



# Boosting fruit and vegetables to keep kids healthy (PRO CHILDREN)

As the old adage of 'An apple a day keeps the doctor away' tells us, eating fruit and vegetables on a regular basis can help prevent chronic diseases. The current actual dietary intake is below recommended levels in most European countries. The aim of the PRO CHILDREN project is to identify determinants of fruit and vegetable intake among schoolchildren, and to develop effective strategies to promote adequate consumption levels. These intervention strategies will be developed into an appropriate and effective means to promote fruit and vegetables among schoolchildren and their parents across Europe. Initial results show increased uptake in the trial areas.

### Eat more fruit and vegetables

Recent research has demonstrated the health benefits of eating a diet rich in fruit and vegetables. In northern Europe, the consumption of fruit and vegetables has tended to be well below current



health recommendations: the well-known "five portions of fruit and vegetables a day" guidance. Even in southern Europe, there is concern that both the amount and variation in fruit and vegetables eaten may be in decline.

There is a clear need to develop effective strategies that can boost consumption and help improve public health. The ultimate objective of the PRO CHILDREN project is to implement and evaluate culturally relevant intervention programmes that can produce a 20% increase in fruit and vegetable consumption amongst participating children and their parents.

### Surveys and strategies

Cross-sectional surveys were implemented in representative samples of schoolchildren aged 11 to 13 in nine European countries (Austria, Belgium, Denmark, Iceland, the Netherlands, Norway, Portugal, Spain and Sweden) to give reliable assessments of how much fruit and vegetables they eat. The surveys were also designed to identify the factors, such as psychological and socio-demographic determinants, which influence consumption patterns amongst both the school children and their parents. These data were used to design the intervention strategies that are tailored to take into account any 'local factors' in each of the three countries where the intervention strategy was tested.

The initial intervention studies were undertaken in three cities (Bilbao, Oslo and Rotterdam) with an initial baseline survey conducted in September 2003 and the intervention programmes started in October 2003. Comprehensive school-based educational programmes have been developed and tested in these three settings using a precoded 24-hour recall form combined with a set of food frequency questions to assess regular food intake and fruit and vegetable consumption.

### Positive attitudes need better availability

Results from initial surveys showed highly diversity across the nine participating countries. Vegetable intake was in general lower than fruit intake, with boys consuming less fruit and vegetables than girls



# Consumer science

did. The highest total intake, according to the 24-hour recall, was found in Austria and Portugal, the lowest in Spain and Iceland. However, the fruit and vegetable intake in all the 11-year-old children in all countries was below dietary guidelines.

In contrast, European children were found to hold a positive attitude towards fruit and vegetable intake. Children had a more positive attitude towards fruit than towards vegetables, and girls were on average more positive than boys. The children perceived their social environment as supportive towards fruit and vegetable intake. They reported good to very good availability of fruit and vegetables at home, but low availability at school and during leisure-time activities. Positive health beliefs, taste preferences, lack of knowledge and practical barriers were identified as personal factors related to fruit and vegetable intake. Home and school availability of fruit and vegetables, as well as parenting practices, were singled out as important environmental factors by the children. This led to the development of intervention strategies that emphasise easier fruit and vegetable accessibility and include educational and motivational activities tailored to these personal and environmental factors.

Preliminary analysis of the findings of the initial intervention studies indicate that the frequency of reported intake of fruit and vegetables has increased in proportions close to the stated objective: a 23% increase for fruit and an 18% increase for vegetables.

## Better diet, better health

The cross-sectional surveys among schoolchildren in nine countries that assessed fruit and vegetable consumption and its determinants can enhance our understanding of consumer choices and attitudes concerning fruit and vegetables. The intervention programme in three countries is demonstrating an appropriate strategy that is proving effective in promoting fruit and vegetables among schoolchildren and their parents across Europe. This should have a positive effect on public health if implemented more widely.

The results of the project will be of great importance to educational and public health authorities, commercial and professional groups within each country as well as to EU authorities in their efforts to promote healthy eating across Europe.

## More information

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## Project Essentials

### Full Project name:

Promoting and sustaining Health through increased Vegetable and Fruit Consumption among European schoolchildren.

**Project Acronym:** PRO CHILDREN

**Project type:** Shared-cost project

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**Project Start Date:** 01/04/2002

**Duration:** 48 months

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**EC Contribution:** € 1 337 251

## Project Collaborators:

University of Oslo (NO), Bilbao City Council (ES)  
University of Iceland (IS), University of Copenhagen (DK), University of Porto (PT), Vienna University (AT), The Royal Veterinary and Agricultural University (DK), University of Maastricht (NL), Karolinska Institute (SE), University of Ghent (BE)