

Role of 100% fruit juice in the diet

Throughout the world, a large percentage of the population – both of developmental age and adults – does not consume the amount of fruit and vegetables recommended by guidelines and scientific societies. Fruit juice consumption, which is higher in children, becomes gradually lower in adolescence; with the lowest consumption levels seen in adulthood.

Consumption of 100% fruit juice around the world

A 2010 publication¹ reported on the consumption of 100% fruit juices in 569,000 individuals across 46 countries worldwide. It found higher intakes in Australasia (156ml/day) while, on average, Asian countries presented low consumption levels, with the lowest seen in Eastern Asia at just 3ml/day). On average, consumption was higher in high-income countries: 60ml/day versus 7ml/day in low-income countries. In all the geographic areas considered, consumption by women was higher than in men.

Consumption of fruit juices over time

Considering surveys that have taken place over the years in Italy, it's possible to understand how consumer habits have changed with regard to the choice of fruit, vegetables and fruit juices. Consumption of 100% fruit juices was similar in the first two surveys, conducted in 1980-84 and 1994-96, which both reported an average daily consumption of fruit juices of 21ml/day². Data from the most recent survey in 2005-06 showed a strong increase to 64ml/day².

Appropriate portion sizes

In the United Kingdom, consumers are advised to drink up to 150ml fruit juice daily and this counts as one portion of fruit within the 5-a-day recommendation. This amount is equivalent to 62 kcal, or around 3% of daily energy based on a 2,000-kcal diet³. In Italy, the recommended fruit juice portion is 200ml⁴.

In the United States, the Dietary Guidelines 2015-2020⁵ use a “cup-equivalent”, equal to 237ml, as a reference for whole fruits and fruit juices. The guidelines recommend a daily consumption of 2 cup-equivalents of fruit, of which less than half should be in the form of unsweetened fruit juice. For the *American Heart Association*⁶, the fruit and fruit juice portions coincide and each corresponds to half a cup, i.e. 4oz (equivalent to half a piece of fruit or 115ml of a drink). One of the recommended fruit portions can be replaced with consumption of 100% fruit juice.

Does fruit juice replace milk?

Based on data reported in two studies conducted on American children and adolescents, higher consumption of fruit juice, vegetables⁷ and fruit⁸ was not associated with lower consumption of milk. A similar story was seen in a secondary analysis⁹ of the UK National Diet and Nutrition Survey which found that fruit juice consumers tended to have higher intakes of whole fruit (both adults and adolescents) and were more likely to achieve three to five portions daily of fruit and vegetables. In contrast, non-consumers of fruit juice were less likely to achieve recommendations.

Fruit juices versus fruit and vegetables consumption

Estimates from the NHANES (2007-2010) study indicate that only 40% of those aged 1-18 years report fruit consumption in line with the US Guidelines. Higher consumption levels were seen in the 2-5 year-old age range but gradually decreased with age⁹. Children in the 2-5 year-old age range consumed less whole fruit and more fruit juices compared with older age groups, where this trend was reversed. Taking into account total fruit intake, around 35% comes from fruit juices and this percentage is maintained in more recent data drawn from the NHANES 2011–2012 study¹⁰.

Consumption of fruit juices, fruit and vegetables throughout life

Dietary habits during childhood are important determining factors for the consumption of fruits and vegetables in subsequent life stages. Since this has repercussions on behaviour during adulthood, healthy dietary habits should be encouraged from early childhood. Fruit juice consumption, which is higher in the age group from 2-5 years, becomes gradually lower in adolescence with the lowest consumption levels seen in adulthood.^{1,10,11,12}

During adolescence or perhaps even before, there is a sudden drop in fruit and vegetable consumption, which then picks up again during adulthood.^{11,13} Overall, a large proportion of the population – both during the developmental age and adulthood – does not consume the amounts of fruit and vegetables recommended by guidelines or scientific societies.^{9,11,14,15,16}

Some European surveys (in Ireland, Netherlands, and UK) conducted between 2003 and 2006 on 4-18 year olds have shown that the consumption of fruits and vegetables increases in line with the consumption of fruit juices.^{17,18,19} A large survey looking at beverage choices in 2,741 European adolescents found that around half of adolescents reported fruit juice consumption. The average daily amount was 132ml (equivalent to about 70kcal)¹³.

Conclusion

International data suggest that the consumption of fruits, vegetables and 100% fruit juices varies according to age, gender and country. Fruit juice consumption is greater in high-income countries, young children and women. Between childhood and adolescence, fruit juice intake tends to decline, with around half of European adolescents reporting consumption. Drinking fruit juice correlates with higher fruit intakes, and does not appear to replace milk. In their recommendations, several countries equate one daily serving of fruit juice to a portion of fruit.

References

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