Main results at a glance

The *Health Behaviour in School-aged Children* (HBSC) study

The international Health Behaviour in School-aged Children (HBSC) study is conducted every four years in more than 40 mostly European countries. Its purpose is to collect data on 11-to-15-year-olds' health behaviour and to observe its evolution over time. The main advantage of the study is that it allows researchers to compare the school children's and adolescents' health behaviour between different countries and years. In 2014, Addiction Switzerland conducted the study in Switzerland for the 8th time since 1986. The present scientific report describes the findings of the Swiss HBSC study 2014 on eating behaviour, physical activities, screen use and body weight among school-aged children and adolescents and its evolution over time.

In 2014, 734 public school classes from grade 5 to 9 (i.e. grade 7 to 11 HarmoS) were randomly selected to participate in the national Swiss HBSC study. A total of 630 school classes comprising 9894 girls and boys aged 11 to 15 took part in the survey. The questionnaires were sent to the classes between January and April 2014 and the pupils were given one lesson's time to fill them in. The participation was voluntary as well as anonymous. The survey process had previously been examined and authorized by the Ethics Committee of the Canton of Vaud.

Eating behaviour

This summary presents selected results for the whole group of the 11- to 15-year-old boys and girls. Information about other dietary habits as well as all detailed results stratified by sex and age – two pivotal factors to consider when studying children's and young adolescents' health behaviours – can be found in chapter 3 of this report.

Recommendations

The Swiss food pyramid provides information on the current dietary guidelines. These guidelines are intended for healthy adults at the age of 19 to 65, but they basically also apply to adolescents and older people. However, their specific nutrient and energy requirements have to be taken into account. It is, for example, recommended to eat 2 portions of fruit and 3 portions of vegetables a day. Furthermore, having breakfast is highly recommended – this applies to adolescents in particular.

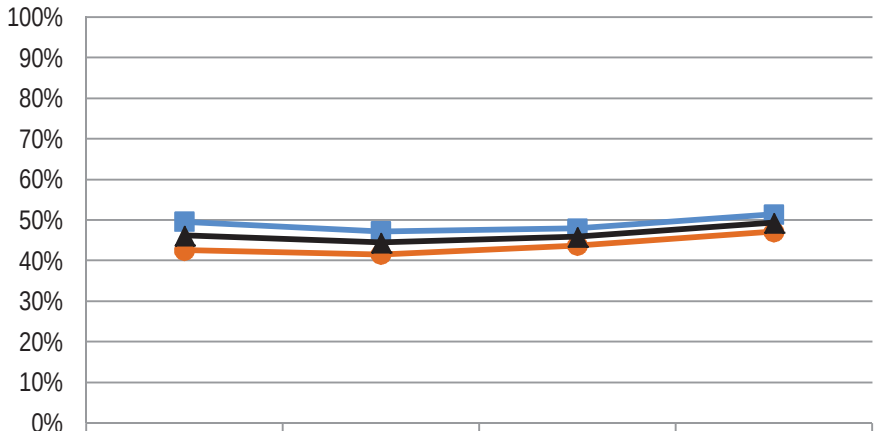
Operationalization

The 11- to 15-year-olds who participated in the HBSC study 2014 were provided with a list of 14 kinds of food and asked to indicate how many times a week they usually ate or drank each of them. It is important to mention that this is a frequency measure; it is therefore not possible to draw conclusions with regard to the amount of food consumed.

Results for 2014

In 2014, 49.3% of the 11- to 15-year-olds (boys: 51.4%; girls: 47.1%) reported **having breakfast every day**. A higher proportion of boys than girls aged 11 (boys: 62.0%; girls: 57.4%), 13 (boys: 52.0%; girls: 44.6%) and 14 (boys: 46.1%; girls: 39.5%) reported having breakfast every day. Having breakfast on a daily basis was less common in older compared to younger boys and girls.

Daily breakfast consumption among 11- to 15-year-olds (HBSC 2002-2014)

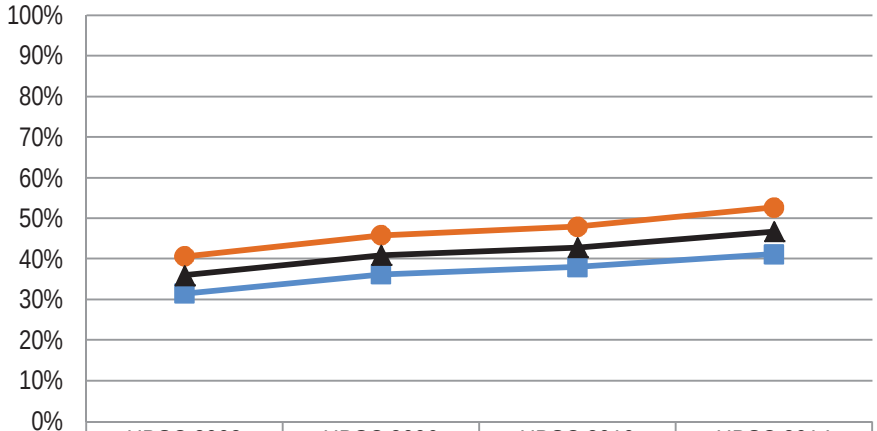


	HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	49.6	47.2	47.9	51.4
girls	42.5	41.5	43.8	47.1
total	46.1	44.4	45.9	49.3

Reading example: **In 2014, 49.3% of the 11- to 15-year-olds used to have breakfast every day. To put it otherwise, in 2014, 50.7% of the 11- to 15-year-olds didn't have breakfast every day.**

In 2014, 46.7% of the 11- to 15-year-olds (boys: 41.1%; girls: 52.6%) reported eating **fruit at least once a day**. In all age groups, girls used to eat fruit more often than boys. In boys, eating fruit at least once a day was less common in older compared to younger age groups (11 years: 48.3%; 12 years: 44.2%; 13 years: 42.9%; 14 years: 38.6%; 15 years: 32.5%). 57.0% of the 11-year-olds girls reported eating fruit at least once a day whereas this proportion was lower in all other age groups (12 years: 52.4%; 13 years: 52.0%; 14 years: 52.0%; 15 years: 49.9%).

Fruit consumption (at least once a day) among 11- to 15-year-olds (HBSC 2002-2014)

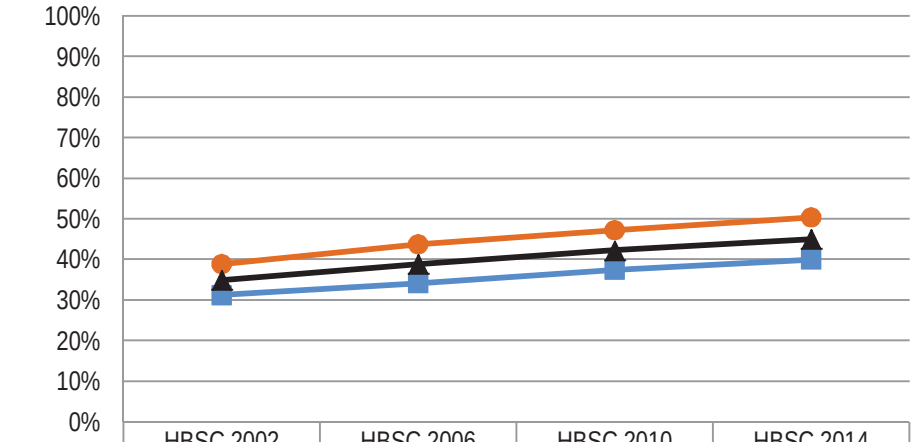


	HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	31.4	36.1	38.0	41.1
girls	40.6	45.8	47.9	52.6
total	35.9	40.9	42.8	46.7

Reading example: **In 2014, 46.7% of the 11- to 15-year-olds used to eat fruit at least once a day. To put it otherwise, in 2014, 53.3% of the 11- to 15-year-olds didn't eat fruit every day.**

In 2014, 45.0% of the 11- to 15-year-olds reported eating **vegetables at least once a day**. Similar to fruit, daily vegetable consumption was more common among girls (50.4%) than boys (40.0%). 45.7% of the 11-year-old boys used to eat vegetables at least once a day; this proportion was lower in the older age groups (12 years: 39.5%; 13 years: 40.7%; 14 years: 37.6%; 15 years: 36.8%). In girls, the age groups differed only marginally (11 years: 51.1%; 12 years: 49.6%; 13 years: 47.7%; 14 years: 50.1%; 15 years: 53.2%).

Vegetable consumption (at least once a day) among 11- to 15-year-olds (HBSC 2002-2014)



	HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	31.2	34.2	37.5	40.0
girls	38.9	43.7	47.2	50.4
total	34.9	38.8	42.2	45.0

Reading example: **In 2014, 45.0% of the 11- to 15-year-olds used to eat vegetables at least once a day. To put it otherwise, in 2014, 55.0% of the 11- to 15-year-olds didn't eat vegetables every day.**

In 2014, 10.3% of 11- to 15-year-olds used to eat **fruit and vegetables several times a day** (boys: 8.5%; girls: 12.2%). A higher proportion of girls than boys aged 11, 14, and 15, respectively, used to eat fruit and vegetables several times a day (boys: 11 years: 11.3%; 14 years: 7.0%; 15 years: 6.7%; girls: 11 years: 14.6%; 14 years: 11.2%; 15 years: 13.0%).

A statistical cluster analysis allowed the identification of a distinct small group of 11- to 15-year-olds with **several health compromising (or not health promoting) dietary habits**. Within this subgroup, boys (54.6%) were proportionally more numerous than girls (45.4%) and more than half of the adolescents were aged 14 years or above (53.5%). Only a comparatively small proportion of adolescents in this subgroup used to eat fruit (13.1%) or vegetables (7.4%), respectively, at least once a day. Having breakfast every day was also uncommon within this small group (4.8%). Further information on characteristics of these adolescents are presented in chapter 6.

Trend (2014 compared to 2002)

In 2014, the proportion of 11- to 15-year-olds who reported having **breakfast every day** was higher than in 2002 (2002: 46.1%; 2014: 49.3%). This is true for girls (2002: 42.5%; 2014: 47.1%), but not for boys (2002: 49.6%; 2014: 51.4%).

In 2014 compared to 2002 (2002: 35.9%; 2014: 46.7%), the proportion of 11- to 15-year-olds who used to eat **fruit at least once a day** was higher. This is true for boys (2002: 31.4%; 2014: 41.1%) as well as girls (2002: 40.6%; 2014: 52.6%).

The proportion of 11- to 15-year-olds who reported eating **vegetables at least once a day** increased as well between 2002 (34.9%) and 2014 (45.0%). This applies to boys (2002: 31.2%; 2014: 40.0%) and girls (2002: 38.9%; 2014: 50.4%).

In 2014, the proportion of 11- to 15-year-olds who used to eat **fruit and vegetables several times a day** was twice as high as in 2002 (2002: 5.4%; 2014: 10.3%). This is true for boys (2002: 5.1%; 2014: 8.5%) and for girls (2002: 5.8%; 2014: 12.2%).

Physical activities

This summary presents selected results for the whole group of the 11- to 15-year-old boys and girls. More information about physical activities as well as all detailed results stratified by sex and age – two pivotal factors to consider when studying children's and young adolescents' health behaviours – can be found in chapter 4 of this report.

Recommendation

According to the recommendation for physical activity issued by the Swiss Network for Health-Enhancing Physical Activity (hepa.ch), the Federal Office of Sport (FOSPO) and the Federal Office of Public Health (FOPH), **school-aged adolescents should engage in at least 60 minutes of moderate-to-vigorous physical activity daily (MVPA)**.

Operationalization

The 11- to 15-year-olds who participated in the HBSC study 2014 were asked on how many of the past 7 days (preceding the survey) they had exercised for a total of at least 60 minutes. The proportion of adolescents **exercising at least 60 minutes every day in the past 7 days** corresponds to the proportion of adolescents meeting the aforementioned recommendation for MVPA.

In order to identify the 11- to 15-year-olds with particularly problematic habits with regard to physical activity, **a global physical activities index** was calculated. This index was calculated based on the level of physical activity as well as the frequency and duration of sports outside school hours, allowing to distinguish between three distinct groups of adolescents (active, partly active, inactive).

Results for 2014

In 2014, only 14.4% of 11- to 15-year-olds (18.0% of the boys and 10.5% of the girls) met the **recommendation for children and adolescents to engage in at least 60 minutes of MVPA daily** (this applies to the reference period, i.e. the past 7 days before the survey).

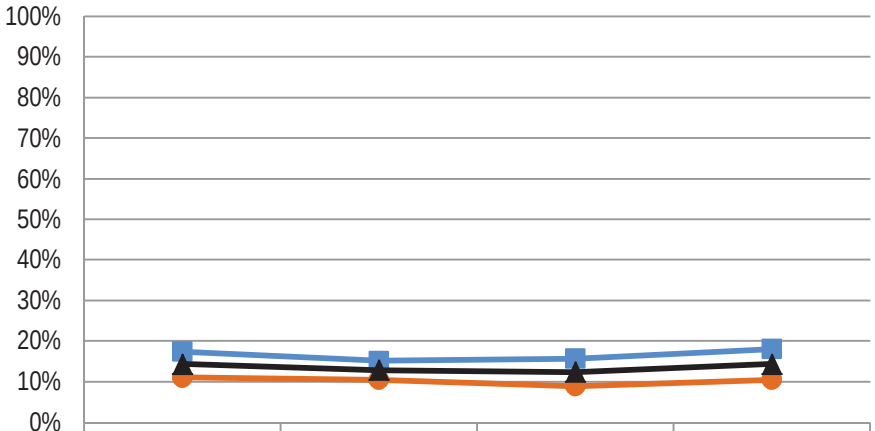
However, by adding the proportion of adolescents who do not exercise at least 60 minutes per day, but engage frequently in sports activities outside school hours (meaning at least four times per week and during at least four hours per week) to the abovementioned proportion, the total proportion of 11- to 15-year-olds who **can be considered as physically active** reached 33.3% (41.5% of the boys and 24.5% of the girls; according to the global physical activities index).

In general, similar statements can be made for the different indicators: in all age groups, a larger proportion of boys than girls exercised at least 60 minutes per day, did sports several times per week outside school hours, and did sports for at least one hour per week, respectively. Such activity levels were less common among older compared to younger adolescents.

An analysis conducted among 15-year-olds only yielded the following result: a large proportion of those who had been injured at least twice in the last 12 months reported that their most serious injury had occurred **when staying at a sports facility and when playing or training for sports or engaging in a recreational activity, respectively**.

Trend (2014 compared to 2002)

MVPA at least 60 minutes a day in the last 7 days among 11- to 15-year-olds (HBSC 2002-2014)



	HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	17.4	15.1	15.7	18.0
girls	11.1	10.5	8.9	10.5
total	14.3	12.8	12.4	14.4

Reading example: **In 2014, 14.4% of the 11- to 15-year-olds exercised at least 60 minutes per day in the last seven days.**

In 2014, the proportion of 11- to 15-year-olds who **exercised at least 60 minutes per day** remained unchanged compared to 2002 (2002: 14.3%; 2014: 14.4%). However, changes could be observed in some subgroups: an increase was found among 11-year-old boys and a decrease among 15-year-old boys and girls.

By contrast, there was a slight increase in the proportion of adolescents who **exercised at least 60 minutes per day** in 2014 compared to 2010 in 11- to 15-year-old girls, in 11- to 15-year-old boys, and in the whole group of the 11- to 15-year-old boys and girls (2010: 12.4%; 2014: 14.4%). Likewise, the proportion of adolescents who **can be considered as physically active** (according to the global physical activities index) was higher in most subgroups in 2014 compared to 2010.

Screen use

This summary presents selected results for the whole group of the 11- to 15-year-old boys and girls. More information about screen use as well as all detailed results stratified by sex and age – two pivotal factors to consider when studying children's and young adolescents' health behaviours – can be found in chapter 4 of this report.

Recommendations

In Switzerland, there are some indications on how long adolescents should use electronic devices comprising a screen (television, computer, tablet, smartphone, gaming console) at most. Furthermore, the contents to which adolescents are exposed when using screen devices (as well as their motives for screen use) should be taken into account. In this respect, it is to be mentioned that the HBSC questionnaire does not allow to draw conclusions about the contents consulted, but about the usual screen time per day.

Operationalization

The HBSC questionnaire 2014 includes three questions on screen use which measure the daily time spent on the following activities: 1) watching TV and other forms of entertainment on a screen, 2) playing games on a computer, tablet, smartphone or a game console, 3) using a computer, tablet or smartphone for other purposes. Time spent per day on the three aforementioned screen-based activities was measured separately for school days and weekend days. In order to estimate the usual time adolescents spent daily on screen-based activities on school days in 2014, an index cumulating the answers to all three questions was calculated. Using the same method, a similar index was computed for weekend days.

Results for 2014

In 2014, according to the index that sums up the daily time spent on different **screen-based activities**, screen use during the spare time was common among the 11- to 15-year-olds. Indeed, on average, they spent 4.4 hours per school day and 7.4 hours per weekend day in front of a screen, watching television or videos, playing on a tablet, computer or smartphone, or doing something else, for example homework or spending time on social networks.

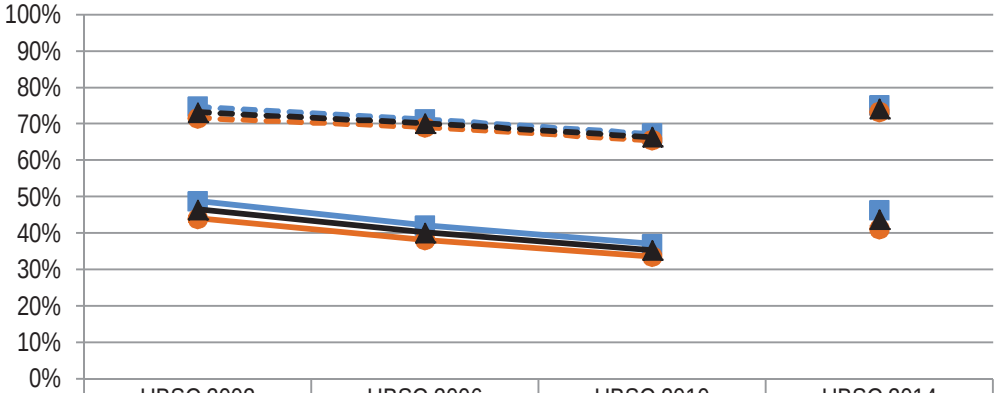
In 2014, for example, 43.8% of 11- to 15-year-olds (46.3% of the boys and 41.1% of the girls) spent **at least two hours per school day** in front of a screen **watching television, videos or DVD's**, whatever the type of screen (tablet, smartphone, computer). **For weekend days**, this proportion reached 74.3% (73.3% for girls and 75.2% for boys). In addition, screen use for at least two hours a day on school days and on weekend days, respectively, increased with age, for girls as well as for boys.

An analysis conducted among 15-year-olds only revealed that the proportion of adolescents who were physically inactive (according to the global physical activities index) was higher in girls who spent more than 4.5 hours per school day in front of a screen (18.9%) than in girls who spent less than 4.5 hours per school day in front of a screen (8.3%). In boys, the difference was not significant (7.7% and 4.9%, respectively). It is of note that the majority of the 15-year-olds who spent more time than the average in front a screen was not physically inactive.

There is a significant relationship between the usual screen time per day and the consumption of food items rich in refined sugar and/or fat like sweets/chocolate, soft drinks containing sugar (e.g. Cola), energy drinks and crisps/chips. Results showed that adolescents who spent more than 4.5 hours on school days and more than 7.5 hours on weekend days in front of a screen, respectively, were more likely to consume such kinds of food frequently than adolescents who spent less time in front of a screen - independently of age and sex.

Trend (2014 compared to 2002)

Watching television, videos, DVD's (HBSC 2002-2010) or another form of entertainment on a screen (HBSC 2014) for at least two hours per school or weekend day among 11- to 15-year-olds*



	HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys school days	48.7	42.1	37.0	46.3
boys weekend	74.7	71.2	67.3	75.2
girls school days	44.0	38.1	33.5	41.1
girls weekend	71.6	69.2	65.6	73.3
total school days	46.4	40.2	35.3	43.8
total weekend	73.2	70.2	66.5	74.3

Reading example: **In 2014, 43.8% of the 11- to 15-year-olds watched television, videos or another form of entertainment on a screen during at least two hours per school day.**
***In 2014, the question was phrased differently.**

While the proportion of 11- to 15-year-olds **watching television, videos or another form of entertainment on a screen during at least two hours per school day and per weekend day, respectively**, decreased considerably between 2002 and 2010, this proportion increased considerably between 2010 and 2014. This is true for boys and girls. However, it is worth mentioning that the question was modified importantly in 2014: in this year, the question covered watching television but also watching online videos and doing this on screen devices in general, including mobile tablets or smartphones, whereas in earlier years the question mainly covered watching television.

Body weight

This summary presents selected results for the whole group of the 11- to 15-year-old boys and girls. More information about body weight as well as all detailed results stratified by sex and age – two pivotal factors to consider when studying children's and young adolescents' health behaviours – can be found in chapter 5 of this report.

Recommendations

With regard to their current and future health and wellbeing it is important that adolescents have a healthy body weight. However, a healthy and positive attitude towards their own body is also important, especially in order to avoid unhealthy eating habits.

Operationalization

To evaluate and classify the body weight of an individual, the World Health Organization (WHO) recommends using the Body Mass Index (BMI), which can be calculated by dividing the body weight in kilograms by the body height in squared meters (BMI=weight in kg/height in m2). Within the framework of the HBSC study, the BMI is based on self-reported body weight and height of adolescents due to practical reasons. This represents a source of bias as it tends to underestimate the prevalence of pre-obesity and obesity. Therefore, the so calculated BMI has to be interpreted with caution.

The BMI based on HBSC data allows to estimate the proportion of boys and girls aged 11 to 15 with normal weight, overweight (i.e. pre-obesity and obesity) or underweight (mild to severe). These proportions can be estimated using the criteria adapted for age and sex of adolescents proposed by the International Obesity Task Force (IOTF).

Results for 2014

In 2014, according to the BMI based on HBSC data, the vast majority (75.4%) of 11- to 15-year-olds had a **normal weight**, 11.4% were **overweight** (pre-obesity and obesity) and 13.2% were **underweight** (mild to severe).

More precisely, 12.3% of the boys aged 11 to 15 and 7.3% of the girls of the same age were **pre-obese**. By comparison, the prevalence of **obesity** was lower, laying between one and two per cent for boys and girls aged 11 to 15, respectively. **Overweight** (pre-obesity and obesity) was less prevalent among 11- to 15-year-old girls (8.4%) than boys of the same age (14.1%).

Inversely, **underweight** (mild to severe) was more prevalent among 11- to 15-year-old girls (16.3%) than boys of the same age (10.4%).

When interpreting these overall results regarding body weight based on the BMI, variations according to age have to be considered (for details, see chapter 5 of this report).

With regard to the adolescents' **subjective perception of their body weight**, a majority of the 11- to 15-year-olds (57.3%) reported to be about the right weight; 28.3% perceived themselves as a bit or much too fat, and 14.5% considered themselves as a bit or much too thin.

Here again, a difference between boys and girls can be stated: 46.3% of 11- to 15-year-old girls and 39.4% of boys of the same age were not satisfied with their body weight, that is to say that they perceived themselves as a bit or much too fat, or a bit or much too thin. It is worth mentioning that girls were more likely to perceive themselves as a bit or much too fat whereas boys were more likely to consider themselves as a bit or much too thin. In addition to the difference between boys and girls, there was also a difference with regard to age: the dissatisfaction increased with age, particularly among girls.

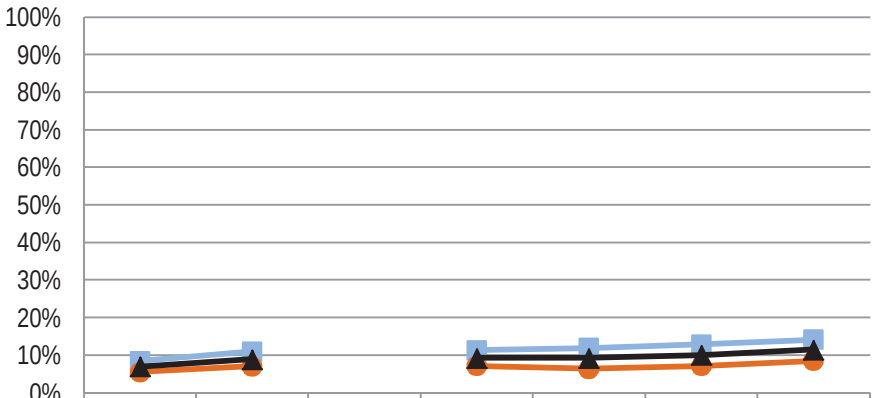
In 2014, 14.7% of 11- to 15-year-olds **were on a diet or did something else to lose weight**. Boys (11.1%) did so less often than girls (18.4%). Moreover, this proportion tended to increase with age for girls (from 12.4% among 12-year-olds to 23.6% among 14-year-olds), whereas the proportion was comparable across age groups in boys.

An analysis conducted among 15-year-olds only showed that there is often no accordance between their body weight based on the BMI and their perceived body weight. Boys tend to underestimate their body weight whereas girls are more likely to overestimate it. Moreover, being on a diet or doing something else to lose weight was not found exclusively in overweight adolescents.

Trend (2014 compared to 1990)

Looking at the trend of **overweight** (pre-obesity and obesity) among the 11- to 15-year-olds, a significant increase between 1990 and 2014 can be stated in boys as well as in girls. In general, in 11- to 15-year-olds, a slight upward trend over the aforementioned time period can be observed.

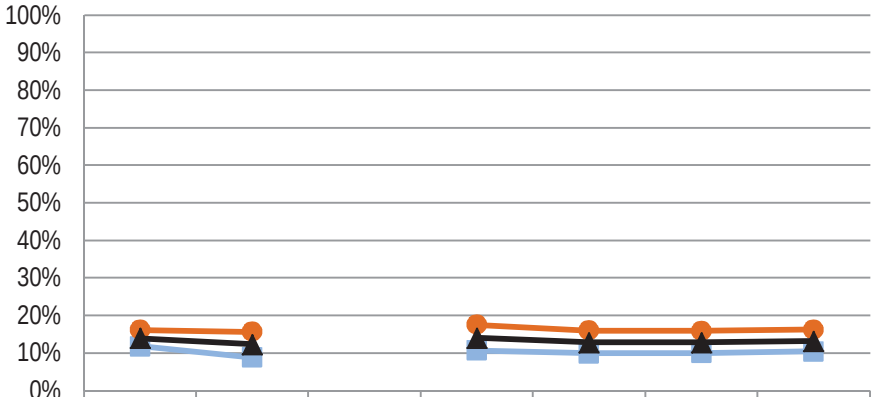
Overweight (pre-obesity and obesity) among 11- to 15-year-olds (HBSC 1990 – 2014)



	HBSC 1990	HBSC 1994		HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	8.4	11.0		11.3	11.9	12.8	14.1
girls	5.5	7.0		7.1	6.4	7.1	8.4
total	7.0	8.9		9.3	9.2	10.0	11.4

Reading example: **In 2014, 11.4% of the 11- to 15-year-olds were overweight, according to their BMI based on self-reported body weight and height.**

Underweight (mild to severe) among 11- to 15-year-olds, (HBSC 1990 – 2014)



	HBSC 1990	HBSC 1994		HBSC 2002	HBSC 2006	HBSC 2010	HBSC 2014
boys	11.8	8.8		10.7	9.9	10.0	10.4
girls	16.1	15.6		17.5	16.0	15.8	16.3
total	13.9	12.3		14.0	12.8	12.8	13.2

Reading example: **In 2014, 13.2% of the 11- to 15-year-olds were underweight, according to their BMI based on self-reported body weight and height.**

The prevalence of **underweight (mild to severe)**, on the contrary, was comparable between 1990 and 2014. There was no significant difference between 2010 and 2014.

The proportion of 11- to 15-year-olds **dissatisfied with their body weight** was higher in 1994 (the question was not asked in 1990) than in 2014. However, there was no significant difference between 2010 and 2014.

The proportion of 11- to 15-year-olds who **were on a diet or did something else to lose weight** was relatively stable in most age groups between 2002 and 2014 (the question was not asked before 2002). No significant differences were found between 2010 and 2014.

Characteristics of 11- to 15-year-olds with several health compromising dietary habits, who are physically inactive or who are overweight

Bivariate analyses controlled for sex and age were performed in order to examine the **characteristics of 11- to 15-year-olds**

- with several health compromising (or not health promoting) dietary habits (according to the cluster analysis; see chapter 3 of this report)
- who were physically inactive (according to the global physical activities index; see chapter 4)
- who were overweight (pre-obese or obese, according to their BMI; see chapter 5).

The characteristics included in the analysis had to do with wellbeing and health, lifestyle (meaning health-related behaviours) as well as the school and family context.

The **profile of each of the three groups** can be described as follows:

The 11- to 15-year-olds **with several health compromising (or not health promoting) dietary habits** were more likely to feel in poor or fair health, to spend more time than the average in front of a screen, to smoke tobacco and drink alcohol frequently, respectively, and to be physically inactive. They were also more likely to bully others, to feel stressed by schoolwork and to live in families with a medium or low standard of living.

The profile of the **physically inactive** 11- to 15-year-olds was quite similar to the one described above, with some exceptions. These 11- to 15-year-olds were also more likely to feel in poor or fair health, to spend more time than the average in front of a screen and to smoke tobacco frequently. With regard to their eating behaviours, they were more likely than other adolescents not to have breakfast every day, not to eat fruit and vegetables, respectively, every day and, more generally, to have several health compromising dietary habits. In addition, they were more likely to be stressed by schoolwork and to live in a family setting that could be described as “non-traditional”, meaning they did not live together with both parents. Finally, the standard of living of their families was medium or low.

Regarding the profile of the **overweight** 11- to 15-year-olds, results showed that they were also more likely than other adolescents to feel in poor or fair health, to spend more time than the average in front of a screen and to smoke tobacco frequently. Moreover, they were more likely to be physically inactive, not to have breakfast every day and not to eat vegetables every day, to bully others or to be bullied themselves. Concerning their family, they were more likely to live in “non-traditional” family settings and in families with a lower standard of living, respectively.

In a second step, multivariate analyses controlled for age and sex including all characteristics that were significantly related in the bivariate models or that could theoretically be assumed as predictor variables (in the statistical sense) were performed. This allowed to examine the relative importance of all characteristics included in the model.

In general, lifestyle characteristics (meaning health-related behaviours) were common to all of the three groups of 11- to 15-year-olds. Spending more time than the average in front of a screen corresponds to a greater probability of having several health compromising dietary habits, of being physically inactive and of being overweight. Moreover, not having breakfast on a daily basis is linked to physical inactivity and overweight.