

Fruit and vegetable consumption

Introduction

Fruit and vegetables are important sources of vitamins, minerals, trace elements, secondary plant substances (phytochemicals) and dietary fibre. In addition to a high nutrient density, most varieties contain a high proportion of water and are therefore at the same time low in calories (DGE 2007). Dietary patterns with correspondingly high proportions of fruit and vegetables generally imply that other, physiologically less beneficial foods are consumed less often. This may help to avoid weight gain and as a consequence prevent overweight (Buijsse et al. 2009). In addition, a high intake of fruit and vegetables has often been described to be of relevant importance for the prevention of several chronic diseases (Boeing et al. 2012; Boffetta et al. 2010; WCRF, AICR 2007).

A balanced diet is of major importance, especially for children and adolescents since the supply of nutrients plays a significant role with regard to growth as well as physical and mental performance. Furthermore, eating habits adapted in childhood and adolescence often track into adulthood (Rasmussen 2006).

Consequently, during the last decades various health-policy measures have been undertaken to improve fruit and vegetable consumption levels. Probably one of the best-known activities is the “5-a-day” campaign, which recommends eating five portions of fruit and vegetables every day. As part of this, one portion of fruit or vegetables may be exchanged for a glass of fruit or vegetable juice.

Indicator

In KiGGS wave 1, parents provided information about the intake of fruit and vegetables for children aged 3 to 10 years. Adolescents aged 11 to 17 years were asked themselves. Parents respectively adolescents were asked by telephone: “How often does your child/do you eat fruit?”; “How often does your child/do you eat vegetables?” and “How often does your child/do you drink fruit and vegetable juice?” - There were four possible responses: “Every day”, “At least once a week”, “Less than once a week” and “Never”. Depending on the answers they were then asked, “How many portions of fruit/vegetables does your child/do you eat per day?” or “per week?” and further “How many glasses of fruit and vegetable juice does

your child/do you drink per day?” or “per week?” The possible answers were: ½ glass, 1 glass, 2 glasses and 3 (or more) glasses.

On the basis of this information, the consumption of fruit and vegetables per day among children and adolescents according to gender and social status is shown in the following.

Key results

- ▶ 10.7% of children and adolescents consume the recommended five servings of fruit and vegetables per day.
- ▶ Girls meet the recommendation significantly more often than boys.
- ▶ Children and adolescents from families of higher social status more often eat five portions of fruit and vegetables per day than children from families of lower social status.

Conclusion

According to KiGGS wave 1, 10.7% of children and adolescents consume five or more portions of fruit and vegetables per day. Girls, with a proportion of 12.2%, meet the recommendation significantly more often than boys with 9.4%. Furthermore, boys more often eat less than one portion of fruit and vegetables per day than girls (13.3% vs. 17.0%).

Similar tendencies are also observed in other studies in Germany. In both the Eating Study as a KiGGS Module (EsKiMo), which was carried out in 2006 as a sub-sample of the KiGGS baseline study, as well as the Dortmund Nutritional and Anthropometrical Longitudinally Designed Study (DONALD) which collects dietary data continually since 1985 it was observed that only very few children and adolescents actually met the recommended daily consumption levels (Kersting et al. 2004, Rabenberg, Mensink 2011).

Furthermore, in KiGGS wave 1 an association between the consumption of fruit and vegetables and social status can be seen. Accordingly, children in families of higher social status consume significantly more

often five or more portions of fruit and vegetables per day than children from families of lower social status. This finding could be observed in several studies (van der Horst et al. 2007; Sausenthaler et al. 2007) and may presumably be attributed to higher income levels and higher standards of parental education. Adults with higher standards of education eat more often healthy (Irala-Estevez et al. 2000) and also convey this way of life to their children (Xie et al. 2003).

Overall, these results show that fruit and vegetable consumption by children and adolescents is not yet at an optimum level and should continue to be encouraged.

Note: A detailed description of the study as well as explanations on the method are available on the KiGGS study website www.kiggs-studie.de, and in Lange et al. (2014).

Further results regarding fruit and vegetable consumption by children and adolescents can be found in Borrmann, Mensink (2015).

Literature

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Table 1

Frequency distribution of portions of fruit, vegetables and juice consumed per day among girls according to social status

	Number of portions of fruit and vegetables per day (incl. up to one glass of juice)			
	<1 portion	1 to <3 portions	3 to <5 portions	≥5 portions
	% (95%-CI)	% (95%-CI)	% (95%-CI)	% (95%-CI)
Girls	13.3 (11.7–15.2)	48.1 (45.9–50.2)	26.4 (24.6–28.3)	12.2 (11.0–13.5)
Social status				
Low	21.1 (16.1–27.1)	47.5 (40.9–54.3)	21.5 (16.8–27.0)	9.9 (6.6–14.7)
Middle	13.7 (11.9–15.8)	50.6 (48.0–53.3)	24.7 (22.6–26.9)	10.9 (9.5–12.5)
High	3.8 (2.8–5.1)	40.5 (37.1–43.9)	37.1 (34.0–40.2)	18.7 (15.9–21.9)
Overall (girls and boys)	15.2 (14.0–16.4)	48.8 (47.1–50.6)	25.2 (24.0–26.5)	10.7 (9.9–11.7)

Table 2

Frequency distribution of portions of fruit, vegetables and juice consumed per day among boys according to social status

	Number of portions of fruit and vegetables per day (incl. up to one glass of juice)			
	<1 portion	1 to <3 portions	3 to <5 portions	≥5 portions
	% (95%-CI)	% (95%-CI)	% (95%-CI)	% (95%-CI)
Boys	17.0 (15.5–18.6)	49.6 (47.4–51.7)	24.1 (22.4–25.8)	9.4 (8.3–10.5)
Social status				
Low	23.7 (18.9–29.3)	53.8 (47.6–60.0)	15.9 (11.6–21.5)	6.5 (4.2–9.9)
Middle	17.4 (15.6–19.3)	50.8 (48.4–53.2)	23.8 (21.9–25.8)	8.0 (6.8–9.3)
High	7.7 (6.2–9.5)	42.4 (39.2–45.6)	33.8 (31.0–36.8)	16.1 (14.0–18.5)
Overall (girls and boys)	15.2 (14.0–16.4)	48.8 (47.1–50.6)	25.2 (24.0–26.5)	10.7 (9.9–11.7)

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