

Physical Activity and Children's Health

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The I.Family study shows that we need to address inequality in access to physical activity if we want to reduce health inequalities in young people in Europe.

Physical activity provides fundamental health benefits for young people. As well as physical fitness, these include healthy development of bones, muscles and joints, a healthy cardiovascular system (heart and lungs), and good coordination and movement control. It also builds self-confidence, social interaction and integration.^{1,2,3}

However, the I.Family study provides **the strongest evidence to date** that large numbers of young people across Europe have less chance of achieving these health benefits because of their age, gender, where they live or the household they live in.

Specific strengths of our data

I.Family data builds on the IDEFICS study to provide a powerful resource to answer questions about the role of physical activity in young people's lives:

- It uses the best measures of physical activity. We not only have accurate knowledge of how active young people are, but also where and when they are physically active – e.g. at home or at school, or in travelling between the two.
- It provides standardised measures of physical activity throughout the childhood and adolescent phase so we can answer questions like *'Is physical activity important for the development of obesity in young people or does being overweight or obese impact on physical activity – or both?'*
- It includes data from a wide range of countries which allows us to capture important geographical and cultural variation across Europe.
- Uniquely, it also includes measures of physical activity for the whole family – brothers and sisters, as well as parents or carers.
- It covers key transition phases in a child's life which impact on physical activity – e.g. when a child starts school, or changes schools.

World Health Organization recommendations on physical activity

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.

Because we also have detailed information about each child's family, such as parental income and education level, this means we are able to address important questions about health inequalities. These form a key focus of this briefing.⁴

Physical activity & inequality in European families: evidence & policy implications

1. The vast majority of European young people are not physically active, so they are denied crucial physical and mental health benefits.

- **Evidence:** Only 2% of young people in our 8 European study regions meet current physical activity guidelines³ – to be at least moderately active for 60 minutes or more each day. The group with the highest percentage meeting the guidelines was Belgian boys – but only 5% of them did so.
- **Policy implications:** Inequality in physical activity levels is a major barrier to good health in European children. It should be systematically addressed in EU policies.

2. The older children get the less active they are. Girls are less active than boys irrespective of how old they are.

- **Evidence:** The amount of physical activity children take declines at an average rate of 4.3% from the age of five to 15 years – a 4.1% per annum decrease in boys and a 4.5% per annum decrease in girls. Young people also become progressively more sedentary as they age. At 5-7 years, they spend 40% of their time sitting, compared to 62% of their time at 14-16 years.
- **Policy implications:** This age and gender gap exists in all European countries.⁵ However, the size of the difference varies, so too the degree of inequality in physical activity. While eliminating the gender gap is challenging, there is no reason it could not be narrowed. And there is no reason why absolute activity levels could not be increased in both boys and girls.

3. Where a child lives relates to how active she/he is. It also affects the gender gap in physical activity.

- **Evidence:** There is considerable variation in physical activity levels by country. The children in our Italian cohort were the least active, and the Sweden children the most active. The difference in average daily activity between the least active population (Italy) and the most active (Sweden) is larger than the difference we observed between boys and girls. Indeed, girls in the two most active countries (Belgium and Sweden) were more active than boys in the two least active countries (Italy and Cyprus).
- **Policy implications:** The less gender-equal countries could learn from the more gender-equal countries in how to promote physical activity among girls as well as boys outside of school hours. The more gender equal countries might want to focus on promoting physical activity among girls within the school hours, as this is the time period with the largest absolute gender differences.

4. Improved social opportunities enhance opportunities for physical activity.

- **Evidence:** There was a weak trend towards increasing physical activity with increasing parental education and income in the whole sample. This trend was similar across the eight countries. We do see some differences in the social gradient for particular behaviours (e.g. active transport, structured sports). However, these do not necessarily show up when we look at overall activity levels.
- **Policy implications:** Social differences interact with environmental and policy factors. For example, where cheap public transport is widely available, this will likely reduce the negative impact of income on physical activity.

5. An unhealthy weight restricts physical activity.

- **Evidence:** Looking at our data, we find stronger evidence for the claim that overweight and obesity in young people lead to lower levels of physical activity than vice versa.
- **Policy implications:** It is clear that we need to intervene early to stop children becoming so overweight that it inhibits their physical activity. Just 10 minutes extra of moderate to physical activity in young children could reduce their risk of becoming overweight. It is also important to note that, as in adults, increased physical activity in young people creates health benefits, independent of change in weight status.

6. Physical activity is related in families.

- **Evidence:** Physical activity is clearly related in families in a straightforward way: more active children have more active parents and siblings. This relationship is strongest between siblings; it is not quite so strong when we compare parents/carers and children.
- **Policy implications:** Policy needs to strengthen the focus on family influences on physical activity and provide both guidelines and opportunities for parents. For example, these data suggest that successfully boosting physical activity in one child might have knock-on benefits to their siblings, particularly siblings who are close to them in age. There might also be knock-on benefits to parents (or vice versa), perhaps particularly mothers or younger parents. The relationship between family members' activity is considerably stronger at the weekend and during holidays. This indicates that shared weekend and holiday activities are important independent targets for promoting physical activity in European young people.

7. Improving the environment to support active travel is crucial to addressing inequalities in physical activity.

- **Evidence:** Levels of active commuting to school and other destinations vary considerably across Europe. This underpins differences in physical activity levels between countries.
- **Policy implications:** Providing environmental support for active travel in young people (e.g. cycle lanes, accessible public transport, safe pedestrian areas including pavements) will increase physical activity in young people. Where active transport is not possible (very rural areas) or difficult (due to very hot weather), people need ways to compensate for lack of active travel – for example, access to cheap indoor sport and leisure activities near to their homes.

¹ Herrmann et al. 2015. Impact of Physical Activity, Sedentary Behaviour and Muscle Strength on Bone Stiffness in 2-10 Year Old Children. *International Journal of Behavioral Nutrition and Physical Activity* 12:112.

² Zaqout et al. 2016. Influence of Physical Fitness on Cardiometabolic Risk Factors in European Children. *International Journal of Obesity* [Epub ahead of print].

³ World Health Organisation Global Recommendations on Physical Activity and Health, 2011. <http://www.who.int/dietphysicalactivity/physical-activity-recommendations-5-17years.pdf>.

⁴ Except where references are given, the findings presented in this briefing are based on current analyses of I.Family data.

⁵ Konstabel et al. 2014. Objectively Measured Physical Activity in European Children. *International Journal of Obesity* 38: S135–43.