



Department of  
**Health**  
www.health-ni.gov.uk



# National Diet and Nutrition Survey (NDNS RP): Results for Years 5 to 9 (combined) of the Rolling Programme for Northern Ireland (2012/13 - 2016/17) and time trend and income analysis (Years 1 to 9; 2008/09 - 2016/17)

A survey carried out on behalf of the Food Standards Agency in Northern Ireland and Public Health England

Prepared by: Beverley Bates, Robin Clifford, David Collins, Lorna Cox, Naomi Davidson, Clifton Gay, Sonja Nicholson, Marian O'Reilly, Polly Page, Caireen Roberts, Toni Steer and Gillian Swan

**NatCen**  
Social Research that works for society

MRC | Elsie Widdowson  
Laboratory

# About Food Standards Agency in Northern Ireland

Food Standards Agency in Northern Ireland (FSA in NI) is responsible for devolved matters relating to food safety, standards, nutrition and dietary health in Northern Ireland and has responsibility for monitoring the diet of the population in Northern Ireland.

Food Standards Agency in Northern Ireland  
10 A-C Clarendon Road  
Belfast  
BT1 3BG  
Tel: 028 9041 7700  
[www.food.gov.uk](http://www.food.gov.uk)  
email: [infofsani@food.gov.uk](mailto:infofsani@food.gov.uk)

For queries relating to this document, please contact:  
[executive.support@food.gov.uk](mailto:executive.support@food.gov.uk)

© Crown copyright 2019

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit OGL. Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published 2019



## Authors' acknowledgements

We would like to thank everyone who contributed to the survey and the production of this report. In particular, we would like to thank:

- colleagues at Natcen: Kate Earl, Steve Edwards, Malin Karikoski, Coral Lawson, Dan Philo and Chloe Robinson
- former NatCen colleagues: Vicki Hawkins and Natalie Maplethorpe
- colleagues at MRC Elsie Widdowson Laboratory (MRC EWL, formerly called MRC Human Nutrition Research): Suzanna Abraham, Birdem Amoutzopoulos, Iain Bayes, Veronica Bell, Sylvaine Bruggraber, Karen Chamberlain, Darren Cole, David Collins, Kevin Donkers, Yvette Edwards, Sarah Elsey, Clare Evans, Anila Farooq, Marc Fleming, Sarah Gibbings, Kate Guberg, Anna Harvey, Lindi Holmes, Martha Hughes, Alison James, Dagmar Koller, Abhilash Krishnankutty, Rachael Mack, Tabasum Makhdoomi, Amanda Mckillion, Sarah Meadows, Elise Orford, Ann Prentice, Sumantra Ray, Marco Scarbardi, Priya Singh, Edyta Telega, Kirsty Trigg, Michelle Venables, Nicola Wilson, Jenny Winster, Stephen Young and Nida Ziauddeen
- former MRC EWL colleagues Alison Lennox, the late Les Bluck and late Chris Bates for their involvement in the set up of the Rolling Programme
- colleagues at the MRC Epidemiology Unit, University of Cambridge: Oliver Francis and Stephen Sharp
- colleagues at CDC laboratories for carrying out blood folate analyses
- colleagues at Addenbrooke's for carrying out blood analyses
- Elaine Gunter (Specimen Solutions, LLC) for an independent quality review of laboratory procedures and analyses
- members of the NDNS Project Board: Julie Lovegrove, Jenny Mindell and Hilary Powers
- the staff at Public Health England, in particular: Louis Levy, Mark Bush, Kate Sweeney, Natasha Powell, Bethany Knowles, Danielle Weiner and Alison Tedstone
- the staff at the Food Standards Agency: Joseph Shavila
- members of the Northern Ireland NDNS Steering Group: Dr Naresh Chada, Bill Stewart, Ian McClure and Sharon Gilmore
- former FSA in Northern Ireland colleague, Joanne Casey
- all the participants who gave up their time to take part in Years 1 to 9 of the NDNS RP

# Executive summary

The National Diet and Nutrition Survey Rolling Programme (NDNS RP) is a continuous cross-sectional survey, designed to assess the diet, nutrient intake and nutritional status of the general population aged 1.5 years and over living in private households in the UK. A representative sample of around 1000 people (500 adults and 500 children) take part in the NDNS RP each year.

The NDNS RP comprises an interview, a 4-day estimated diet diary, physical measurements and a blood and urine sample. Results are used by government to monitor progress toward diet and nutrition objectives of UK Health Departments and to develop policy interventions.

Fieldwork for the first 9 years of the NDNS RP was carried out between 2008/09 and 2016/17.

Food Standards Agency in Northern Ireland (FSA in NI) has responsibility for monitoring the diet of the population in Northern Ireland and has co-funded additional recruitment (i.e. boosted sample) in Years 1-4 (2008/09-2011/12) and Years 6-9 (2013/14-2016/17)<sup>1</sup> in order to achieve representative data for Northern Ireland and enable comparisons to be made with UK results. The Northern Ireland boost is co-funded by the Northern Ireland Steering Group which comprises three funding partners: the Department of Health (DoH); *safefood* (Food Safety Promotion Board) and FSA in NI

The foods and nutrients and urinary analyte presented in this report were selected for their nutritional and public health relevance to current dietary concerns in Northern Ireland. Results are analysed for five age groups: 1.5 to 3 years; 4 to 10 years; 11 to 18 years; 19 to 64 years and 65 years and over, split by sex in all except the youngest age group.

## Key findings

### Food consumption, nutrient intakes and urinary spot iodine compared with recommendations

(Years 5 to 9; 2012/13-2016/17)

- Consumption of 5 A Day fruit and vegetable portions was below the recommendation in all age/sex groups. Average consumption of fruit and vegetables for children aged 11 to 18 years in Northern Ireland was 2.5 portions per day with 94% not meeting the 5 A Day recommendation. On average adults aged 19 to 64 years consumed 3.4 portions per day and adults aged 65 years and over consumed 3.3 portions per day with around 80% not meeting the 5 A Day recommendation.

---

<sup>1</sup> In Year 5 (2012/13) recruitment in Northern Ireland was not boosted. Therefore, data in this report is based on participants in Northern Ireland from the UK core sample together with a boosted Northern Ireland sample in Years 1-4 and Years 6-9.

- Average consumption of oily fish was equivalent to 7-15g per week in children and 30-60g per week in adults, well below the recommended 1 portion (140g) per week.
- Average daily consumption of red and processed meat for men aged 19 to 64 years exceeded the current maximum recommendation for adults by 19g.<sup>2,3</sup>
- For all age/sex groups, average intakes of saturated fatty acids exceeded the current recommendation of no more than 11% of food energy providing 12.7-13.3% of food energy for children aged 4 years upwards and 13.3-14.0% for adults.
- Average intakes of *trans* fatty acids met the recommendation of no more than 2% of food energy in all age/sex groups.
- Intakes of free sugars<sup>4</sup> exceeded the recommendation of no more than 5% of total energy from free sugars in all age/sex groups. Average intake was 12.8% of total energy for children aged 1.5 to 3 years, 13.6% for those aged 4 to 10 years and 15.1% for children aged 11 to 18 years. Average free sugars intake was 9.3-10.5% of total energy for adults. Overall, 95-97% of children and 84-87% of adults did not meet the recommendation.
- For AOAC fibre,<sup>5</sup> average intakes were 9.9g for children aged 1.5 to 3 years, 12.9g for those aged 4 to 10 years and 14.6g for children aged 11 to 18 years. Intakes of AOAC fibre were 17.3-17.6g for adults. Overall, 94-98% of the population were not meeting the recommendations.<sup>6</sup>
- There was evidence of low intakes for some vitamins and minerals, particularly in the 11 to 18 years age group where average intakes of vitamin A, folate, iron, calcium, magnesium, potassium, iodine, selenium and zinc were below recommendations.
- Average intakes of vitamin D were well below the recommended 10µg/day in all age/sex groups.
- Overall, the median concentration of iodine in spot urine samples for most age/sex groups was above the threshold indicating adequate iodine status for the Northern Ireland population. For girls aged 11 to 18 years, the median urinary iodine concentration did not meet the threshold although it should be noted that the number of samples in this age group is small.

---

<sup>2</sup> [NHS. Eat Well: Meat in your diet.](#)

<sup>3</sup> The Department of Health has advised that people who eat a lot of red and processed meat a day (more than 90g cooked weight) cut down their intake to 70g.

<sup>4</sup> The definition of free sugars includes all added sugars in any form; all sugars naturally present in fruit and vegetable juices, purees and pastes, and similar products in which the structure has been broken down; all sugars in drinks (except for dairy-based drinks) and lactose and galactose added as ingredients. Further details of the methodology for determining free sugars in the NDNS RP are provided in appendix AA.

<sup>5</sup> AOAC fibre is the term used to describe fibre measured by the American Association of Analytical Chemists (AOAC) methods. AOAC fibre includes resistant starch and lignin in the estimation of total fibre as well as NSP

<sup>6</sup> The Scientific Advisory Committee on Nutrition (SACN) AOAC fibre recommendations: 30g/day for adults; 25g/day for older children aged 11-16 years; 20g/day for the 5-11 year age group; 15g/day for the 2-5 years age group.

## Trends over time (Years 1 to 9; 2008/09-2016/17)

- There was little change in intake of fruit and vegetables over the 9-year period.
- There was little change in intake of oily fish over the 9-year period, except in the proportion of consumers aged 1.5 to 3 years which fell by 12 percentage points.
- Intake of red and processed meat showed a downward trend over time in the 11 to 18 years and 19 to 64 years age groups.
- Over the 9 years, the proportion of the population consuming sugary, fizzy drinks and squashes dropped by 34, 20 and 28 percentage points for those aged 4 to 10 years, 11 to 18 years and 19 to 64 years respectively. There was a downward trend in intake over time among children who drank sugary, fizzy drinks and squashes, however the decrease was only significant for children aged 11 to 18 years.
- There was a downward trend in intake of free sugars, although average intakes exceeded the current recommendation of no more than 5% of total energy from free sugars in all age/sex groups over the 9 years. As a percentage of total energy, free sugars intake dropped by 4.5, 3.5 and 4.5 percentage points over the 9 years for boys aged 4 to 10 years, girls aged 11 to 18 years and men aged 19 to 64 years respectively.
- There were small but not significant decreases in total fat intake over the 9-year period. No trend over time was seen in saturated fatty acid intakes as a percentage of food energy, except for children aged 1.5 to 3 years where intakes fell by 1.8 percentage points over the 9 years. Adults and children showed a significant reduction in *trans* fatty acids intake as a percentage of food energy over time.<sup>7</sup>
- There was little change in AOAC fibre intake over time.
- There was a downward trend in intakes of most vitamins and minerals over the 9-year period for many age/sex groups.
- There was a significant decrease over time in sodium intake<sup>8</sup> in all age groups.

## Equivalent household income<sup>9</sup> (Years 5 to 9; 2012/13-2016/17)

- There was evidence of greater intake of fruit and vegetables with increasing income in all age/sex groups. Higher percentages of consumers of fruit juice were also seen with increasing income.
- There was a significant decrease in the proportion of children aged 4 to 10 years consuming sugary, fizzy drinks and squashes with increasing income. For all age groups, among those who drank sugary, fizzy drinks

---

<sup>7</sup> The levels of *trans* fats produced artificially through food processing have been reduced. NDNS relies on the availability of food composition data to support estimation of nutrient intakes. This decrease in intake may reflect changes in the composition of foods that took place some time ago, rather than changes in actual nutrient intakes in the survey population over the 9-year period.

<sup>8</sup> Sodium intake estimates are based on the sodium content of foods consumed. They do not fully take account of salt added during cooking and exclude salt added at the table by participants.

<sup>9</sup> Equivalent household income is a standard methodology that adjusts household income to account for different demands on resources, by considering the household size and composition.

and squashes, intakes tended to decrease with increasing household income.

- Intake of total fat as a percentage of energy tended to increase with increasing income for adults but decrease with increasing income for children. There was no consistent pattern across age/sex groups in saturated fatty acid intake with respect to income.
- For free sugars, there was no consistent pattern in intake with respect to income although intakes decreased significantly with income for children aged 4 to 10 and 11 to 18 years.
- Intakes of AOAC fibre and most vitamins and minerals tended to increase with increasing income.
- Changes in sodium intake<sup>10</sup> with respect to income were small and not in a consistent direction.

---

<sup>10</sup> Sodium intake estimates are based on the sodium content of foods consumed. They do not fully take account of salt added during cooking and exclude salt added at the table by participants.