

## Body mass status and sedentary behavior in 3-17-year-old children: the French nutrition and health survey (ENNS, 2006-2007)

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### Introduction

- National surveys describing diet, physical activity and nutritional status are necessary in order to monitor changes directly or indirectly associated with public health plans.

- In France, in 2001, the Ministry of Health implemented a national public health program on nutrition, the "Programme national nutrition santé" (PNNS), in order to improve population health status (1). In the framework of this programme, a national monitoring system dedicated to surveillance of the nutritional status of the population was specifically implemented. One of the challenges for surveillance was to obtain representative and comprehensive data that could contribute to public health policies.

- **Our objectives were to assess the prevalence of thinness, overweight and obesity and describe sedentary behaviors in French children.**

### Methods

- Analyses were based on a sample of 1,675 children aged 3-17 years from the cross-sectional French Nutrition and Health Survey (ENNS). The design was a multistage random sampling based on a national recruitment (2). Demographic and sedentary lifestyle data were collected at home via face-to-face interviews. Body weight and height were measured at home using standardized protocols.

- Time spent in front of a screen (television, computer, video game) was used as marker of sedentary behavior. An average daily time (min/day) was computed and weighted from the values reported for each type of day, i.e. school, few-school or non-school days.

- Body mass categories were estimated using the International Obesity Task Force (IOTF) references for overweight and obesity and the Cole cut of at 18.5 for thinness grade 1.

- The complex survey design and weighting were accounted for in all analyses.

## Results

### Body mass status

- Overall, 17.0% of children were overweight, including 3.4% of obesity (figure 1).

-The prevalence of overweight was similar in boys (15.5%) and girls (18.5%). According to age, 16.3% of 3-10-year-old children, 19.5% of 11-14-year-old children and 15.7% of 15-17-year-old children were overweight or obese.

- **Prevalence of thinness grade 1 was 9.1%**, without difference according to gender. This prevalence was 9.8%, 6.6% and 10.7% across the age categories.

Figure 1: Body mass categories according to sex and age categories

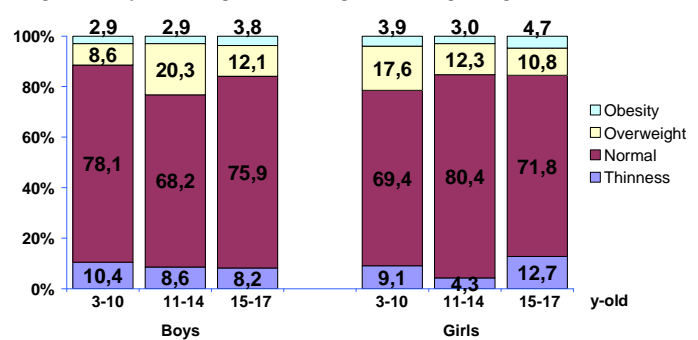
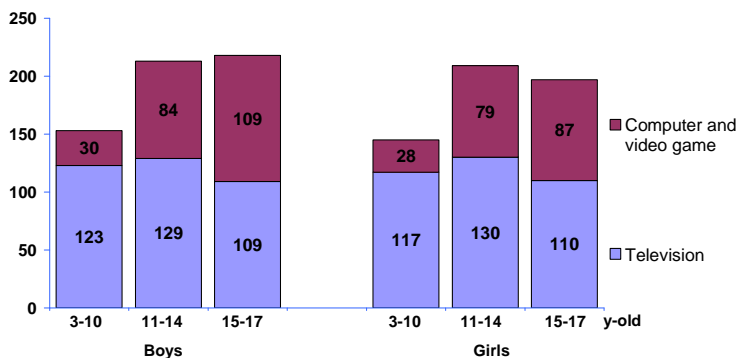


Figure 2: Mean time (min / day) spent in front of a screen by sex and age-categories



### Sedentary behavior

#### Global time in front of a screen

- Mean daily time spent in front of a screen was 177 min/day with no difference between boys and girls (figure 2).

- It **increased with age**: 149 min/day in children aged 3-10-year-old, 211 min/day in 11-14-year-old and 206 min/day in 15-17-year-old.

#### Time in front of a computer or television

- 3-17-year-old children spent a mean of 2 hours per day in front of television. Mean television time decreased between 11-14-year-old and 15-17-year-old (respectively 129 min/day and 110 min/day; p=0.02)

- Time spent in front of a computer or video game increased with age: 28 min/day in 3-10; 82 min/day in 11-14 and 96 min/day in 15-17-year-old (p<0.001) and specifically among boys.

### Body mass status and sedentary behavior

Mean time spent in front of a screen significantly varied by body mass status categories (table 2). Normal-weight children spent less time in front of a screen than overweight (including obesity) children (p=0.002). By age categories this association was significant only among 3-10-year-old children.

Table 2: Mean time (min /day) spent in front of a screen by body mass categories and age-class

Body Mass categories	3-10 y-old	11-14 y-old	15-17 y-old	All
Thinness	151	279	257	201
Normal	136	201	196	165
Overweight (obesity included)	195	226	225	210
P-value	0.03	0.27	0.20	0.02

## Conclusion

The French Nutrition and Health Survey (ENNS) provides a description of body mass status and sedentary behaviors in children which may help better target the public health program in children prevention programs. Sedentary time, specifically time in front of a computer or videogame, increases with age. Mean time spent in front a screen is significantly higher in overweight children than in normal-weight children. Cut off at 18.5 for thinness is probably too high to explore relation between thinness and sedentarity.

## References

- Hercberg S, Chat-Yung S, Chauliac M. The French national nutrition and health program: 2001-2006-2010. *Int J Public Health* 2008;53:68-77.
- Castetbon K, Vernay M, Malon A *et al*. Dietary intake, physical activity and nutritional status in adults: the French nutrition and health survey (ENNS, 2006-2007). *Br J Nutr* 2009;102:733-43.