active investigation, but the underlying mechanisms remain unclear. The present study found that early-age running led to enhanced associative learning and memory in adult rats and increased activity of adult-born granule neurons in the dentate gyrus (DG) during memory retrieval. This study demonstrates the long-term effect of early-age physical activity on learning and memory much later in life. The findings emphasize the involvement of adult-born hippocampal neurons in neurogenic and functional cognitive reserve and show that physical activity contributes to memory improvement.

"Exercise during youth increases memory accuracy later in life"

(Shevtsova et al., 2017)

1. Health & Physical Activity
2. Sedentary lifestyle
3. Benefits of physical exercise
4. Children and physical activity

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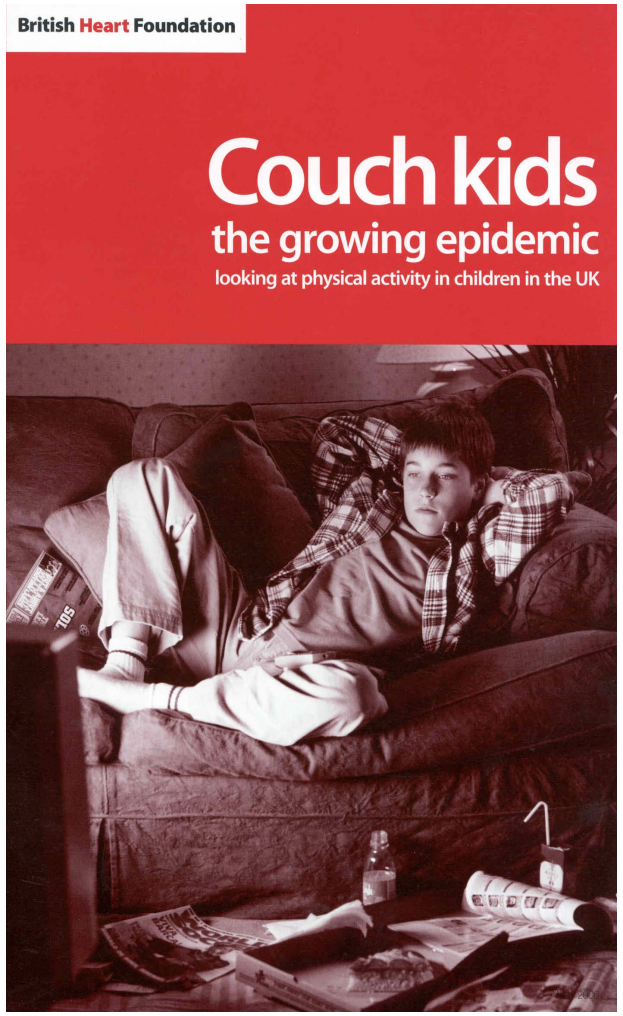
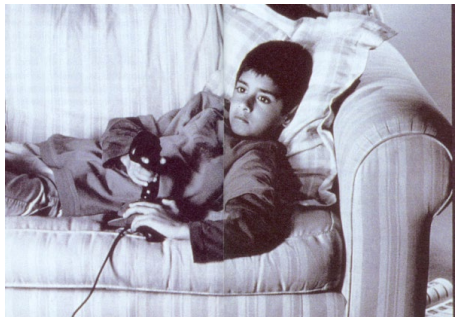


Many health-impairing behaviours that can lead to adult diseases and premature death risks, such as poor dietary habits and lack of physical activity, originate in childhood.

Education is essential to counteract these phenomena and schools must play a central role in promoting active lifestyles.



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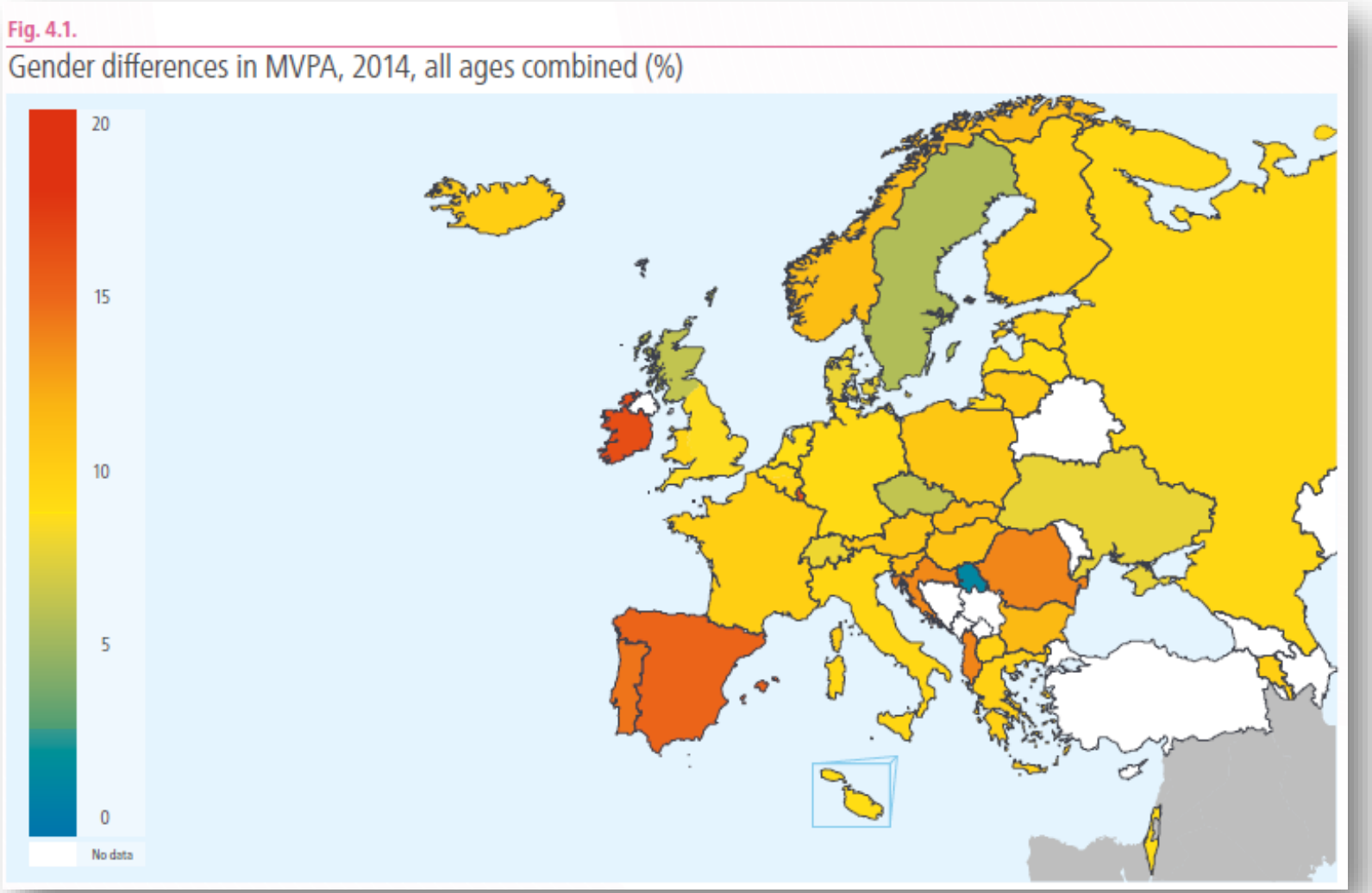
Trends in MVPA by gender

(WHO, 2017)



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PREVELANCE OF OVERWEIGHT AND OBESITY IN CHILDREN AND ADOLESCENTS

FACT SHEET 2.3 • December 2009 • CODE: RPG2_Hous_E2

Prevalence of overweight and obesity in children and adolescents

The indicator measures the prevalence of overweight and obesity in children and adolescents aged 11 and 13 years. Data were drawn from the Health Behaviour in School-aged Children (HBSC) 2005/2006 survey (1), which covers 36 countries in the WHO European Region from a total of 41 countries surveyed. An assessment of the situation in the Region is given.

KEY MESSAGE

☹ The prevalence of overweight (including obesity) in 11- and 13-year-olds ranges from 5% to more than 25% in some countries. Despite efforts taken by international organizations and national governments to promote awareness of the problem and to develop preventive measures, prevalence continues to increase in more than half of the countries. Most countries show a greater proportion of boys than girls being overweight.

RATIONALE

Overweight and obesity in children and young people are major risk factors for chronic disease and are associated with an increased risk of adult obesity (2) and premature mortality (3,4). The World Health Organization recognizes that childhood overweight and obesity have reached epidemic proportions in most industrialized countries (5). The definitions of overweight and obesity are based on the percentile values of body mass index (BMI), adjusted for age and gender, corresponding to a BMI of ≥25.0 and ≥30.0 kg/m2, respectively, at age 18 years, as recommended by the International Obesity Task Force.

PRESENTATION OF DATA

Fig. 1 shows the average prevalence of obesity and overweight in 11-year-olds in 36 countries and areas in the Region that participated in the HBSC 2005/2006 survey (1). The prevalence of overweight and obese 13-year-olds is shown in Fig. 2, along with the prevalence in the same age group in the 31 countries and areas that participated in both the HBSC 2005/2006 (1) and 2001/2002 surveys (6).

www.euro.who.int/ENHIS

World Health Organization
REGIONAL OFFICE FOR Europe

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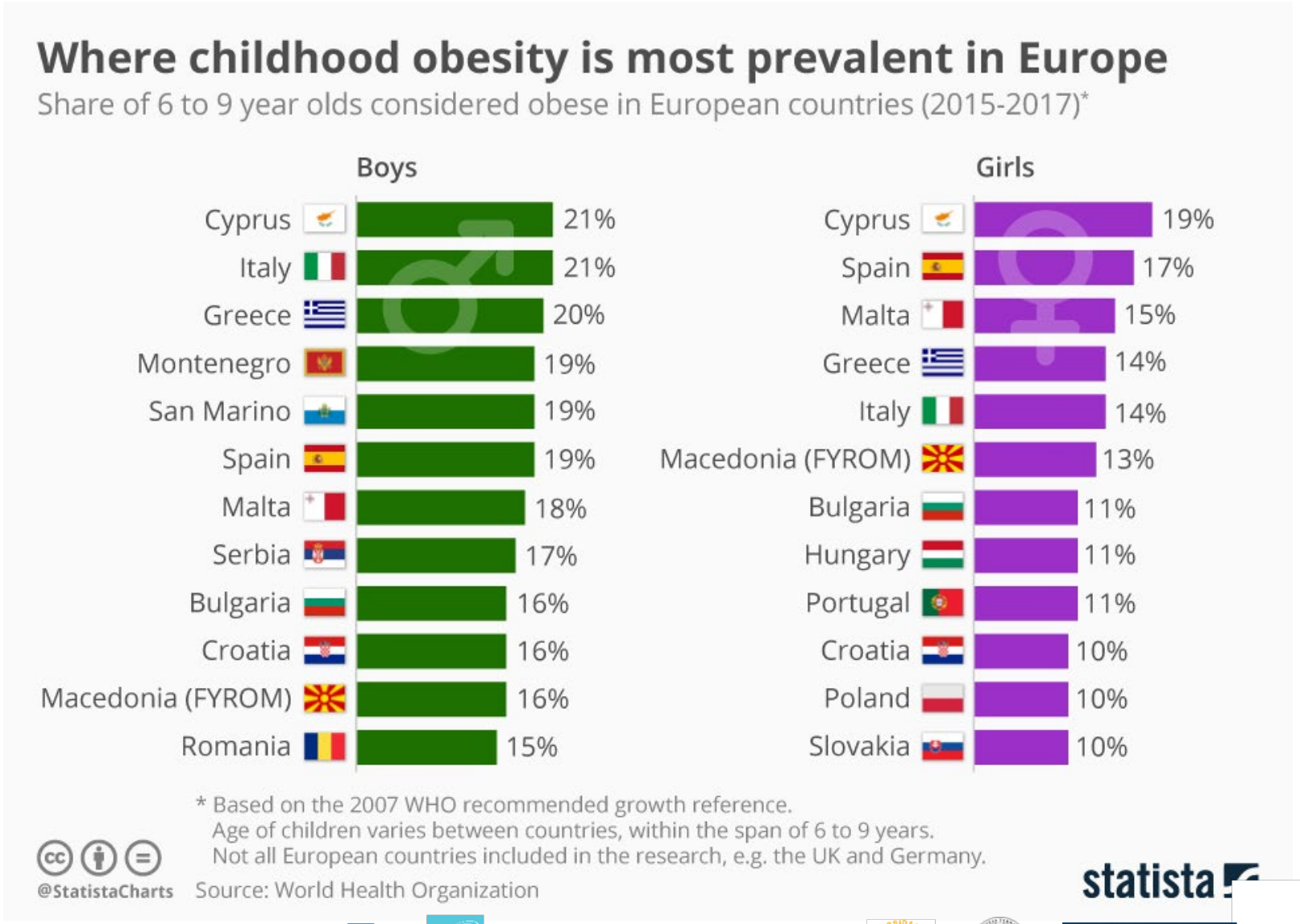
www.statista.com/chart/17839/childhood-obesity-rates-europe-who/



THE CONSEQUENCES OF INACTIVITY

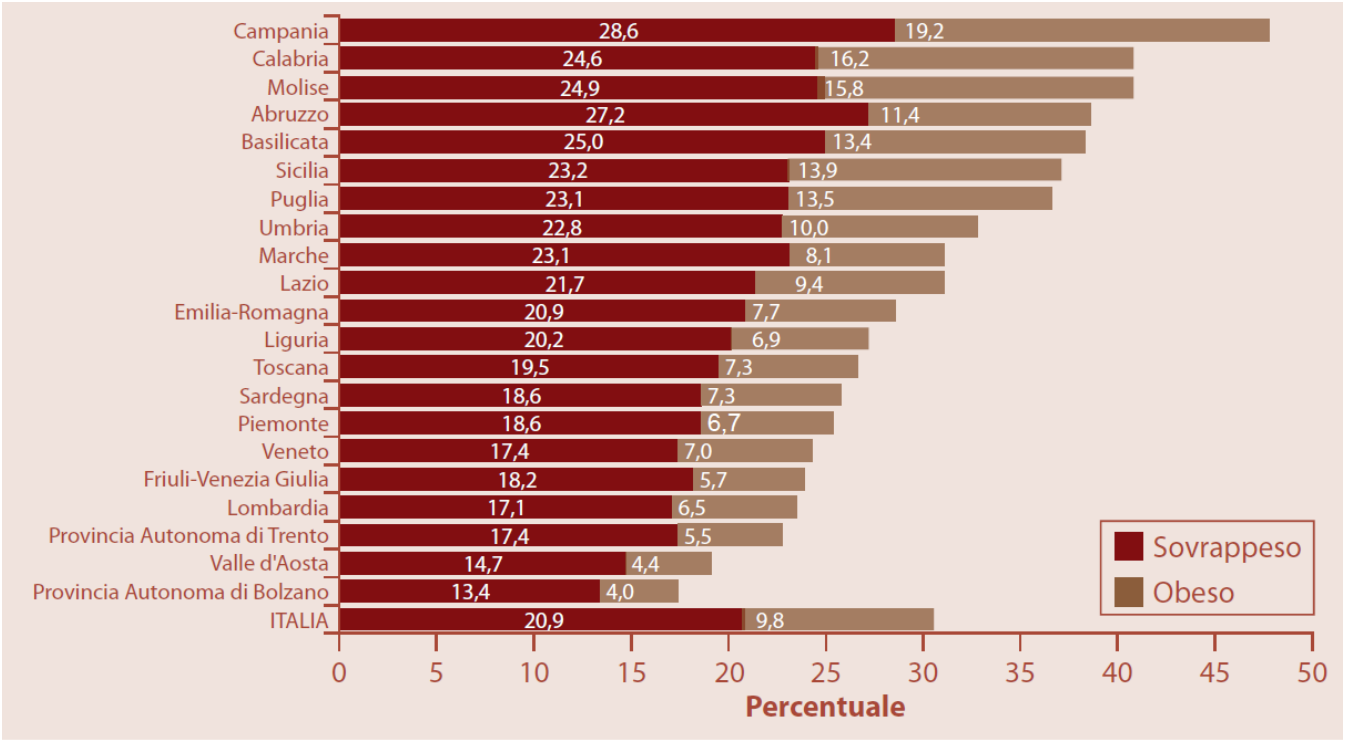


Figura 2 - Sovrappeso e obesità (%) nei bambini di 8-9 anni per regione. Italia, 2014

In primo piano

- Il 20,9% dei bambini sono in sovrappeso e il 9,8% sono obesi, compresi i bambini gravemente obesi che da soli sono il 2,2% (*cutoff* IOTF)
- Rispetto al passato, la prevalenza di sovrappeso e obesità nei bambini risulta in diminuzione
- Lo stato ponderale dei genitori e l'istruzione risultano associati all'indice di massa corporea del bambino
- Il 12% dei bambini dorme meno di 9 ore in un normale giorno feriale

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In Italy:

One in three young people do not engage in vigorous daily physical activity

Less than 30% exercise daily

It is estimated that children spend more time in front of the TV than in school in one year.

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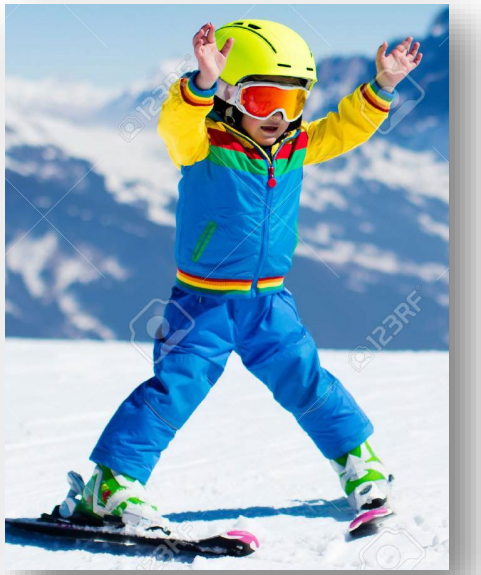
PA recommendations, a synthesis in 3 slides:
0-5 years old children:

- Infants (0-12 months) physical activity particularly supervised interactive floor-based play in safe environments is encouraged from birth.
- Toddlers (aged 1-2 years) spend at least 180 minutes in a variety of physical activities, including energetic play, spread throughout the day. More is better.
- Pre-schoolers (aged 3-5 years) spend at least 180 minutes in a variety of physical activities, of which at least 60 minutes is energetic play, spread throughout the day. More is better.
  - ✓Children younger than 2 years do not have any sedentary screen time.
  - ✓Children aged 2-5 years have no more than 1 hour of sedentary screen time. Less is better.
  - ✓Infants, toddlers and pre-schoolers engage in pursuits such as reading, singing, puzzles and storytelling with a caregiver when they are sedentary.



healthykids
eat well, get active

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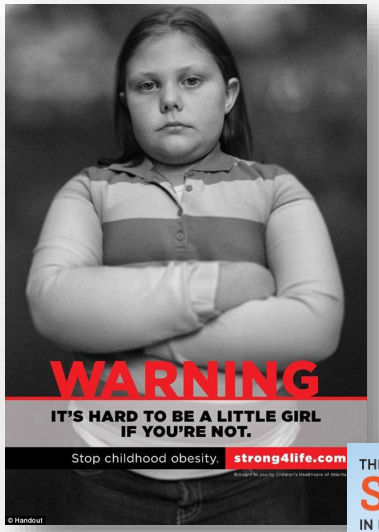
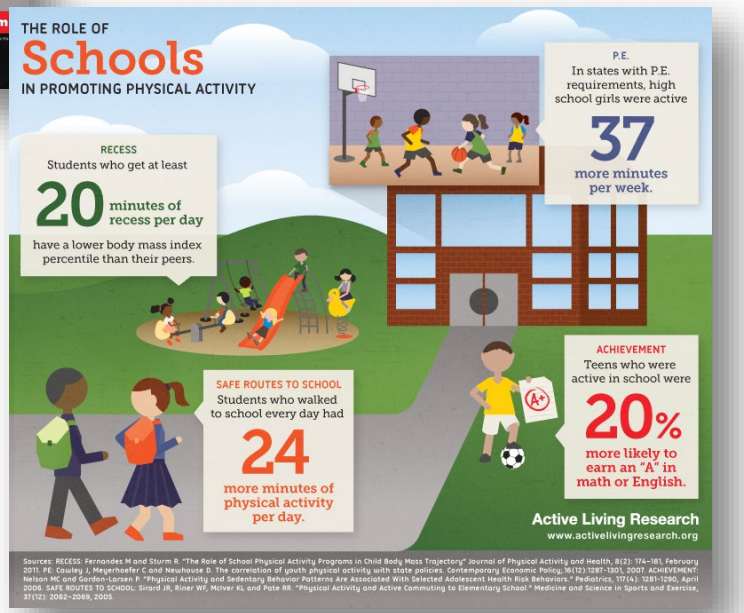
Children and adolescents aged 5-17 years:

- ✓ *should accumulate at least 60 minutes of MVPA daily;*
- ✓ *physical activity of amounts greater than 60 minutes daily will provide additional health benefits;*
- ✓ *should include activities that strengthen muscle and bone, at least 3 times per week.*





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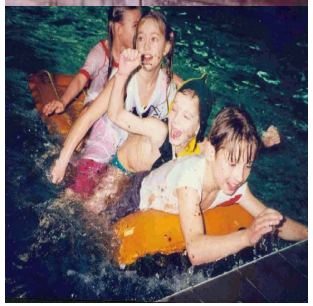
Young people at school age should participate daily in 60 minutes or more of moderate to vigorous PA that is developmentally appropriate, fun and includes a variety of activities.

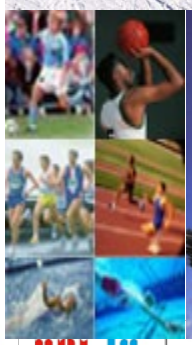
(Strong et al., *Journal of Pediatrics*, 2005)

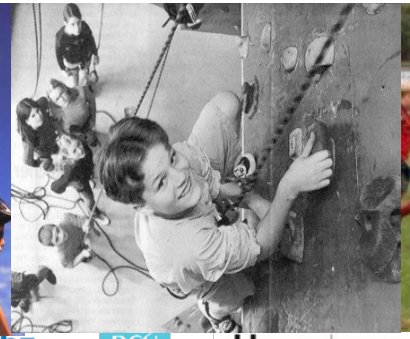






We have never had as many children and young people involved in sport as we do today, but …





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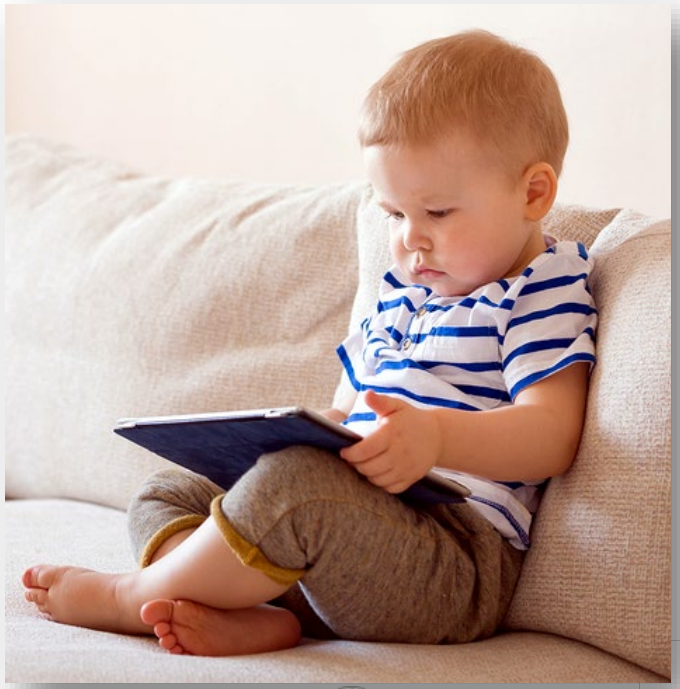
… being involved in sport is not enough to pay compensation to the increase in sedentariness in daily life



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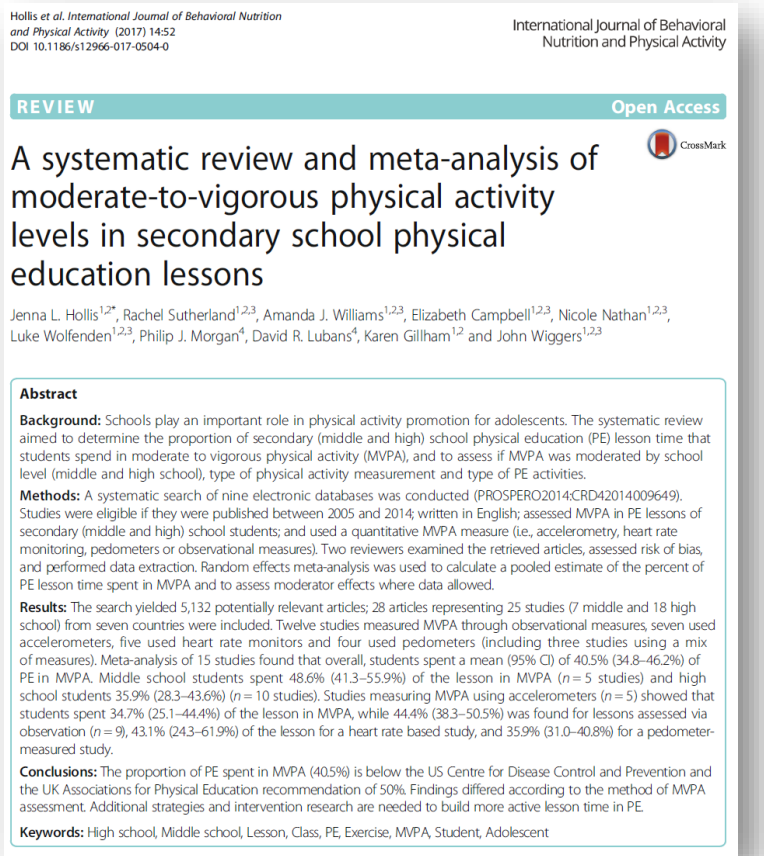
Little movement in EF lessons

"Do students move enough during physical education lessons?“

“Is physical education able to significantly promote health through the physical activity offered during curricular lessons?”



Hollis *et al. International Journal of Behavioral Nutrition and Physical Activity* (2017) 14:52
DOI 10.1186/s12966-017-0504-0

International Journal of Behavioral Nutrition and Physical Activity

REVIEW Open Access

A systematic review and meta-analysis of moderate-to-vigorous physical activity levels in secondary school physical education lessons

Jenna L. Hollis[1,2*], Rachel Sutherland[1,2,3], Amanda J. Williams[1,2,3], Elizabeth Campbell[1,2,3], Nicole Nathan[1,2,3], Luke Wolfenden[1,2,3], Philip J. Morgan[4], David R. Lubans[4], Karen Gillham[1,2] and John Wiggers[1,2,3]

Abstract

Background: Schools play an important role in physical activity promotion for adolescents. The systematic review aimed to determine the proportion of secondary (middle and high) school physical education (PE) lesson time that students spend in moderate to vigorous physical activity (MVPA), and to assess if MVPA was moderated by school level (middle and high school), type of physical activity measurement and type of PE activities.

Methods: A systematic search of nine electronic databases was conducted (PROSPERO2014:CRD42014009649). Studies were eligible if they were published between 2005 and 2014; written in English; assessed MVPA in PE lessons of secondary (middle and high) school students; and used a quantitative MVPA measure (i.e., accelerometry, heart rate monitoring, pedometers or observational measures). Two reviewers examined the retrieved articles, assessed risk of bias, and performed data extraction. Random effects meta-analysis was used to calculate a pooled estimate of the percent of PE lesson time spent in MVPA and to assess moderator effects where data allowed.

Results: The search yielded 5,132 potentially relevant articles; 28 articles representing 25 studies (7 middle and 18 high school) from seven countries were included. Twelve studies measured MVPA through observational measures, seven used accelerometers, five used heart rate monitors and four used pedometers (including three studies using a mix of measures). Meta-analysis of 15 studies found that overall, students spent a mean (95% CI) of 40.5% (34.8–46.2%) of PE in MVPA. Middle school students spent 48.6% (41.3–55.9%) of the lesson in MVPA ($n = 5$ studies) and high school students 35.9% (28.3–43.6%) ($n = 10$ studies). Studies measuring MVPA using accelerometers ($n = 5$) showed that students spent 34.7% (25.1–44.4%) of the lesson in MVPA, while 44.4% (38.3–50.5%) was found for lessons assessed via observation ($n = 9$), 43.1% (24.3–61.9%) of the lesson for a heart rate based study, and 35.9% (31.0–40.8%) for a pedometer-measured study.

Conclusions: The proportion of PE spent in MVPA (40.5%) is below the US Centre for Disease Control and Prevention and the UK Associations for Physical Education recommendation of 50%. Findings differed according to the method of MVPA assessment. Additional strategies and intervention research are needed to build more active lesson time in PE.

Keywords: High school, Middle school, Lesson, Class, PE, Exercise, MVPA, Student, Adolescent

Hollis et al. (2017) reviewed 25 papers published between 2005 and 2014 concerning the quantitative study of time spent in MVPA during EF lessons by secondary school students in seven countries (no Italy).

On average, students spent 40.5% of their lessons on MVPA (48.6% in middle school, 35.9% in high school), significantly below the recommended minimum: 50% of the time according to CDC and UK Associations for PE.

PART 2

In search of definitions and meanings

Physical activit

Attività fisica

Movement

Scienza del mo

Sport and exercis

Sport ed

Leisure study

Attività motorie ri

Kinanthropology

Chinantropologi

movement science

ovimento umano

ort science

Scienze dello sport

Physical education

ducazione fisica

Psicomotricité

Psicomotricità

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What is Physical Activity?

Body movements produced by the contraction of skeletal muscles that substantially increase energy expenditure

[Caspersen, Powell & Christenson, 1985]

Intentional, voluntary movements directed towards the achievement of an identifiable goal

[Newell, 1990]

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What is Physical Activity?

Voluntary movement performed intentionally for specific purposes, which essentially requires energy expenditure

Definition too narrow

Voluntary movements performed intentionally to achieve goals that are part of the exercise or sport

Definition too narrow

Voluntary movements performed intentionally to achieve a goal in sport, exercise or any other sphere of life

Technical definition of physical activity

All movements, voluntary and involuntary, performed by human beings

Definition too wide

[Adapted from Hoffman, 2005]

PHYSICAL EDUCATION

- regulated by specific programs
- compulsory in the curriculum
- there are evaluation assessments
- no additional costs
- can also include extracurricular activities
- is generally learner-centred (process-oriented rather than product-oriented)

SPORT

- physical activity with competitive elements
- amateur or professional
- presupposes costs
- it requires, in addition to the athletes, the involvement of other people and specific organizational structures
- participants are involved or excluded depending on their level of ability
- there are usually spectators

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LEISURE-TIME PHYSICAL ACTIVITIES

- different motivations for participation
- generally non-competitive physical activities
- no organisational structures are necessary
- level of performance not important, no remuneration, regular or occasional attendance
- no spectators

Article 2 of the European Charter for Sport (1992)

SPORT includes all forms of physical activity that through spontaneous or organized participation aim to improve physical fitness and mental well-being, create social relationships or achieve results in competitions at all levels.

The definition of EXERCISE

PHYSICAL EXERCISE is a category within physical activity quantified by volume, intensity and frequency, in which movements are structured in a repetitive manner to improve or maintain one or more components of fitness.

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What is Exercise?

Three metaphors to represent exercise:

- *Exercise is medicine®*
- *Exercise is more than a medicine; it is a vaccine!*
- *Exercise is recreation, not medicine*

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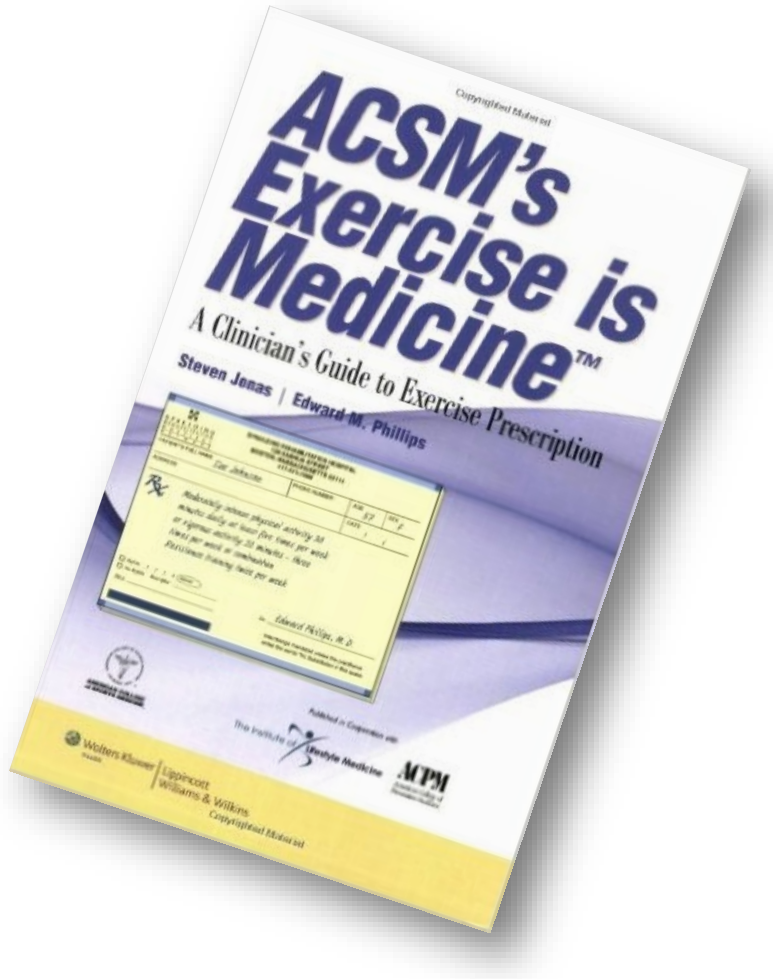
Exercise is medicine …

Your Prescription for Health
ExeRcise is Medicine™
www.ExerciseIsMedicine.org

Exercise is Medicine® (EIM) is a global health initiative managed by the American College of Sports Medicine (ACSM), focused on ***encouraging primary care physicians and other health care providers to include PA when designing treatment plans for patients*** *and referring their patients to EIM Credentialed Exercise Programs and Exercise Professionals.*

EIM is committed to the belief that PA is integral in the prevention and treatments of diseases and should ***be regularly assessed and "treated" as part of all healthcare****.*



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Exercise Is Medicine

(ACSM)

- American College of Sports Medicine (ACSM) initiative launched in 2007.
- It stems from the need to implement strategies aimed at increasing the level of physical activity in the population, with the aim of reducing physical inactivity and the resulting morbidity and mortality
- Currently present in 39 countries.
- EIM also aims to improve the role of health professionals and the health care system as a whole to promote physical activity in individuals [patients] and communities.
- EIM's vision is to make physical activity an important part of disease prevention and treatment protocols.

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Example: T2DM & exercise

- *Lifetime risk estimates suggest that one in three Americans born in 2000 or later will develop diabetes, but in high-risk ethnic populations, closer to 50% may develop it* (Narayan et al., 2003).
- *The goal of treatment in type 2 diabetes mellitus (T2DM) is to achieve and maintain optimal blood glucose, lipid, and blood pressure levels to prevent or delay chronic complications of diabetes* (American Diabetes Association, Standards of medical care in Diabetes, 2010).

- It is well established that participation in regular physical activity (PA) improves blood glucose control and can prevent or delay T2DM
- Although PA is a key element in the prevention and management of T2DM, many with this chronic disease do not become or remain regularly active (ACSM, Joint Position Statement, 2010)

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To achieve these goals EIM wants:

- Raise awareness of the fact that exercise is indeed a medicine;
- To make physical activity a standard question at each patient visit;
- Helping physicians become more effective in counselling on physical activity;
- Bringing about policy changes in the public and private sectors that support physical activity in clinical settings;
- Encouraging physicians and health workers to be physically active.

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EXERCISE IS A VACCINE

(A. Chen, 2012)

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Exercise is a vaccine

To counteract childhood obesity, physical activity can be considered:

a PHARMA

- Individual
- individual responsibility
- ineffective administration
- poor physical education

OVERWEIGHT/OBESE CHILDREN

a VACCINE

- Community
- social responsibility
- specific administration
- good quality physical education

PHYSICALLY EDUCATED CHILDREN

EXERCISE IS RECREATION, NOT MEDICINE

(A. Smith, 2016)

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Exercise is Recreation …

Andy Smith describes and reflects on the metaphor of exercise as recreation from a reflection on:

- ✓ the principles and processes for building a sports park based on the concept of recreation;
- ✓ a comparative analysis of the approach *exercise is recreation* with NQAF (UK Department of Health National Quality Assurance Framework for Exercise Referral Systems).

Exercise is Recreation …

- Principles according to which the park was built:
  - integration with nature;
  - offer of various activities;
  - ease of access.
- Analysis conducted for the drafting of the work:
  - collecting evidence [testimonies];
  - think about evidence from a recreational point of view;
  - distinguish;
  - comparative analysis with NQAF.

York St John University

Exercise is Recreation …

A comparison between the *exercise is recreation* metaphor with a UK quality framework for "exercise referrals".

Requirements from the NQAF	Comparison with *exercise is recreation*
"Establish a **formally** agreed process for the selection, screening and referral of specific patients".	Recreation can be **spontaneous** and informal. It can be simply a walk in the park.
"Conduct appropriate assessment of **patients** prior to the exercise programme".	Recreation is not about patients, it is about **people** and communities.
"Provide a **specific** range of appropriate and agreed physical activities for a defined period of time, which maximise the likelihood of long-term participation in physical activity".	Recreation is about presenting the individual and community with a wide range of facilities from which they can select **options** that meet their needs.
"Ensure any assessments and the exercise programmes are delivered by **professionals** with appropriate competencies and training which match the needs of the patient being referred".	Recreation can be about **amateurs** who do things out of love of the activity.
"Incorporate a mechanism for the **evaluation** of such a referral processes".	In preparing this manuscript and listening to the presentations at the symposium the author had the sense that the medical metaphor is built on quantitative research whilst the recreation and sport metaphors are built on **qualitative work**.
"Facilitate **long-term** support for patients to maintain increases in physical activity".	Exercise and recreation is often about the experience of feeling good in the **present** not just in the future.[17]
"Ensure the patient is consulted and **involved** throughout the referral process and is encouraged to take responsibility for their health and physical activity participation".	Based on the authors' 30 years of experience working in the exercise sector he believes that both the exercise referral schemes and programmes of recreation could do more to **involve** the participant.
"Ensure **confidentiality** of patient information through secure and appropriate storage of records".	Record keeping on recreational programs tends to be at the club, group, or **community** level and not about the individual.

- Culture created by an infrastructure based on the concept of *RECREATION*.
- Considering exercise only as medicine leads to ignoring the other forms it can take.
- Very often, institutions pay more attention to structures than to user experience.

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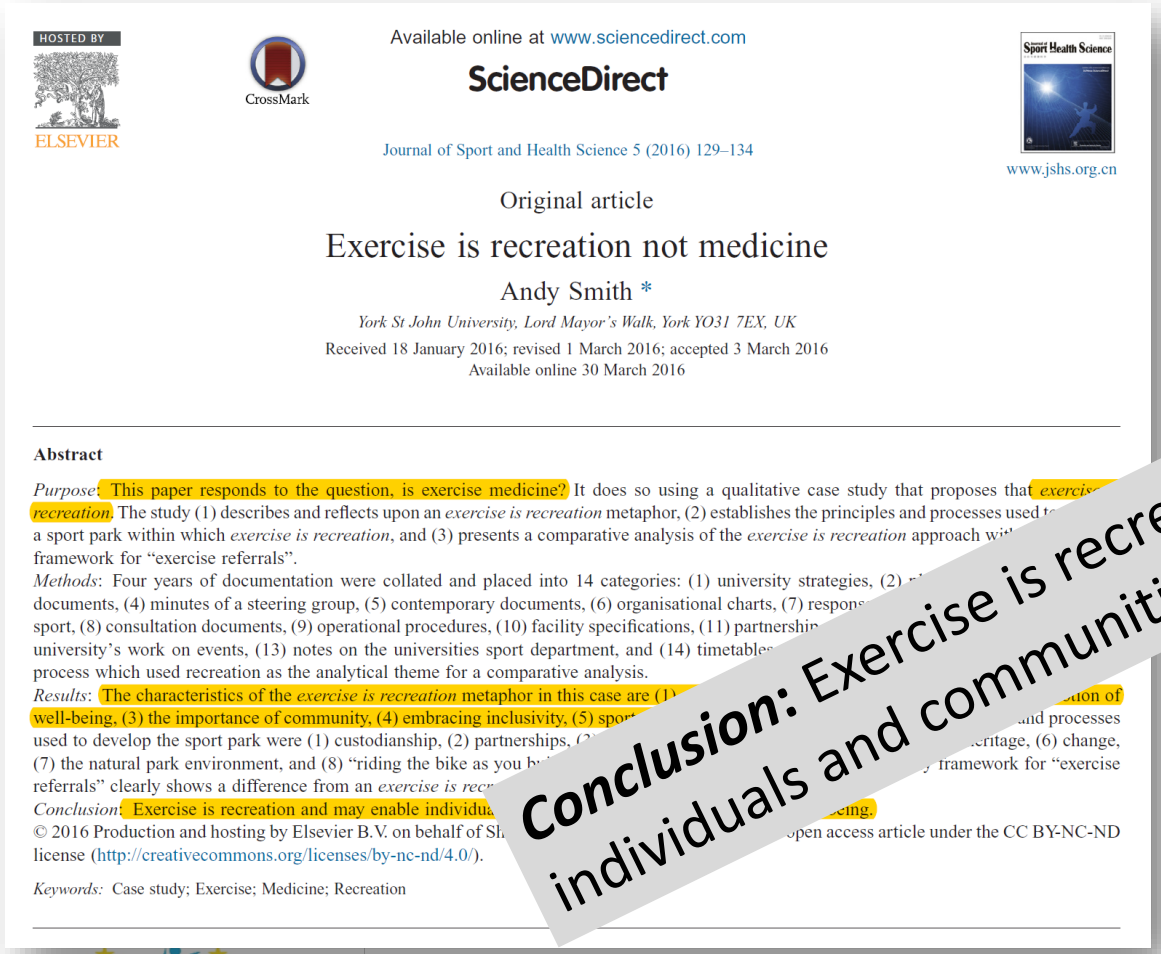
Exercise is recreation, not medicine



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Journal of Sport and Health Science 5 (2016) 129–134

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Original article

Exercise is recreation not medicine

Andy Smith *

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Received 18 January 2016; revised 1 March 2016; accepted 3 March 2016

Available online 30 March 2016

Abstract

Purpose: This paper responds to the question, is exercise medicine? It does so using a qualitative case study that proposes that *exercise is recreation*. The study (1) describes and reflects upon an *exercise is recreation* metaphor, (2) establishes the principles and processes used to… a sport park within which *exercise is recreation*, and (3) presents a comparative analysis of the *exercise is recreation* approach with… framework for "exercise referrals".

Methods: Four years of documentation were collated and placed into 14 categories: (1) university strategies, (2) … documents, (4) minutes of a steering group, (5) contemporary documents, (6) organisational charts, (7) respons… sport, (8) consultation documents, (9) operational procedures, (10) facility specifications, (11) partnership… university's work on events, (13) notes on the universities sport department, and (14) timetables… process which used recreation as the analytical theme for a comparative analysis.

Results: The characteristics of the *exercise is recreation* metaphor in this case are (1)… …tion of well-being, (3) the importance of community, (4) embracing inclusivity, (5) sport… …and processes used to develop the sport park were (1) custodianship, (2) partnerships, (3)… …ritage, (6) change, (7) the natural park environment, and (8) "riding the bike as you b… …framework for "exercise referrals" clearly shows a difference from an *exercise is recr*…

Conclusion: Exercise is recreation and may enable individua… …eing.

Keywords: Case study; Exercise; Medicine; Recreation

Conclusion: Exercise is recreation and may enable individuals and communities to reach a state of well-being

The characteristics of *EXERCISE IS RECREATION* …e:

1) *a f… …perience of the user*
2) *…tion of well-being*
3) *…importance of community*
4) *embracing inclusivity*
5) *sport*
6) *aesthetics*
7) *leisure time*

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EXERCISE FOR HEALTH:
serious fun for the whole person?

(M. K. Nesti, 2016)

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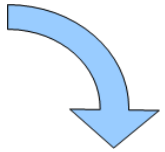
A critique of EIM

- Despite much evidence on the benefits of REGULAR physical exercise, there is still a progressive increase in sedentariness.
- Initiatives such as EIM



✓ too restrictive interpretation, scientific and epidemiological analysis of exercise not effective in significantly increasing physical activity levels in the population.

✓ There is still much to be done to define what exercise is and how it should be thought of/interpreted.

Exercise itself is not comfortable and the more intense it is, the less comfortable it is.

- Urbanization → decrease in manual work and movement.
- Many individuals see exercise as a source of stress and unnecessary fatigue.

In addition to the physical **benefits**, physical activity provides psychological, spiritual and emotional benefits.

Comparing exercise and sport

EXERCISE:

- Means of achieving an objective (extrinsic motivation);
- Linked to the concept of work, of routine.

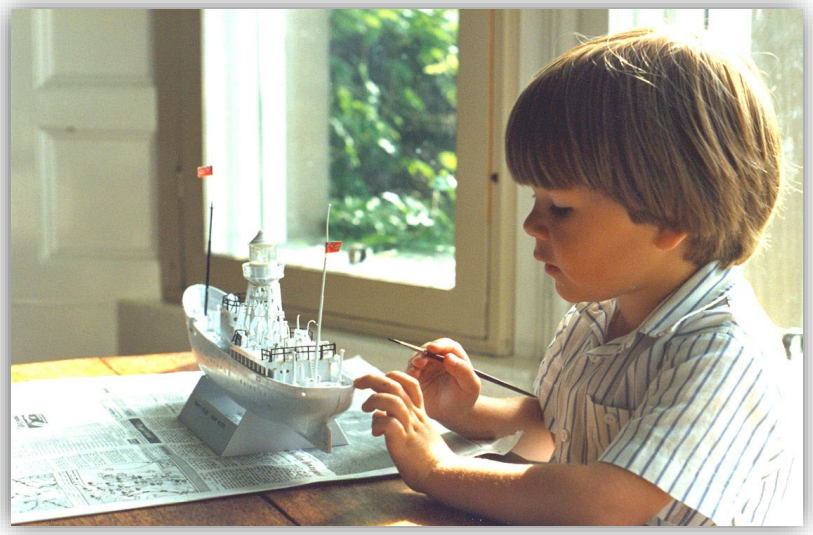
SPORT:

- You practice for the pleasure of it, you do not seek external rewards (intrinsic motivation);
- There is a "game" component.

Game and Flow

Csikszentmihalyi introduced the concept of FLOW in 1975, similar to the concept of play, “flow” being a state of consciousness of complete immersion in an activity:

- ✓total involvement of the individual
- ✓intrinsic pleasure
- ✓focus on the objective
- ✓spontaneous and achievable
- ✓Fulfilling



…kes place in different areas of life

To conclude

- Calling exercise, a medicine is acceptable in a clinical or scientific context, unfortunately the EIM message does not seem to be very effective in communicating to people the importance of AF and increasing levels of practice.

«[…] although exercise is a medicine and beneficial for health, like most medicines, it is best taken with a spoonful of sugar»

(Nesti, 2016, *Exercise for Health: serious fun for the whole person?)*

- Sport can help us to *administer the medicine* by incorporating the idea of play and flow into the concept of exercise (play & flow).
- For Nesti, the focus should not be so much on how to define exercise as on how to target efforts to increase levels of practice, and a good way to do this would be to relate exercise more closely to sport and consequently to play.

LET'S PLAY EXERCISE

...

Can it be a strategy to get motionless people moving?

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PART 3

What and how much practicing

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F.I.T.T.E. (ACSM)

Frequency

Intensity

Time/Duration

Type/Mode

ENJOYMENT

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A healthy lifestyle helps maintain the best physical and mental health over time.

- PHYSICAL ACTIVITY
- DIET (NUTRITION)
- ELIMINATION/REDUCTION/ CONTROL OF RISK FACTORS
- EDUCATION

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How much Physical Activity for Adults?

- *timing*, frequency (no. of sessions/week) and duration (min./session)
- 30-60 min/day of moderate to vogorous PA, on 5 or more days per week (ACSM, 1998, 2001)
- some PA is better than no AF at all
- participating in more than 150 min. of PA/week is associated with greater health benefits
- an increase in intensity is associated with greater benefits
- frequency seems to be less important than the accumulated
  antity

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At which Intensity?

- Intensity (share of energy expenditure, EE)
- *EE* usually in Kcal per unit of time
- As EE is related to body size, it is preferable to express it in METs.
- PA moderate 3.0-4.9 METs, intense ≥ 5.0 METs

MET (*metabolic equivalent*) = the energy expended while sitting in a resting state, conventionally calculated as the energy required to burn 3.5 ml di O_2 per Kg of body weight per minute

1 MET ~ 1 Kcal X Kg^{-1} X hr^{-1}

INTENSITY OF EXERCISE

Compendium of Physical Activities: an update of activity codes and MET intensities

BARBARA E. AINSWORTH, WILLIAM L. HASKELL, MELICIA C. WHITT, MELINDA L. IRWIN, ANN M. SWARTZ, SCOTT J. STRATH, WILLIAM L. O'BRIEN, DAVID R. BASSETT, JR., KATHRYN H. SCHMITZ, PATRICIA O. EMPLAINCOURT, DAVID R. JACOBS, JR., and ARTHUR S. LEON

Department of Epidemiology and Biostatistics, Department of Exercise Science, School of Public Health, University of South Carolina, Columbia, SC 29208; Stanford Center for Research in Disease Prevention, School of Medicine, Stanford University, Palo Alto, CA 94304; Division of Kinesiology, School of Kinesiology and Leisure Studies, University of Minnesota, Minneapolis, MN 55454; Division of Epidemiology, School of Public Health, University of Minnesota, Minneapolis, MN 55455; Department of Exercise Science and Sport Management, University of Tennessee, Knoxville, TN 37996; Department of Human Performance, University of Alabama, Tuscaloosa, AL 35487

ABSTRACT

AINSWORTH, B. E., W. L. HASKELL, M. C. WHITT, M. L. IRWIN, A. M. SWARTZ, S. J. STRATH, W. L. O'BRIEN, D. R. BASSETT, JR., K. H. SCHMITZ, P. O EMPLAINCOURT, D. R. JACOBS, JR., and A. S. LEON. Compendium of physical activities: an update of activity codes and MET intensities. *Med. Sci. Sports Exerc.*, Vol. 32, No. 9, Suppl., pp. S498–S516, 2000. We provide an updated version of the Compendium of Physical Activities, a coding scheme that classifies specific physical activity (PA) by rate of energy expenditure. It was developed to enhance the comparability of results across studies using self-reports of PA. The Compendium coding scheme links a five-digit code that describes physical activities by major headings (e.g., occupation, transportation, etc.) and specific activities within each major heading with its intensity, defined as the ratio of work metabolic rate to a standard resting metabolic rate (MET). Energy expenditure in MET-minutes, MET-hours, kcal, or kcal per kilogram body weight can be estimated for specific activities by type or MET intensity. Additions to the Compendium were obtained from studies describing daily PA patterns of adults and studies measuring the energy cost of specific physical activities in field settings. The updated version includes two new major headings of volunteer and religious activities, extends the number of specific activities from 477 to 605, and provides updated MET intensity levels for selected activities. **Key Words:** EXERCISE, EXERTION, ENERGY EXPENDITURE

The Compendium of Physical Activities was developed to facilitate the coding of physical activities (PAs) obtained from PA records, logs, and surveys and to promote comparison of coded physical activity intensity levels across observational studies (1). The Compendium provides a coding scheme that links a five-digit code, representing the specific activities performed in various settings, with their respective metabolic equivalent (MET) intensity levels. Using the definition for a MET as the ratio of work metabolic rate to a standard resting metabolic rate of 1.0 (4.184 kJ·kg^{-1}·h^{-1}, 1 MET is considered a resting metabolic rate obtained during quiet sitting. Activities are listed in the Compendium as multiples of the resting MET level and range from 0.9 (sleeping) to 18 METs (running at 10.9 mph).

We provide an update of the initial Compendium of Physical Activities, developed in 1989 and published in 1993. The updated Compendium reflects additional activities identified by researchers in the past 10 years and presents measured MET intensities for some activities in which METs were estimated from similar activities. The updated Compendium also reflects public health interests in evaluating the contributions of various types of physical activity to daily energy expenditure by providing additional categories for activities done during the day.

The initial Compendium has received widespread acceptance among PA specialists in the exercise science and public health fields. For example, in the United States, the coding scheme has been used to identify MET intensities for PAs in the third National Health and Nutrition Examination Survey (6), the 1991 National Health Interview Survey (11), the Paffenbarger College Alumni Study (15), and to evaluate the accuracy of the Minnesota Leisure Time Physical Activity Questionnaire (MN-LTPA) (26). Internationally, the Compendium has been used to identify MET intensities for activities listed in the MONICA Optional Survey of Physical Activity (MOSPA) (12). The coding scheme and MET intensities for activities listed in the Compendium of Physical Activities also have been published as an appendix or abstracted as a chart in several books (18–20,34).

In their landmark 1995 paper that presents the recommendation of the Centers for Disease Control and Prevention

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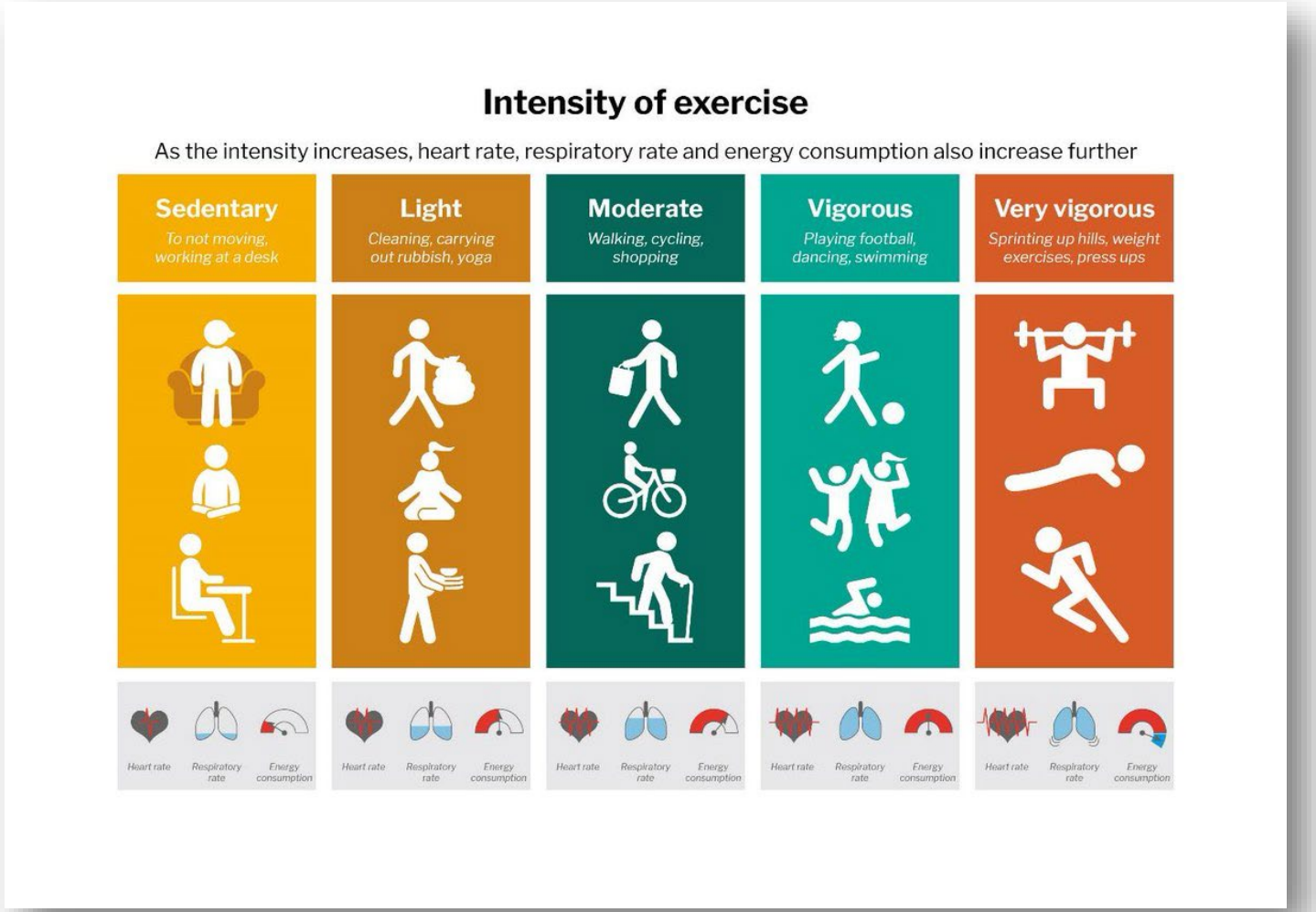
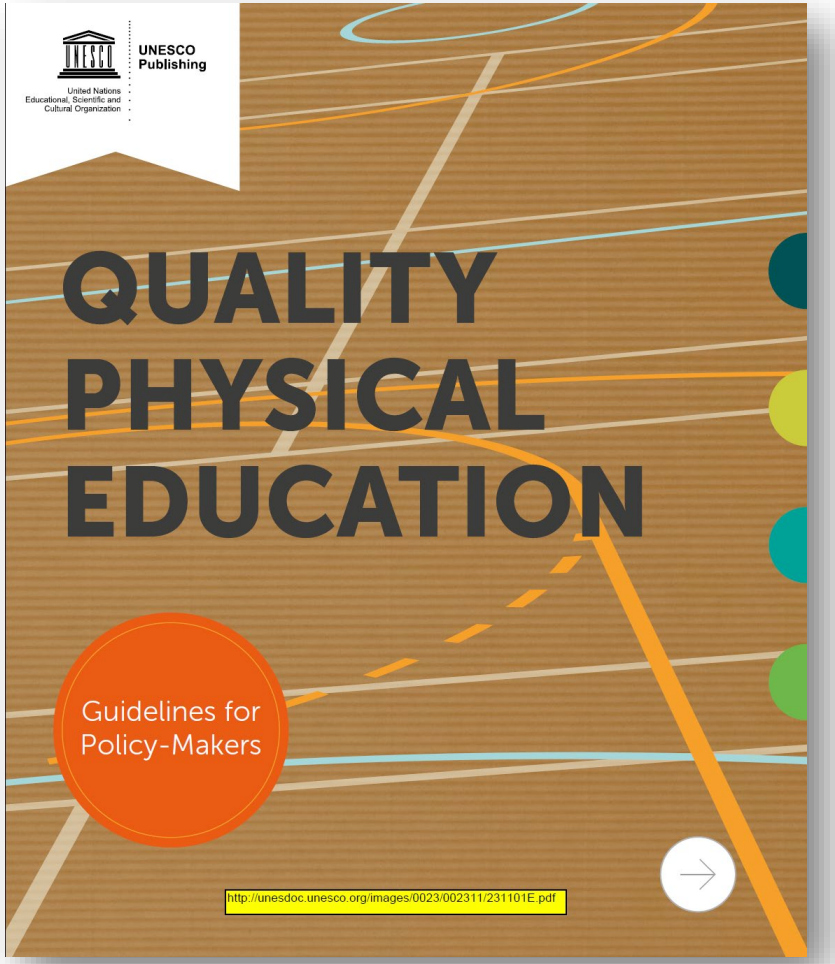


THE INTENSITY OF SOME PHYSICAL ACTIVITIES

TYPE OF ACTIVITY	LEVEL MET	EXAMPLES OF ACTIVITIES
Sedentary	≤ 1.5	Watching television Talking on the phone Working/playing on the computer (e.g. surfing the internet) Sitting or lying down, reading Playing cards or board games
Light	> 1.5 sino a < 3.0	Light cleaning (e.g. dusting) Cooking Walking at a shopping pace (not shopping) Playing static roles (e.g. goalkeeper)
Moderate	≥ 3.0 sino a ≤ 4.9	Slow dancing Playing bowls, bowling Heavy cleaning (e.g. washing windows) Taking stairs downhill
Vigorous	≥ 5.0 sino a ≤ 6.9	Many gardening activities Golf Climbing Canoeing, kayaking
Very vigorous	≥ 7.0	Running > 8 Km/h Swimming (swimming in a pool) Playing football Playing basketball, and other team sports Climbing stairs

LA "CALL TO ACTION" DELL'UNESCO (2015)



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La "Call to Action" dell'UNESCO

The provision of physical education is in decline across all world regions. Rising levels of physical inactivity, along with the substantial associated disease risk, have been described as a pandemic by WHO. Cut-backs in physical education provision will only increase these concerns exponentially.

Besides the health concerns, it is essential that governments take policy action to ensure the subject secures its rightful place in school curricula and that, consequently, students benefit from exposure to alternative learning domains.

Why invest?

Physical literacy and civic engagement: physical education, as the only curriculum subject whose focus combines the body and physical competence with values-based learning and communication, provides a learning gateway to grow the skills required for success in the 21st Century.

Academic achievement: regular participation in quality physical education and other forms of physical activity can improve a child's attention span, enhance their cognitive control and speed up their cognitive processing.

Inclusion: quality physical education is a platform for inclusion in wider society, particularly in terms of challenging stigma and overcoming stereotypes.

Health: physical education is *the* entry-point for lifelong participation in physical activity. Globally, many of the major causes of death connect to non-communicable diseases (NCDs) associated with physical inactivity, such as obesity, heart disease, stroke, cancer, chronic respiratory disease, and diabetes. Indeed, between 6 and 10% of all deaths, from NCDs, can be attributed to physical inactivity.

The Declaration of Berlin 2013 – UNESCO's World Sports Ministers Conference (MINEPS V)

"Physical education is the most effective means of providing all children and youth with the skills, attitudes, values, knowledge and understanding for lifelong participation in society."

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LE RACCOMANDAZIONI PER L'AF DEI GIOVANI

WHO, 2010

Recommendations:
For children and young people, physical activity includes play, games, sports, transportation, chores, recreation, physical education, or planned exercise, in the context of family, school, and community activities. The recommendations to improve cardiorespiratory and muscular fitness, bone health, and cardiovascular and metabolic health biomarkers are:

1. Children and youth aged 5-17 should accumulate at least 60 minutes of moderate - to vigorous-intensity physical activity daily.

2. Amounts of physical activity greater than 60 minutes provide additional health benefits.

3. Most of the daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone, at least 3 times per week.

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LE RACCOMANDAZIONI DELL'OMS PER L'AF 2020

WHO, 2020

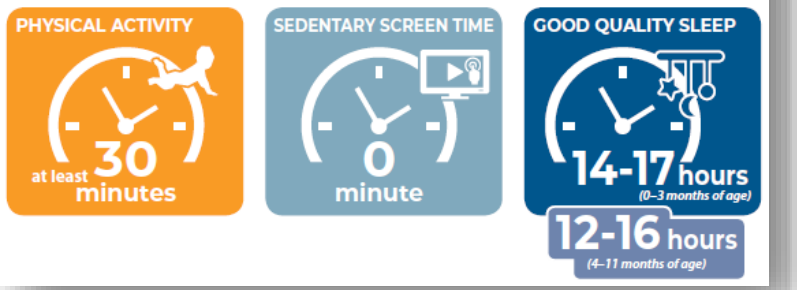
GUIDELINES ON
PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR AND SLEEP | **FOR CHILDREN UNDER 5 YEARS OF AGE**

infants (less than 1 year) should:

Be physically active several times a day in a variety of ways, particularly through interactive floor-based play; more is better. For those not yet mobile, this includes **at least 30 minutes in prone position** (tummy time) spread throughout the day while awake.

Not be restrained for more than 1 hour at a time (e.g., prams/strollers, high chairs, or strapped on a caregiver's back). Screen time is not recommended. When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

Have 14–17h (0–3 months of age) **or 12–16h** (4–11 months of age) **of good quality sleep**, including naps.

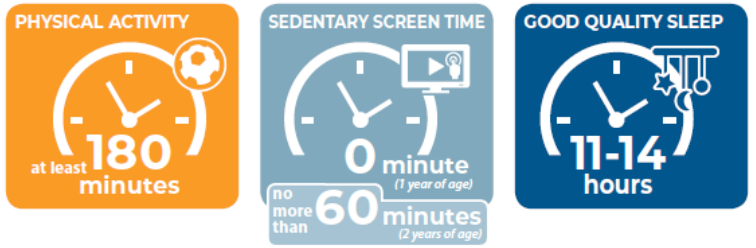


children 1–2 years of age should:

Spend at least 180 minutes in a variety of types of physical activities at any intensity, including moderate- to vigorous-intensity physical activity, spread throughout the day; more is better.

Not be restrained for more than 1 hour at a time (e.g., prams/strollers, high chairs, or strapped on a caregiver's back) or sit for extended periods of time. **For 1-year-olds, sedentary screen time (such as watching TV or videos, playing computer games) is not recommended. For those aged 2 years, sedentary screen time should be no more than 1 hour; less is better.** When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

Have 11–14h of good quality sleep, including naps, with regular sleep and wake-up times.

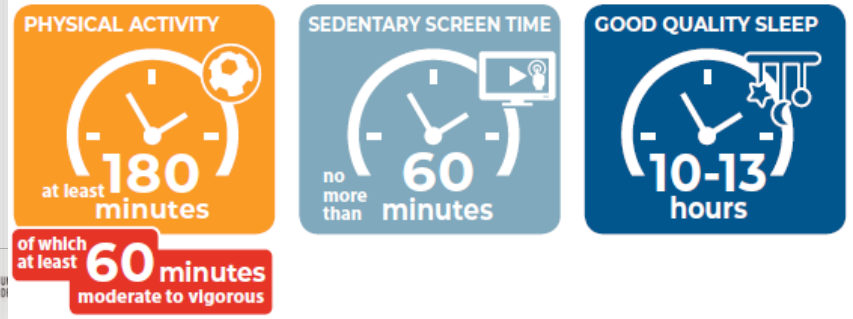


children 3–4 years of age should:

Spend at least 180 minutes in a variety of types of physical activities at any intensity, of which at least 60 minutes is moderate- to vigorous-intensity physical activity, spread throughout the day; more is better.

Not be restrained for more than 1 hour at a time (e.g., prams/strollers) or sit for extended periods of time. **Sedentary screen time should be no more than 1 hour; less is better.** When sedentary, engaging in reading and storytelling with a caregiver is encouraged.

Have 10–13h of good quality sleep, which may include a nap, with regular sleep and wake-up times.



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WHO, 2020

CHILDREN AND ADOLESCENTS
(aged 5–17 years)

In children and adolescents, physical activity confers benefits for the following health outcomes: improved physical fitness (cardiorespiratory and muscular fitness), cardiometabolic health (blood pressure, dyslipidaemia, glucose, and insulin resistance), bone health, cognitive outcomes (academic performance, executive function), mental health (reduced symptoms of depression); and reduced adiposity.

At least 60 minutes a day
moderate- to vigorous-intensity physical activity across the week; most of this physical activity should be aerobic.

It is recommended that:

› Children and adolescents should do at least an average of 60 minutes per day of moderate- to vigorous-intensity, mostly aerobic, physical activity, across the week.

Strong recommendation, moderate certainty evidence

On at least 3 days a week
vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone should be incorporated.

› Vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone, should be incorporated at least 3 days a week.

Strong recommendation, moderate certainty evidence

GOOD PRACTICE STATEMENTS

- Doing some physical activity is better than doing none.
- If children and adolescents are not meeting the recommendations, doing some physical activity will benefit their health.
- Children and adolescents should start by doing small amounts of physical activity, and gradually increase the frequency, intensity and duration over time.
- It is important to provide all children and adolescents with safe and equitable opportunities, and encouragement, to participate in physical activities that are enjoyable, offer variety, and are appropriate for their age and ability.

In children and adolescents, higher amounts of sedentary behaviour are associated with the following poor health outcomes: increased adiposity; poorer cardiometabolic health, fitness, behavioural conduct/pro-social behaviour; and reduced sleep duration.

It is recommended that:

› Children and adolescents should limit the amount of time spent being sedentary, particularly the amount of recreational screen time.

Strong recommendation, low certainty evidence

LIMIT the amount of time spent being sedentary, particularly recreational screen time.

Executive summary 1

ADULTS
(aged 18–64 years)

In adults, physical activity confers benefits for the following health outcomes: improved all-cause mortality, cardiovascular disease mortality, incident hypertension, incident site-specific cancers,[1] incident type-2 diabetes, mental health (reduced sym of anxiety and depression); cognitive health, and sleep; measu of adiposity may also improve.

It is recommended that:

› All adults should undertake regular physical activity.

Strong recommendation, moderate certainty evidence

› Adults should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week, for substantial health benefits.

Strong recommendation, moderate certainty evidence

At least 150 to 300 minutes moderate-intensity aerobic physical activity
or
at least 75 to 150 minutes vigorous-intensity aerobic physical activity
or an equivalent combination throughout the week

For additional health benefits:
On at least 2 days a week
muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups.

› Adults should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week, as these provide additional health benefits.

Strong recommendation, moderate certainty evidence

WHO GUIDELINES ON
PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR

World Health Organization

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WHO, 2020

ADULTS AND OLDER ADULTS WITH CHRONIC CONDITIONS (aged 18 years and older)

Physical activity can confer health benefits for adults and older adults living with the following chronic conditions: **for cancer survivors** – physical activity improves all-cause mortality, cancer-specific mortality, and risk of cancer recurrence or second primary cancer; **for people living with hypertension** – physical activity improves cardiovascular disease mortality, disease progression, physical function, health-related quality of life; **for people living with type-2 diabetes** – physical activity reduces rates of mortality from cardiovascular disease and indicators disease progression; and **for people living with HIV** – physical activity can improve physical fitness and mental health (reduced symptoms of anxiety and depression), and does not adversely affect disease progression (CD4 count and viral load) or body composition.

It is recommended that:

› All adults and older adults with the above chronic conditions should undertake regular physical activity. *Strong recommendation, moderate certainty evidence*

At least **150** to **300** minutes moderate-intensity aerobic physical activity

or

at least **75** to **150** minutes vigorous-intensity aerobic physical activity

or an equivalent combination throughout the week

› Adults and older adults with these chronic conditions should do at least 150–300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity aerobic physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week for substantial health benefits.

Strong recommendation, moderate certainty evidence

› Adults and older adults with these chronic conditions should also do muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups on 2 or more days a week, as these provide additional benefits.

Strong recommendation, moderate certainty evidence

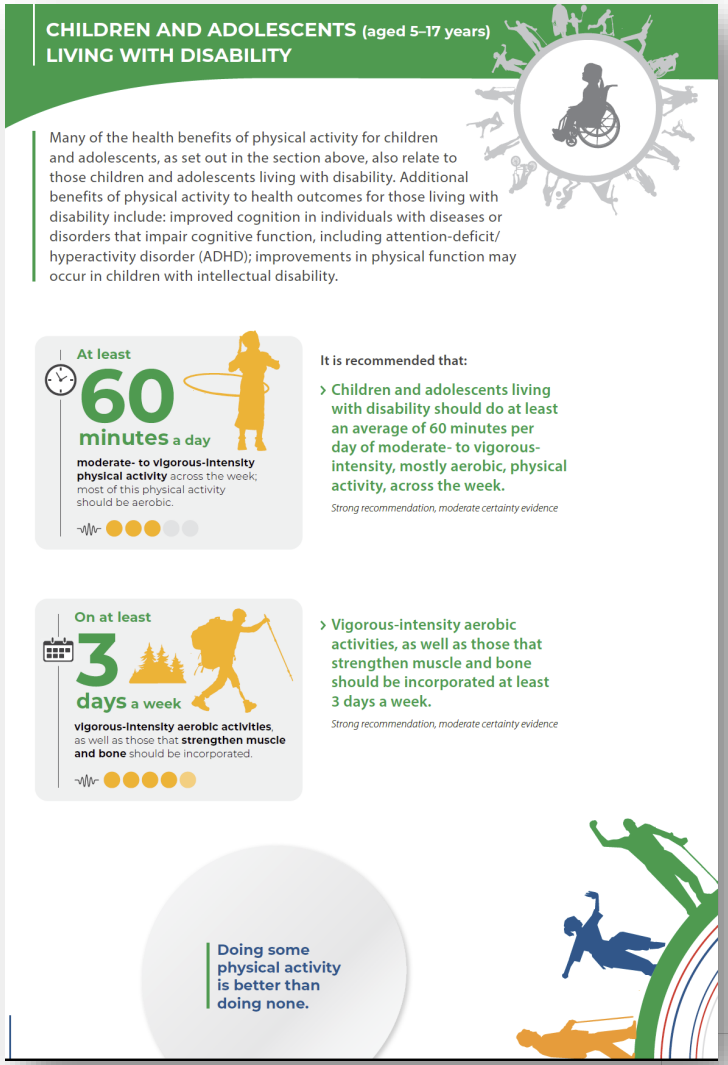
For additional health benefits:

On at least **2** days a week muscle-strengthening activities at moderate or greater intensity that involve all major muscle groups.

On at least **3** days a week varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity.

› As part of their weekly physical activity, older adults with these chronic conditions should do varied multicomponent physical activity that emphasizes functional balance and strength training at moderate or greater intensity on 3 or more days a week, to enhance functional capacity and prevent falls.

Strong recommendation, moderate certainty evidence



CHILDREN AND ADOLESCENTS (aged 5–17 years) LIVING WITH DISABILITY

Many of the health benefits of physical activity for children and adolescents, as set out in the section above, also relate to those children and adolescents living with disability. Additional benefits of physical activity to health outcomes for those living with disability include: improved cognition in individuals with diseases or disorders that impair cognitive function, including attention-deficit/hyperactivity disorder (ADHD); improvements in physical function may occur in children with intellectual disability.

At least **60** minutes a day moderate- to vigorous-intensity physical activity across the week; most of this physical activity should be aerobic.

It is recommended that:

› Children and adolescents living with disability should do at least an average of 60 minutes per day of moderate- to vigorous-intensity, mostly aerobic, physical activity, across the week.

Strong recommendation, moderate certainty evidence

On at least **3** days a week vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone should be incorporated.

› Vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone should be incorporated at least 3 days a week.

Strong recommendation, moderate certainty evidence

Doing some physical activity is better than doing none.

LE RACCOMANDAZIONI PER L'AF

CDC, 2018

Key Guidelines for School-Aged Children and Adolescents

- ✓ It is important to provide young people opportunities and encouragement to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.
- ✓ Children and adolescents ages 6 through 17 years should do 60 minutes (1 hour) or more of moderate-to-vigorous physical activity daily:
  - **Aerobic:** Most of the 60 minutes or more per day should be either moderate- or vigorous-intensity aerobic physical activity and should include vigorous-intensity physical activity on at least 3 days a week.
  - **Muscle-strengthening:** As part of their 60 minutes or more of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days a week.
  - **Bone-strengthening:** As part of their 60 minutes or more of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days a week.

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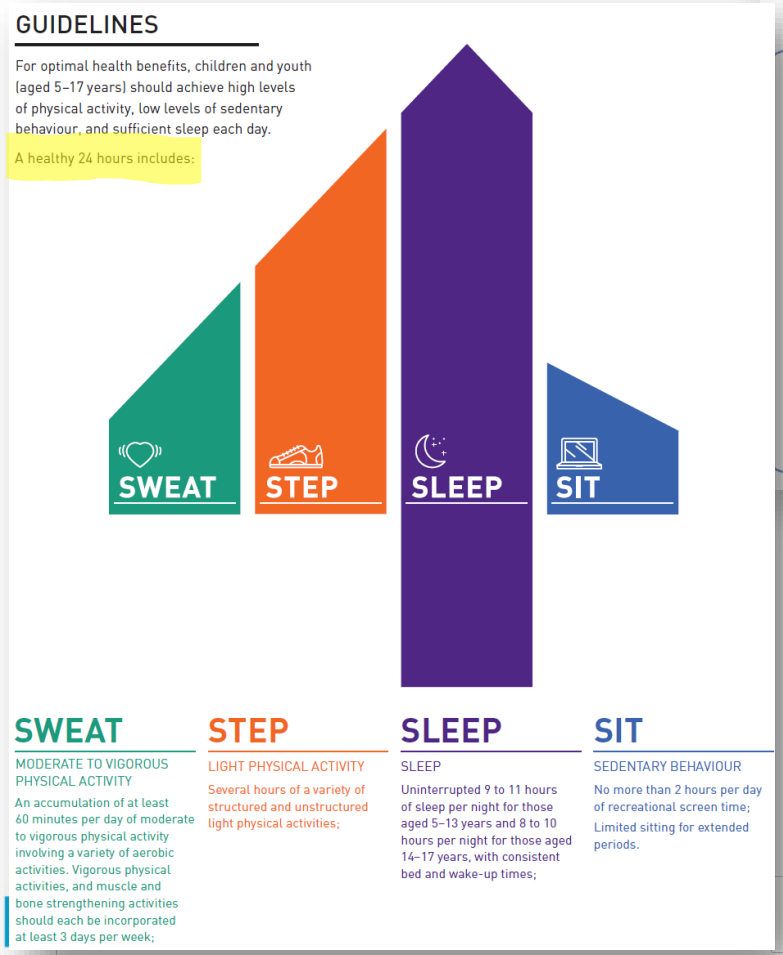
CANADA, 2018



GUIDELINES

For optimal health benefits, children and youth (aged 5–17 years) should achieve high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day.

A healthy 24 hours includes:

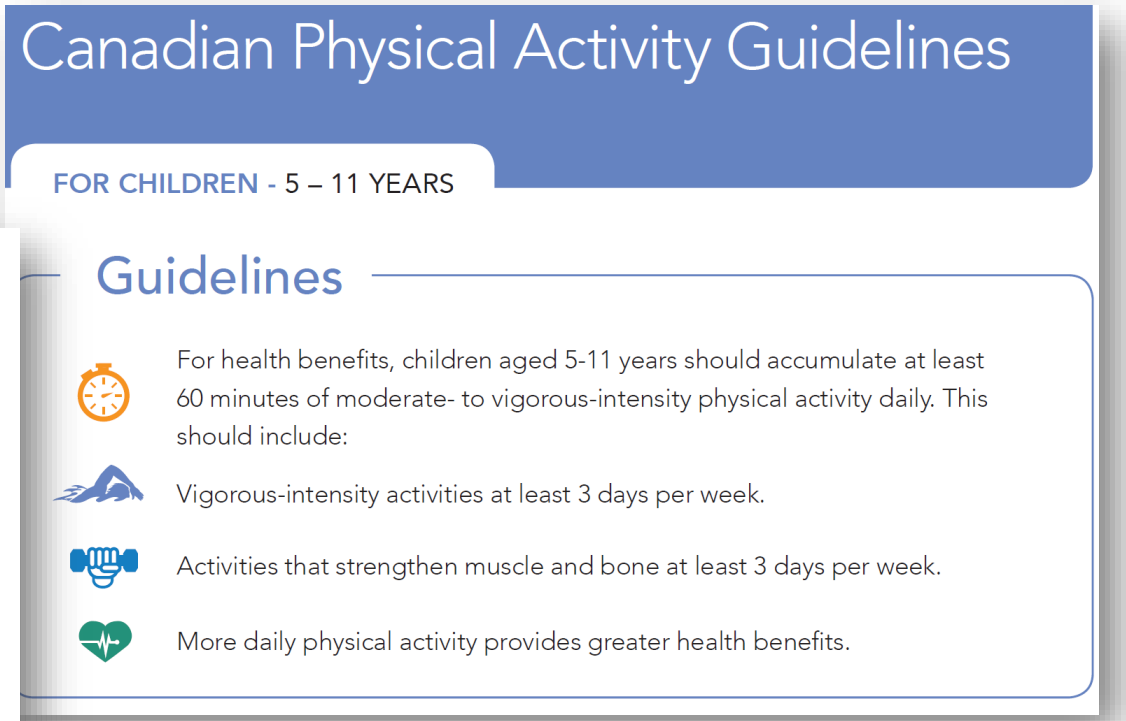
SWEAT STEP SLEEP SIT

SWEAT
MODERATE TO VIGOROUS PHYSICAL ACTIVITY
An accumulation of at least 60 minutes per day of moderate to vigorous physical activity involving a variety of aerobic activities. Vigorous physical activities, and muscle and bone strengthening activities should each be incorporated at least 3 days per week;

STEP
LIGHT PHYSICAL ACTIVITY
Several hours of a variety of structured and unstructured light physical activities;

SLEEP
SLEEP
Uninterrupted 9 to 11 hours of sleep per night for those aged 5–13 years and 8 to 10 hours per night for those aged 14–17 years, with consistent bed and wake-up times;

SIT
SEDENTARY BEHAVIOUR
No more than 2 hours per day of recreational screen time;
Limited sitting for extended periods.



Canadian Physical Activity Guidelines

FOR CHILDREN - 5 – 11 YEARS

Guidelines

For health benefits, children aged 5-11 years should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily. This should include:

Vigorous-intensity activities at least 3 days per week.

Activities that strengthen muscle and bone at least 3 days per week.

More daily physical activity provides greater health benefits.

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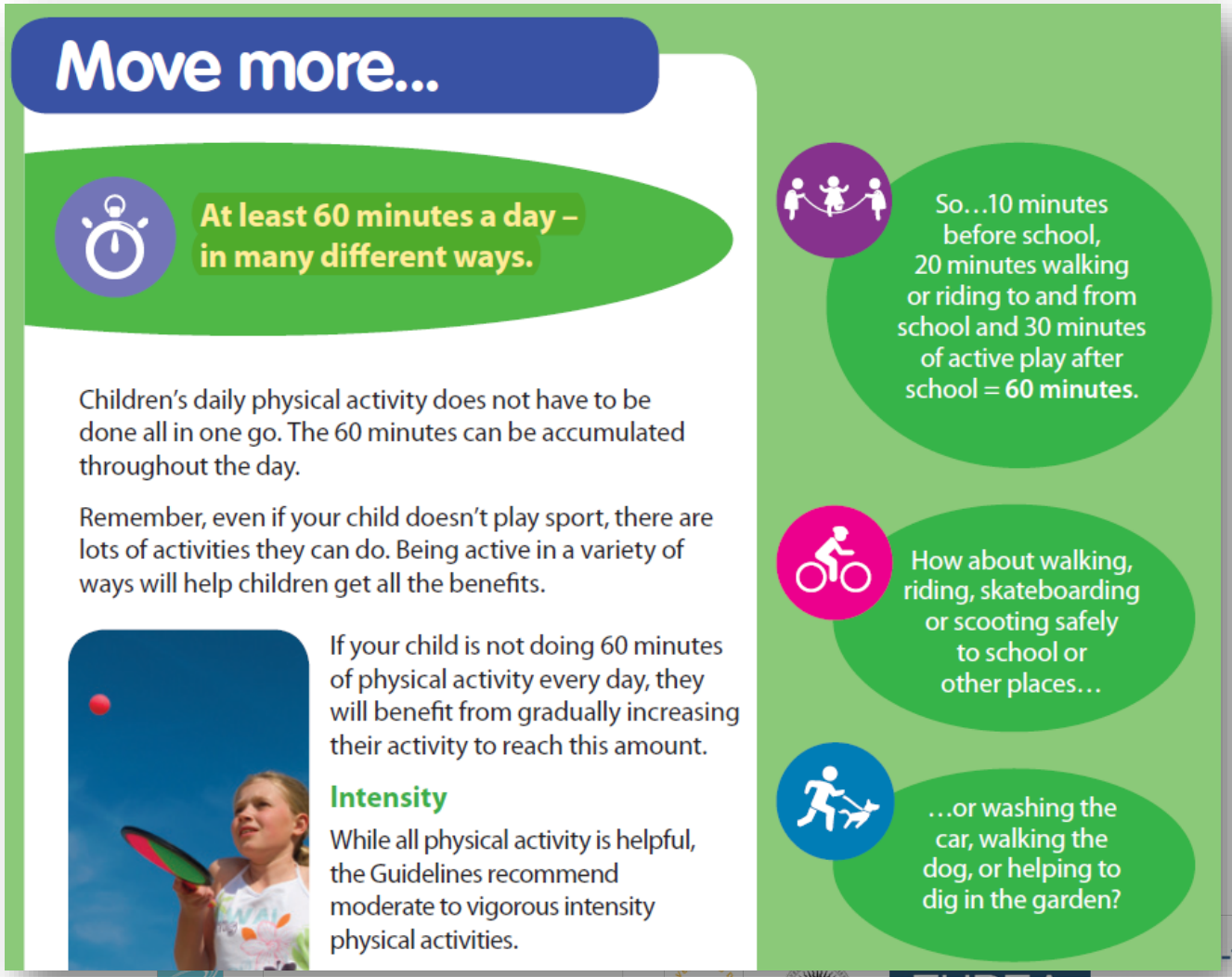
AUSTRALIA, 2014



Move more...

At least 60 minutes a day – in many different ways.

Children's daily physical activity does not have to be done all in one go. The 60 minutes can be accumulated throughout the day.

Remember, even if your child doesn't play sport, there are lots of activities they can do. Being active in a variety of ways will help children get all the benefits.

If your child is not doing 60 minutes of physical activity every day, they will benefit from gradually increasing their activity to reach this amount.

Intensity

While all physical activity is helpful, the Guidelines recommend moderate to vigorous intensity physical activities.

So…10 minutes before school, 20 minutes walking or riding to and from school and 30 minutes of active play after school = **60 minutes.**

How about walking, riding, skateboarding or scooting safely to school or other places…

…or washing the car, walking the dog, or helping to dig in the garden?

EU, 2008

Brussels, 10 October 2008

EU Physical Activity Guidelines

Recommended Policy Actions in Support of Health-Enhancing Physical Activity

School-aged youth should participate in 60 minutes or more of moderate to vigorous physical activity daily, in forms that are developmentally appropriate, enjoyable, and involve a variety of activities. The full dose can be accumulated in bouts of at least 10 minutes. Development of motor skills should be emphasised in early age groups. Specific types of activity according to the needs of the age group should be addressed: aerobic, strength, weight bearing, balance, flexibility, motor development.

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LE RACCOMANDAZIONI PER L'AF

GERMANY, 2016

Recommendations

Infants and toddlers (0 to 3 years)

- Infants and toddlers should get as much physical activity as possible and be prevented as little as possible from following their natural instinct to move; a safe environment must be ensured

Pre-school children (4 to 6 years)

- For pre-school children, physical activity should amount to a total of 180 minutes/day and more, which can comprise instructed and non-instructed physical activity

Primary school children (6 to 11 years)

- Children of primary school age should be moderately-to-vigorously physically active for 90 minutes or more each day. 60 minutes of that time can be spent on everyday activities, e.g. at least 12,000 steps/day

Co-funded by the Erasmus+ Programme of the European Union

Parrish *et al. International Journal of Behavioral Nutrition and Physical Activity* (2020) 17:16
https://doi.org/10.1186/s12966-020-0914-2

International Journal of Behavioral Nutrition and Physical Activity

REVIEW Open Access

Comparing and assessing physical activity guidelines for children and adolescents: a systematic literature review and analysis

Anne-Maree Parrish[1,2,3*], Mark S. Tremblay[4], Stephan
Stewart Vella[1,2], Kar Hau Chong[1,2], Maria Nacher[2], Bor
Billie Spaven[1], Mohd Jamil Sameeha[7], Zhiguang Zhar

Abstract

Background: The impact of declining physical activity
globally prompted the development of national and int
systematically identify and compare national and interna
and appraise the quality of the guidelines to promote b

Methods: This systematic review was registered in the I
(PROSPERO) and reported using the Preferred Reporting
guidelines. Only national, or international physical activit
review. Included guidelines targeted children and adole
undertaken incorporating electronic databases, custom
expert consultation. Guideline quality was assessed usin
Instrument (AGREE II).

Results: The search resulted in 50 national or internatio
national guideline and there were three international gu
Norway and Sweden), World Health Organization (WHO
WHO guidelines. Guidelines varied in relation to date of
wording regarding: type, amount, duration, intensity, fre
countries included sedentary behaviour within the guid
the AGREE II assessment for each guideline indicated co
95.3%, with similar variability in the six individual domair
appropriate guidance for population level initiatives.

Conclusions: This review revealed considerable variabili
quality, development and recommendations, highlightir
methodologies to ensure appropriate guidance for popu
resources to ensure this level of quality, the adoption or
the WHO guidelines or guidelines of similar quality is re

(Continued on next page)

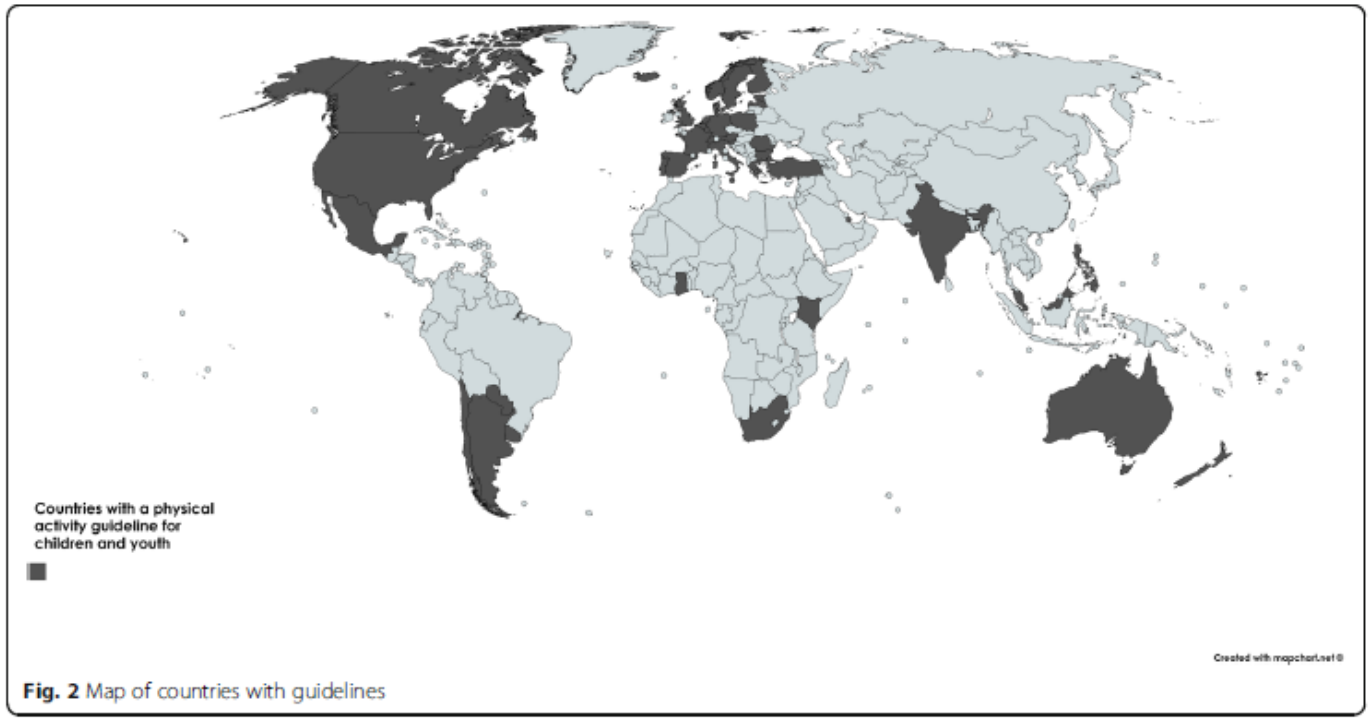

Fig. 2 Map of countries with guidelines

Parrish et al. *International Journal of Behavioral Nutrition and Physical Activity* (2020) 17:16

La Physical Literacy … in *Google* e *Wikipedia*

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Physical literacy

From Wikipedia, the free encyclopedia

This article **may present fringe theories, without giving appropriate weight to the mainstream view**, and explaining the responses to the fringe theories. Please help improve it or discuss the issue on the talk page. *(February 2016) (Learn how and when to remove this template message)*

Physical literacy is a fundamental and valuable human capability that can be described as a disposition acquired by human individuals encompassing the motivation, confidence, physical competence, knowledge and understanding that establishes purposeful physical pursuits as an integral part of their lifestyle.[1]

The fundamental and significant aspects of physical literacy[2] are:

- everyone can be physically literate as it is appropriate to each individual's endowment
- everyone's physical literacy journey is unique
- physical literacy is relevant and valuable at all stages and ages of life

La *Physical Literacy* è una fondamentale e preziosa capacità umana che può essere descritta come una disposizione acquisita dagli individui che comprendono la motivazione, la fiducia, la competenza fisica, la conoscenza e le ragioni che stanno alla base dell'attività fisica intenzionale come parte integrante del loro stile di vita.

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La *Physical Literacy* in immagini

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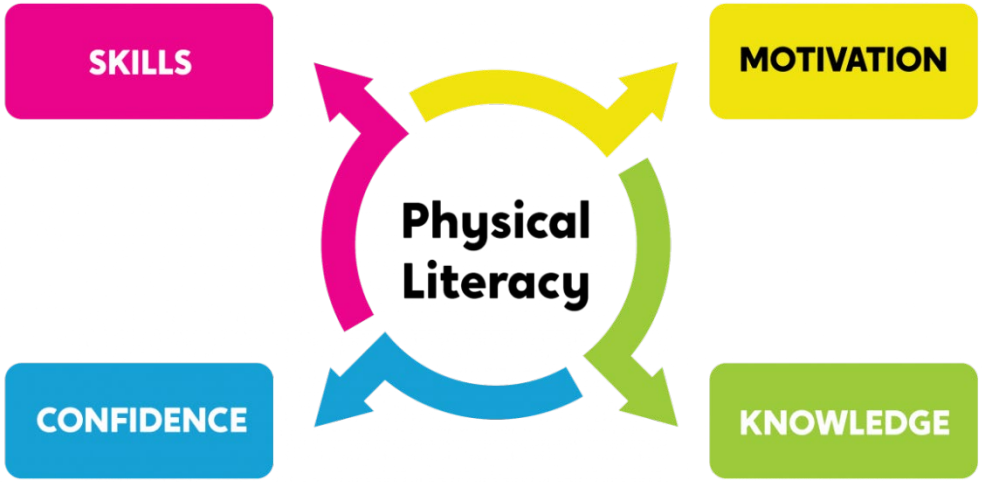
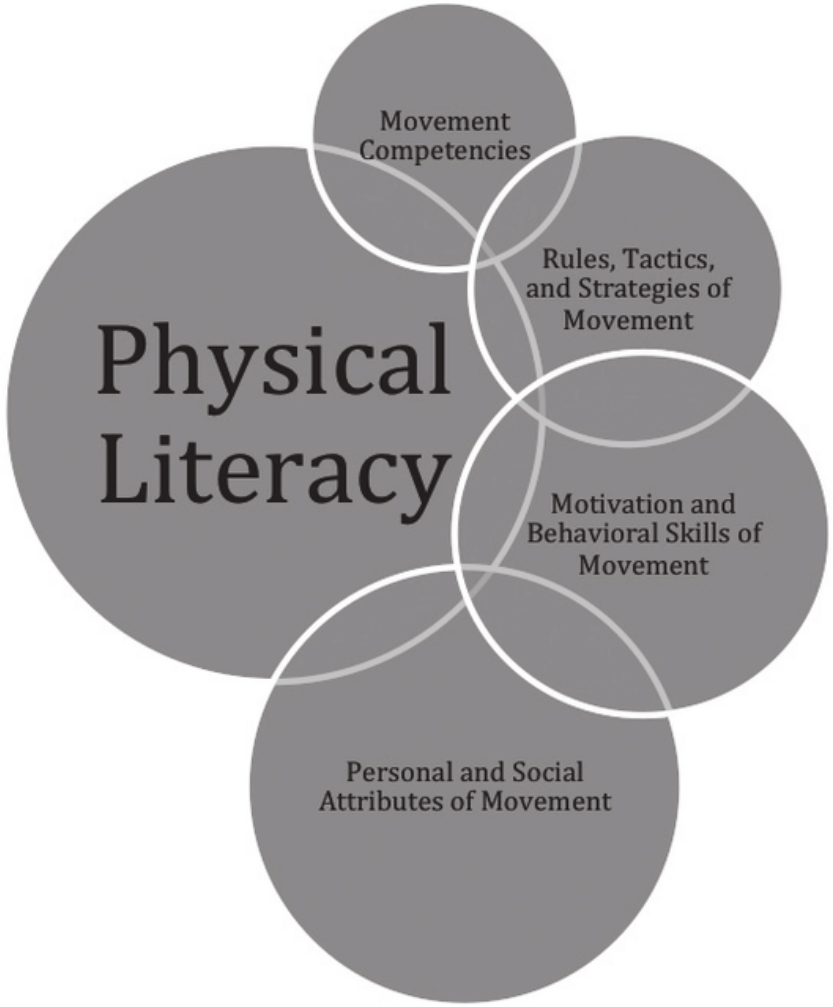
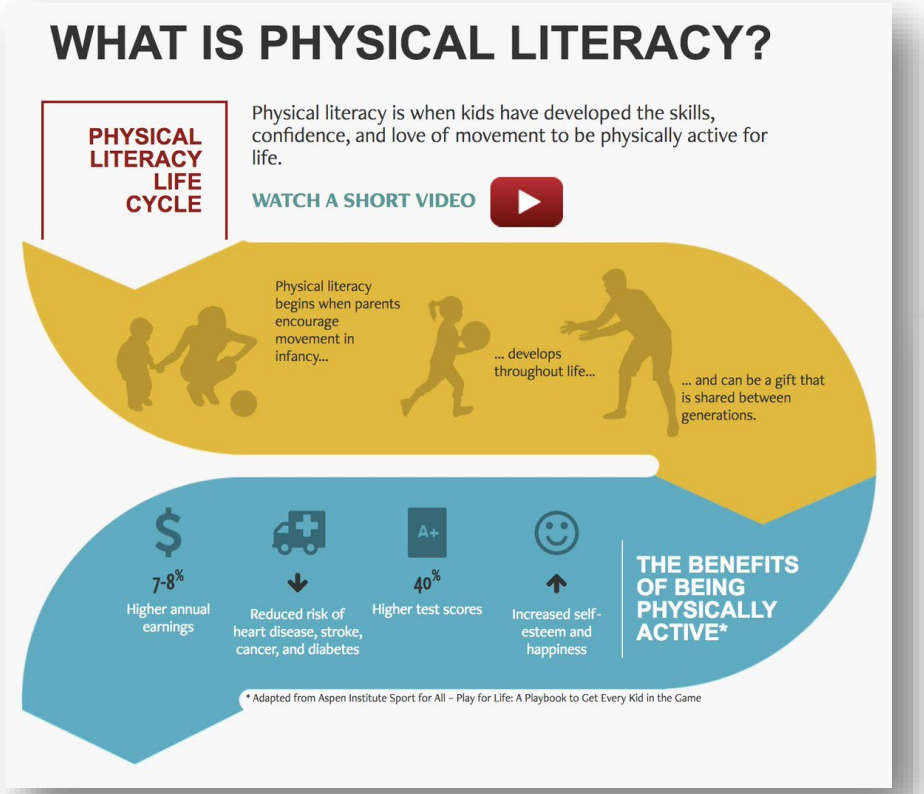
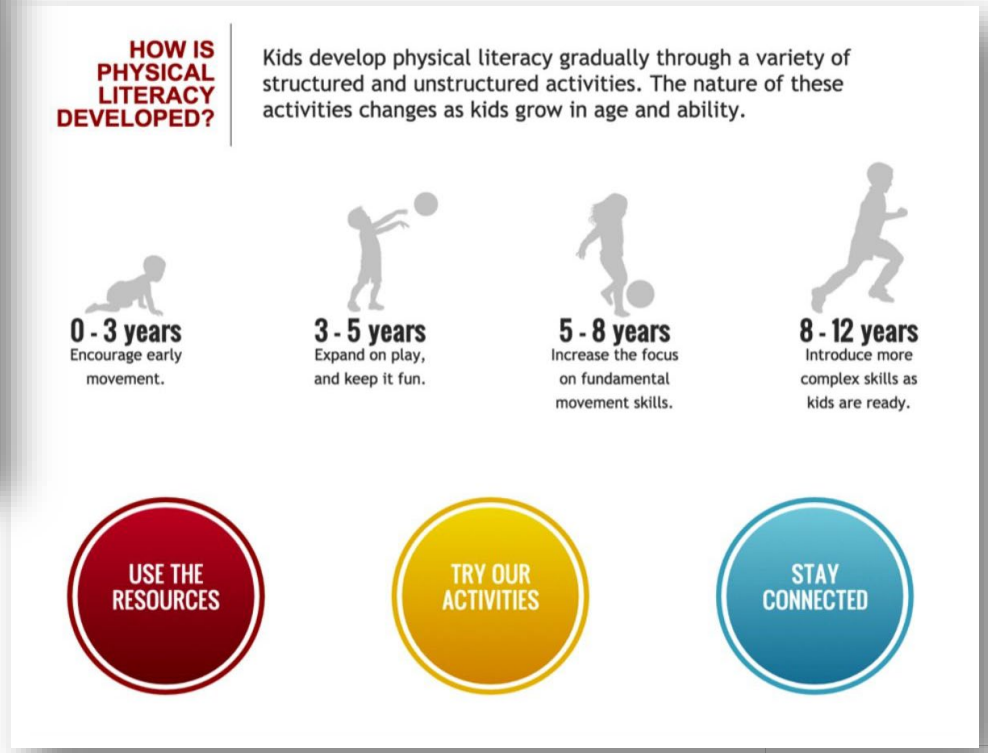
La *Physical Literacy* in immagini





La *Physical Literacy* in immagini … e video





https://www.youtube.com/watch?v=00Htx7vh6Go

https://www.sportaus.gov.au/physical_literacy

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U LISBOA UNIVERSIDADE DE LISBOA FMH FACULDADE DE MOTRICIDADE HUMANA
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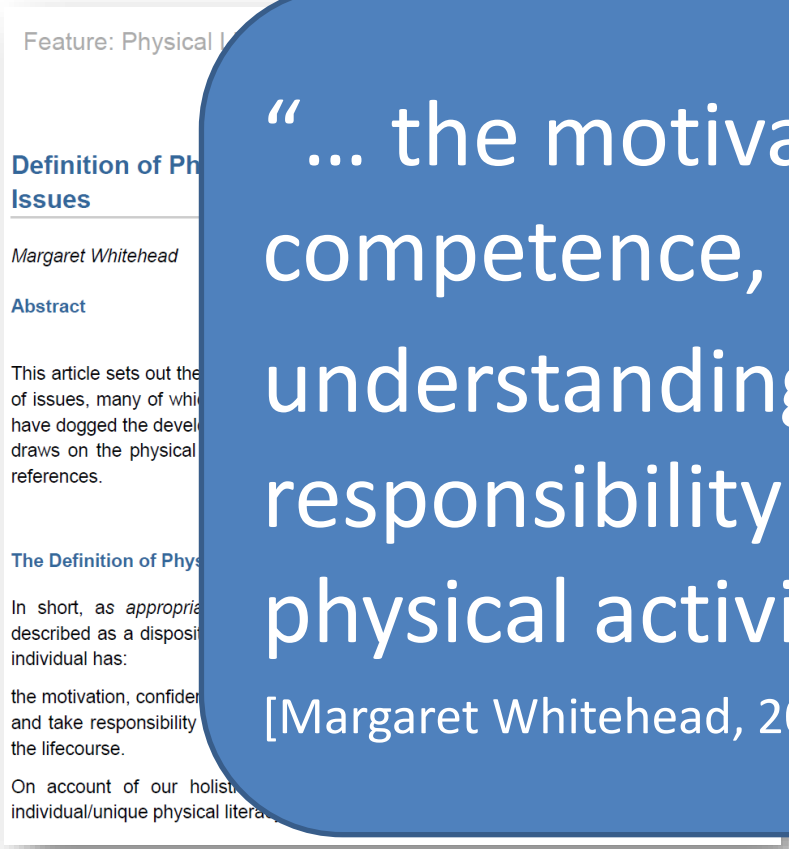
Co-funded by the Erasmus+ Programme of the European Union

La definizione *ufficiale* (quella più usata)


Feature: Physical

Definition of Ph
Issues

Margaret Whitehead

Abstract

This article sets out the
of issues, many of whi
have dogged the devel
draws on the physical
references.

The Definition of Phys

In short, as *appropria*
described as a disposi
individual has:

the motivation, confide
and take responsibility
the lifecourse.

On account of our holist
individual/unique physical litera

"… the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life."

[Margaret Whitehead, 2013]

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ded by the
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pean Union

… ma non è semplice definire la PL

QUEST, 2003, **55**, 285-305

Guiding Professional Students to Literacy in Physical Activity Education

Earle F. Zeigler

There was a field called physical education.
With so many names it writhed in frustration.
Still it dithered and blathered while peregrinating,
and finally died silently while still ruminating.

The author argues that physical education has gradually declined in th
ond half of the twentieth century. Can the field ever hope to become v
the provision of healthful, developmental physical activity for *all*
country's population (whether they be students or members of the g
public)? The question is answered affirmatively IF AND ONLY IF the p
field moves to make truly significant changes in its present mode of oper
Such change involves bold action to produce true specialists in *physical*
ity education based the knowledge available to the profession fr
undergirding discipline titled (e.g.) *developmental physical activity*. Fo
mum development of the profession, the coaching of competitive sport s
be transferred out of the department.

Lynch & Soukup, *Cogent Education* (2016), 3: 1217820
http://dx.doi.org/10.1080/2331186X.2016.1217820

cogent education

CURRICULUM & TEACHING STUDIES | RESEARCH ARTICLE

"Physical education", "health and physical education", "physical literacy" and "health literacy": Global nomenclature confusion

Timothy Lynch[1]* and Gregory J. Soukup[2]

Received: 17 June 2016
Accepted: 25 July 2016
Published: 05 August 2016

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E-mail: timothy.lynch@plymouth.ac.uk

Reviewing editor:
Wayne Usher, Griffith University, Australia

Additional information is available at the end of the article

Abstract: The title "physical education" (PE) is the traditional taxonomy used to represent the education discipline. Health and physical education (HPE) is regarded to be an all-encompassing health-dimensional title that has been recently embraced by various education systems around the world. Hence, it can be argued that PE and HPE are often used interchangeably by educationalists, portraying a similar meaning and understanding. This can be regarded as internationally confusing, as historically PE and HPE have represented different and at times paradoxical discourses and ideologies. Amongst the ambiguity of which title to use, PE or HPE, new terms of branding such as "physical literacy" and "health literacy" have re/emerged. The purpose of this interpretivist study is to identify if associated terms used for the original PE label are a help or hindrance to practitioners? Participants were asked an open-ended question relating to PE nomenclatures. The data gathered were analysed and findings confirmed that practitioner confusion does exist. It is suggested that children are first and foremost "physically educated"; therefore a strong, clear and comprehensive grounding in quality PE is essential for teachers and students.

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Tre recenti review (1)

FitnessResearch .edu.au

LITERATURE REVIEW

DEVELOPMENT C
LITERACY AND
COMPETENCY: A LITE

Claire Tompsett, Brendan Burke
University of the Sunshine Coast,
Corresponding author: C
University of the Sunshine Coast,
Faculty of Science, Health, Educ
90 Sippy Downs Drive, Sippy Downs,
Email: claire.tompsett@

ABSTRACT

Physical literacy was established to explain the knowledge a
lifelong health and wellness. Current physical literacy assess
fundamental movement skills which include a static balance,
gallop, kick, skip, strike, throw and dodge.

Fundamental movement skills are included in physical literacy and physical education programs because of documented associations to lifelong participation in physical activity, health benefits and sporting success. However the available evidence is less clear about the underlying causes contributing to the decline in skill proficiency observed in school children.

CURRENT PHYSICAL EDUCATION AND PHYSICAL LITERACY ASSESSMENT

Numerous authors have highlighted a distinct gap in the literature; namely the inability to quantify physical literacy of individuals and groups [30-32]. The original theorist behind physical literacy, Whitehead [20] emphasises that programming must incorporate assessment for learning, but provides no practical application or methods to address

according to
sports skills.
components
that caution
child solely
performed th
and interven
criterion of
Therefore te
missing a key
strategy, reco
that underpi
of this natur
populations

Volume 3, Issue 2, August 2014 | JOURNAL OF FITNESS RESEARCH

Tre recenti review (2)

Sports Med (2017) 47:113–126
DOI 10.1007/s40279-016-0560-7

SYSTEMATIC REVIEW

Definitions, Foundations and Associations of Phy
A Systematic Review

Lowri C. Edwards[1] · Anna S. Bryant[1] · Richard J. Keegan[2] · Kevin Morgan[1]
Anwen M. Jones[1]

Published online: 30 June 2016

Abstract

Background The concept of physical literacy has sti
lated increased research attention in recent years—b
deployed in physical education, sport participation, and
promotion of physical activity. Independent resea
groups currently operationalize the construct differentl
Objective The purpose of this systematic review wa
conduct a systematic review of the physical literacy c
struct, as reflected in contemporary research literature.
Methods Five databases were searched using the prefe
reporting items for systematic reviews and meta-analy
(PRISMA) guidelines for systematic reviews. Inclusion
criteria were English language, peer reviewed, published
by March 2016, and seeking to conceptualize physical
literacy. Articles that met these criteria were analyzed in
relation to three core areas: properties/attributes, philo-
sophical foundations and theoretical associations with
other constructs. A total of 50 published articles met the
inclusion criteria and were analyzed qualitatively using
inductive thematic analysis.

Table 1 Physical literacy hierarchical structure, including core categories, subthemes and higher-order themes

Core categories[a]	Subthemes	Higher-order themes
Confidence (26)	Affective	Properties of physical literacy
Motivation (23)		
Self-esteem (4)		
Knowledge and understanding of activities (16)	Cognitive	
Knowledge and understanding of healthy and active lifestyles (13)		
Value and take responsibility for physical activity (2)		
Movement capacities (22)	Physical capabilities	
Motor skill competence (18)		
Physical competence (12)		
Fundamental movement skills (8)		
Meaningful experience (5)	Pedagogical implications	
Pragmatic reality (3)		
Not a pedagogical model (2)		
Physical activity (22)	Behavioral characteristics	Associations and relationships
Health behaviors (13)		
Engage, enthuse and enjoy (13)	Psychological, social and attitudinal	
Support from significant others (10)		
Cognitive/academic performance (4)		
Physical education (38)	Contextual	
Sport sector (8)		

[a] Numbers in parentheses represent the number of papers that referred to the core categories apparent, of a possible 50 papers

An implication for theory development and research is the need for transparency and tolerance with different approaches to physical literacy. The authors acknowledge the philosophical perspective but recognize a more pragmatic perspective reflecting the evidence-based society that is lived within to track whether individuals are making progress along their physical literacy journey. This approach would enable researchers to operationalize the construct of physical literacy and establish meaningful, measureable differences. Implications for applied practice include

Tre recenti review (3)

Sports Med (2018) 48:659–682
https://doi.org/10.1007/s40279-017-0817-9

SYSTEMATIC REVIEW

'Measuring' Physical Literacy and Related Constructs: A Systematic Review of Empirical Findings

Lowri C. Edwards[1] · Anna S. Bryant[1] · Richard J. Keegan[2] · Kevin Morgan[1] · Stephen-Mark Cooper[1] · Anwen M. Jones[1]

Published online: 15 November 2017

Abstract

Background The concept of physical literacy has received increased research and international attention recently. Where intervention programs and empirical research are gaining momentum, their operationalizations differ significantly.

Objective The objective of this study was to inform practice in the measure/assessment of physical literacy via a systematic review of research that has assessed physical literacy (up to 14 June, 2017).

Methods Five databases were searched using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Protocols guidelines, with 32 published articles meeting the inclusion criteria. English-language, peer-reviewed published papers containing empirical studies of physical literacy were analyzed using inductive thematic analysis.

Results Qualitative methods included: (open-ended questionnaires; (3) reflective groups; (5) participant observations; methods. Quantitative methods include devices (e.g., accelerometers); (2) obs physical activity or motor proficiency); (e.g., enjoyment, self-perceptions); (4) sures (e.g., exergaming, objective tim anthropometric measurements; and (6 measure. Of the measures that made a tion: 22 (61%) examined the physic (22%) the affective domain; five (14 domain; and one (3%) combined three affective, and cognitive) of physical lit tended to declare their philosophical cantly more in qualitative research con titative research.

Conclusions Current research adopt incompatible methodologies in m physical literacy. Our analysis revealed simplistic and linear methods, physical measured/assessed in a traditional/co Therefore, we recommend that research ative in developing integrated philos approaches to measuring/assessing Future research should consider the m opments in the field of physical literacy for policy formation.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s40279-017-0817-9) contains supplementary material, which is available to authorized users.

Anna S. Bryant

Key Points

This article is the first to provide a systematic review of the measure/assessment attempts of the concept of physical literacy and its related constructs (i.e., physical activity and health outcomes) and is the first to suggest that by adopting simplistic and linear methods, physical literacy cannot be measured/assessed in the traditional/conventional sense.

Recommendations for future research include a need for more empirical research on the concept of physical literacy; essentially, there is a need for more research that is open about the definition and philosophical approach used and theories tested.

Future research should measure/assess beyond the constructs of physical proficiencies, and aim to measure/assess physical literacy from a more holistic perspective.

nded by the Erasmus+ Programme of the European Union

ISPAH *Eight investments …*

L' ATTIVITÀ FISICA È UN POTENTE INVESTIMENTO PER UNA SALUTE MIGLIORE E PER UN MONDO SOSTENIBILE E PRODUTTIVO.

Il termine attività fisica è un termine molto ampio che comprende l'insieme dei movimenti del corpo umano che si compiono, per ragioni diverse, nelle case, nelle scuole, nei paesi, nelle città, nelle organizzazioni e nelle comunità. Esso comprende, infatti, tutte le forme di movimento svolte al lavoro o a casa, durante gli spostamenti o nel tempo libero.

Più di 1,4 miliardi di adulti, nel mondo, non raggiungono i livelli minimi raccomandati di attività fisica (1) e sono quindi esposti ad un maggior rischio di malattie non-trasmissibili (MNT) (2). Secondo una stima prudente, l'inattività fisica costa all'economia mondiale 68 miliardi di dollari l'anno (3). L'attuale prevalenza di attività fisica permette di evitare 3,9 milioni di decessi all'anno nel mondo (4). Al contrario, un'attività fisica insufficiente è responsabile di oltre 5 milioni di decessi prevenibili all'anno (2, 5).

PER AUMENTARE L'ATTIVITÀ FISICA SONO NECESSARI APPROCCI SISTEMICI

Un approccio sistemico mette insieme le competenze e le energie di tutte le componenti del sistema, a livello individuale, comunitario, sociale e politico, per sviluppare una comprensione condivisa della complessità di un problema (in questo caso l'inattività fisica), 'mappare' gli attori chiave e individuare gli aspetti che possono perturbare il sistema (9). Il sistema comprenderà persone, comunità, organizzazioni, risorse (conoscenza, denaro, tempo), ambienti fisici e sociali, infrastrutture e l'economia in generale.

L'approccio sistemico "tradizionale" non si aspetta che gli interventi funzionino in modo isolato. È importante, invece, capire, il modo in cui i sistemi funzionano nel loro contesto, come risponde il sistema e in che modo gli approcci di salute pubblica possono essere adattati in funzione dei bisogni del sistema.

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ISPAH *Eight investments …*

L'ATTIVITÀ FISICA CONTRIBUISCE A CREARE UN MONDO MIGLIORE E SOSTENIBILE PER TUTTI

I benefici dell'attività fisica vanno oltre la salute e contribuiscono direttamente al raggiungimento di molti degli Obiettivi di Sviluppo Sostenibile (OSS) dell'Agenda 2030 delle Nazioni Unite (12), tra cui la riduzione dell'utilizzo di combustibili fossili, la riduzione dell'inquinamento atmosferico, la diminuzione del traffico e una maggiore sicurezza stradale, la riduzione delle disuguaglianze, una maggiore parità di genere, lo sviluppo sostenibile delle città e un aumento della produttività industriale.

Nella sua Carta di Bangkok del 2016 (13), l'International Society for Physical Activity and Health (ISPAH) ha riconosciuto i numerosi benefici intersettoriali dell'attività fisica e il suo contributo nel raggiungimento di molti degli OSS dell'Agenda 2030 (vedi Figura 1). Il contributo dell'attività fisica agli OSS è stato riconosciuto anche nel Piano d'Azione Globale per l'Attività Fisica 2018-2030 (Global Action Plan on Physical Activity - GAPPA) dell'Organizzazione Mondiale della Salute (OMS) (14).

Figura 1:
I co-benefici economici, sociali e ambientali dell
aumentare l'attività fisica (tratto da "Active: A T
Increasing Physical Activity" (15)).

1 PROGRAMMI RIVOLTI ALL'INTERA COMUNITÀ SCOLATICA

Promuovere l'attività fisica a scuola, in modo globale e sistemico (Whole School Approach), comporta: dare priorità a lezioni curriculari di educazione fisica di qualità; mettere a disposizione spazi e risorse adeguati per sostenere l'attività fisica, strutturata e non strutturata, durante tutta la giornata (ad esempio giochi e attività ricreative prima, durante e dopo la scuola); promuovere programmi di mobilità scolastica attiva per andare e tornare da scuola; adottare politiche scolastiche che sostengano queste azioni e coinvolgano il personale, gli studenti, i genitori e l'intera comunità. Il Whole School Approach può offrire ai bambini, che trascorrono a scuola la maggior parte del proprio tempo, molte opportunità di praticare attività fisica e di fare movimento. La scuola, inoltre, permette di raggiungere, con continuità, bambini provenienti da tutti i contesti sociali (22).

Sebbene esistano sempre più evidenze sui singoli interventi che compongono i programmi scolastici di promozione dell'attività fisica, come ad esempio i programmi di educazione fisica (23), le classi attive (24, 25), l'attività fisica dopo la scuola (26) e le pause attive (27), mancano ancora prove di efficacia sui programmi nella loro complessità, ai diversi livelli e con i diversi portatori di interesse (28). Tuttavia, nella maggior parte dei casi, sono proprio i programmi scolastici multicomponente, che prevedono più opportunità per l'attività fisica a scuola, quelli che si sono dimostrati più promettenti nell'aumentare l'attività fisica degli studenti (29) e che si sono rivelati più sostenibili nel lungo periodo (30). Tra questi programmi, uno dei più conosciuti e riusciti, è quello finlandese "School on the Move" (31). Le ricerche su questo programma hanno dimostrato un aumento dell'attività fisica durante le ricreazioni e durante tutta la giornata scolastica, un aumento del tempo passato all'aperto durante le pause, un tragitto casa-scuola in inverno più 'attivo' e una maggior partecipazione degli studenti alla programmazione delle attività scolastiche (31, 32).

Il GAPPA sottolinea la necessità di consolidare la realizzazione di programmi rivolti all'intera comunità scolastica (14) e di ampliare, estendere e migliorare le infrastrutture scolastiche per aumentare le opportunità di praticare attività fisica per gli studenti.
Devono essere elaborate delle politiche e dei sistemi che favoriscano la realizzazione di programmi scolastici di qualità elevata, in modo da aumentare la probabilità che i programmi multicomponente siano efficaci nel modificare l'attività fisica globale dei bambini e dei giovani (33).

"… i programmi scolastici multicomponente, che prevedono più opportunità per l'attività fisica a scuola, sono quelli che si sono dimostrati più promettenti nell'aumentare l'attività fisica degli studenti …"

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WHO Active

FOUR POLICY ACTION AREAS

ACTIVE ENVIRONMENTS

Promote safe, well maintained infrastructure, facilities and public open spaces that provide equitable access to places for walking, cycling and other physical activity.

ACTIVE SOCIETIES

Implement behaviour change communication campaigns and build workforce capacity to change social norms.

ACTIVE PEOPLE

Ensure access to opportunities, programmes and services across multiple settings to engage people of all ages and abilities in regular physical activity.

ACTIVE SYSTEMS

Strengthen leadership, governance, multisectoral partnerships, workforce, research, advocacy and information systems to support effective coordinated policy implementation.

Active
A technical package for increasing physical activity

Co-funded by the Erasmus+ Programme of the European Union

WHO Active – Schools Toolkit

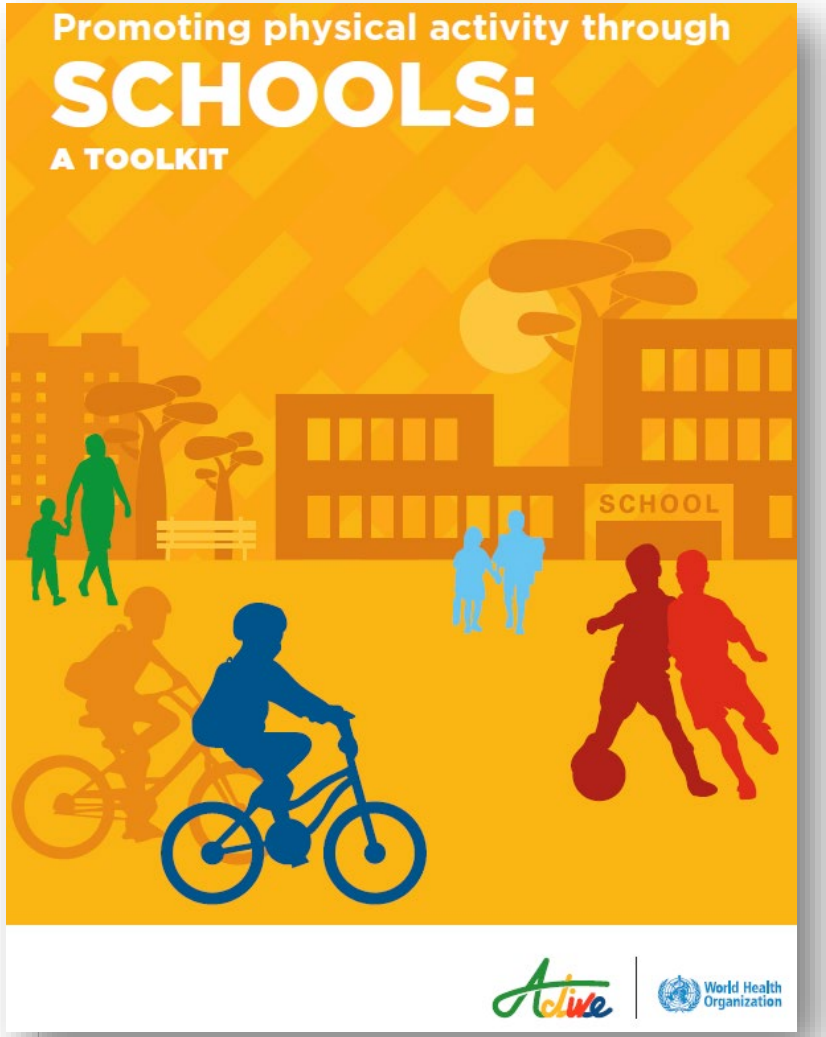

Figure 4: *The six domains as part of a whole-of-school approach to promoting physical activity through schools.*

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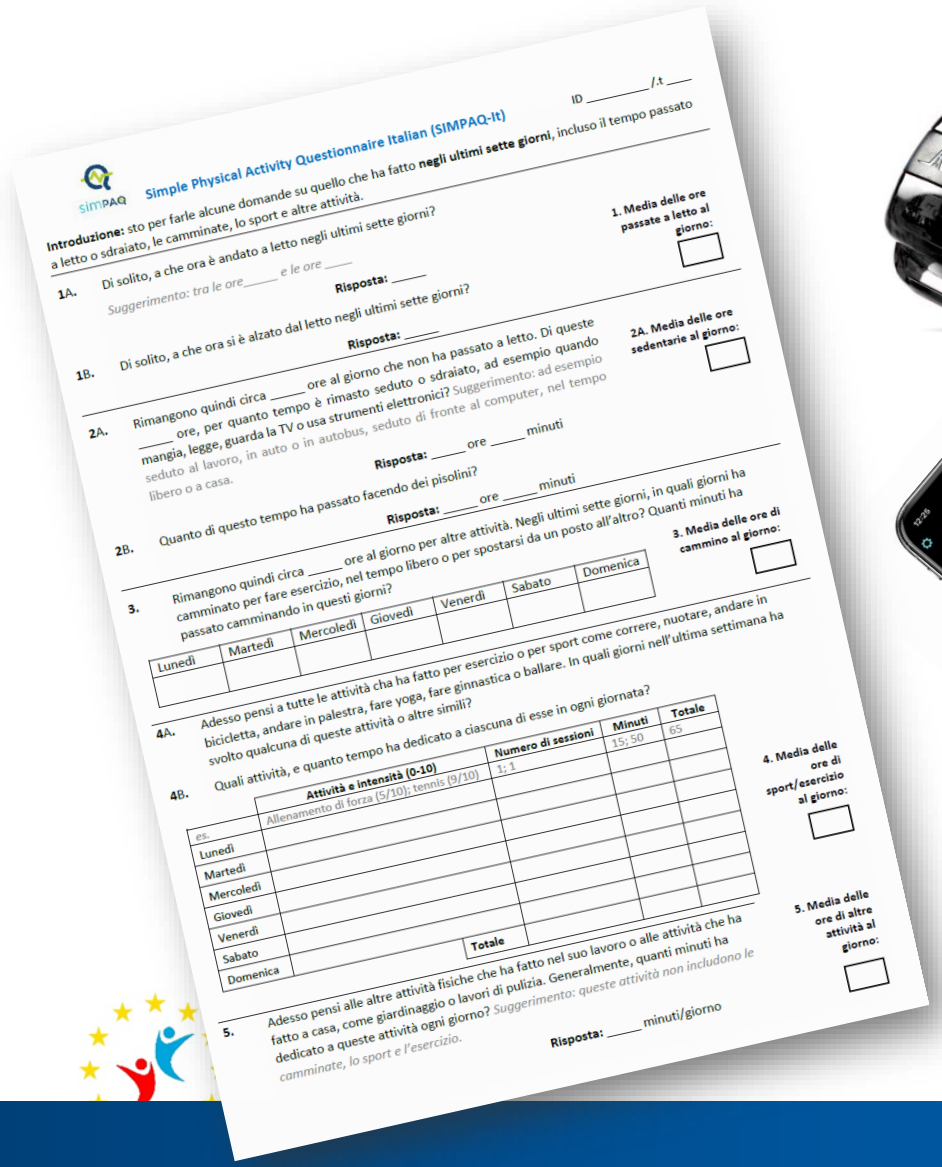
To CONCLUDE,
six key-words for MOVING to action

SIX KEYWORDS (1)



SIMPAQ **Simple Physical Activity Questionnaire Italian (SIMPAQ-It)** ID _____ /.t ____

Introduzione: sto per farle alcune domande su quello che ha fatto **negli ultimi sette giorni**, incluso il tempo passato a letto o sdraiato, le camminate, lo sport e altre attività.

1A. Di solito, a che ora è andato a letto negli ultimi sette giorni?
Suggerimento: tra le ore_____ e le ore ____
Risposta: ____

1B. Di solito, a che ora si è alzato dal letto negli ultimi sette giorni?
Risposta: ____

1. Media delle ore passate a letto al giorno: ☐

2A. Rimangono quindi circa ____ ore al giorno che non ha passato a letto. Di queste ____ ore, per quanto tempo è rimasto seduto o sdraiato, ad esempio quando mangia, legge, guarda la TV o usa strumenti elettronici? *Suggerimento: ad esempio quando seduto al lavoro, in auto o in autobus, seduto di fronte al computer, nel tempo libero o a casa.*
Risposta: ____ ore ____ minuti

2A. Media delle ore sedentarie al giorno: ☐

2B. Quanto di questo tempo ha passato facendo dei pisolini?
Risposta: ____ ore ____ minuti

3. Rimangono quindi circa ____ ore al giorno per altre attività. Negli ultimi sette giorni, in quali giorni ha camminato per fare esercizio, nel tempo libero o per spostarsi da un posto all'altro? Quanti minuti ha passato camminando in questi giorni?

Lunedì	Martedì	Mercoledì	Giovedì	Venerdì	Sabato	Domenica

3. Media delle ore di cammino al giorno: ☐

4A. Adesso pensi a tutte le attività cha ha fatto per esercizio o per sport come correre, nuotare, andare in bicicletta, andare in palestra, fare yoga, fare ginnastica o ballare. In quali giorni nell'ultima settimana ha svolto qualcuna di queste attività o altre simili?

4B. Quali attività, e quanto tempo ha dedicato a ciascuna di esse in ogni giornata?

	Attività e intensità (0-10)	Numero di sessioni	Minuti	Totale
es.	Allenamento di forza (5/10); tennis (9/10)	1; 1	15; 50	65
Lunedì				
Martedì				
Mercoledì				
Giovedì				
Venerdì				
Sabato				
Domenica				
	Totale			

4. Media delle ore di sport/esercizio al giorno: ☐

5. Adesso pensi alle altre attività fisiche che ha fatto nel suo lavoro o alle attività che ha fatto a casa, come giardinaggio o lavori di pulizia. Generalmente, quanti minuti ha dedicato a queste attività ogni giorno? *Suggerimento: queste attività non includono le camminate, lo sport e l'esercizio.*
Risposta: ____ minuti/giorno

5. Media delle ore di altre attività al giorno: ☐

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PACES-It

Leggi attentamente le affermazioni riportate qui sotto, assegnando ad ognuna un punteggio da 1 a 5.

QUANDO FACCIO ATTIVITÀ FISICA IO:

	sono in completo disaccordo	sono in disaccordo	sono incerto o in posizione neutrale	sono d'accordo	sono completamente d'accordo
1. mi diverto	1	2	3	4	5
2. mi annoio	1	2	3	4	5
3. non mi piace	1	2	3	4	5
4. lo trovo piacevole	1	2	3	4	5
5. non mi diverto per niente	1	2	3	4	5
6. mi dà energia	1	2	3	4	5
7. mi fa sentire depresso	1	2	3	4	5
8. è molto piacevole	1	2	3	4	5
9. il mio corpo si sente bene	1	2	3	4	5
10. ottengo qualcosa	1	2	3	4	5
11. è molto eccitante	1	2	3	4	5
12. mi dà frustrazione	1	2	3	4	5
13. non è per niente interessante	1	2	3	4	5
14. mi dà una forte sensazione di successo	1	2	3	4	5
15. mi fa sentire bene	1	2	3	4	5
16. mi sento come se preferissi fare qualcos'altro	1	2	3	4	5

MONITORING

SIX KEYWORDS (2)

TAILORING

SIX KEYWORDS (2)

AUTONOMY

SIX KEYWORDS (3)

INTRINSIC MOTIVATION

SIX KEYWORDS (4)

PLEASURE, enjoyment

SIX KEYWORDS (5)

NETWORKING (the social network)