Movement, Activity & Lifestyle
Tweens in Action

Physical activity, obesity and associated factors in Maltese 10-11 year olds

IPES Conference
24 April, 2015
Excelsior Hotel, Floriana

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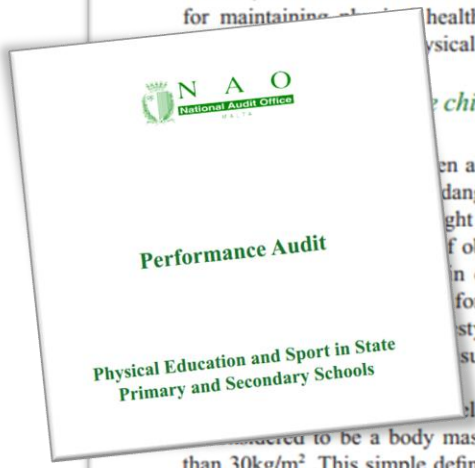


1.1.16 A second set of attributes, referred to as sport or skill-related physical fitness, includes power, speed, agility, balance, and reaction time. Although these are not essenti… for maintaining … health, they are important … for … ysically demanding activitie…

… children and adolescents

… en a person puts on weight to … dangers health. Some persons … ght gain for genetic reasons, … f obesity is consuming more … n daily life. Most evidence … for the rising prevalence is a … styles and changes in eating … sumption of fat and sugar).

… latively easy to define and … dered to be a body mass index (BMI) of greater than 30kg/m² .This simple definition cannot, however, be applied to children, as the ratio of weight to height gain changes during children's normal growth. Therefore, the figure must be adjusted for age and gender when using BMI for children. In general, a BMI greater than the 95th percentile for age is an indicator of obesity while a BMI betwe… the 85th – 95th percentiles is consider… o… weight and at risk of developing obesity.

1.1.19 There is no complete set of data to measure the situation on child obesity in Malta, although it has been acknowledged that as a nation this is a public health problem of alarming dimensions. The emerging data is showing … the problem of obesity in Malta, besides being widespread, is also differentially distributed with education and lower income being major contributing factors. Enhancing efforts to promote participation in daily physical activity and sport among children and adolescents is therefore a critical national priority.

BMI. In the case of Malta, the indicators for young persons who reported to be obese and overweight were as follows:

(a) 25 per cent (girls) and 30 per cent (boys) of 11-year-olds.

(b) 31 per cent of 13-year-olds (both girls and boys).

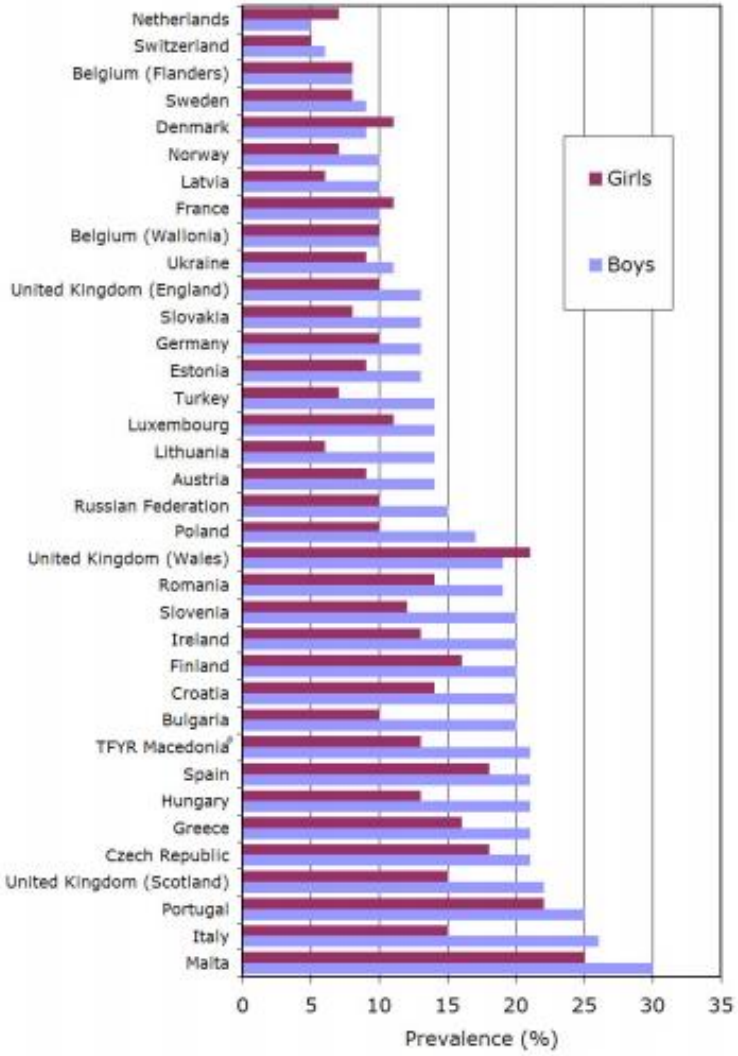
(c) 28 per cent (girls) and 32 per cent (boys) of 15-year-olds.

1.1.22 Furthermore, a study was carried out in 2007 by Grech and Farrugia Sant'Angelo (2008) with 3,461 children entering the first year of Primary School (that is, aged between five and six). The study revealed that, based on the International Obesity Task Force criteria, over a quarter of Maltese school-entry children were overweight or obese. Stricter criteria of the Centre for Diseases Control classified one third as overweight or obese.

1.1.23 These high levels of children of different ages who are obese or overweight is undoubtedly a major cause of concern due to the existing link between childhood and adult obesity, and the significant co-morbidities associated with obesity, particularly chronic diseases (such as heart disease, stroke, colon cancer, diabetes and osteoporosis). Malta already has a high ten per cent prevalence of diabetes amongst adults of which ninety per cent is type II diabetes. It is also worth noting that eighty-four per cent of the diabetic population in Malta is overweight or obese. Diabetes in Malta accounts for nearly one out of every four deaths occurring prematurely before the age of sixty-five years. In addition, Type II diabetes is being diagnosed at increasingly younger ages and these diagnoses are inextricably linked to obesity in adolescents.

1.1.24 Obesity also has serious financial consequences for the national health system and for the economy. It is estimated by the Health Information and Research

Prevalence of overweight (including obesity) among 11-year-olds in 36 countries and areas of the WHO European Region, 2005/2006



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NAO, May, 2010

Has physical activity in Maltese changed in the last ten years?

PERCENTAGE PARTICIPATING IN 60 MINUTES OF MODERATE TO VIGOROUS PHYSICAL ACTIVITY DAILY	Age					
	11		13		15	
	Boy	Girl	Boy	Girl	Boy	Girl
2006	27.0%	18.0%	20.0%	14.0%	19.0%	13.0%
2010	42.6%	24.6%	36.2%	14.6%	26.3%	13.6%
HSBC international average 2010	28%	19.0%	24%	13.0%	19.0%	10.0%

Table 5: *Percentage of Maltese children (aged 11-15 years) participating in 60 minutes of moderate to vigorous physical activity daily (HBSC surveys 2006 and 2010, HPDPD, 2012).*

Children over 8 years over-estimate physical activity, while children 7 years and under, under-estimate it **(NHS, 2008)**

Weight data is normally under-reported, particularly by overweight and obese children. *Exclusive reliance on adolescents' self-reports can lead to erroneous prevalence estimates of weight problems.* **(Elgar et al., 2005)**

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NHS, 2008
HBSC, 2008
HPDPD, 2012
Elgar et al., J.Adolesc. Health, 2005

EUROBAROMETER

Special Eurobarometer

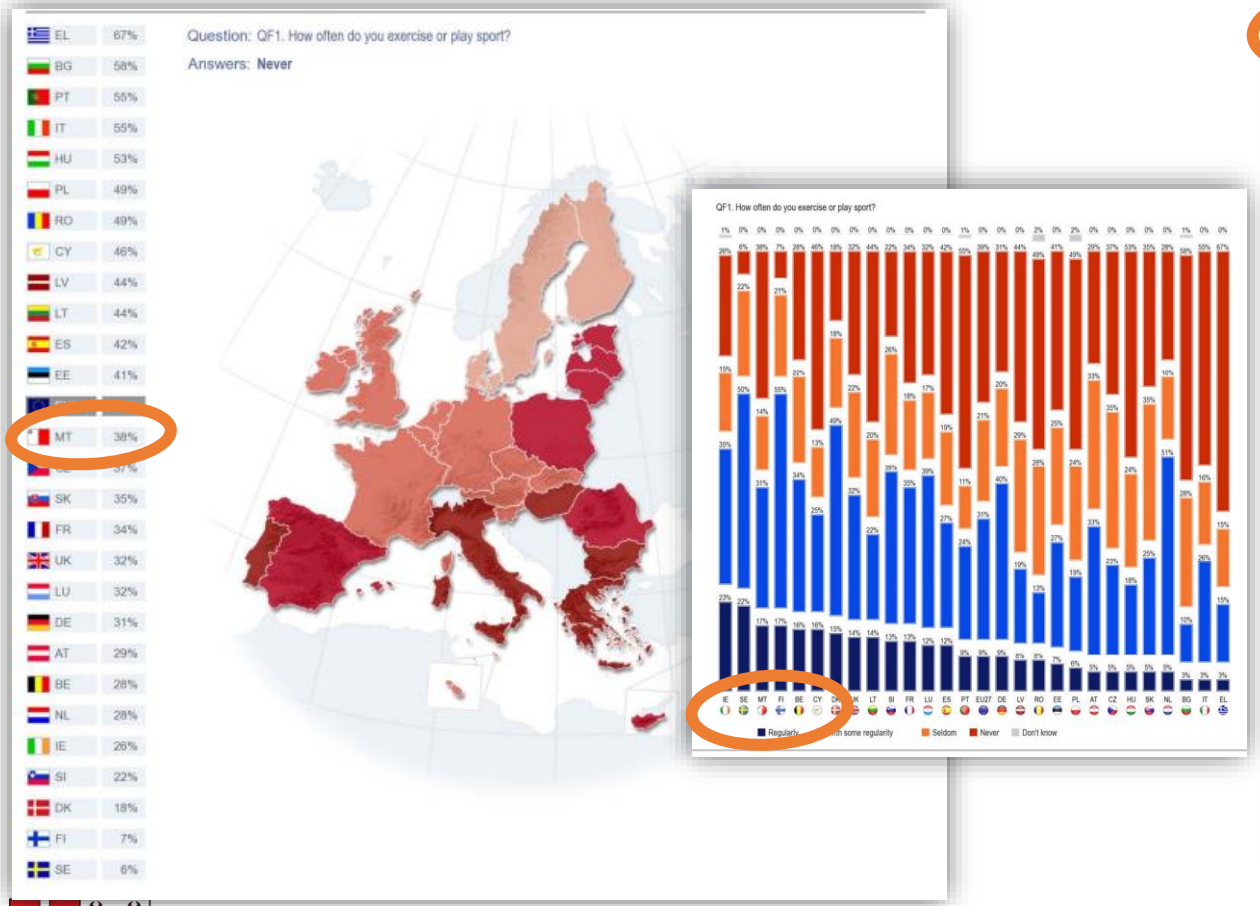
European Commission

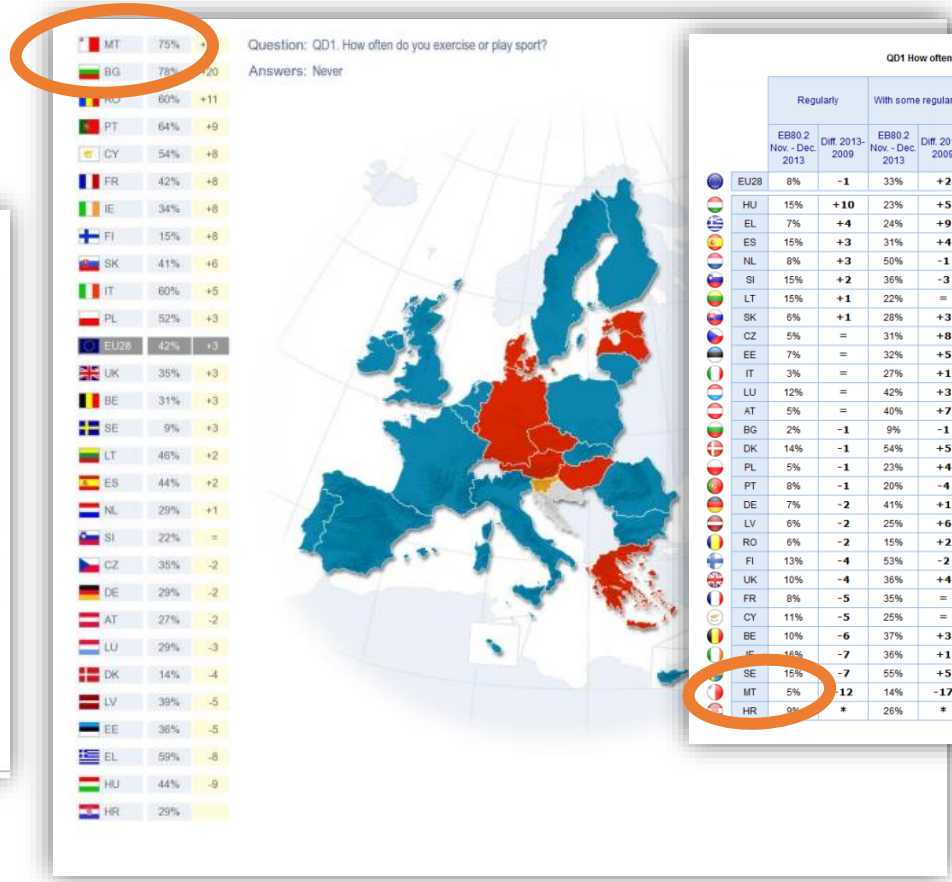
Fieldwork: October 2009

Publication: March 2010

Fieldwork: November – December 2013

Publication: March 2014





QD1 How often do you exercise or play sport?

	Regularly		With some regularity		Seldom		Never		Don't know	
	EB80.2 Nov. - Dec. 2013	Diff. 2013-2009	EB80.2 Nov. - Dec. 2013	Diff. 2013-2009	EB80.2 Nov. - Dec. 2013	Diff. 2013-2009	EB80.2 Nov. - Dec. 2013	Diff. 2013-2009	EB80.2 Nov. - Dec. 2013	Diff. 2013-2009
EU28	8%	-1	33%	+2	17%	-4	42%	+3	0%	=
HU	15%	+10	23%	+5	18%	-6	44%	-9	0%	=
EL	7%	+4	24%	+9	10%	-5	59%	-8	0%	=
ES	15%	+3	31%	+4	10%	-9	44%	+2	0%	=
NL	8%	+3	50%	-1	13%	-3	29%	+1	0%	=
SI	15%	+2	36%	-3	27%	+1	22%	=	0%	=
LT	15%	+1	22%	=	17%	-3	46%	+2	0%	=
SK	6%	+1	28%	+3	25%	-10	41%	+6	0%	=
CZ	5%	=	31%	+8	29%	-6	35%	-2	0%	=
EE	7%	=	32%	+5	24%	-1	36%	-5	1%	+1
IT	3%	=	27%	+1	10%	-6	60%	+5	0%	=
LU	12%	=	42%	+3	17%	=	29%	-3	0%	=
AT	5%	=	40%	+7	28%	-5	27%	-2	0%	=
BG	2%	-1	9%	-1	9%	-19	78%	+20	2%	+1
DK	14%	-1	54%	+5	18%	=	14%	-4	0%	=
PL	5%	-1	23%	+4	18%	-6	52%	+3	2%	=
PT	8%	-1	20%	-4	8%	-3	64%	+9	0%	-1
DE	7%	-2	41%	+1	23%	+3	29%	-2	0%	=
LV	6%	-2	25%	+6	30%	+1	39%	-5	0%	=
RO	6%	-2	15%	+2	18%	-10	60%	+11	1%	-1
FI	13%	-4	53%	-2	19%	-2	15%	+8	0%	=
UK	10%	-4	36%	+4	19%	-3	35%	+3	0%	=
FR	8%	-5	35%	=	15%	-3	42%	+8	0%	=
CY	11%	-5	25%	=	10%	-3	54%	+8	0%	=
BE	10%	-6	37%	+3	22%	=	31%	+3	0%	=
IE	16%	-7	36%	+1	14%	-1	34%	+8	0%	-1
SE	15%	-7	55%	+5	21%	-1	9%	+3	0%	=
MT	5%	-12	14%	-17	6%	-8	75%	+37	0%	=
HR	8%	*	26%	*	36%	*	29%	*	0%	*

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Special Eurobarometer, Sport and Physical Activity, 2010, 2014

World Health Organization

Insufficient physical activity, 2008

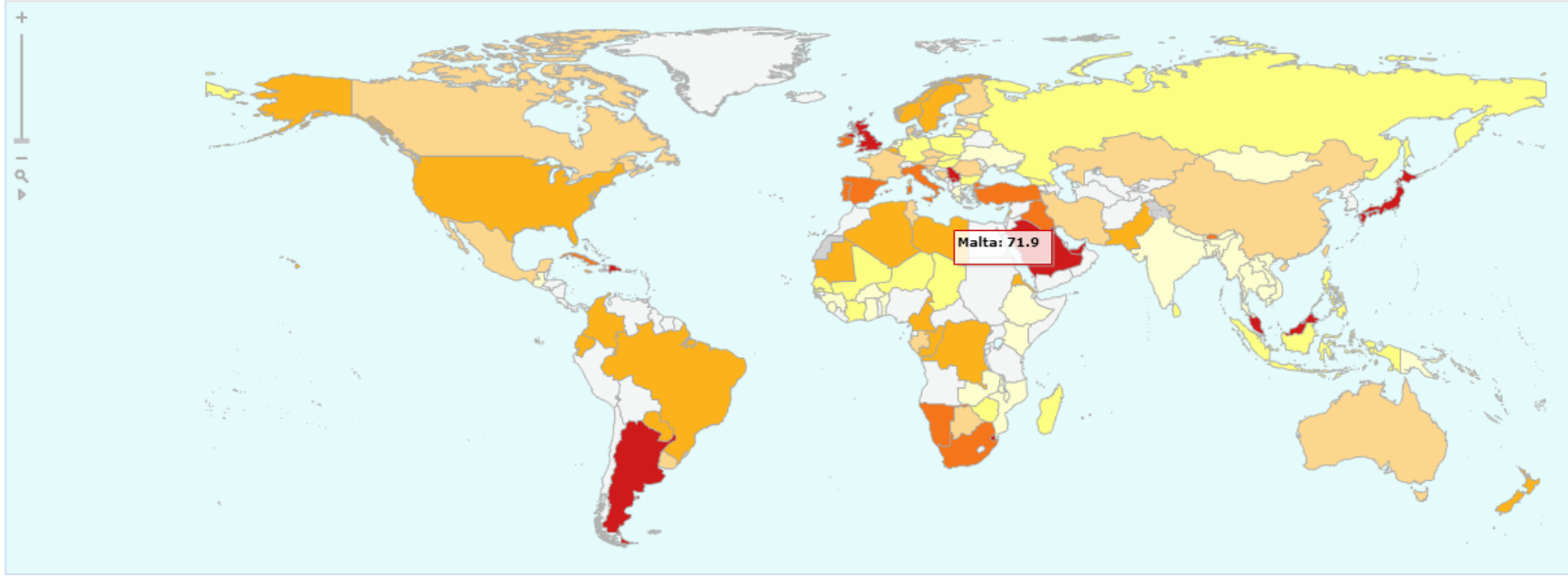
Prevalence of insufficient physical activity*, ages 15+, age standardized: Both sexes

View more indicators | Filter by WHO region | View static maps

Table

Country	Data
Indonesia	29.8
Iran (Islamic Republic of)	37
Iraq	58.4
Ireland	53.2
Israel	No data
Italy	54.7
Jamaica	47.8
Japan	60.2
Jordan	No data
Kazakhstan	31.5
Kenya	16.5
Kiribati	46.7
Kuwait	64.5
Kyrgyzstan	No data
Lao People's Democratic Republic	18.8
Latvia	32
Lebanon	46.8
Lesotho	No data
Liberia	No data
Libyan Arab Jamahiriya	45.8
Lithuania	22.6
Luxembourg	47.7
Madagascar	23.3
Malawi	10.2
Malaysia	61.4
Maldives	39
Mali	20.9
Malta	71.9

Map



* Less than 5 times 30 minutes of moderate activity per week, or less than 3 times 20 minutes of vigorous activity per week, or equivalent

Bar Chart

Prevalence (%)

- <20.0
- 20.0–29.9
- 30.0–39.9
- 40.0–49.9

- Both sexes – 71.9%; Females – 70.7%; Males – 73.1%

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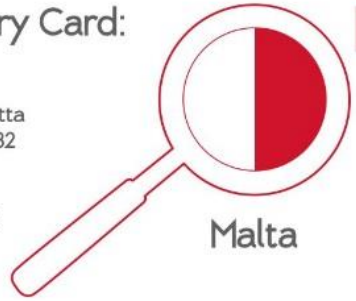
WHO, 2008

Physical Activity Country Card: Malta

Capital	Valletta
Inhabitants (2013)	423,282
Life expectancy (2012)	81
GINI inequality index (2012)	0.27
Human Development Index (2013)	0.829
Literacy rate (2005)	92%
Deaths by non-communicable diseases	79%



Deaths related to physical inactivity

» 19.2% of all deaths in Malta are due to inactivity.

Surveillance and policy status

Physical activity plan

☑ Yes ☐ No

» Name:
A strategy for the prevention of non-communicable diseases in Malta. Valletta, Department of Health, 2010

National survey

☑ Yes
- ☑ First survey: 2002
- ☑ Most recent survey: 2014
- ☐ Next survey

☐ No

Prevalence of Physical Activity | Age 18+ years

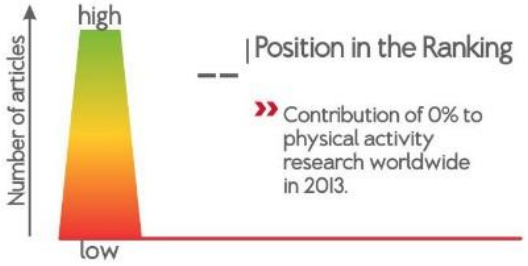
♂+♀ ---- 57%

♀ ---- 53%

♂ ---- 61%

Research metrics (PubMed search in 2013)

- Articles related to Physical Activity and Public Health =0
- Number of active researchers =0
- Average connections (shared papers) among authors =0
- Articles per million people =0
- Researchers per million people =0
- Identified publishing groups =0



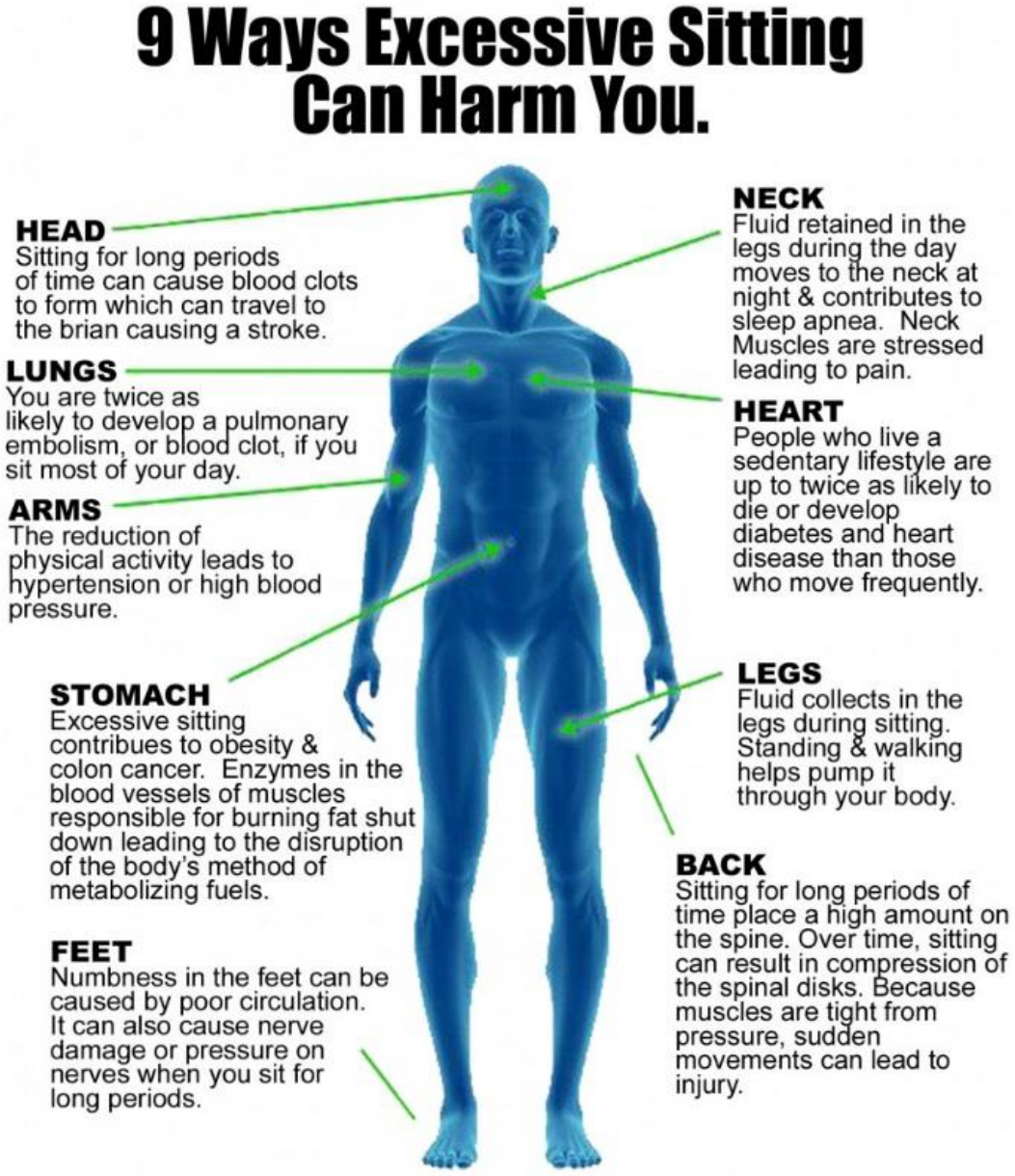
» Contribution of 0% to physical activity research worldwide in 2013.

For description of the indicators and data sources: www.lancetphysicalactivityobservatory.com/appendix

THE LANCET

ISPAH

Lancet physical activity Observatory



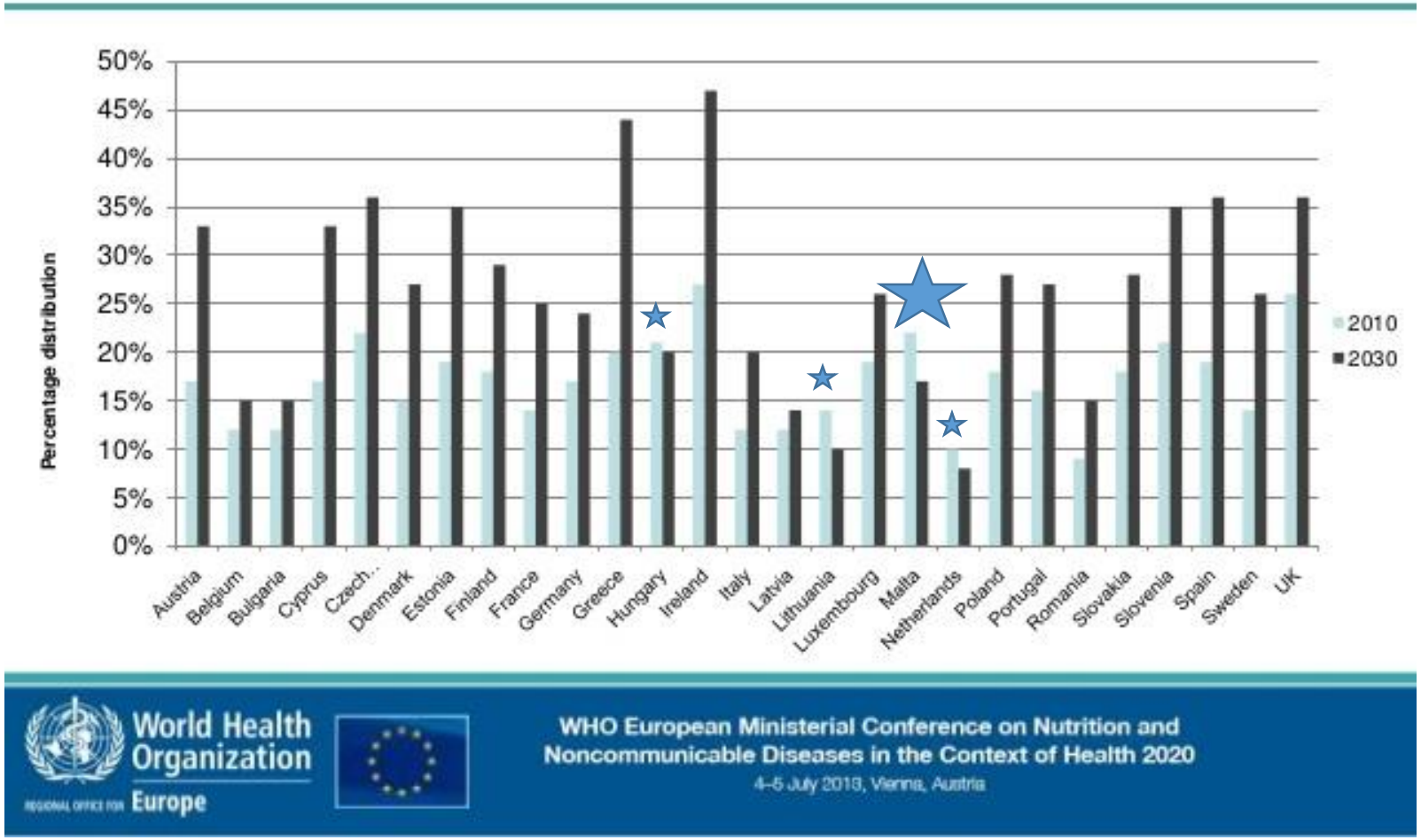
We do not know enough about the sedentary levels of Maltese children

'There is a greater risk of obesity in groups with high amounts of sedentary behaviour'.

Biddle et al., 2010

Projected obesity for 2030

WHO Modelling obesity Project 2013 together with UK Health Forum – NOPA II



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WHO, 2013

International Journal of Obesity (2014), 1–5

www.nature.com/ijo

EXPERT REPORT

Energy balance measurement: when something is not better than nothing

NV Dhurandhar[1], D Schoeller[2], AW Brown[3], SB Heymsfield[4], D Thomas[5], TIA Sørensen[6], JR Speakman[7], M Jeansonne[8], DB Allison[8] and the Energy Balance Measurement Working Group[9]

Energy intake (EI) and physical activity energy expenditure (PAEE) are key modifiable determinants of energy balance, traditionally assessed by self-report despite its repeated demonstration of considerable inaccuracies. We argue here that it is time to move from the common view that self-reports of EI and PAEE are imperfect, but nevertheless deserving of use, to a view commensurate with the evidence that self-reports of EI and PAEE are so poor that they are wholly unacceptable for scientific research on EI and PAEE. While new strategies for objectively determining energy balance are in their infancy, it is unacceptable to use decidedly inaccurate instruments, which may misguide health-care policies, future research and clinical judgment. The scientific and medical communities should discontinue reliance on self-reported EI and PAEE. Researchers and sponsors should develop objective measures of energy balance.

International Journal of Obesity advance online publication, 23 December 2014; doi:10.1038/ijo.2014.199

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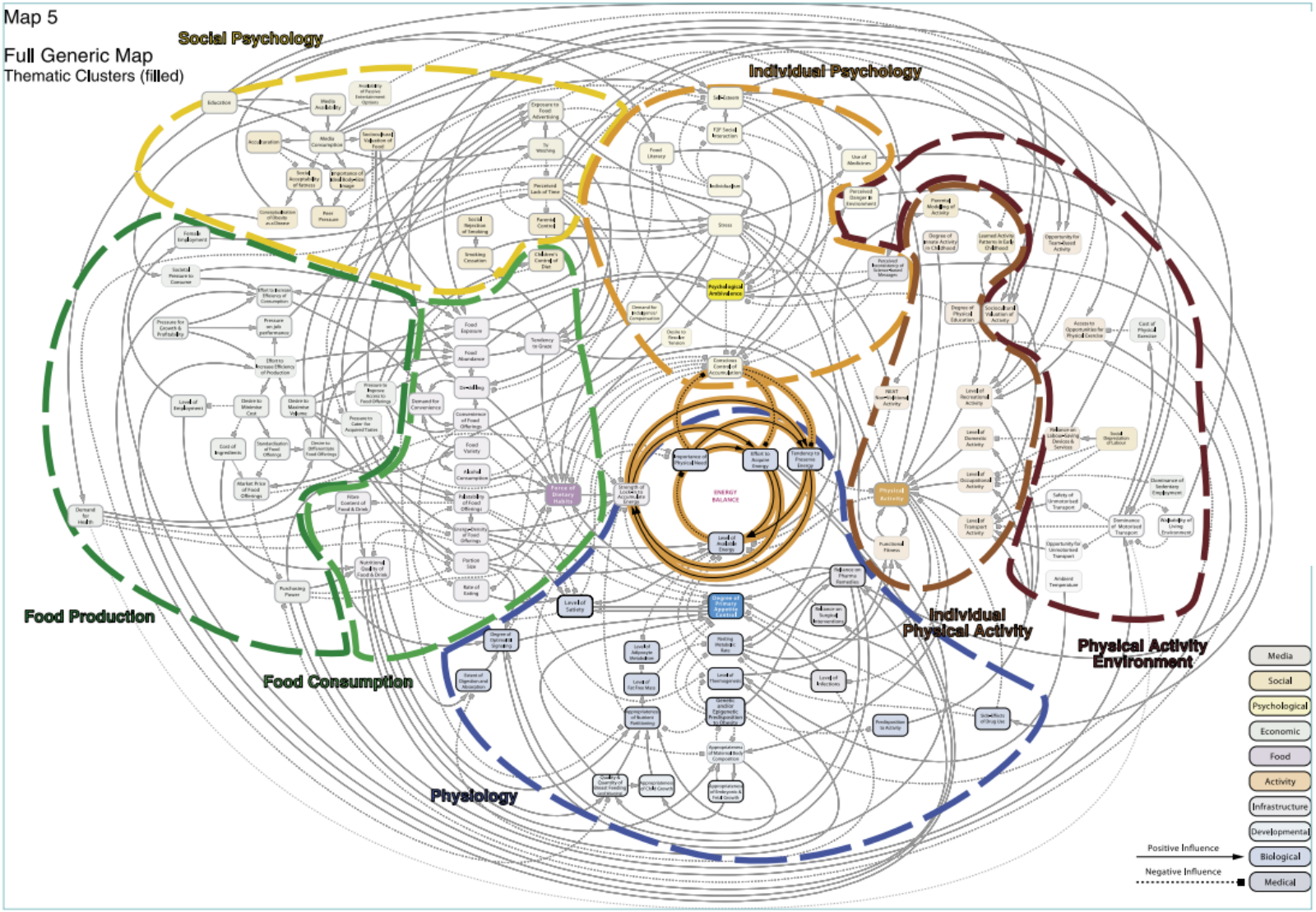
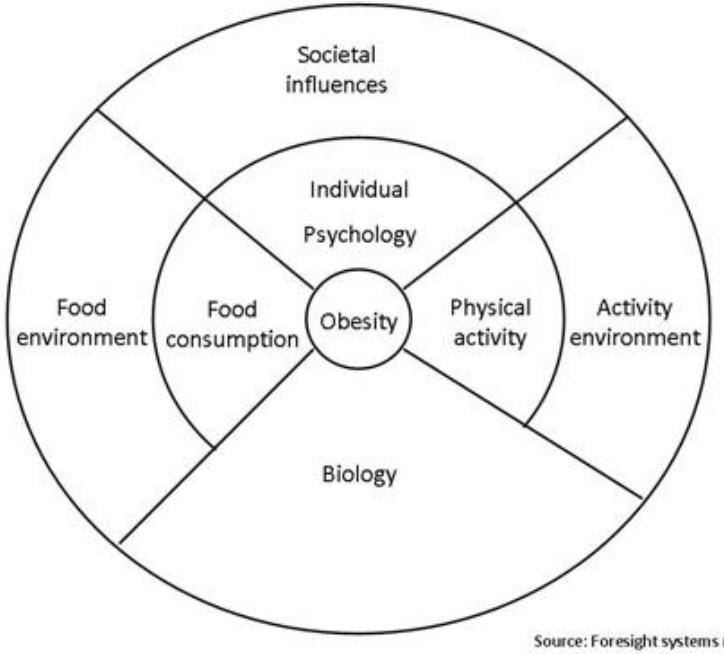
Dhurandhar et al, & Energy Balance Measurement Working Group, IJO, 2014





Source: Foresight systems map, 2007

Public Health England

Partnership: the key to success

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Govt Office for Science, Foresight Report, 2007

Questions

- How much time do Maltese children spend active and sedentary?
- Are there any gender differences?
- Is there any association between PA and obesity in Maltese children?
- What can we do to increase PA, decrease sedentary time and reduce obesity?

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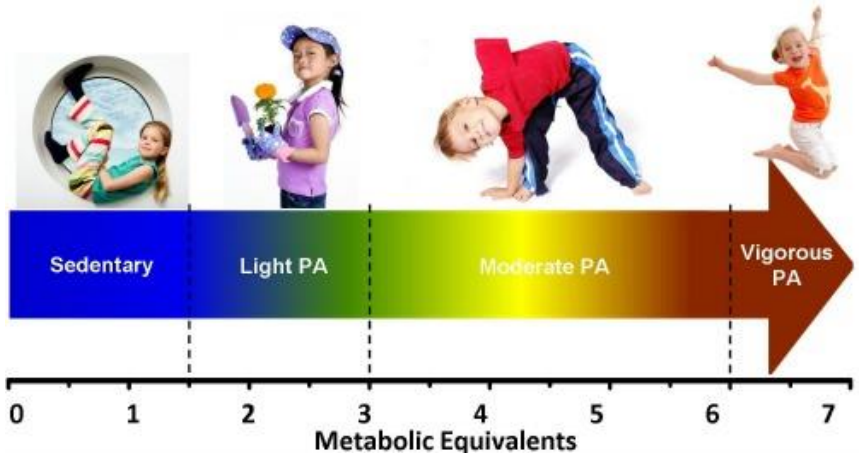
Methods

- Sample (Stratified) – 1200 - 80% response– valid data – 874
- Age - 10-11 years
- Height and weight- BMI
- Physical Activity
  - Acceloremetry

- Questionnaire about:
  - Lifestyle
  - Socioeconomic status - parents
  - (School support towards a healthy lifestyle)



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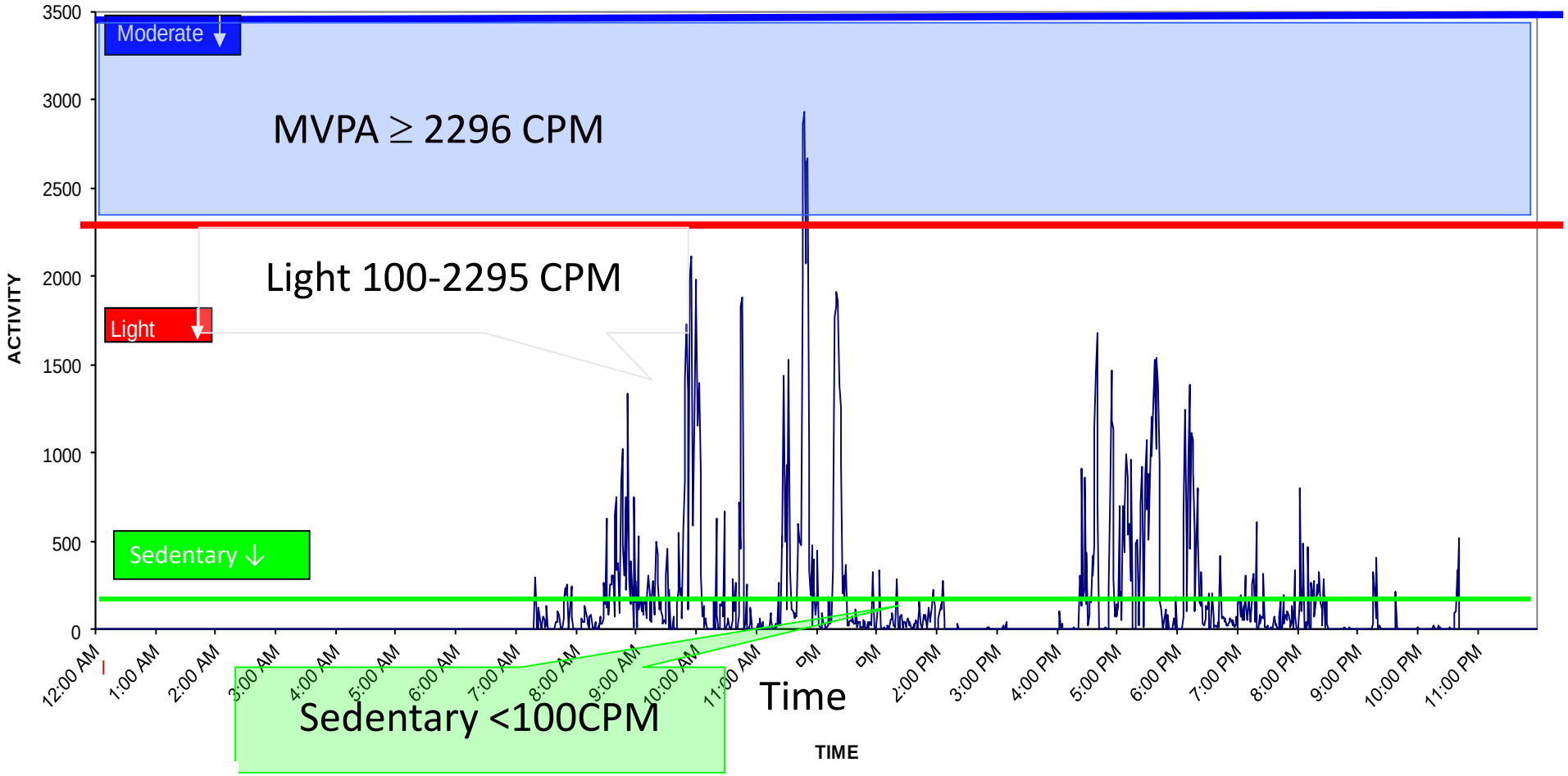
Sample accelerometer output



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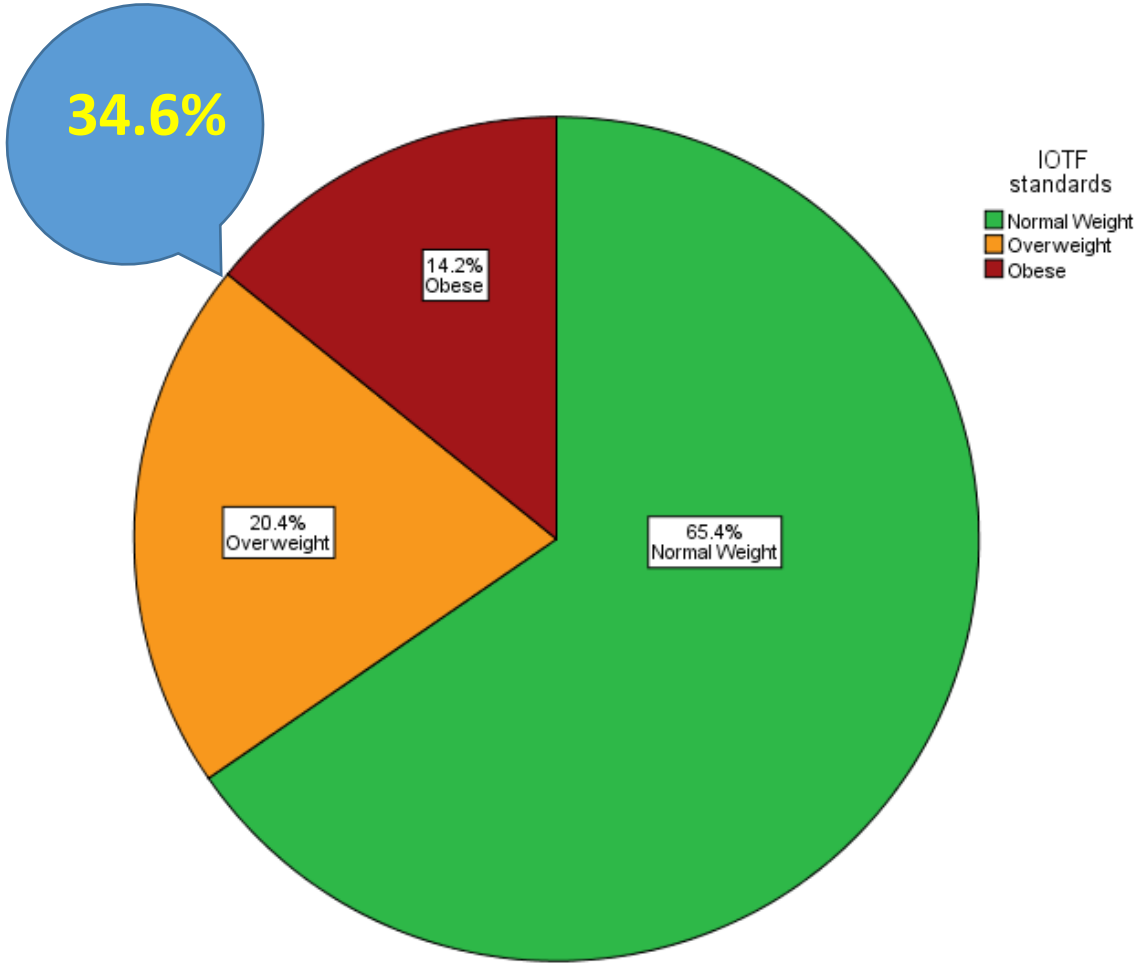
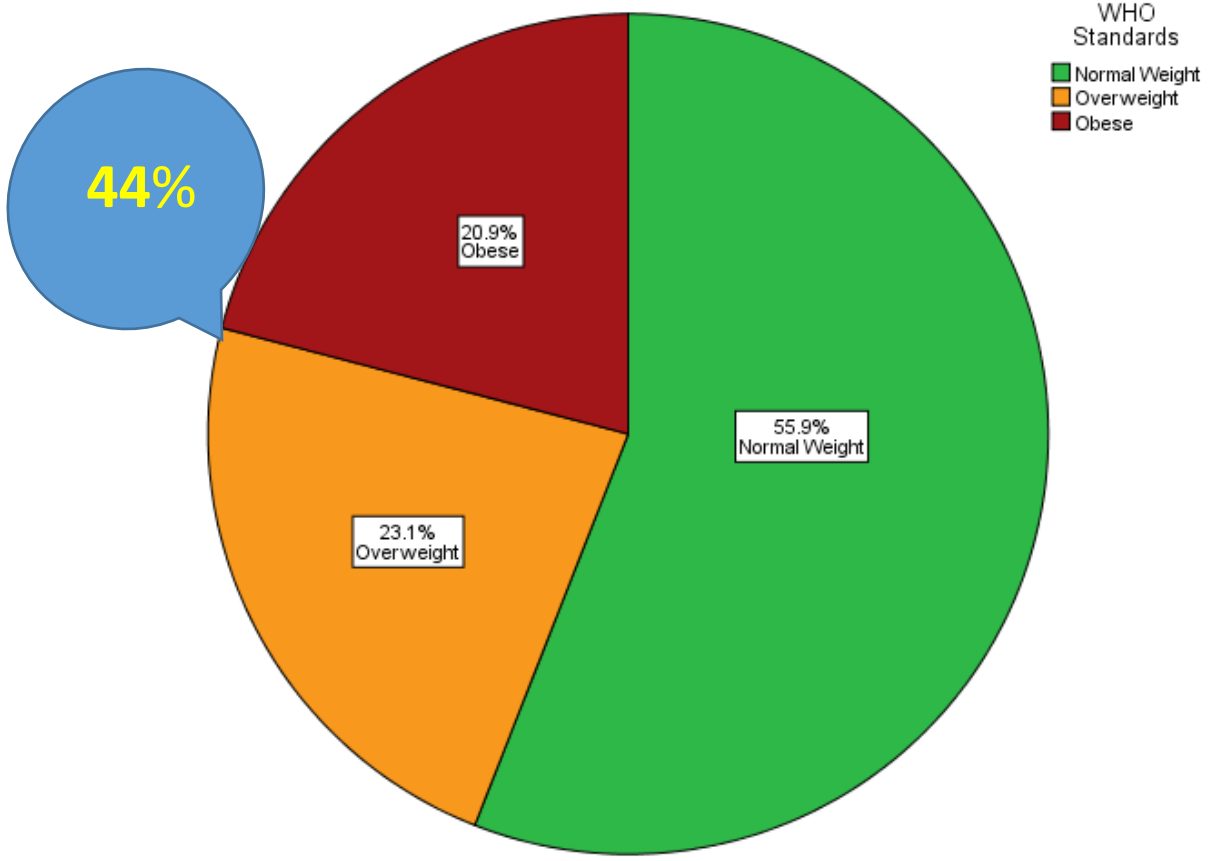
Evenson, 2008

Overweight and obesity in Maltese children





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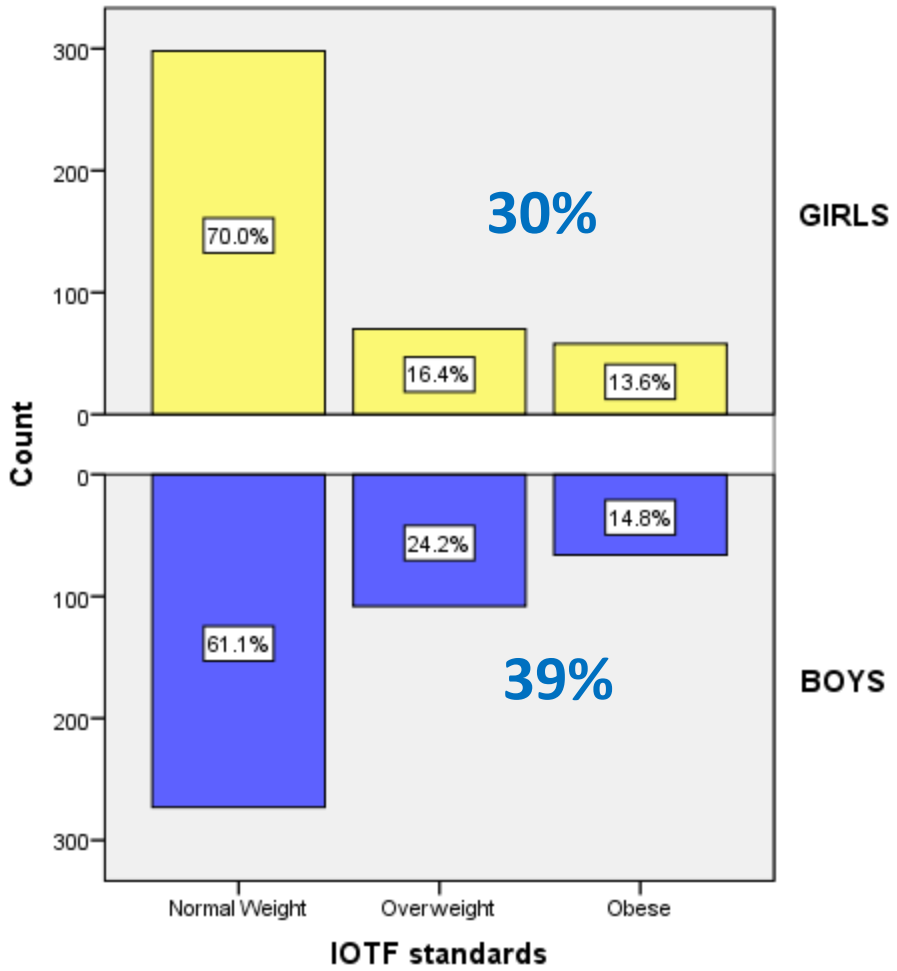
Decelis et al. Pediatric Obesity, 2013
Cole et al., BMJ, 2000
De Onis et al., WHO, 2007

Obesity by gender



- More boys are overweight and obese
- No SES differences
- Difference between regions was only observed in girls
  - *South eastern* and *Southern harbour* – higher rates
  - *Gozo* u *Northern* – lower rates

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Decelis et al.
Pediatric Obesity, 2013

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60 min+ MVPA

MVPA-50 min
58.5 min. boys
42.2 min. girls
All periods
p=<0.001

24.7%
39% boys
10% girls

Other studies have shown children are more active during the week
Brooke et al., 2014

Weekdays
51.3 min
Weekend
48.8 min

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Decelis et al., BMC Public Health, 2014
Brooke et al., Sports Medicine, 2014

Socioeconomic status (SES)

Low SES Boys

- more active in total volume **(CPM) than medium SES boys**.
- less active in MVPA **than medium SES boys**
- Attended least sport clubs

No SES differences in girls

NO SES differences in sedentary time but
LOW SES boy spent more time in front of a screen

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Decelis et al., BMC Public Health, 2014

Sedentary time – 572 min
boys 9.3h – girls 9.7h

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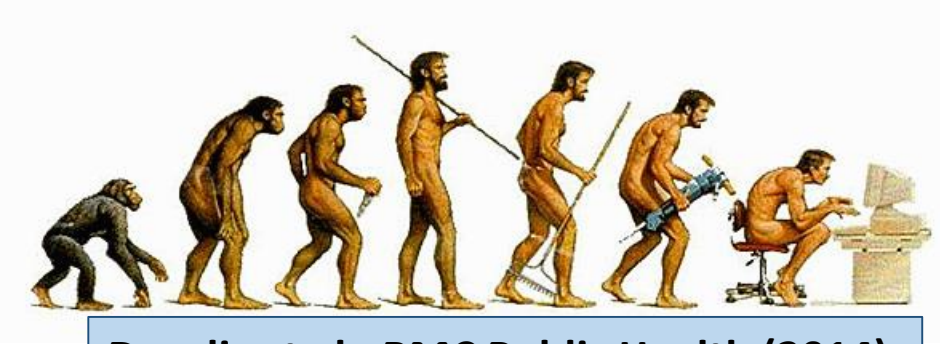
Weekdays
Boys – 569 min
Girls – 601 min (P<0.001)

Weekends
Boys – 550 min
Girls – 557 min

- **Less sedentary on weekends**
- **Girls are more sedentary**



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Decelis et al., BMC Public Health (2014)

Mal-ta STUDY 2012
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Screen

		boys	girls	P value
Digital games > 1 hour				
	weekdays	44.8%	28.1%	**<0.001**
	weekends	51.6%	35.0%	**<0.001**
TV > 2 hours	weekdays	15.9%	10.1%	**0.011**
	weekends	29.3%	20.6%	**0.003**
Computer > 1 hour	weekdays	29.1%	28.1%	0.733
	weekends	29.5%	29.0%	0.873

Double on weekends

Higher *screen time* on *weekends*

Boys spend more time in front of a screen

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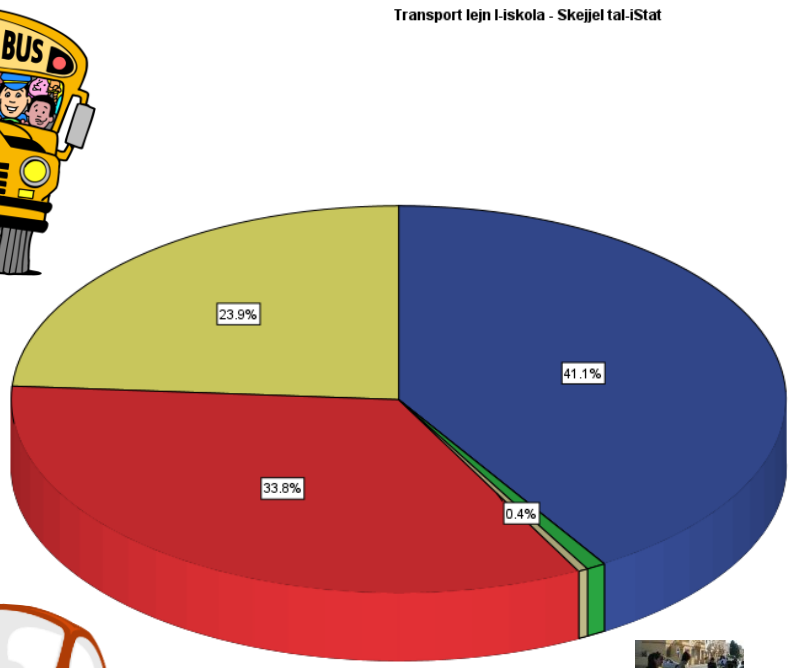
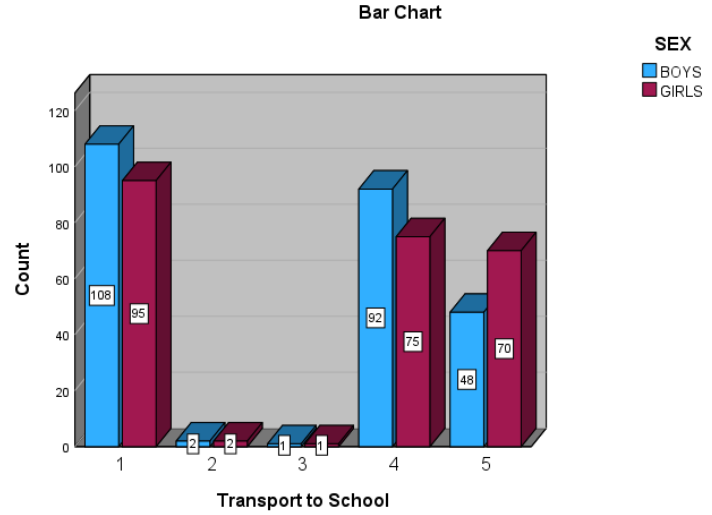
Decelis et al., BMC Public Health (2014)

Transport to school (located in the place where they live)
State schools N=494 (251 Boys; 243 Girls)





No significant gender differences

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Decelis, unpublished data, 2014

Trasport to school – State schools

Distance <1 km 1.1-2km

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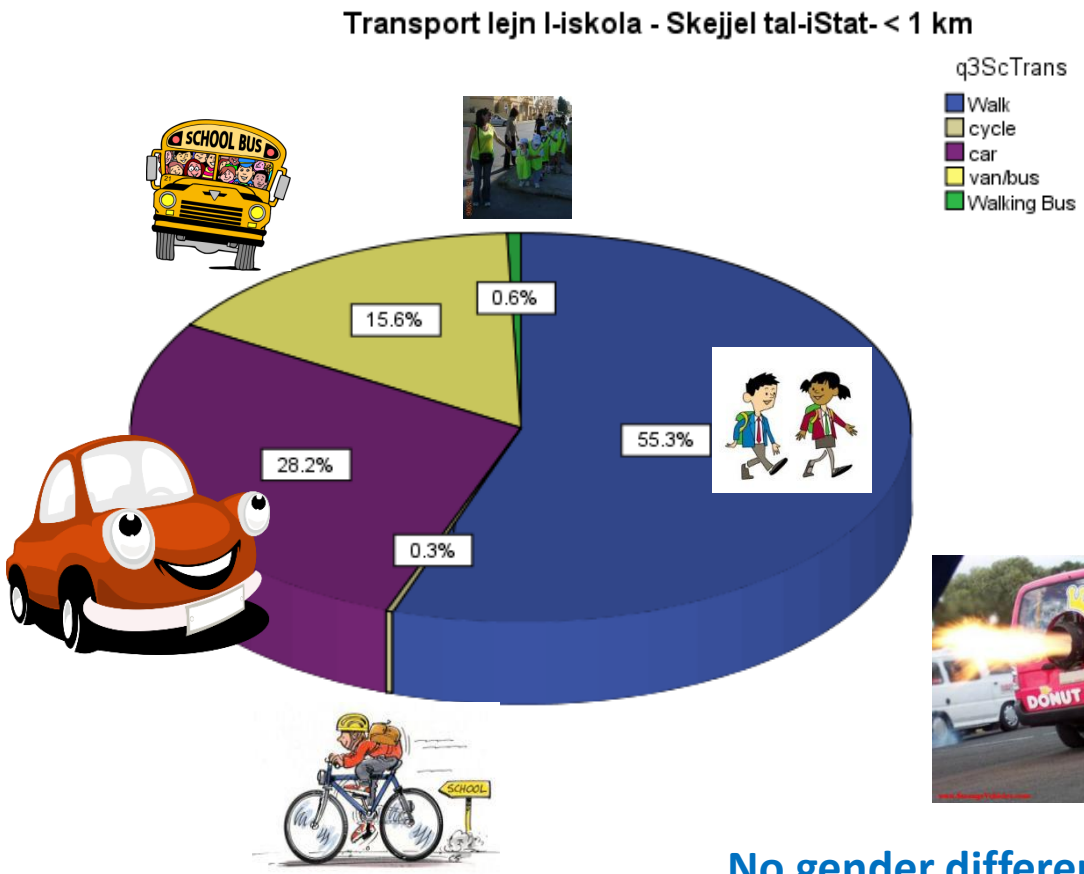

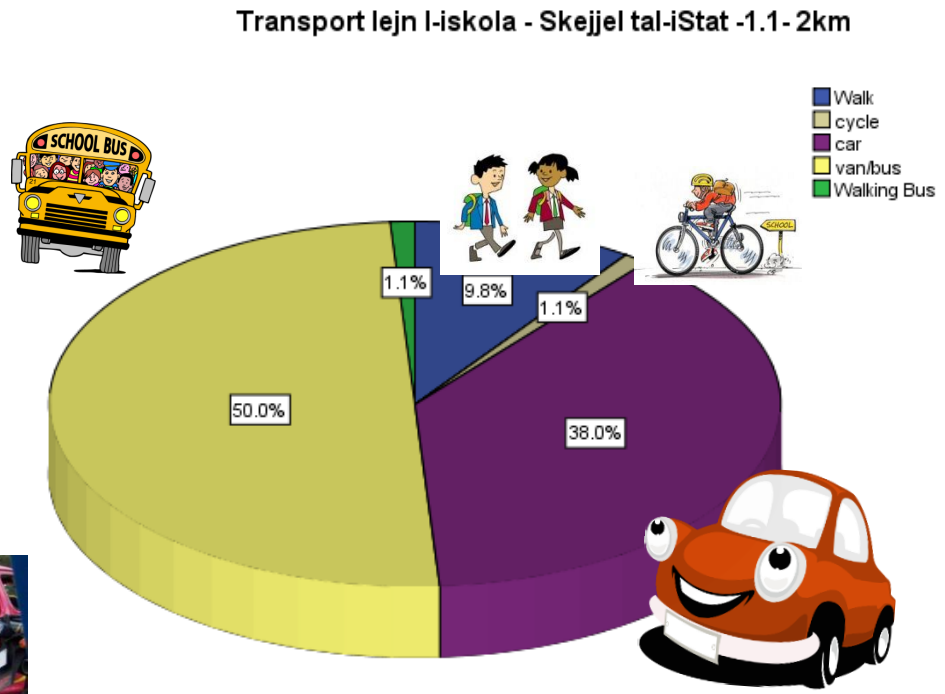

No gender differences

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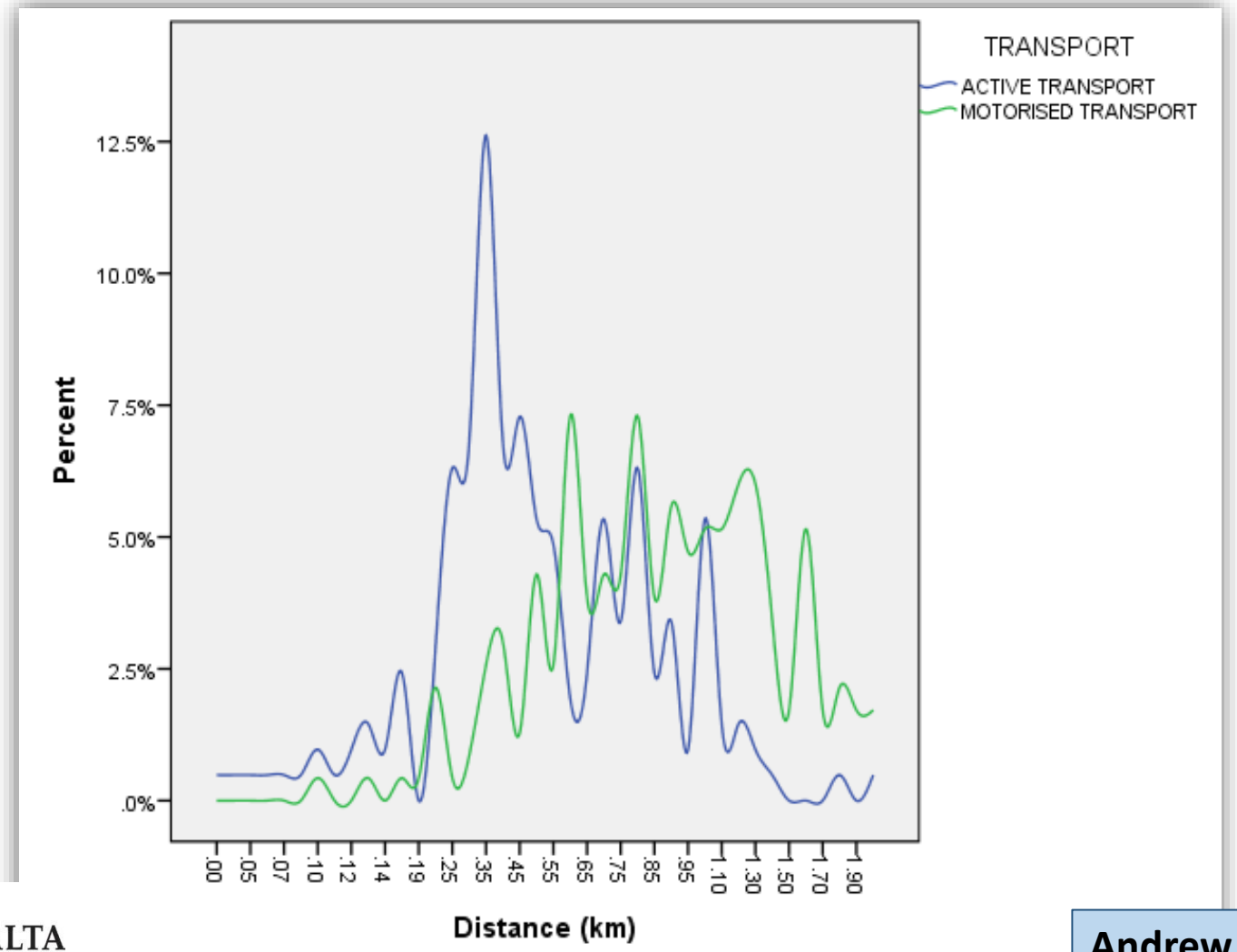
Decelis, unpublished data, 2014

School transport- state schools



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Frist break – active (self-report)

Boys – 81.8% Girls – 73.9% (P=0.005)

Girls were more active – in church schools only

'girls prefer to chat' – Ridgers, 2011

Sport Clubs outside schools– attended

Boys – 69.5% Girls – 62.0% (P=0.020)

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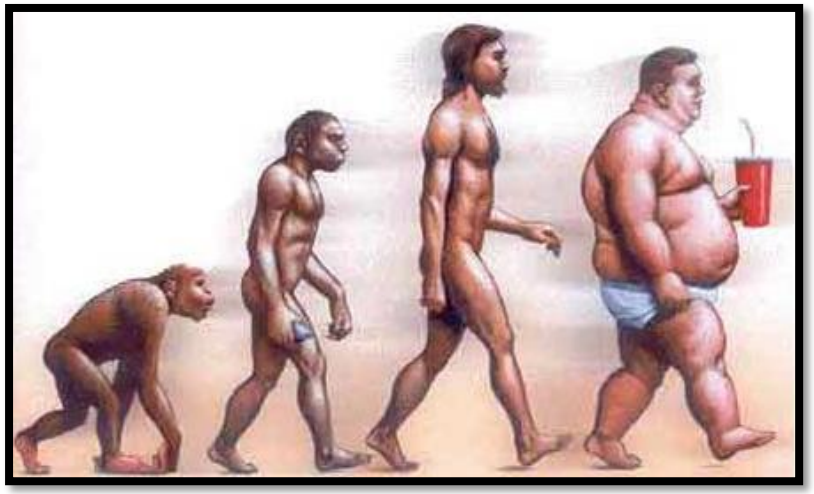
Decelis, unpublished data, 2015
Ridgers et al., Health Educ. Res., 2011

Movement, Activity & Lifestyle
Tweens in Action

So far…



- Boys are more obese
- Boys are more active
- Boys are less sedentary

- Boys spend more time in front of a *screen*

No association between PA and weight status in some studies, a negative association in others. (review - Prentice-Dunn, 2011)

- ***So is there any association between PA, SB, and obesity?***

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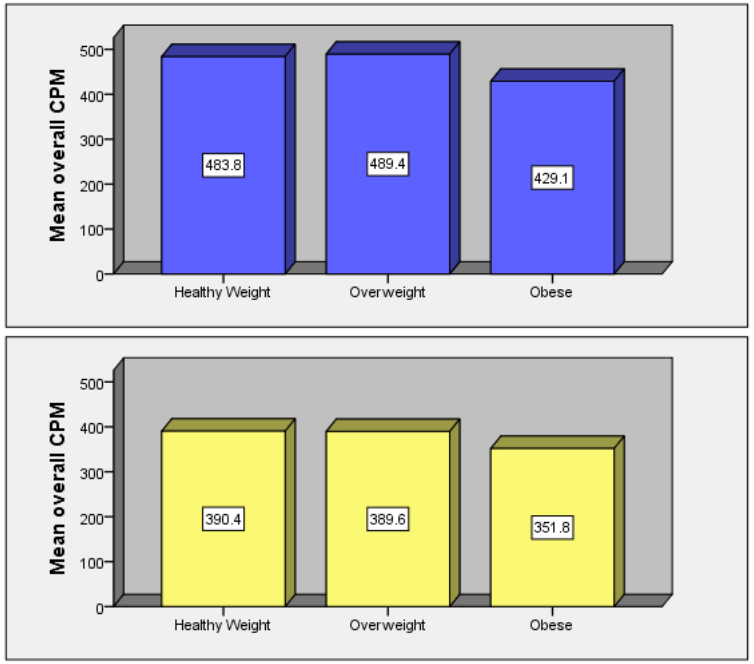
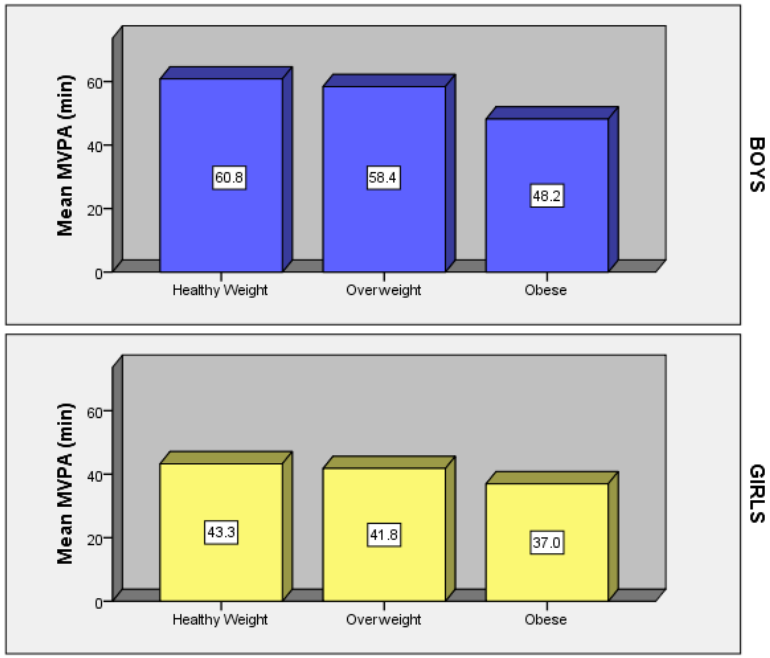
PA by weight category

Mal-ta STUDY 2012
Movement, Activity & Lifestyle
Tweens in Action

CPM



MVPA



Weekdays obese
11 min. less than normal wt
Weekends – 14 min less

Weekdays obese 6 min less than normal wt.
Weekends – 8 min less

Boys – **P=0.017** normal weight/overweight v obese
Girls – **P=0.040** normal weight v obese

Boys – **P=<0.001** normal weight/overweight v obese
Girls – **P=0.014** normal weight v obese

Main differences (boys and girls) – Weekdays 2.00-7.00pm

Normal weight children are more active

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Decelis et al., BMC Public Health, 2014

Break – Activity by BMI (self-report)

- **Differences were only evident in girls**
- ***Break 1- overweight girls* 49% less active than normal weight girls**
- ***Break 2- obese* girls 68% less active than normal weight girls**

Sport - Activity by BMI (self-report)

NO DIFFERENCES BETWEEN CHILDREN OF DIFFERENT WEIGHT

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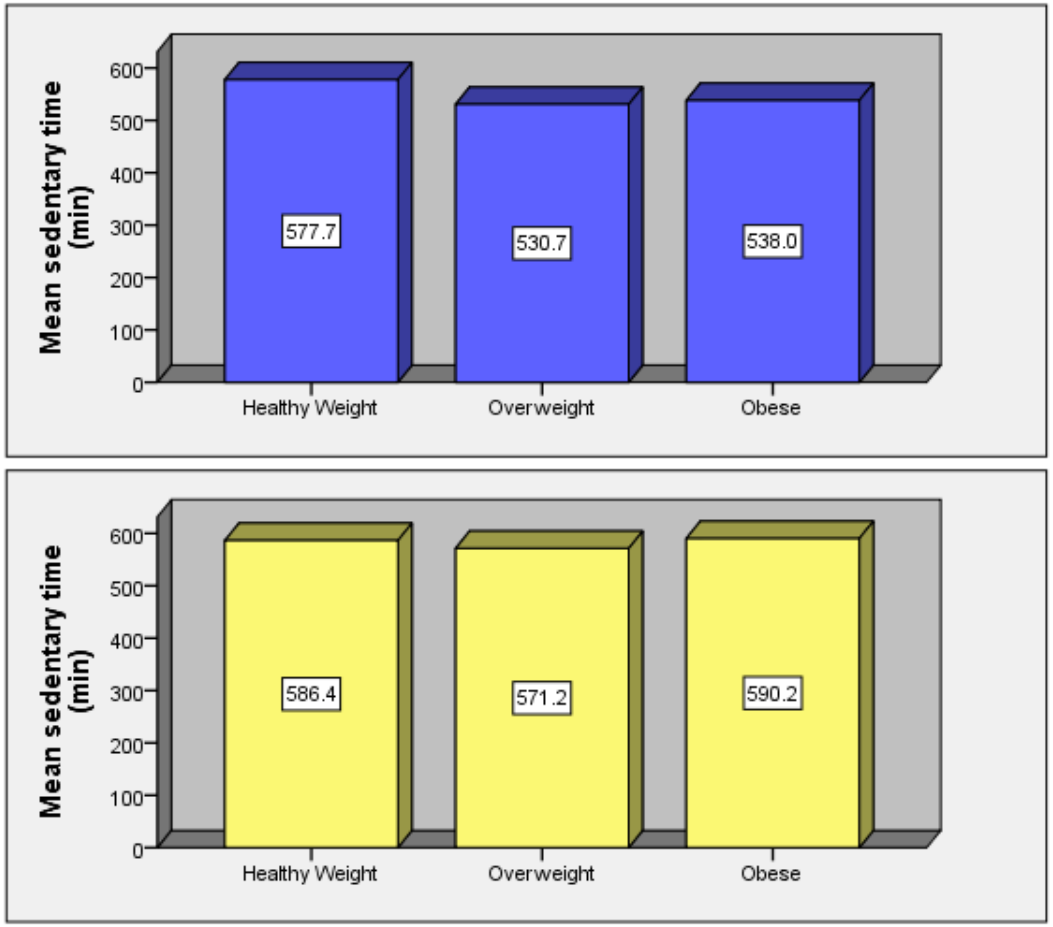
Decelis, Unpublished data (2015)

Movement, Activity & Lifestyle
Tweens in Action

Sedentary time by BMI



P=0.001 healthy weight v overweight

5.30-8.29am weekdays (8min diff)
8.30-1.59pm weekdays (10min) &
weekends (18min)
2.00-6.59pm weekdays (8min)

GIRLS - NO association

Other studies found a positive relationship, (Prentice-Dunn, 2011)

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Decelis et al., BMC Public Health, 2014
Prentice-Dunn[2]
Psychol Health Med, 2011

Screen time by BMI

TV Weekends	Normal weight	Over-weight	Obese	Total	P value (chi-square)
≥2 hours -%	24.7	30.8	**45.5**	29.3	**0.004**

Computer use Weekdays	Normal weight	Over-weight	Obese	Total	P value (chi-square)
≥1 hour -%	25.6	28.0	**45.5**	29.1	**0.006**

I'm on it 24/7 at the moment… - Jago et al., 2011

*'children in this study often had access to at least **five** different devices at any one time, and many of these devices were portable' .*

Different results from *accelerometers* show that *screen time* does not give a true picture of SB

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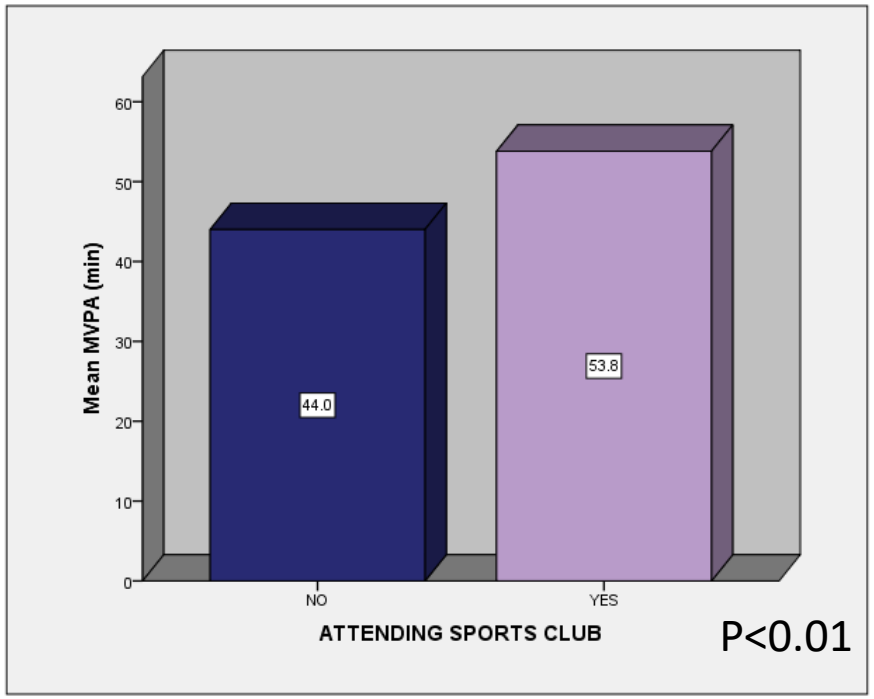
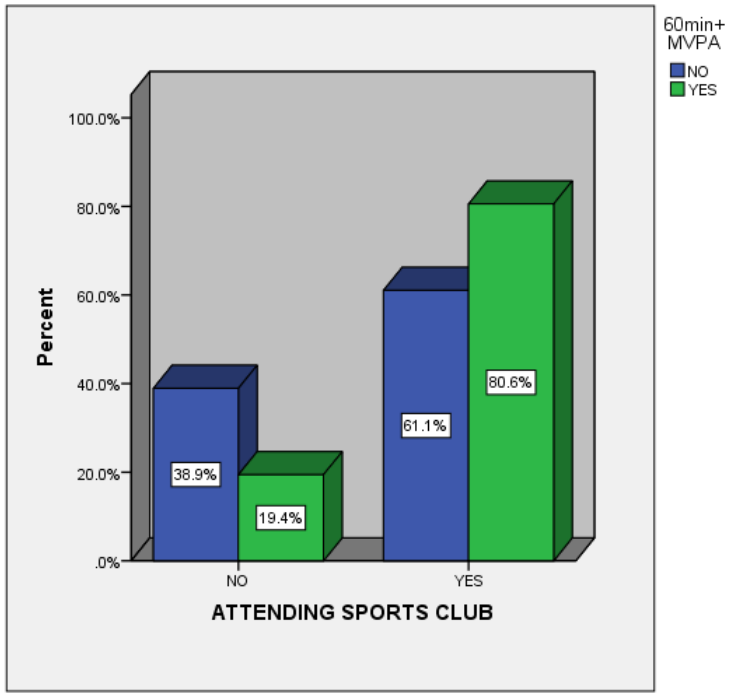
Decelis et al., BMC Public Health, 2014
Jago et al., IJBNPA, 2011

Is sport enough?





- **Conclusion – Sport is important, but it's not enough!**
- **Same result as in Australia -** Australia Physical Activity Report Card, *Is Sport Enough*, 2014
- Drenowatz et al., (2013) – attending a sport club 1, 2 a week reduces the chance of gaining excessive weight by 50%.

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Decelis, Unpublished data (2015)
Active Healthy Kids Australia, (2014)
Drenowatz et al., Journal of Obes. (2013)

Recommendations

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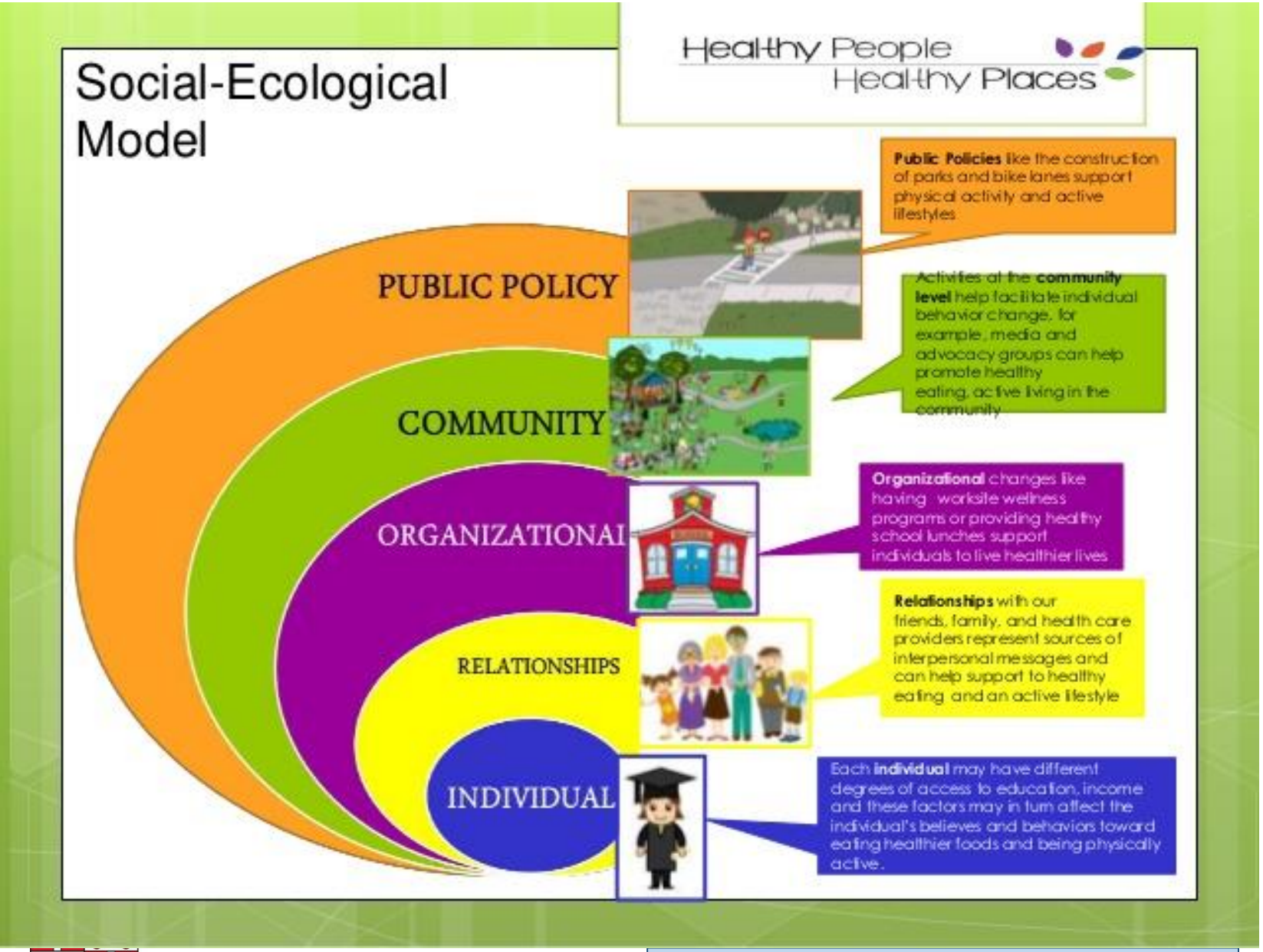

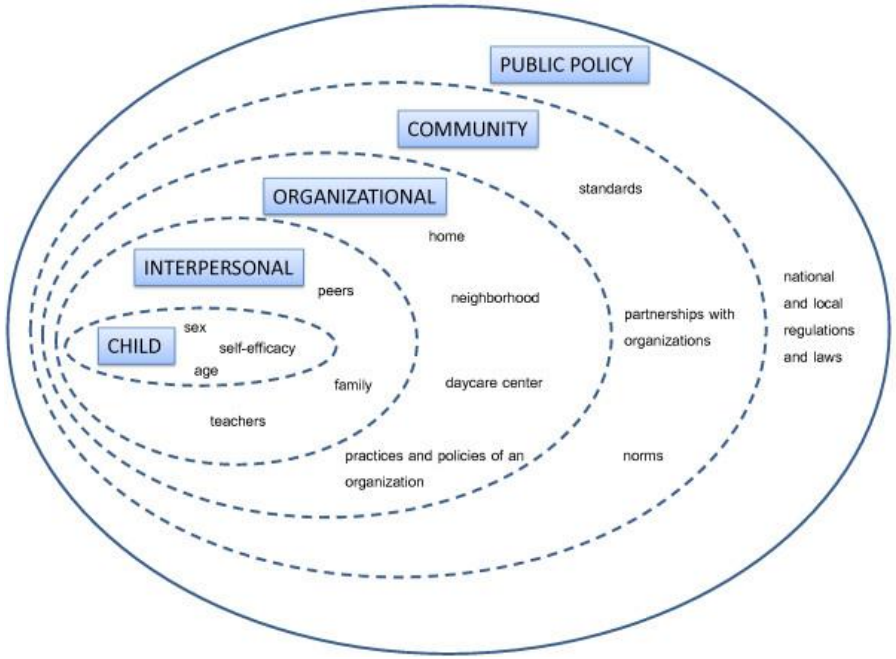

Socio-ecological model. Adapted from McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q* 1988, 15:351–377.

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Facilitate walking to school

Walking buses in state schools

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We need more open spaces in the community

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Research finds that active travel and street play are the key to increasing children's physical activity levels

5 March 2015

Increasing the amount of time young people spend outdoors through active travel and street play is the focus of a University of Bristol national conference aiming to promote low-cost ways to improve children's physical activity levels.

The 'Outdoors and active: delivering public health outcomes by increasing children's outdoor play and active travel' [5 Mar] conference will be attended by representatives from organisations who have responsibility for changing behaviours and activity levels in young people.

More news

Bristol backs new university in Hereford
5 March 2015

University tower tours reach £20,000 fundraising milestone
4 March 2015

How big data can be used to understand major events
4 March 2015

Bristol PhD students take science to Parliament
4 March 2015

v.bristol.ac.uk/news/2015/march/active-travel.html

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Physical Education

From: UNESCOPRESSE
Sent: 29 January 2015 10:14
Subject: Physical education for healthier, happier, longer and more productive living

UNESCO Press Release No.2015-06

Physical education for healthier, happier, longer and more productive living

Paris, 29 January—The time children and adults all over the world spend engaging in physical activity is decreasing with dire consequences on their health, life expectancy, and ability to perform in the classroom, in society and at work.

In a new publication, *Quality Physical Education, Guidelines for Policy Makers*, UNESCO urges governments and educational planners to reverse this trend, described by the World Health Organization (WHO) as a pandemic that contributes to the death of 3.2 million people every year, more than twice as many as die of AIDS.

The Guidelines will be released on the occasion of a meeting of UNESCO's Intergovernmental Committee for Physical Education and Sport (CIGEPS) in Lausanne, Switzerland, (28-30 January).*

UNESCO calls on governments to reverse the decline in physical education (PE) investment that has been observed in recent years in many parts of the world, including some of the wealthiest countries. According to European sources, for example, funding and time allocation for PE in schools has been declining progressively over more than half of the continent, and conditions are not better in North America.

The new publication on PE, produced in partnership with several international and intergovernmental organizations**, advocates quality physical education and training for PE teachers. It highlights the benefits of investing in PE versus the cost of not investing (cf self-explanatory infographics).

"The stakes are high," says UNESCO Director-General Irina Bokova. "Public investment in physical education is far outweighed by high dividends in health savings and educational objectives. Participation in quality physical education has been shown to instil a positive attitude towards physical activity, to decrease the chances of young people engaging in risky behaviour and to impact positively on academic performance, while providing a platform for wider social inclusion."

The Guidelines seek to address seven areas of particular concern identified last year in UNESCO's global review of the state of physical education, namely: 1. Persistent gaps between PE policy and implementation; 2. Continuing deficiencies in curriculum time allocation; 3. Relevance and quality of the PE curriculum; 4. Quality of initial teacher training programmes; 5. Inadequacies in the quality and maintenance of facilities; 6. Continued barriers to equal provision and access for all; 7. Inadequate school-community coordination.

The recommendations to policy-makers and education stake-holders are illustrated by case studies about programmes, often led by community-based nongovernmental organizations. Success stories in Africa, North and Latin America, Asia and Europe illustrate what can be achieved by quality physical education: young people learn how to plan and monitor progress in reaching a goal they set themselves, with a direct impact on their self-confidence, social skills and ability to perform in the classroom.

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- 150 min weekly in Primary
- Specialist PE teachers = 6 min more MVPA (Bassett, 2013)
- Emphasis on *physical literacy*

At least 50% of every PE lesson in MVPA

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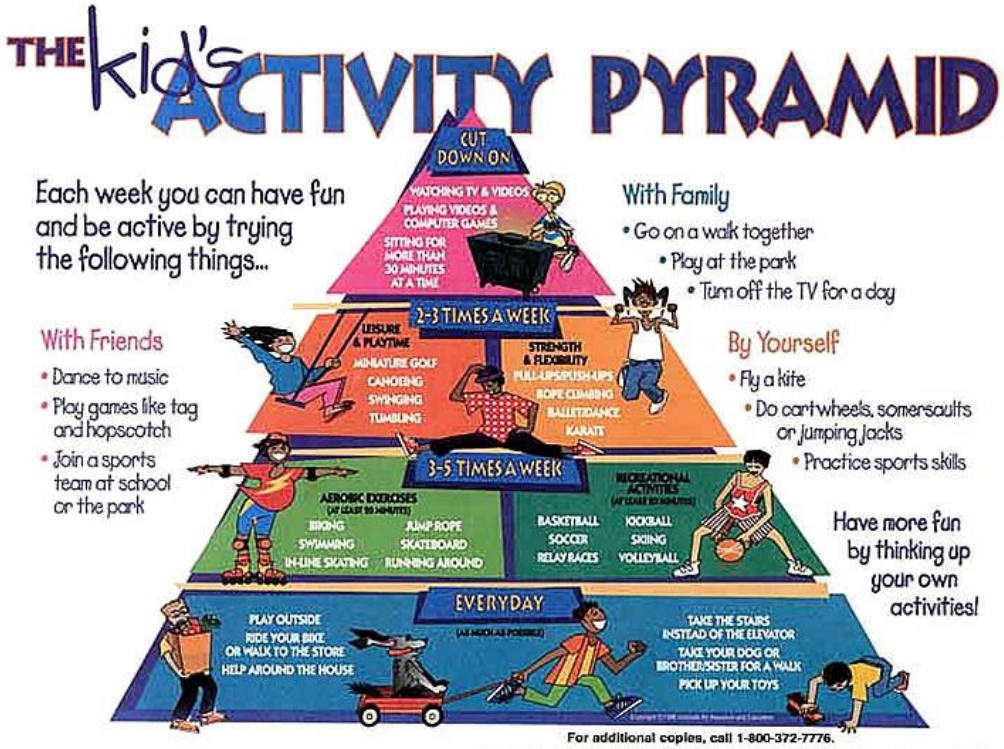
Bassett, 2013



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RESPECT FOR ALL FRAMEWORK

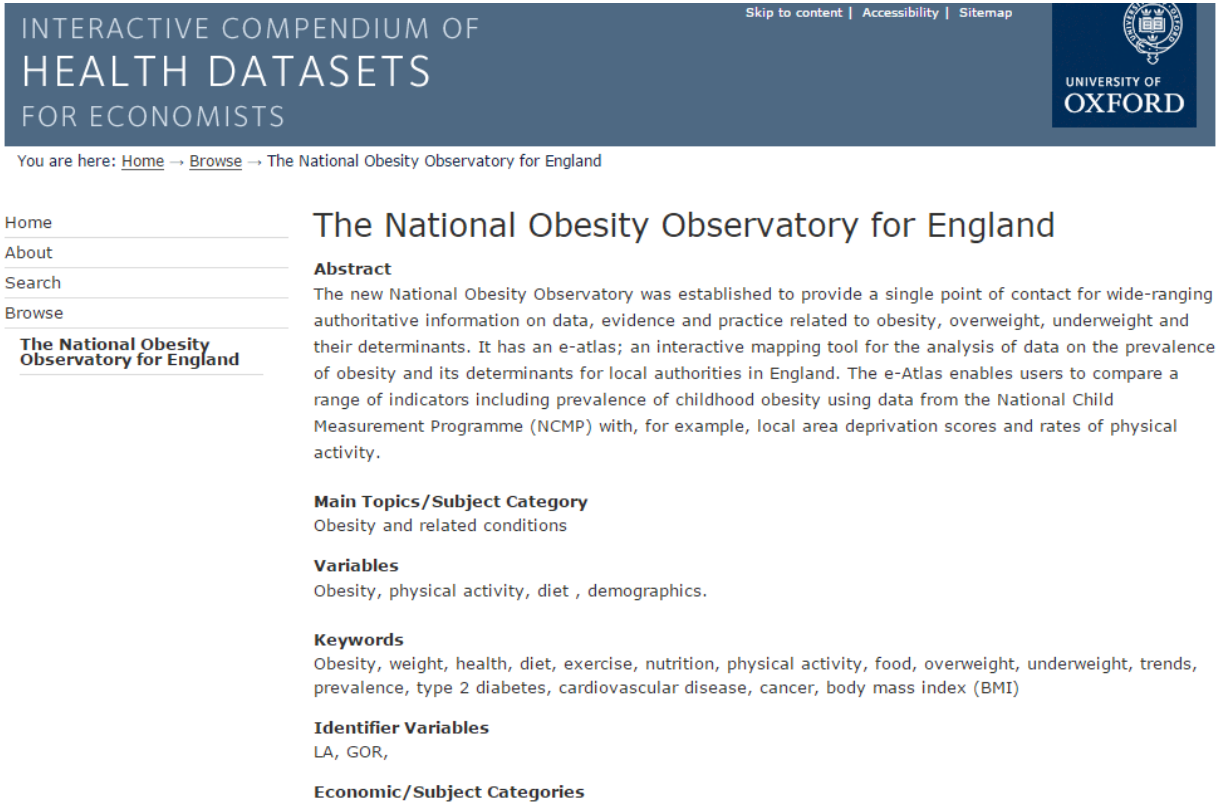
A WHOLE SCHOOL APPROACH TO A HEALTHY LIFESTYLE: HEALTHY EATING AND PHYSICAL ACTIVITY

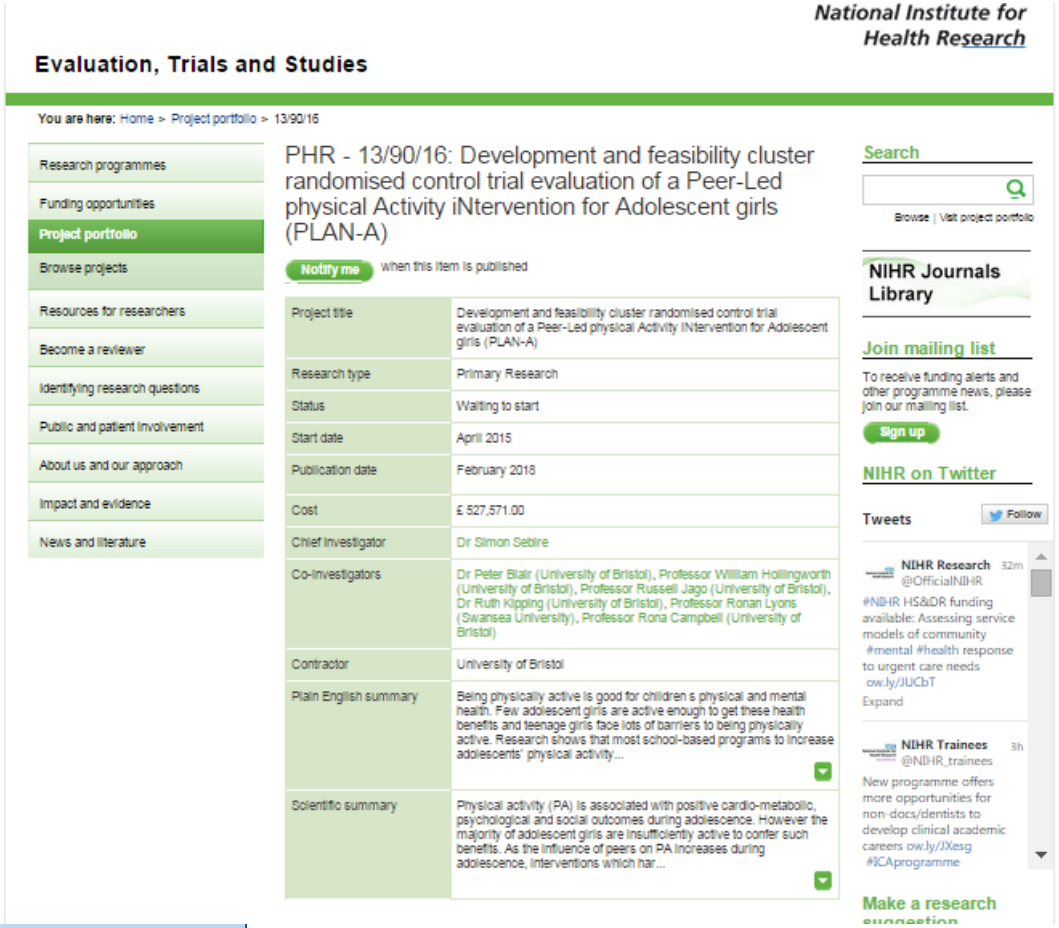
POLICY

FEBRUARY 2015

More research apart from self-report

- **Why?**
  - To have precise information
  - To check progress (+ tracking)
  - To compare with other countries





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“Knowing is not enough; we must apply.
Willing is not enough; we must do.”
—Goethe

THANK YOU

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