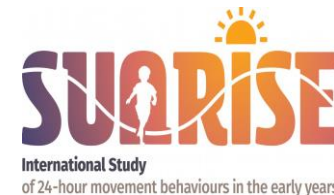


Inequalities in child and adolescent obesity & physical activity in Glasgow

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Overview of presentation

- Why surveillance (monitoring) matters
- Concepts, definitions, terms
- Childhood **low physical activity, high screen time, obesity, low physical fitness**
 - All impair physical and mental health
 - All do so in both the short-term and long-term
 - All impair educational attainment
- **What we know and don't know**
- An example of a good surveillance system- FitBack
- Some ways forward
 - Surveillance tips and resources
 - Policy and practice tips and WHO resources

Some definitions and terms

- Child: up to age 10.0 years (WHO)
- Adolescent: from 10.0 to 19.9 years (WHO)
- Physical activity= movement
- Moderate-vigorous intensity physical activity (MVPA) the most health enhancing
 - 3 times energy expended at rest
- Obesity: excessive body fatness
 - Normally measured using simple proxies for body fatness

Reilly et al WHO Bulletin December 2022: better data for better health

Surveillance
to improve
physical activity
of children
and adolescents

Bulletin
of the
World Health
Organization



Surveillance (monitoring) needed to understand

- The state of the nation
- The state of the city
- Temporal trends
- Inequalities
- Impact/lack of impact of policy
- Impact of COVID-19

Not 'just' passive monitoring

- Makes invisible problems visible
- Prompts action

What to include in surveillance ?- valid measures of

- **Health behaviours**
 - Physical activity; Screen time
- **Outcomes** of those behaviours
 - Obesity; Fitness; Sleep
- **Influences** on the behaviours and outcomes



Socio-ecological model

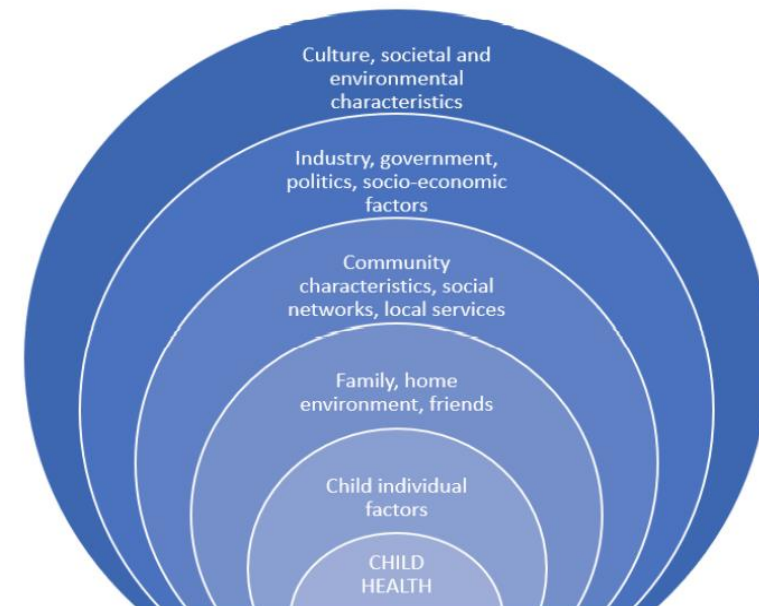






Figure 2-1. Socioecological model of child health, based on the ecological systems theory by Bronfenbrenner [39].

WHO Child and Adolescent Physical Activity Guidelines & Where Physical Activity Comes From in Europe

GUIDELINES						
PHYSICAL ACTIVITY	AT LEAST 30 MIN	AT LEAST 180 MIN	AT LEAST 180 MIN ^{&}	AT LEAST 60 MIN [#]		
SEDENTARY BEHAVIOUR	0 MIN	0 MIN	60 MIN	NO MORE 60 MIN	LIMITED TIME	
SLEEP	12-17 HOURS [*]	11-14 HOURS	10-13 HOURS			
AGE (YEARS)	< 1	1	2	3	4	5 - 17

* 0-3 months: 14-17 hours; and 4-11 months: 12-16 hours.

[&] 60 out of 180 of moderate to vigorous intensity.

[#] Recommended 60 minutes of physical activity of moderate to vigorous intensity.

• PHYSICAL ACTIVITY, MADE UP OF

- Active Commuting (**limited**-Martin et al 2016)
- Physical Education (**limited**-Hollis et al 2016)
- School 'Recess' (**limited**-Reilly et al 2016)
- After-School/Home/Play /Incidental (**limited** but lack of evidence)
- Sport (**limited** for the general population)

• SPORT IS NOT THE SAME AS PHYSICAL ACTIVITY

• PE IS NOT THE SAME AS PHYSICAL ACTIVITY

When does it all go wrong for child and adolescent **physical activity** ?

- Evidence e.g. from systematic reviews
 - Decline starts from age of school entry, both sexes
(Farooq et al 2018 and 2020)
- Myths
 - Adolescent decline in physical activity= myth
 - Decline is especially marked in girls= myth

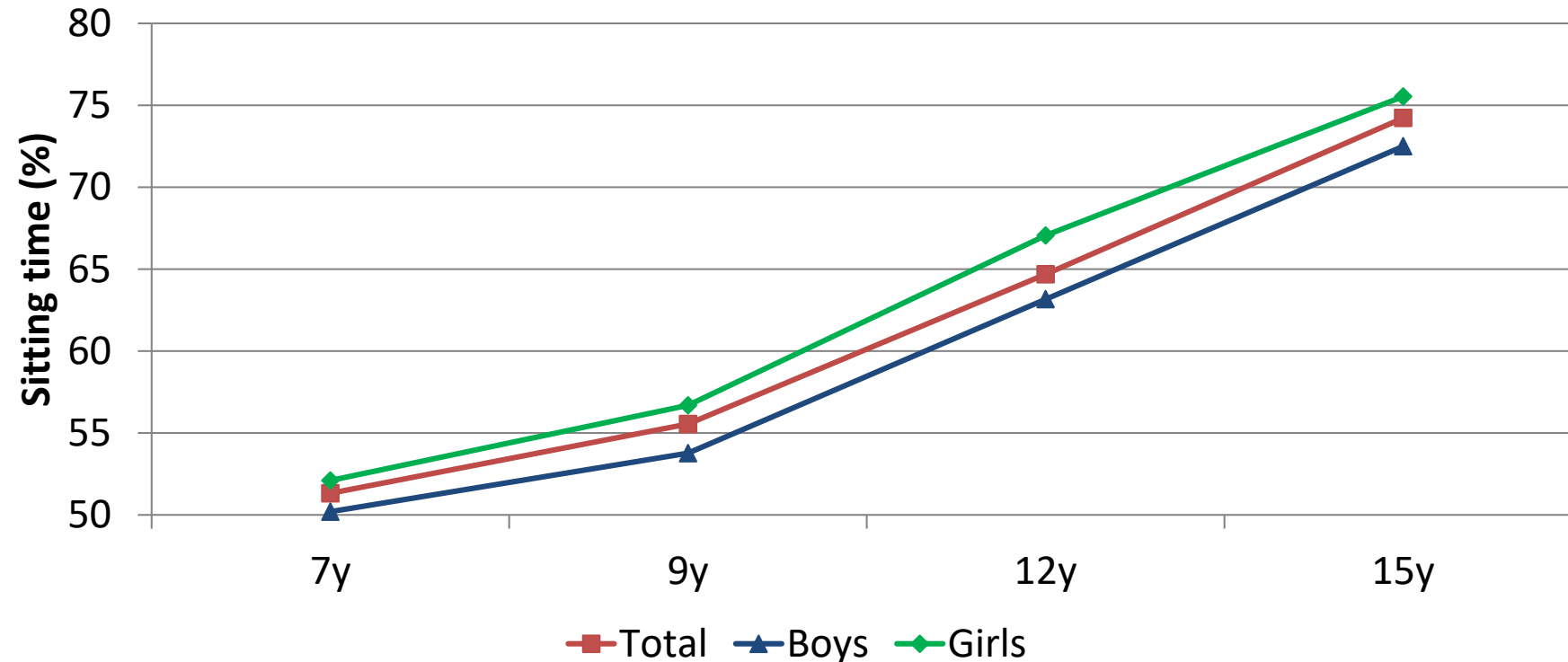
Adolescent decline in physical activity is a myth



Myth busted by objective measurement
And
Systematic review/evidence appraisal

Increases in objectively measured sitting with age in both boys and girls

(Janssen et al IJBNPA 2016; Tanaka et al 2014)

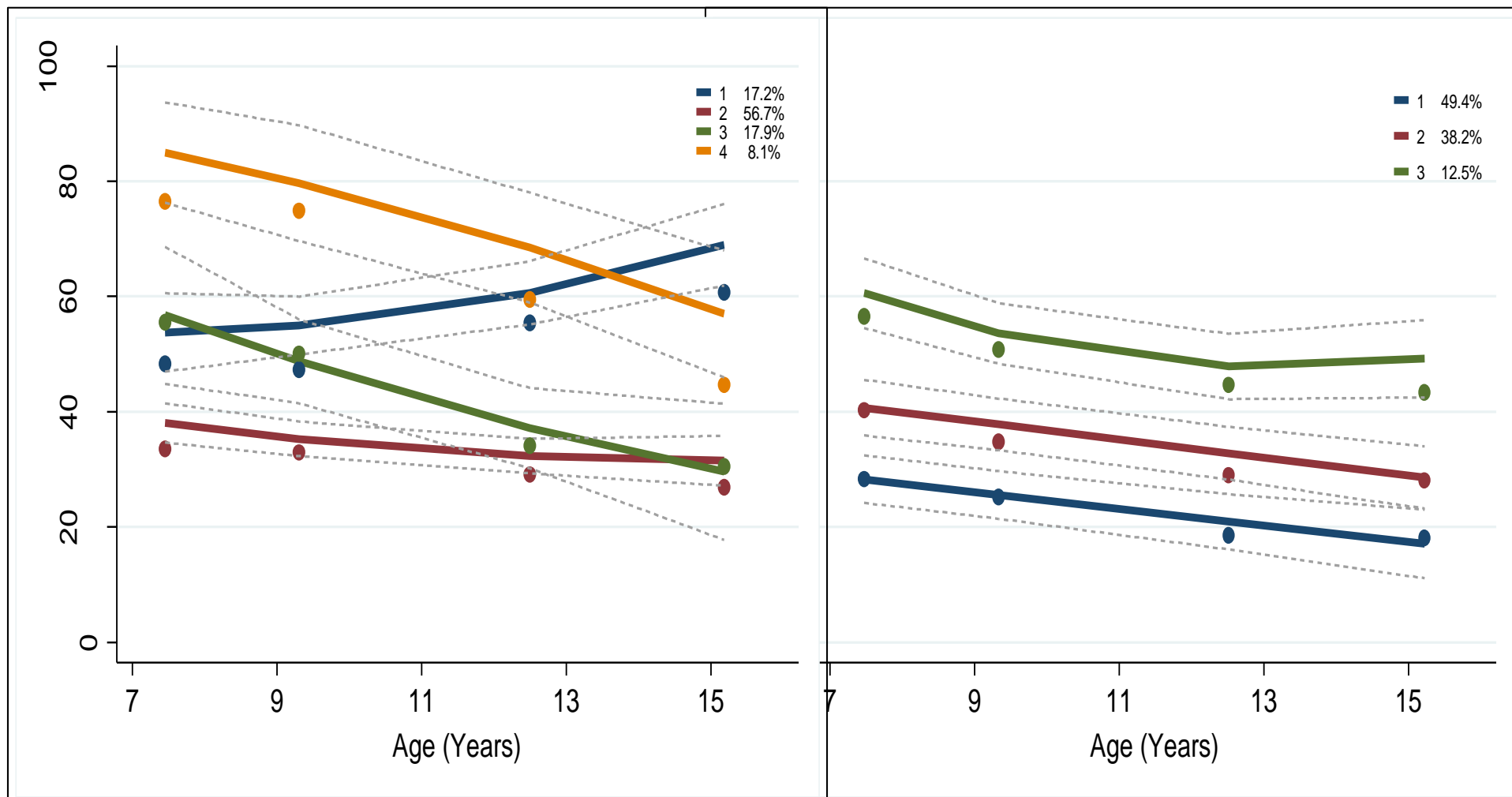


- Mean 51% of waking time at age 7 to 73% at age 15
- Equivalent to about 23 mins/day/year

Changes in objectively measured daily MVPA across mid-childhood & adolescence (Farooq et al 2018 & 2020)

Boys

Girls



What are child & adolescent physical activity & screen time norms globally ? (Aubert et al 2022)

Consistent across all high-quality studies and surveys:

- Most are insufficiently active
 - don't meet **WHO Guidelines 3 hours/day 3-4 y olds; 1 hour/day MVPA from age 5**
- Most don't meet **recreational screen time guidelines**
 - WHO & Canadian Society for Exercise Physiology **< 1 hour/day at 3-4 years; < 2hours after that**
- **Slightly** worse in girls than boys
- **Poverty: No clear differences in physical activity, but higher screen time**
- **Worse** for those with disability & chronic disease especially obesity



What about Glasgow ?

National data disaggregated to Glasgow: 'physical activity'; obesity; screen-time

UNDERSTANDING GLASGOW
The Glasgow Indicators Project

About the project | Profiles | Films | Using the data

Children's Lifestyle

- Overview
- Active travel
- Alcohol
- Smoking
- Drugs
- Diet
- School meal uptake
- Physical activity**
- Social Media
- Teenage pregnancy

Physical activity

It is recommended that children have at least **60 minutes of physical activity** each day. In the Greater Glasgow and Clyde area 73% of children and young people aged 2-15 years have been found to meet this recommendation. This is comparable to children and young people in Lothian and in Scotland.

Proportion of children (2-15 years) having 60+ minutes of physical activity on all 7 days of a week
Source: Scottish Health Survey 2009/2009

100
90
80

Obesity Action Scotland
Healthy weight for all

OBESITY PREVALENCE
Greater Glasgow and Clyde Health Board area

HEALTH & WELLBEING CENSUS 2021/2022

FACTSHEET
July 2023

- 74% said their health was good/excellent (P5 - S6)
- 16% have a long term physical or mental health condition or illness (P5 - S6)
- 44% were happy with their body and the way they look (P7 - S6)
- 25% care for / look after someone (P7 - S6)
- 22% got 9+ hours of sleep (S1 - S6)
- 31% do vigorous physical activity every day (P5 - S6)
- 54% usually have breakfast every weekday and 68% on the weekend (P5 - S3 and S5-S6)
- 27% sometimes go to school or bed hungry (P7 - S6)
- 18% had smoked cigarettes (S4)*
- 63% expected to go to further education / training (S1 - S6)
- 86% felt pressured by schoolwork (P7 - S6)
- 2% had no close friends (P5 - S6)
- 28% had used an e-cigarette / vape (S4)*
- 14% often or always felt lonely (P5 - S6)
- 49% often or always felt confident (P5 - S1)
- 30% had been bullied in the last year. 14% had bullied others (P5 - S3)
- 42% had drunk alcohol (S4)*
- 7% had taken illegal drugs (S4)*
- 10% had sexual intercourse (S4 - S6)
- 32% spent 6+ hours on electronic devices on weekdays and 54% on weekends (S1 - S6)

*34 pupils were asked to complete a separate survey on substance use

City level data limited (e.g. gaps in surveillance) and with enormous measurement errors: physical activity grossly overestimated, obesity grossly underestimated

Child and adolescent obesity are substantially underestimated by BMI-for-age: “normal weight obesity” is common

Scotland's child obesity 'far worse than thought'

🕒 26 November 2018

[f](#) [🗨️](#) [🐦](#) [✉️](#) [Share](#)



Experts say current methods of measuring healthy weight could be underestimating the problem.

Scotland's child obesity problem could be greater than expected as researchers said weight calculations may be inaccurate.

THE CONVERSATION

Academic rigour, journalistic flair



Shutterstock

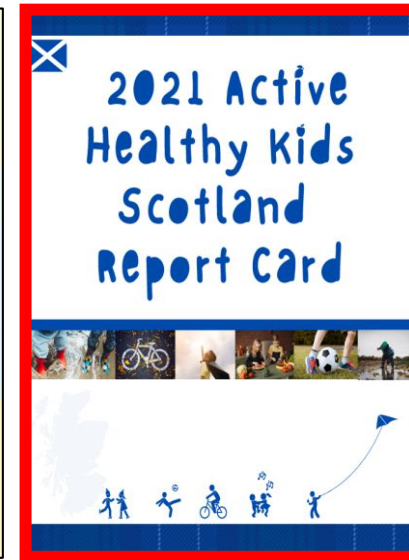
Obesity is more common than you think – here's why

Published: February 19, 2020 3.43pm GMT

John J Reilly

Professor of Physical Activity and Public Health Science, University of Strathclyde

- **Active Healthy Kids Scotland Report Cards:**



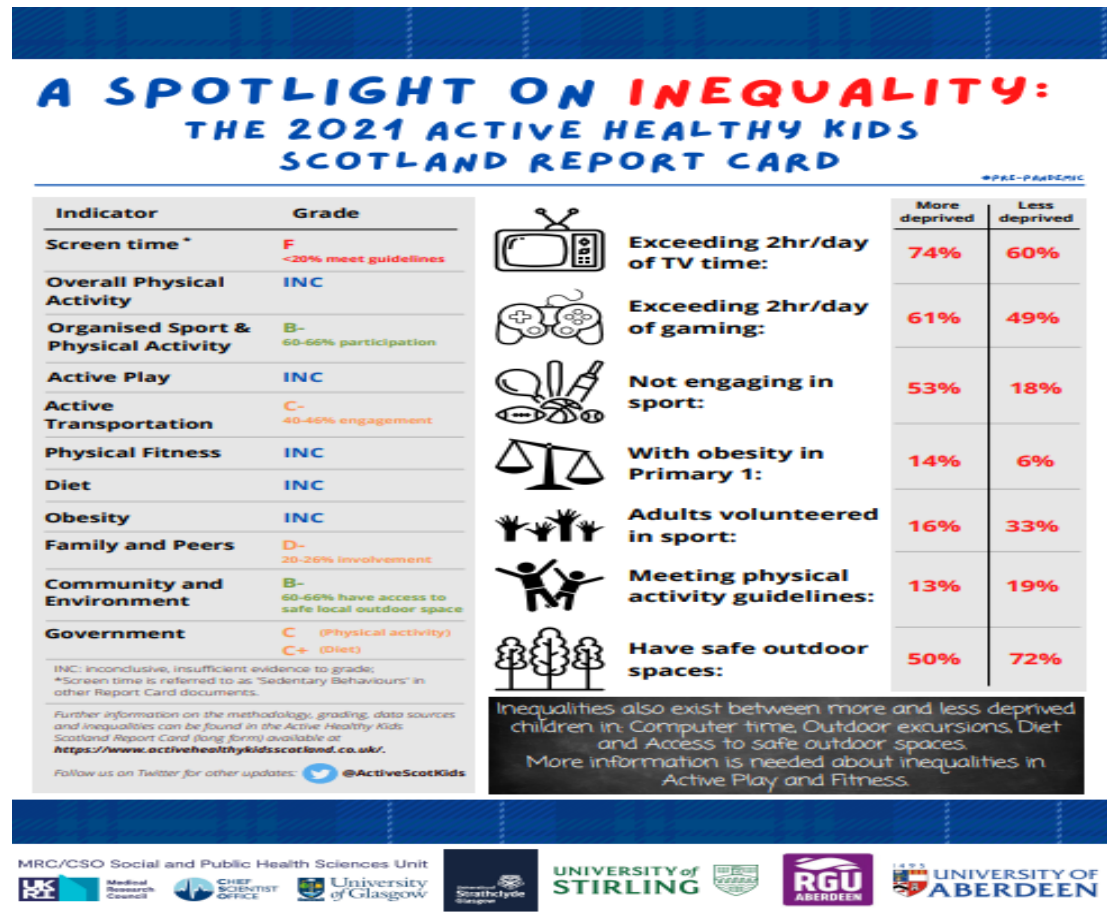
2013

2016

2018

2021

Active Healthy Kids Scotland 2021 Pre-COVID Report Card, Inequality Theme



Poverty breeds childhood obesity:

The food insecurity paradox

Steady increases in childhood obesity in poorer Scottish families in the decade pre-COVID, stable in wealthier families

COVID impacts

Some good ways forward for
child & adolescent surveillance,
international, national , city

Active Healthy Kids Global Alliance Report Cards,
SUNRISE Study, **FitBack**

All depend on **good measurement protocols**, academic-
policy-practice **partnerships, & peer review**

If fitness matters **why are we not monitoring it in Scotland?**



As schools reopen, will this be the least fit generation of schoolchildren ever?

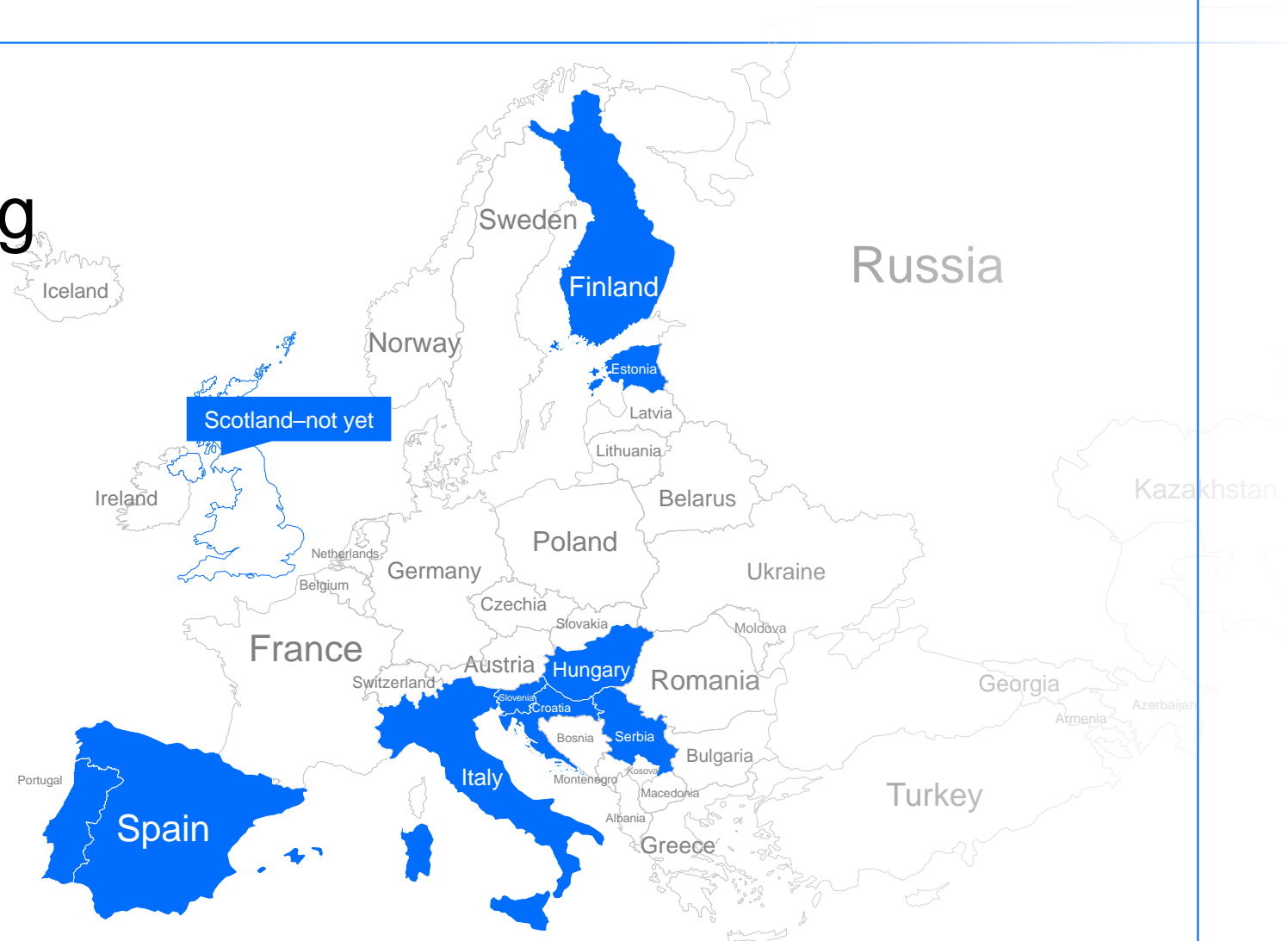
Published: September 8, 2020 11.37am BST

FitBack Network

–child fitness monitoring in Europe

European countries monitoring fitness within the Fitback Network

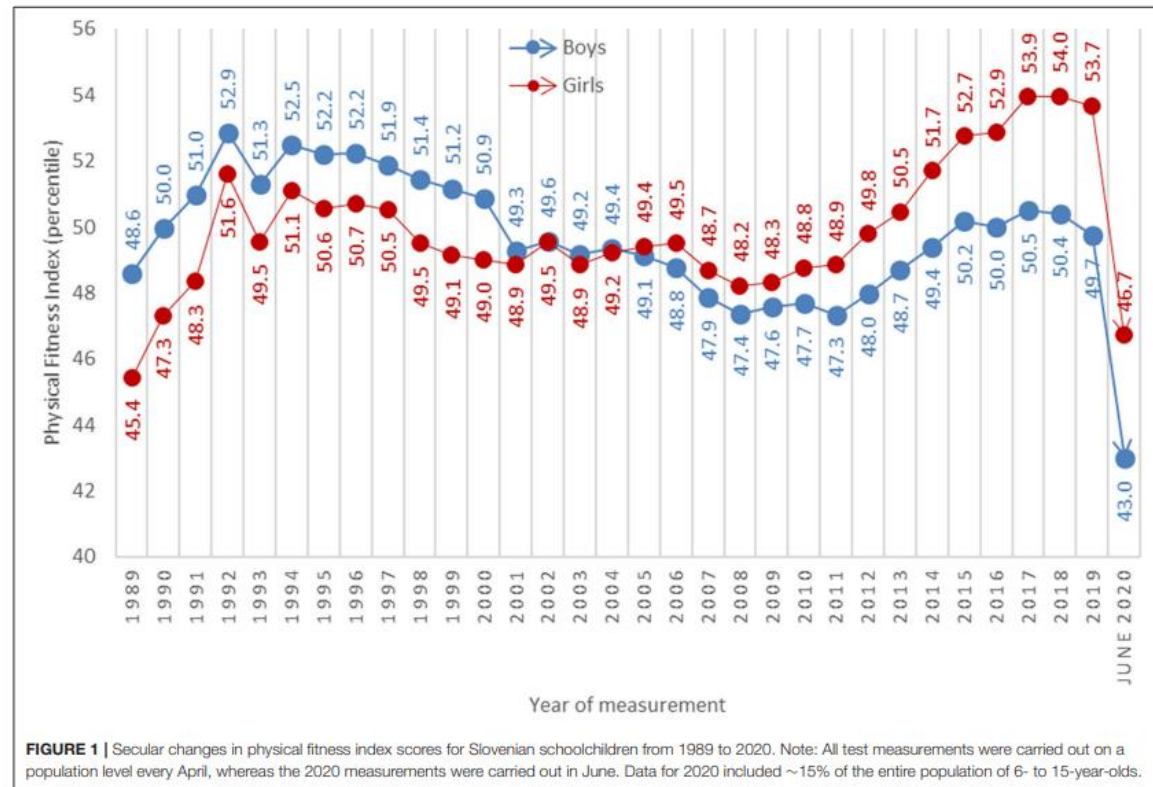
- Slovenia
- Italy
- Croatia
- Luxembourg
- Estonia
- Finland
- Hungary
- Portugal
- Serbia
- Spain

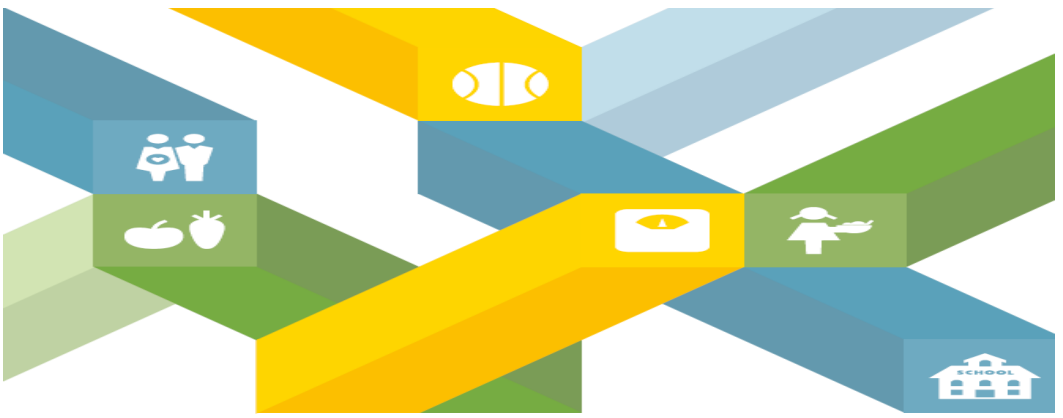


Decades of child fitness improvement, prompted by surveillance, wiped out by first COVID-19 lockdown in Slovenia, Jurak et al 2021

Jurak et al.

Child Fitness Barometer to COVID-19

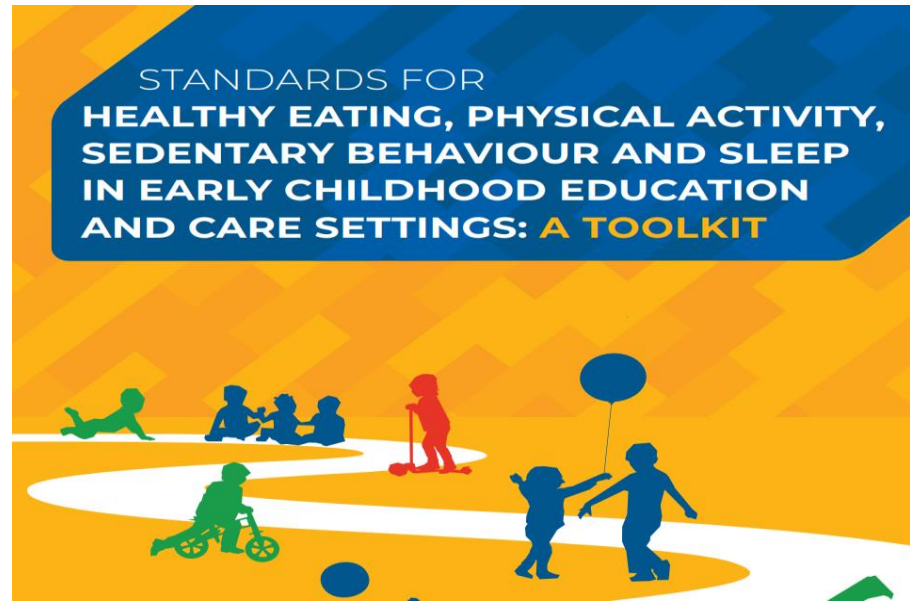
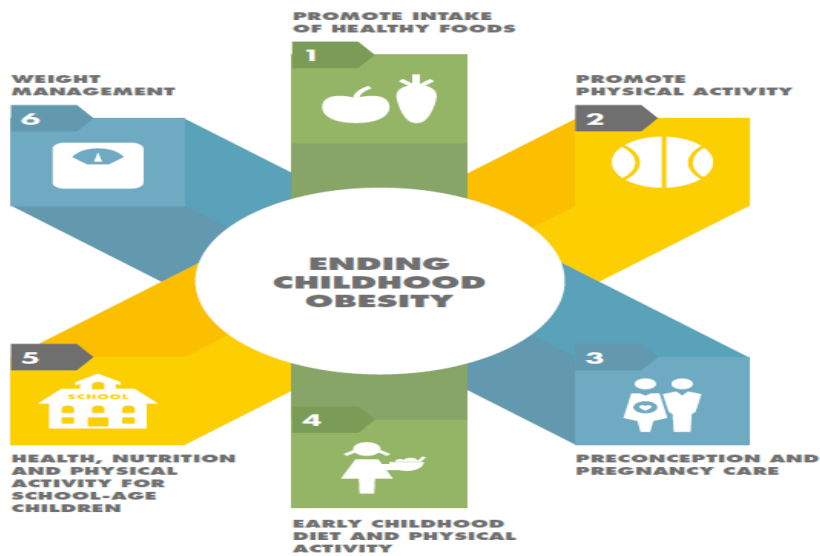




REPORT OF THE COMMISSION ON
ENDING CHILDHOOD OBESITY
 IMPLEMENTATION PLAN: EXECUTIVE SUMMARY



FIGURE 1. SIX KEY AREAS OF ACTION



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



Thanks & Questions

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