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Determinants of change in consumption of wholegrain foods in EPIC-Norfolk

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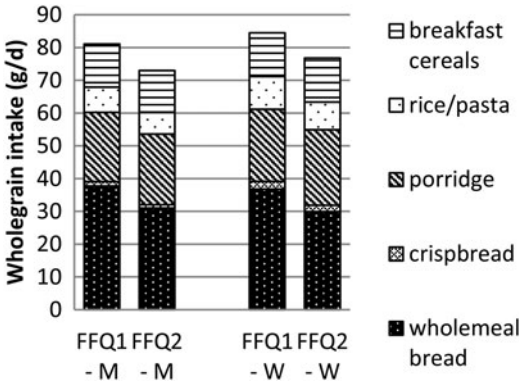
In the UK, adults are recommended to eat a variety of wholegrain (WG) foods[1]. High WG consumers are more likely to be younger, non-smokers and of a non-manual social class but WG intakes are low and have decreased over time[2]. The aim of the present study was to assess the sources of WG foods in the Norfolk cohort of the European Prospective Investigation into Cancer and Nutrition (EPIC). We also investigated the anthropometric, socio-demographic and lifestyle factors contributing to changes in WG intake over time.

Participants attended a health examination and completed a health and lifestyle questionnaire and a baseline food frequency questionnaire (FFQ1) between 1993 and 1998, and a follow-up FFQ questionnaire (FFQ2) between 1998 and 2000. FFQ data from both time-points were available for 11692 participants. WG foods included WG breakfast cereals, brown rice, wholemeal pasta, porridge, crispbread and wholemeal bread.



A significant decrease of 7·9 g/d (SD = 74·3) in mean daily WG intake from FFQ1 to FFQ2 ($p < 0·0001$) was seen, but the proportion of food sources remained similar. In FFQ1, 7·5% of participants had no reported daily WG food intake compared to 8·2% in FFQ2; 3·4% consumed no WG foods at either time-point. The difference in WG intake between FFQs was categorised into tertiles and participants' characteristics were compared.

Baseline characteristics		Decrease (−992, −21)		Similar (−21, 10)		Increase (10, 905)		*p* value
Mean (SD) WG intake (g/d): FFQ1		140	83	53	57	56	56	0·0001
	FFQ2	61	57	48	57	116	83	0·0001
Sex (%)	Men ($n = 5026$)	32		36		33		
	Women ($n = 6666$)	35		32		34		0·001
Mean (SD) Age (years)		59·3	8·9	58·9	8·9	59·1	8·8	0·08
Mean (SD) BMI (kg/m^2)		25·9	4·0	26·0	3·8	26·0	4·0	0·66
Mean (SD) Waist circumference (cm)		86·2	12·9	87·4	12·3	86·9	12·8	0·0001
Mean (SD) Systolic blood pressure (mm Hg)		134·5	19·2	134·6	18·8	134·4	19·6	0·83
Social class (%)	Non-manual ($n = 7362$)	34		33		34		
	Manual ($n = 4147$)	32		35		33		0·23
Education (%)	No qualifications ($n = 3806$)	32		35		33		
	O level or above ($n = 7886$)	34		33		33		0·007
Smoking status (%)	Current ($n = 981$)		26		41		33	
	Former/never ($n = 10619$)	34		33		33		0·001
Exercise (%)	Inactive/mod inactive ($n = 6527$)	33		34		34		
	Mod active/active ($n = 5165$)	34		33		33		0·04
Current job (%)	Yes ($n = 5601$)		32		34		34	
	No ($n = 6034$)		34		33		33	0·07

A change in WG intake was weakly associated with baseline lifestyle characteristics, apart from smoking. Characteristics, other than those of high WG consumers[2], are likely to determine an increase in WG food consumption and should be further investigated to aid development of healthy eating campaigns.

1. Food Standards Agency (2013) http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/237282/Eatwell_plate_booklet.pdf.
2. Thane CW, Jones AR, Stephen AM, *et al.* (2007) *Br. J. Nutr.* **97**, 987–92.