

Whole grain Intakes in Irish Pre-school Children

C. Hamrock¹, M. Buffini¹, A.P. Nugent^{1,2}, J. Walton³, A. Flynn³ and B.A. McNulty¹

¹UCD Institute of Food and Health, School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland, ²Institute for Global Food Security, School of Biological Sciences, Queens University Belfast, BT9 5HN and ³School of Food and Nutritional Sciences, University College Cork, Cork, Ireland

Whole grain intake is associated with many health benefits and a reduced risk for many chronic diseases such as type 2 diabetes, cardiovascular disease, obesity and colorectal cancer^(1,2). Currently, no research exists profiling the whole grain intakes of Irish pre-school children however, this life stage is a fundamental time for the development of taste preferences and healthy food choices⁽³⁾. The aim of this study was to investigate the whole grain intakes of Irish pre-school children and to profile patterns of intake. Data was analysed from the National Pre-school Nutrition Survey (NPNS; n 500), which used a 4-day weighed food-intake diary; collecting data on habitual food and beverage intakes in a representative sample of 1–4 year olds (www.iuna.net). Brand information, including ingredient listings, was subsequently recorded in the Irish National Food Ingredient Database (INFID)⁽⁴⁾, with each brand linked to consumption data. In the current analysis, the presence or absence of whole grain was confirmed at food and brand level, and information on the grain ingredients present were ascribed using food package labelling, comparable products and recipe databases specific for the NPNS. Whole grain content was calculated as dry matter, whereby the water content (%) and the dry matter whole grain content (%) of whole-grain ingredients were established.

Descriptive analysis of whole grain intake (g/d) for Irish pre-school children (total population and whole grain consumers only)

	Total Population								Whole grain consumers only							
	n	%	Mean	Median	SD	P5-0	P97-5	P	n	%	Mean	Median	SD	P5-0	P97-5	P
Total Population	500	100	18.43	16.05	13.36	1.40	50.72		485	97.00	19.00	16.50	13.16	2.48	50.92	
Gender								0.051								0.093
Male	251	50.20	19.59	16.71	14.48	1.57	57.47		246	50.72	19.99	16.88	14.35	2.50	57.59	
Female	249	49.80	17.26	15.41	12.04	0.43	47.97		239	49.28	17.98	15.87	11.75	2.47	48.10	
Age								0.031								0.022
1 Year	126	25.20	16.06 ^a	13.88	11.30	2.13	50.88		124	25.57	16.32 ^a	13.89	11.20	2.59	50.92	
2 Years	124	24.80	18.08 ^{ab}	16.56	12.03	1.27	48.03		120	24.74	18.68 ^{ab}	16.65	11.76	2.53	48.08	
3 Years	126	25.20	18.57 ^{ab}	15.46	13.73	1.39	53.23		119	24.54	19.66 ^{ab}	16.97	13.34	2.40	54.73	
4 Years	124	24.80	21.05 ^b	18.50	15.65	0.64	60.89		122	25.15	21.40 ^b	18.55	15.54	1.72	61.23	

^{a,b} Mean values with unlike superscript letters were significantly different between mean daily intakes of whole grain (ANOVA with Bonferroni *post-hoc* correction). Mean values were significantly different when P < 0.05

The mean daily intake of whole grain in the total population were 18.4 g/d, with 97% of pre-school children classified as consumers. Wheat sources contributed the most to whole grain intakes (65.8%), followed by oats (20.5%). Whereby ‘Ready-to-eat breakfast cereals’ (50%) followed by ‘bread and rolls’ (24.3%) provided the greatest contribution to whole grain intakes. Correspondingly, breakfast had the highest number of whole grain consumers (91.8%, n = 459). High consumers of whole grain had significantly higher intakes of fibre, iron, vitamin B12 and folate, and lower intakes of sodium (p < 0.05). The present study shows that while a high proportion of pre-school children are whole grain consumers, overall dietary intakes are low. Development of an applicable recommendation is necessary for this age group as currently none exists.

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