



## Statistical Summary: National Diet and Nutrition Survey: results from Years 7 and 8 (combined) of the Rolling Programme (2014/15 – 2015/16)

Today, Public Health England published combined results from years 7 and 8 of the National Diet and Nutrition Survey (NDNS) rolling programme (2014/15 -2015/16).

The NDNS rolling programme is a continuous cross-sectional survey, designed to assess the diet, nutrient intake and nutritional status of a representative sample of around 1000 people per year (500 adults and 500 children) from the general population aged 18 months upwards living in private households in the UK. The NDNS comprises an interview, a four-day diet diary and collection and analysis of blood and urine samples. Results are used by government to monitor the diet and nutritional status of the population, to provide the evidence base for policy development and to track progress towards public health nutrition objectives such as reducing sugar, calories, saturated fat and salt intakes.

The NDNS is jointly funded by Public Health England and the UK Food Standards Agency. Work for years 7 and 8 of the rolling programme was carried out by a consortium led by NatCen Social Research working with the Medical Research Council Elsie Widdowson Laboratory (formerly known as MRC Human Nutrition Research).

### Key findings for years 7&8

The findings in this report confirm that the UK population overall continues to consume too much sugar and saturated fat and not enough fruit and vegetables and fibre. Intakes of free sugars and AOAC fibre are presented for the first time in this report, and compared with government recommendations arising from the 2015 Scientific Advisory Committee on Nutrition report on carbohydrates and health. Intakes of free sugars and fibre failed to meet recommendations in all age groups. Statistical comparison of years 7&8 (2014/15-15/16) with the earliest paired years - years 1&2 (2008/09-09/10) showed evidence of a reduction in free sugars intake in children aged 4-10 and 11-18 years and adult men, but there was also evidence of a fall in fibre intake in children. The analyses presented in this report do not identify any new nutritional problems in the general population:

- **free sugars:** Mean intakes of free sugars were more than double the recommended maximum of no more than 5% of total energy in all age groups: 11.1% of total energy in adults, 11.2% in older adults and 11.3% in pre-school children, 13.5% in children aged 4-10 years and 14.1% in children aged 11-18 years

- mean intakes of free sugars for children aged 4-10 years and 11-18 years and men aged 19-64 years were significantly lower in years 7&8 than in years 1&2. The fall in free sugars intake in children is at least partly attributable to a decline in consumption of sugar-sweetened soft drinks in both age groups. Mean daily consumption of sugar-sweetened soft drinks in children aged 4-10 years was significantly lower in years 7&8 (83g/day) compared with 130g/day in years 1&2. In the 11-18 year age group there was also a smaller but statistically significant decline from 275g/day in years 1&2 to 191g/day in years 7&8
- **total and saturated fat:** Mean total fat intakes met the recommendation of no more than 35% food energy in all age/sex groups except for older adults aged 75 years and over (36.4% in men; 35.6% in women). Mean saturated fat intakes exceeded the recommendation of no more than 11% food energy in all age groups. For example, mean saturated fat intake for adults aged 19 to 64 years was 12.5% food energy and for older adults aged 75 years and over 14.6% of food energy. For men 65-74 years, men 19-64 years and boys 4-10 years mean intake was significantly lower in years 7&8 than in years 1&2. However the data did not suggest a clear downward trend over time in these age groups
- **trans fat:** Mean intakes of trans fat provided 0.5-0.7% of food energy for adults and older adults and 0.4-0.5% food energy for children, thus meeting the recommendation of no more than 2% food energy. Intakes at the 97.5<sup>th</sup> percentile ranged from 0.8-1.2% of food energy
- **AOAC fibre:** Mean intakes of AOAC fibre in adults were 15-21g, below the recommendation of 30g. In children, mean intakes were 14-16g, 10g in children aged 1.5-3 years, below the age-adjusted recommendations for each age group. Intakes at the 97.5<sup>th</sup> percentile were also below the recommendations in most age groups. Mean fibre intakes in children aged 4-10 years and 11-18 years, and in men aged 65-74, were significantly lower in years 7&8 than in years 1&2.
- **fruit and vegetables:** Adults aged 19 to 64 years consumed on average 4.2 portions per day, older adults aged 65-74 years 4.3 portions, older adults aged 75 years and over 3.4 portions, and children aged 11-18 years 2.7 portions per day. Thirty-one percent of adults, 32% of older adults aged 65-74 years, 19% of older adults aged 75 years and over and 8% of 11-18 year olds met the 5 A Day recommendation
- statistical comparison of fruit and vegetable consumption showed that the proportion of adults aged 65 years and over meeting 5 A Day, was significantly lower in years 7&8 (26%) than in years 1&2 (36%). There was no evidence of any change over time in the mean number of portions consumed or the percentage meeting 5 A Day for any other age group
- **red and processed meat:** Mean consumption of red and processed meat was significantly lower in years 7&8 compared with years 1&2 for children aged 4-10 years, adults aged 19-64 years and women aged 65 years and over. Mean consumption in men aged 19-64 years and 65-74 years continued to exceed the recommendation of no more than 70g/day while mean intakes for women met the recommendation

- **oily fish:** Mean consumption of oily fish was well below the recommended one portion (140g) per week in all age groups. There was no evidence of any change in consumption over time
- **iron:** 54% of girls and 27% of women had low iron intakes. There was evidence of both iron-deficiency anaemia (as indicated by low haemoglobin levels) and low iron stores (plasma ferritin) in 9% of older girls, 5% of adult women and 1% of older women
- **vitamin D:** There was evidence of low vitamin D status (as indicated by low plasma 25-hydroxy vitamin D (25-OHD) concentrations in blood) in all age groups. 17% of adults aged 19 to 64 years, 13% of adults aged 65 years and over and 26% of children aged 11-18 years had low vitamin D status over the year as a whole
- Mean vitamin D intakes from food sources were below the recommendation of 10µg/day in all age groups, at around a fifth of the recommendation in children and a quarter to a third in adults. When intakes of vitamin D from supplements were taken into account mean intakes increased to around 25-35% of the recommendation for children and 40-60% for adults
- **folate:** There was evidence of low blood folate levels indicating risk of anaemia in over a quarter (28%) of girls aged 11-18 years, 15% of boys aged 11-18 years and 7% of adults 19-64 years, based on red blood cell folate concentrations
- Substantial proportions of all age/sex groups had red blood cell folate levels indicating risk of biochemical insufficiency based on raised homocysteine levels. Overall, between about a third and 60% had red blood cell folate levels below the estimated threshold range indicating biochemical folate insufficiency. These proportions were higher in older girls and women of childbearing age and lower in younger children
- Over 90% of women of childbearing age had a red blood cell folate concentration below the threshold indicating elevated risk of neural tube defects
- The data suggest lower concentrations of both red cell and serum folate in years 7&8 compared with years 1&2 (and other paired years) in all age/sex groups. However, these observed differences have not been statistically tested
- **urinary iodine:** Analysis of urinary iodine concentrations showed that all age/sex groups met the WHO criteria for adequate iodine status, ie median urinary iodine concentrations between 100 and 199µg/l and fewer than 20% of the population below 50µg

#### Background notes:

1. The NDNS rolling programme is commissioned as a continuous survey but is retendered at regular intervals. The first contract collected data over a four year period from 2008/09 to 2011/12 with an extension to a fifth year covering 2012/13. The contract under which this report was produced ran for a further four years covering 2013/14 to 2017/18 (year 6-10). At the end of 2017, following an open tender process, PHE awarded a contract for years 11 to 14 of the rolling programme to NatCen Social Research working with the MRC Epidemiology Unit.
2. The report published today presents for the first time results from 2014/15 and 2015/16 combined alongside previously published results for 2008/09-2009/10, 2010/11-2011/12 and 2012/13-2013/14. The report covers consumption of selected food groups, intakes of energy, macronutrients, selected vitamins and minerals and nutritional status (see note 13). Results for food consumption, nutrient intake and nutritional status are presented for five age groups: 1½-3 years; 4-10 years; 11-18 years;

19-64 years; 65 years and over, split by sex in all except the youngest age group. Food consumption and nutrient intakes are further split for older adults into 65-74 years and 75 years and over. Fieldwork was carried out in 2014/15 and 2015/16 with an overall response rate of 53%. The analyses of food consumption and nutrient intake are based on 2723 individuals (1417 adults and 1306 children). The blood sample analyses are based on 704 adults and 329 children. These numbers include additional recruitment in Wales and Northern Ireland which have been weighted down in the final analysis to give a UK representative sample.

3. This report updates the report of the year 5&6 combined results, published in 2016 by PHE [www.gov.uk/government/statistics/ndns-results-from-years-5-and-6-combined](http://www.gov.uk/government/statistics/ndns-results-from-years-5-and-6-combined)
4. Responsibility for nutrition policy in England and Wales transferred from FSA to Health Departments in 2010. Management of NDNS also transferred to the Department of Health in England at that time. From 1 April 2013, responsibility for the survey transferred to Public Health England, an operationally autonomous executive agency of DH.
5. The Government recommends an intake of at least five portions of fruit and vegetables per person per day. The Health Survey for England (HSE) is used to monitor '5 A Day' in England. HSE estimates of fruit and vegetable consumption are based on a recall of consumption over the previous 24 hours and are therefore different from NDNS estimates, which are based on a four-day diary. NDNS estimates are higher than HSE, at least in part, because NDNS captures the contribution from composite dishes containing fruit and vegetables.
6. Government recommendations for energy and nutrient intakes for males and females aged 1-18 years and 19+ years are summarised in Government Dietary Recommendations [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/618167/government\\_dietary\\_recommendations.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/618167/government_dietary_recommendations.pdf). These are based on recommendations from the Committee on Medical Aspects of Food and Nutrition Policy (COMA) and its successor the Scientific Advisory Committee on Nutrition (SACN).
7. Saturated fat is the kind of fat found in animal foods such as butter and lard, fatty cuts of meat, sausages and bacon, cheese and cream and foods containing them such as pies, cakes and biscuits. Consuming high levels of saturated fat can lead to raised blood cholesterol levels, which are associated with greater risk of developing heart disease.
8. Trans fats are formed when liquid vegetable oils are turned into solid or semi-solid fats through a process of hydrogenation. The main sources of trans fats in the diet are from partially hydrogenated vegetable oils (PHVOs), dairy and meat from ruminant animals. Hydrogenated Vegetable Oils can be used as ingredients in products such as biscuits, cakes and desserts and are also used as cooking and ingredient oils. Naturally occurring trans fats are found in dairy produce and the flesh of ruminant animals eg beef and lamb. Trans fats raise the levels of the type of cholesterol in the blood, which may increase the risk of heart disease.
9. In 2015, the Scientific Advisory Committee on Nutrition (SACN) recommended that a new definition of free sugars should be adopted in the UK and the population average intake of free sugars should not exceed 5% of total energy for adults and children aged 2 years and over. Intakes of free sugars are presented for the first time in this report and replace non-milk extrinsic sugars which were reported previously. Free sugars include all added sugars, sugars naturally present in fruit and vegetable juices, purees and pastes and all sugars in drinks other than from dairy sources.
10. In 2015, SACN made a new recommendation fibre intake should be assessed based on the AOAC definition and average fibre intake for adults should be 30g/day AOAC fibre, which is equivalent to about 23g/day non-starch polysaccharides (NSP), an increase from the previous 18g/day recommendation. There are age-adjusted recommendations for children. AOAC fibre intakes are presented for the first time in this report and replace NSP.

11. This report does not include results for salt intake based on 24-hour urinary sodium. The latest results for salt intake for adults aged 19 to 64 years in England were published in 2016.  
[www.gov.uk/government/statistics/national-diet-and-nutrition-survey-assessment-of-dietary-sodium-in-adults-in-england-2014](http://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-assessment-of-dietary-sodium-in-adults-in-england-2014)
12. Nutritional status means the level of nutrients available to the body (after absorption) for use in metabolic processes. For some micronutrients, status can be assessed by directly measuring the level of the nutrient in blood, while for others it is assessed by a functional measure such as the activity of vitamin-dependent enzymes.
13. The report presents descriptive statistics on blood analytes for the following micronutrients: iron; vitamin B12; vitamin B2 (riboflavin); vitamin B6, vitamin D and folate. Results are also reported for blood lipids (eg cholesterol). The percentage of participants with levels above or below an accepted threshold indicating low status is shown for those analytes for which threshold values have been proposed.
14. Haemoglobin concentrations below 115-130g/L (depending on age and sex) indicate iron deficiency anaemia. Plasma ferritin levels below 15µg/l indicate low iron stores. The combination of haemoglobin and ferritin concentrations can be used as a measure of iron deficiency. Low levels may be due to low intakes or to blood loss
15. Severe vitamin D deficiency causes rickets in children and osteomalacia in adults, this is a condition characterised by pain, muscle weakness and bone fractures. Both conditions are rare in the UK although there is evidence of significant incidence in South Asian and Afro-Caribbean groups. SACN's report on vitamin D and health published in 2016 set an RNI of 10µg per day for all age groups. In the summer months, most people will meet their requirements through a combination of sunlight on skin and a healthy balanced diet.
16. Folate status is assessed against the clinical thresholds for risk of anaemia, based on red blood cell folate (305nmol/L) and serum folate (7nmol/L - deficiency' 13nmol/L – possible deficiency). For women of childbearing age, folate status is also assessed against the red blood cell folate concentration below which indicates elevated risk of neural tube defects (748nmol/L). Red blood cell folate is usually a better indicator of long-term status than plasma or serum folate because it reflects longer-term body stores whereas serum folate concentrations respond rapidly to changes in dietary intake.
17. The term biochemical folate insufficiency refers to concentrations below the indicative threshold ranges based on analysis of NDNS data to find the folate concentration below which metabolic changes including raised homocysteine levels start to occur. The indicative threshold ranges for biochemical folate insufficiency are higher than those for clinical deficiency.
18. Folate in the diet comes from naturally occurring folates in foods and folic acid from fortified foods such as some breakfast cereals and from dietary supplements. Low folate status of women of childbearing age (16 to 49 years) is a particular public health concern. Increased folic acid intake through supplementation has been shown to reduce the risk of neural tube defects such as spina bifida if taken in the periconceptual period. Women planning pregnancy are, therefore, advised to take a 400µg folic acid supplement daily until the 12th week of pregnancy.