

Estimates of fibre intake and percentage of the population with intake below the dietary reference values (DRVs) in England (1991-2015). By F. Amirabdollahian^{1,5}, B. Buczkowski^{2,5}, S. Mushtaq^{3,5} and I.G.Davies^{4,5}. ¹*School of Health Sciences, Liverpool Hope University, Liverpool, L16 9JD*, ²*Department of Food and Tourism Management, Manchester Metropolitan University, Manchester, M15 6BG*, ³*Department of Clinical Sciences and Nutrition, University of Chester, Chester, CH2 2AS*, ⁴*Faculty of Education, Health and Community, Liverpool John Moores University, Liverpool L17 6BD*, ⁵*Northwest Nutrition Research Consortium*

In 1991, Committee on Medical Aspects of Foods (COMA) defined dietary fibre as non-starch polysaccharides (NSP) and set the Dietary Reference Value (DRV) as the population average intake of 18 g/day¹, determined using Englyst method of analysis². The recent publication of the Scientific Advisory Committee on Nutrition (SACN)³ broadened the definition of dietary fibre beyond NSP to AOAC fibre, recommending the DRV to be 30 g/day based on AOAC method. The COMA 1991, DRV of 18 g/day of NSP corresponds to around 24 g/day of AOAC fibre and therefore the new DRV of fibre would represent a higher recommendation (around 22.5 gr fibre as per Englyst method) for the average population. The purpose of this study was to investigate variation in fibre intake of English population by age and gender, in comparison with the COMA and SACN DRVs.

After obtaining ethical approval, data on the core sample of the National Diet and Nutrition Survey rolling programme from 2008-2012 was reanalysed. Children aged below 16 years were excluded in consideration of their different DRVs. The data on the dietary fibre was extracted from fully productive individuals (i.e. participants who completed three/four diary days), as an average daily intake based on the NSP/Englyst fibre. Inferential statistics included the analysis of the variance to discover if there were any significant variations in fibre intake of males and females in relation to their age groups. The statistical significance was set at 0.05.

Daily fibre intake (g/day)	Age (years)				
	16-18	19-34	35-49	50-64	65+
Men					
Mean	13.1 ^a	14.3 ^{a,e}	14.9 ^{b,e}	15.4 ^{b,c}	14.9 ^{b,d,e}
Standard Deviation	4.7	5.3	5.2	5.4	5.5
Mean intake per 1000 Kcal Food energy	6.3 ^a	6.6 ^a	7.2 ^b	7.8 ^c	7.7 ^{c,d}
Standard deviation	1.6	2.0	2.2	2.9	2.5
Percentage with intake less than 18	85.8	79.0	76.9	72.6	74.8
Percentage with intake less than 22.5	95.5	93.7	92.0	89.9	90.4
<i>Number (Weighed)</i>	83	441	469	378	305
Women					
Mean	10.6 ^a	12.0 ^b	12.7 ^{b,c}	13.5 ^d	12.9 ^{c,d,e}
Standard Deviation	3.9	4.3	4.6	4.4	4.2
Mean intake per 1000 Kcal Food energy	7.0 ^a	7.6 ^a	8.2 ^b	8.7 ^c	8.7 ^{c,d}
Standard deviation	2.4	2.6	2.7	2.9	2.6
Percentage with intake less than 18	95.3	90.3	86.4	86.2	88.4
Percentage with intake less than 22.5	99.6	97.7	96.1	97.3	97.7
<i>Number (Weighed)</i>	79	441	466	391	390

Table 1: Estimates of fibre intake (g/d), density (g/1000kcal) and percentage population with intake less than 1991 and 2015 DRVs by gender and age of participants. In rows, means that have no superscript in common are significantly different from each other (P<0.05).

For all age groups, the average fibre intake is below the DRVs. The average daily fibre intake slightly increased with age for both genders until 65 years. When differences in energy intake were taken into account, the average daily fibre density (g/1000kcal) still increased with the age of participants. Overall, less than a third of populations had an intake above the COMA 1991 DRV. When the intake was compared with the SACN 2015 DRV, more than 90% of the population had intake below this cut-off point, demonstrating a challenge for future developing policies to meet the nutritional guidelines, particularly amongst females and younger adults. The findings should be treated with caution considering the definition of AOAC fibre used as the basis for the SACN DRV includes non-digestible oligosaccharides, resistant starch and polydextrose, going beyond NSP/Englyst variables analysed.

1. Committee on Medical Aspects of Foods: Department of Health (1991) Dietary Reference Values for Food Energy and Nutrients for the United Kingdom no. 41. London: HMSO.
2. Englyst HN, Quigley ME & Hudson GJ (1994). *Analyst* **119**, 1497-1509.
3. Scientific Advisory Committee on Nutrition (2015) carbohydrates and Health. London: HMSO.