

Do Portuguese Children eat enough fruit and vegetables?

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Introduction

The *Pro Greens* is a healthy eating promotion project, running between August 2008 and July 2011, in eleven EU countries (www.progreens.org).

The main objectives of the project are to assess the level of consumption of fruit and vegetables in school children and to develop and test effective strategies to promote their consumption.

In a first stage, a baseline-survey was conducted in May 2009 in all participant schools: fruit and vegetable intake and psychosocial factors associated with the consumption patterns of 10-13 year-old schoolchildren were assessed using the validated *Pro Children* questionnaire.



Aim

The aim of this paper was to characterize the baseline consumption of fruit and vegetables in Portuguese children and to determine if they achieve the recommended intakes of the World Health Organization (WHO) of a minimum of 400 g of fruit and vegetables per day.



Methods

The Portuguese sample consists of 1008 children aged 10-13 years old from 5 schools [3 control (n=537) and 2 intervention (n=471)] located near Porto. In this paper, data from the baseline consumption will be presented. Baseline data was collected from a total of 898 children (47.4% girls) with a participation rate of 89%. The data collection instrument consisted of a booklet previously used in the *Pro Children Project*, designed to capture study participants' recall of their total food consumption through a pre-coded 24-hour-recall, with a particular emphasis in their fruit and vegetable consumption. In what concerns vegetables, the pre-coded categories included soup, raw vegetables, cooked vegetables and salad. Besides identifying the fruit/vegetables consumed, children also filled in the number of portions consumed.

Adequacy of fruit and vegetable intake was determined taking into account the WHO recommendations. Data were entered and analyzed in SPSS® version 17.0. To establish differences between sexes, mean comparisons were conducted using Student's t test.



Results

Portuguese children showed to have low intakes of fruit and vegetables - 79.1% of the schoolchildren had a consumption below the WHO recommended levels (Table 1). From the children studied, 11.1% reported no consumption of fruit and vegetables (Table 2).

Table 1: Proportion of schoolchildren reporting fruit/vegetable intake over a 24-hour evaluation period below or above WHO recommendations, by sex.

	Overall (n=898) %	Boys (n=472) %	Girls (n=426) %
≥400g/day	20.9	19.7	22.3
<400g/day	79.1	80.3	77.7

There were no significant differences of consumption between boys and girls and children consumed more fruit than vegetables (Table 3). The most consumed fruit was apple, followed by banana (Figure 1). The main vegetable source was soup, with little contribution from other sources to vegetable intake (Figure 2).

Table 2: Number and proportion of fruit/vegetable consumers and non-consumers among 10-13 year-old schoolchildren, by sex^a.

	Overall (n=898) %	Boys (n=472) %	Girls (n=426) %
Consumers			
Fruit	72.0	70.3	73.9
Vegetables	75.4	74.2	76.8
Fruit or Vegetables	88.9	87.5	90.4
Non-Consumers			
No Fruit or Vegetables	11.1	12.5	9.6

^a Consumers of fruit and vegetable were defined as study participants reporting consumption of any fruit or vegetable item during 24-hour evaluation period.

Table 3: Grams of fruit/vegetable intake among 10-13 year-old schoolchildren, by sex^a.

	Girls (n=426)		Boys (n=472)		p
	Mean±SD	Median (min - max)	Mean±SD	Median (min - max)	
Fruit	140.9±155.2	100 (0-1900)	136.1±132.8	100 (0-800)	0.923
Vegetables	115.3±102.9	80 (0-480)	110.9±114.1	80 (0-960)	0.442
Total	256.2±215.7	202.5 (0-2140)	247.0±200.5	205 (0-1260)	0.700

^a Consumers of fruit and vegetable were defined as study participants reporting consumption of any fruit or vegetable item during 24-hour evaluation period.

Figure 1: Fruit consumption in grams, by sex.

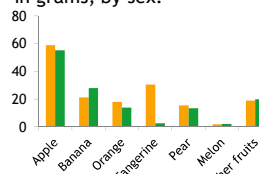
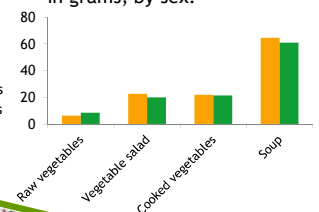


Figure 2: Vegetable consumption in grams, by sex.



Conclusions

These results reveal a strong need to develop effective fruit and vegetable promotion programs targeting Portuguese children. Core determinants of consumption should be carefully taken into account.