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## Association of fibre density with nutritional quality of the diet in Irish adults aged 18–64 years

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The association between dietary fibre (DF) density and dietary quality was investigated. Analysis was based on the National Adult Nutrition Survey (<http://www.iuna.net>). A 4-d semi-weighed food diary was used to collect dietary intake data from 1274 adults aged 18–64 y. Dietary intake data were entered into WISP<sup>®</sup>, which is based on *McCance and Widdowson's The Composition of Foods 6<sup>th</sup> edition*<sup>(1)</sup> and the Irish food composition database<sup>(2)</sup>. Respondents were split by tertiles of DF density (g/10 MJ), which were stratified by gender and age-group. Food and nutrient intakes were adjusted for total energy (TE). Dietary energy density (DED) was calculated using the 'food only, excluding all beverages' method<sup>(3)</sup>. Intakes of energy, DED and nutrient intakes are reported for the lower and upper thirds of DF density. Statistical differences (\*\* $P < 0.01$ , \*\*\* $P < 0.001$ ) between upper and lower thirds are reported.

	<i>P</i>	Low DF/10 MJ ( <i>n</i> = 424)			High DF/10 MJ ( <i>n</i> = 424)		
		Mean	<i>SD</i>	Median	Mean	<i>SD</i>	Median
Energy (MJ)	**	8.9	2.9	8.6	8.2	2.7	7.9
DED (kJ/g)	***	8.1	1.6	8.2	6.4	1.5	6.3
Protein (%TE)	***	16.1	4.1	15.6	17.8	3.8	17.3
Fat (%TE)	***	34.8	7.2	34.7	32.0	6.0	32.0
Saturated Fat (%TE)	***	14.0	3.9	13.8	12.0	3.2	12.0
Carbohydrate (%TE)	***	39.8	7.2	39.8	45.6	6.2	45.5
Alcohol (%TE)	***	7.5	8.6	5.2	3.3	5.0	0.7
DF (g/10 MJ TE)	***	15.6	3.2	1.6	31.1	6.4	2.9
Vitamin A (µg/10 MJ)	***	1100	1214	833	1542	1309	1234
Vitamin D (µg/10 MJ)	***	4.5	6.4	2.7	6.3	11.0	3.9
Thiamin (mg/10 MJ)	***	3.3	9.3	1.7	4.6	13.5	2.2
Riboflavin (mg/10 MJ)	***	3.5	7.6	2.1	4.4	11.9	2.4
Niacin Equivalents (mg/10 MJ)	***	51.3	19.7	48.4	59.3	37.4	52.7
Vitamin B <sub>6</sub> (mg/10 MJ)	***	4.8	9.6	2.8	5.8	15.7	3.6
Vitamin B <sub>12</sub> (µg/10 MJ)	NS	8.1	9.6	6.2	11.8	63.8	5.9
Folate (µg/10 MJ)	***	447	1131	337	509	500	427
Vitamin C (mg/10 MJ)	***	132.1	303.9	62.4	188.4	369.8	120.9
Calcium (mg/10 MJ)	**	1082	410	987	1154	410	1100
Magnesium (mg/10 MJ)	***	298	65	288	404	115	384
Sodium (mg/10 MJ)	***	2903	693	2825	3085	718	3012
Potassium (mg/10 MJ)	***	3282	654	3220	4050	1008	3920
Iron (mg/10 MJ)	***	17.4	27.9	12.1	18.3	11.5	15.7

A higher DF density was associated with more favourable macronutrient profiles, a lower DED and greater micronutrient densities in the diet. A higher DF density was also associated with significantly ( $P < 0.001$ ) greater intakes (g/10 MJ) of foods such as fruit, vegetables, ready-to-eat breakfast cereals, low fat milk, wholemeal/brown breads and fish, and significantly ( $P < 0.001$ ) lower intakes (g/10 MJ) of white bread, whole milk, carbonated beverages (non-diet) and processed meat. In conclusion, a higher DF density was associated with eating patterns more in line with food based dietary guidelines and with better nutritional quality of the diet overall.

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1. Food Standards Agency (2002) *McCance & Widdowson's The Composition of Foods Sixth Edition*. Cambridge: Royal Society of Chemistry.
2. Black LJ, Ireland J, Møller A *et al.* (2011) *J Food Compos Anal* **24**(7): 1017–1023.
3. Ledikwe JH, Blanck HM, Khan LK *et al.* (2005) *J Nutr* **135**, 273–278.