

# National Teens' Food Survey II



## Summary Report

June 2021

(Amended November 2021)

Irish Universities Nutrition Alliance (IUNA)



# National Teens' Food Survey II

Summary Report on:

Food and Nutrient Intakes, Body Weight, Physical Activity and  
Eating Behaviours in Teenagers Aged 13-18 Years in Ireland

Irish Universities Nutrition Alliance (IUNA)

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Irish Universities Nutrition Alliance (IUNA)

[www.iuna.net](http://www.iuna.net)



## Research teams

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Fieldwork and primary analysis of the survey data presented in this report were carried out by the following teams from University College Dublin (UCD), Munster Technological University (MTU), University College Cork (UCC) and Technological University Dublin (TU Dublin), as part of the Irish Universities Nutrition Alliance ([www.iuna.net](http://www.iuna.net)).

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## Main Outcomes

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### Food and beverage intakes

Staple foods for Irish teenagers aged 13-18 years (i.e. foods consumed by practically all teenagers in amounts sufficient to make important nutritional contributions to the diet) were breads, potatoes, cereals, milks, meats, fruits and vegetables.

Intakes of fruit and vegetables were low, less than 3 servings per day, well below the recommended 5-7-a-day. This includes about one serving of vegetables and one and a half servings of fruit, including unsweetened fruit juice.

The average daily intake of bread was 85g (approximately 2 slices) with 57g as white bread and 18g as wholemeal/brown bread.

Average consumption of pasta, rice and savouries was 128g, including 36g from pasta, 31g from savouries (e.g. instant noodles, savoury/fried rice dishes), 29g from pizza and 27g from rice.

The average daily intake of potatoes and potato products was 84g with similar contributions from chipped, fried and roast potatoes (41g) and boiled/mashed/baked potatoes (36g).

Average consumption of milk was about one glass per day, mainly as whole milk rather than reduced fat milk.

Essentially all teenagers eat meat; however, more was consumed as processed meat than fresh meat. Chicken was the most popular type of fresh meat consumed, followed by beef.

The main beverages consumed were water, soft drinks (more as sugar-sweetened than as 'no added sugar') milk and teas.

Overall, 14% of teenagers consumed a food supplement over the 4-day survey period, with 'multivitamins and minerals' and 'multivitamins' being the most common types consumed.

Dietary changes that have occurred since the National Teens' Food Survey (NTFS) in 2005-06 include reduced intake of milk, potatoes, fruit juice and sugar-sweetened drinks, and increased intake of pasta, rice and savouries, fruit and water.

### Energy and nutrient intakes

Important sources of calories in the diet were meats, bread and cereal products, potatoes and milk and dairy products. About 18% of calories were provided by 'top shelf' foods (i.e. 'biscuits, cakes and pastries', 'sugars, confectionery, preserves and savoury snacks' and 'sugar-sweetened soft drinks') that are low in essential nutrients.

Eating at home was the main source of calories (81%) and the main influence on dietary quality for teenagers in this age group.

Saturated fat accounted for 14% of total energy intake, exceeding the recommendation of no more than 10%. The key contributors to saturated fat intake were meat and meat products (22%), milks (11%) and cheeses (7%), while 'top shelf'

## Main Outcomes

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foods combined (i.e. 'biscuits, cakes and pastries' and 'sugars, confectionery, preserves and savoury snacks') contributed 21%.

Mean intake of free sugars was 9% of energy with 30% of teenagers having intakes above the recommended maximum of 10% of energy. Intake of free sugars was lower than in the NTFS (2005-06) (14% of energy), mainly due to a switch in beverage consumption from sugar-sweetened drinks to water.

Average daily dietary fibre intake (17g) was similar to the NTFS (2005-06) (16g) but lower than the recommendations by the European Food Safety Authority (EFSA) for teenagers of this age (19-25g). The key contributors to dietary fibre intake were breads, potatoes, breakfast cereals, meat and meat products (including dishes) and vegetables.

Average daily intake of salt (6g) was higher than the maximum levels recommended by the Food Safety Authority of Ireland (FSAI) for teenagers of this age. Meats, especially cured and processed meats, and breads were the main contributors to salt intake. Average daily salt intake has decreased by about 1g since 2005-06.

Significant numbers of teenagers have inadequate intakes of vitamin D, calcium, vitamin C, folate, vitamin A, riboflavin and vitamin B6. Nine percent of teenage girls had inadequate intakes of iron. Important sources of vitamins and minerals were milk and milk products, meats, breads and cereals, especially fortified breakfast cereals, and fruits and vegetables.

## Body weight

Overall, 24% of teenagers (boys 23%, girls 24%) were classified as having overweight or obesity, while 71% were within the normal weight range. The prevalence of overweight and obesity was higher than in the previous teen's food survey (NTFS) where 18% of teenagers (boys 18%, girls 18%) were classified as having overweight or obesity.

## Physical activity

Participation in physical activities was relatively high in teenagers with a median duration of 81 minutes per day. A total of 67% teenagers achieved the recommended '≥60 minutes' of physical activity per day. Median daily time in sedentary behaviours was 455 minutes, including 231 minutes of screen time.

## Eating behaviours

The majority of teenagers (75%) found it difficult to eat a healthy diet either all the time or sometimes. The main perceived barriers to eating a healthy diet for teenagers were 'likes or dislikes' (57%), 'convenience' (52%) and 'availability' (35%).

## Introduction

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This Summary Report describes the methods and main findings on food and beverage consumption, nutrient intakes, body weight and factors associated with eating behaviours in teenagers from the National Teens' Food Survey II (NTFS II). The NTFS II was a cross-sectional survey designed to assess the food and nutrient intakes of teenagers aged 13 to 18 years, representative of this age group in the population of the Republic of Ireland.

The NTFS II was carried out by the Irish Universities Nutrition Alliance (IUNA), an alliance of the nutrition centres at academic institutions in Ireland, including University College Dublin, Munster Technological University, University College Cork and Technological University Dublin, which is committed to joint initiatives in research and teaching. To date, the IUNA has carried out a number of comprehensive national nutrition surveys: The North/South Ireland Food Consumption Survey (2001) of adults aged 18 to 64 years; The National Children's Food Survey (2005) of children aged 5 to 12 years; The National Teens' Food Survey (2008) of

teenagers aged 13 to 17 years; The National Adult Nutrition Survey (2011) of adults aged 18 to 90 years; The National Preschool Nutrition Survey (2012) of children aged 1 to 4 years and The National Children's food Survey II (2019) of children aged 5-12 years (all available at [www.iuna.net](http://www.iuna.net)).

The NTFS II was designed to provide detailed data on food and beverage consumption and is suitable for a wide range of applications related to food safety and nutrition. These include assessment of exposure to chemical and biological hazards in foods, development and implementation of food and nutrition policy and food product development and promotion.

Findings from the NTFS II may be compared with those from the National Teens' Food Survey (NTFS) of 441 Irish teenagers aged 13-17 years carried out by IUNA researchers in 2005-06 which used similar methodology.

A more detailed 'Main Survey Report' containing additional survey methodology and detailed data tables may be found at [www.iuna.net](http://www.iuna.net).



## Summary of methods used

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A sample of 428 teenagers (212 boys, 216 girls) aged 13 to 18 years from across the Republic of Ireland took part in the NTFS II. Ethical approval for the study was obtained from the Clinical Research Ethics Committee of the Cork Teaching Hospitals and the Human Ethics Research Committee of University College Dublin.

A database of post-primary schools in Ireland (provided by the Department of Education and Skills) was used to select schools to provide a demographically balanced sample with respect to urban/rural divide and socio-economic grouping. The principals of selected schools were contacted, with 73% of those contacted agreeing to take part in the study. Parents/guardians of teenagers who were randomly selected from the school roll were contacted with information on the survey and participation was invited. Where families opted in, a researcher visited the home to explain the survey in more detail and to obtain consent from both parents/guardians and the teenager. Fieldwork was carried out from March 2019 to March 2020, giving a seasonal balance. The overall response rate for the survey was 57%.

Participants were asked to record detailed information on the amount and type of all foods, drinks and food supplements consumed over four consecutive days (including at least one weekend day) in a food diary. Participants were provided with a digital food scales and asked to weigh as many foods and beverages as possible, including leftovers. Eighty-seven per cent of foods consumed were weighed directly or assigned a manufacturer's weight. Where foods were not weighed, researchers used age-appropriate photographic food

atlas, standard portion sizes and household measures at subsequent visits to aid with quantifying the amount of food consumed. Participants were encouraged to keep food packaging to provide further detail on the foods consumed. Nutrient intakes were estimated from food intakes using tables of food composition. Usual intakes of nutrients were estimated using the validated National Cancer Institute (NCI-Method) using SAS Enterprise Guide®.

Physical measurements (height, weight, % body fat and waist and hip circumference) of the teenagers and at least one parent/guardian were obtained by fieldworkers. Participants and their parents/guardians completed questionnaires on general health and lifestyle and determinants of food choice and eating behaviours. Physical activity levels of the teenagers were estimated using the validated Youth Physical Activity Questionnaire (Y-PAQ).

A single first-void urine sample was also collected during the recording period to estimate salt intake. In addition, participants were asked to provide a fasting blood sample to assess the nutritional status of participants and metabolic indicators of health.

Demographic analysis of the sample showed it to be representative of teenagers in Ireland with respect to gender and urban/rural divide when compared to Census 2016 data. However, the sample contained a higher proportion of teenagers of professional workers and a lower proportion of teenagers of semi-skilled and unskilled workers than the national population and all data in this report have been weighted to account for these differences.





## Introduction

This chapter describes the food intakes of Irish teenagers aged 13-18 years and reports on the proportions of teenagers who consumed different foods and beverages and the amounts that they consumed (**Tables 1-6**).

## Breads, cereals & potatoes

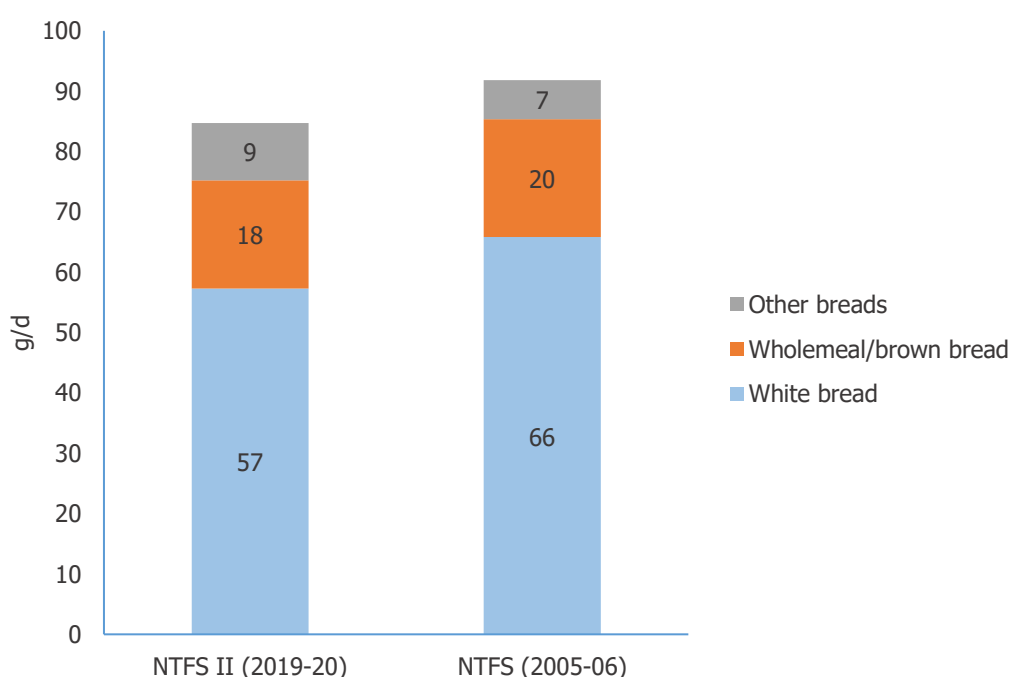
Bread was a staple food in the diets of Irish teenagers, consumed by 96% of teenagers. The average daily intake of total bread was 85g (approximately 2 slices of bread) (**Table 1**). Of the total bread intake, 57g was consumed as white bread and 18g as wholemeal/brown bread. **Figure 1** shows that while the average daily amount of bread consumed by Irish teenagers was similar to that reported in 2005-06 (92g), there was still more consumed as white bread than wholemeal/brown bread.

Breakfast cereals were consumed by 73% of teenagers with 67% consuming ready-to-eat breakfast cereals and

17% consuming hot oat cereals such as porridge. The mean daily intake of ready-to-eat breakfast cereals was 29g, of which high fibre cereals ( $\geq 6$ g of fibre/100g) accounted for 17g. The mean daily intake of porridge and other hot oat cereals was 19g (**Table 1**). Average intakes of ready-to-eat breakfast cereals were similar to that reported in 2005-06 (31g), with a higher proportion currently consumed as the high-fibre variety.

Mean daily intakes of pasta, rice and savouries was 128g including 36g from pasta, 31g from savouries (e.g. instant noodles, savoury/fried rice dishes), 29g from pizza and 27g from rice. The mean daily intake of pasta, rice and savouries was higher than that reported in 2005-06 (86g).

The mean daily intake of potatoes and potato products was 84g with similar contributions from chipped, fried and roast potatoes (41g) and boiled/mashed/baked potatoes (36g) (**Table 1**). Average daily potato consumption was lower than reported in 2005-06 (139g).



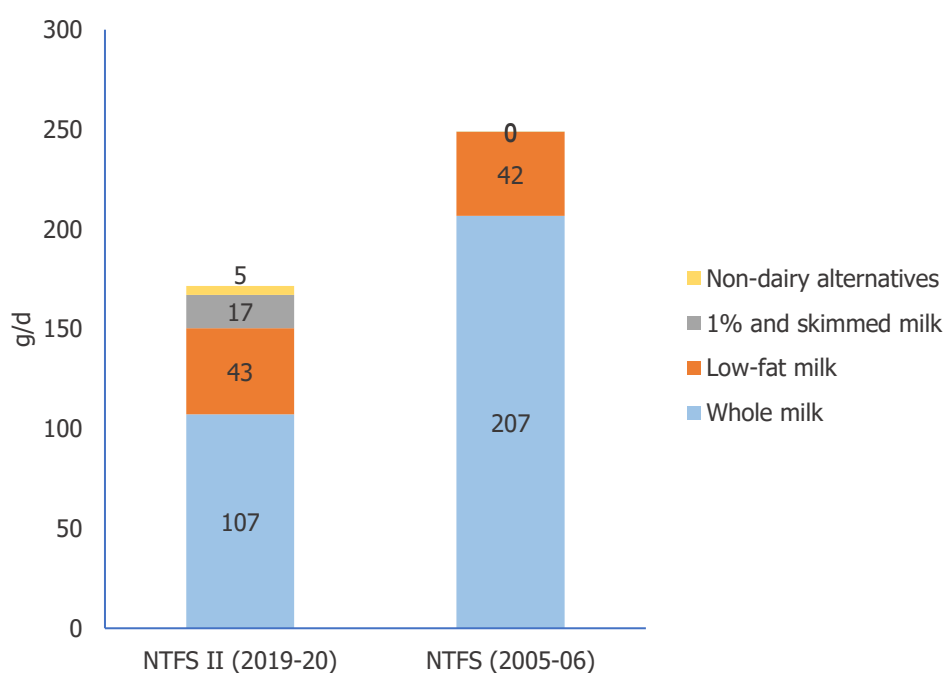
**Figure 1.** Mean daily intakes of white, wholemeal/brown and other breads in the NTFS II and NTFS

## Milk, dairy products & spreading fats

Milk was a staple food in the diets of Irish teenagers, consumed by 84% of teenagers, mainly as a beverage or with breakfast cereal. The mean daily intake of milk was 172g, just under one serving (200ml) (**Table 2**). Milk was mainly consumed as whole milk (62%) with 25% consumed as low-fat milk and 10% as 1% or skimmed milk. Just 3% of all milk consumed was non-dairy milk (e.g. nut milks, soya milk). Average intakes of total milk and whole milk were lower than reported in 2005-06 while intakes of reduced fat milk and non-dairy alternatives were higher (**Figure 2**).

Cheese was consumed by 57% of teenagers with an average daily intake of 11g. Yogurt was consumed by 31% of teenagers with an average daily intake of 18g. Consumption of cheese and yogurt has remained similar to that reported in 2005-06.

Average daily intake of spreading fats was 6g, which was lower than that reported in 2005-06 (12g).

**Figure 2.** Mean daily intakes of whole milk, reduced fat milks and non-dairy alternatives in the NTFS II and NTFS

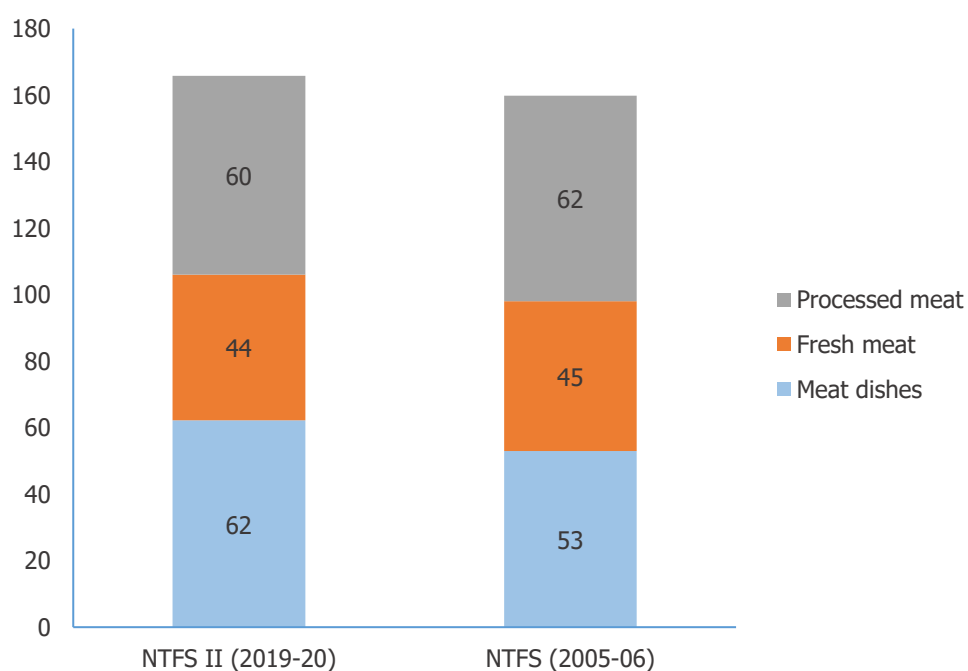
## Meat, fish, eggs, nuts & seeds

Meat was a staple food in the diets of Irish teenagers (98% consumers) with a mean daily intake of total meat of 166g (equivalent to one large chicken breast) which included meat dishes (62g), processed meat (60g) and fresh meat (44g) (**Table 3**). Of the processed meat, 45g came from meat products (e.g. chicken pieces, burgers and sausages) and 15g from bacon and ham. Of the fresh meat, poultry (mainly chicken) was the most popular type consumed, followed by beef. **Figure 3** shows that overall meat consumption was similar to that reported in 2005-06 (160g).

The mean daily intake of fish and fish dishes was 17g, of which 4g was consumed as oily fish. Forty per cent of discrete fish consumed was coated fish.

The mean daily intake of eggs and egg dishes was 14g with 36% of teenagers consuming eggs.

The mean daily intake of nuts and seeds was 2g with only 13% of teenagers consuming one or the other.



**Figure 3.** Mean daily intakes of meat dishes, processed meat and fresh meat in the NTFS II and NTFS

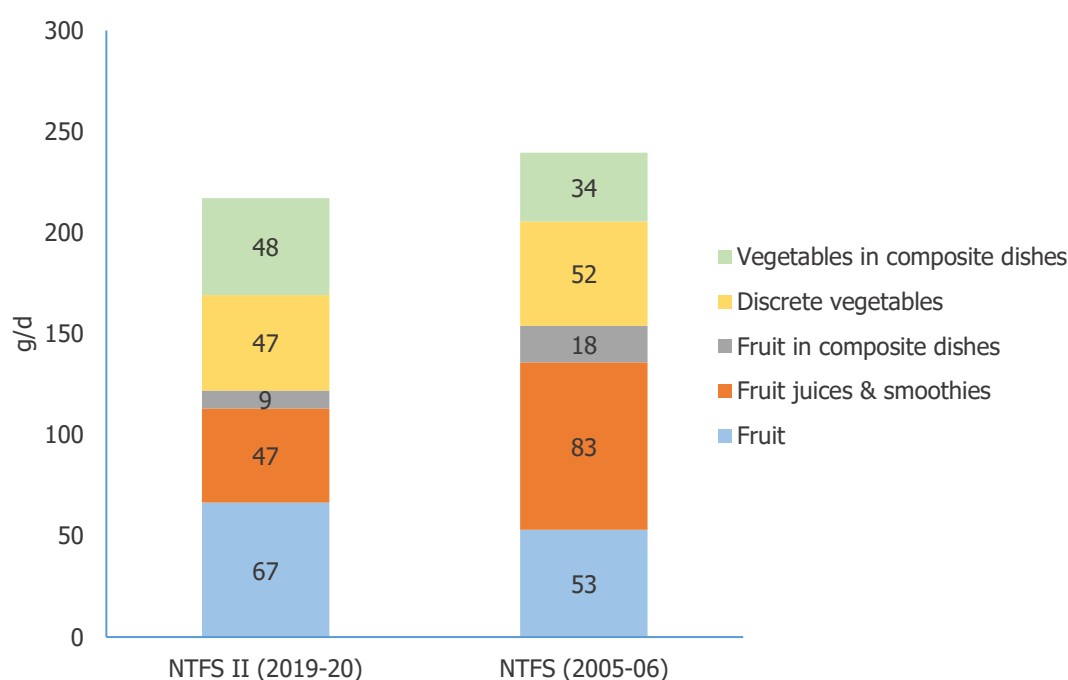
## Fruit & vegetables

Fruit was consumed by the majority of teenagers (93%) with an average daily intake of 67g of discrete fruit. Apples, bananas and oranges were the most common fruits consumed (**Table 4**). Average intake of whole fruit was higher than in 2005-06 (53g), although the types of fruits commonly consumed have remained unchanged. Average daily intake of pure (100%) fruit juice was 32g, lower than in 2005-06 (78g).

Teenagers consumed vegetables either alone (as discrete vegetables) or as part of composite dishes (e.g. within a pie or a stew). Discrete vegetables were consumed by most teenagers (84%) with an average daily intake of 47g (**Table 4**). However, 16% of teenagers consumed no discrete vegetables over the 4-day recording period.

The most popular vegetables consumed were carrots, peas, beans and lentils (including baked beans) and broccoli. Almost all teenagers (94%) consumed vegetables as part of composite dishes with an average daily intake of 48g. The average daily intake of total vegetables was higher than that reported in 2005-06 (86g) with similar contributions from discrete vegetables (52g) and higher intakes of vegetables from composite dishes (34g).

Overall, intakes of fruit and vegetables were low, less than 3 servings per day which is well below the recommended 5-7 servings a day. This includes about one serving of vegetables and one and a half servings of fruit including juices.



**Figure 4.** Mean daily intakes of fruit and vegetables in the NTFS II and NTFS

## Biscuits, cakes, confectionery & savoury snacks

Biscuits, cakes, confectionery and savoury snacks were widely consumed among teenagers with an average daily combined intake of 80g (**Table 5**). Overall, these findings were similar to those reported in 2005-06 (87g).

## Beverages

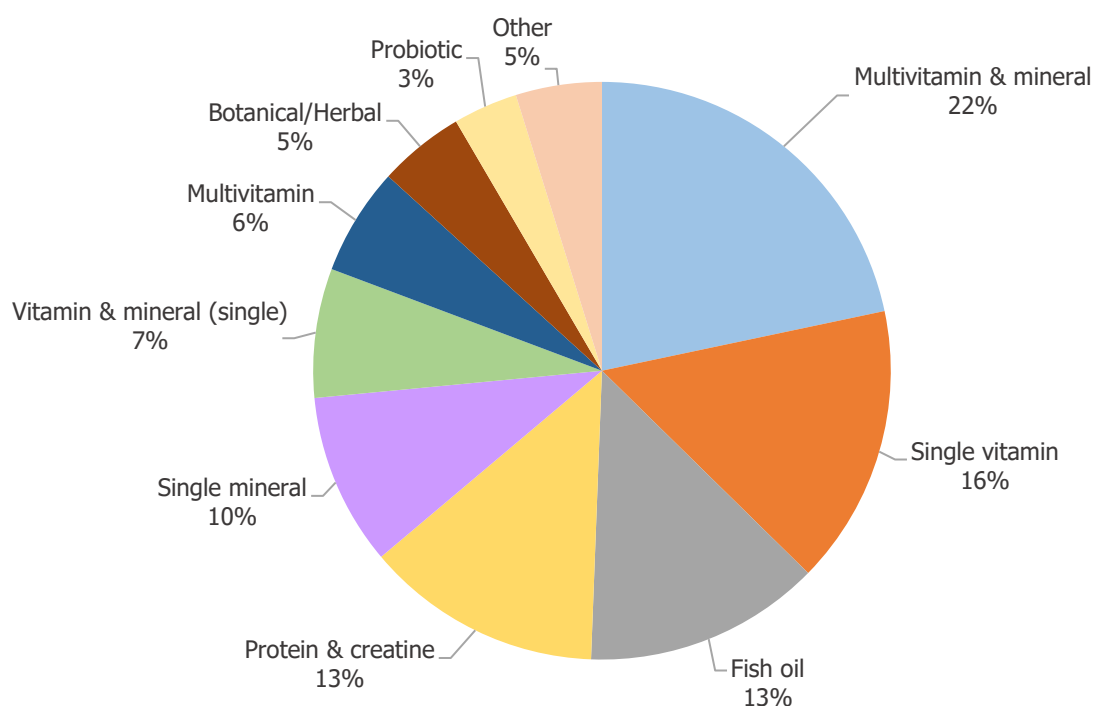
Water was the most commonly consumed beverage (94% of teenagers) with an average daily intake of 850g (**Table 6**). Milk was consumed as a beverage by 32% of teenagers, with a mean daily intake of 61g (about a quarter of a glass). Soft drinks (with and without added sugar) were consumed by 58% of teenagers with an average daily intake of 153g, with 84g coming from the sugar-sweetened variety and 69g from the no-added sugar variety. Consumption of sugar-sweetened soft drinks was lower than in 2005-06 (average daily intake of 213g).



## Food supplements

Overall, 14% of teenagers consumed a food supplement over the 4-day recording period. A total of 82 different types (brands) of food supplements were recorded. Multivitamins and minerals were the most common type (22% of all supplements recorded), followed by single

vitamin supplements (vitamins C, D and E) (16%) and then fish oils (13%) (**Figure 5**). The percentage of consumers of food supplements was lower than that reported in 2005-06 (24%).



**Figure 5.** Categories of food supplements consumed in the NTFS II

**Table 1.** Mean daily intakes (g) of bread, cereals & potatoes in teenagers (total population and consumers only) in the NTFS II and NTFS

	NTFS II (2019-20)					NTFS (2005-06)				
	13-18y ( <i>n</i> = 428)					13-17y ( <i>n</i> = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Total bread</b>	85	56	96	88	54	92	55	99	93	55
<i>of which</i>										
White bread	57	51	85	68	49	66	43	97	68	42
Wholemeal & brown bread	18	29	42	43	31	20	39	47	41	48
Other breads (e.g. garlic bread, fruit breads, scones)	9	20	28	34	25	7	13	35	19	16
<b>Breakfast cereals</b>	48	61	73	66	63	48	62	84	57	64
<i>of which</i>										
Ready-to-eat breakfast cereals	29	35	67	44	34	31	32	81	38	32
<i>high-fibre cereals (≥6g/100g)</i>	17	29	45	38	34	12	21	41	28	25
<i>low-fibre cereals (&lt;6g/100g)</i>	12	22	37	33	25	19	27	64	30	28
Porridge & hot oat cereals (made up)	19	54	17	111	81	17	57	15	115	103
<b>Pasta, rice &amp; savouries</b>	128	106	92	138	104	86	79	91	95	78
<i>of which</i>										
Pasta	36	56	47	75	60	23	54	46	50	70
Rice	27	50	42	66	59	14	27	36	39	33
Other cereals (e.g. noodles, couscous, quinoa)	6	20	11	52	38	2	10	5	41	26
Savouries (e.g. instant noodles, savoury/fried rice)	31	58	41	75	71	23	39	51	45	45
Pizza	29	50	36	80	53	23	32	50	47	31
<b>Potatoes &amp; potato products</b>	84	68	87	97	65	139	77	99	140	77
<i>of which</i>										
Chipped, fried & roasted potatoes	41	46	67	62	43	62	50	93	67	49
Boiled, baked & mashed potatoes	36	51	53	68	51	70	63	83	84	60
Processed & homemade potato products	6	18	16	37	28	7	16	24	27	23

**Table 2.** Mean daily intakes (g) of milk, dairy products & spreading fats in teenagers (total population and consumers only) in the NTFS II and NTFS

	<b>NTFS II (2019-20)</b> 13-18y ( <i>n</i> = 428)					<b>NTFS (2005-06)</b> 13-17y ( <i>n</i> = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Total milk</b>	172	216	84	205	221	249	233	94	265	231
<i>of which</i>										
Whole milk	107	189	53	204	220	207	231	82	252	232
Low-fat milk	43	133	21	207	226	42	122	24	179	198
1% and skimmed milk	17	58	14	121	110	<1	3	1	28	23
Non-dairy alternatives	5	25	5	82	73	<1	1	<1	19	7
<b>Sweetened milk drinks</b>	13	46	12	108	85	10	34	14	77	60
<b>Dairy Products</b>										
Yogurts	18	36	31	59	42	22	36	43	51	39
Cheeses	11	16	57	19	17	11	17	62	18	18
Ice-creams	8	20	23	36	27	10	17	48	22	19
Creams	<1	3	3	13	8	1	2	11	5	4
Dairy desserts (e.g. rice pudding, custard)	2	10	4	44	24	1	9	5	30	25
<b>Spreading fats</b>	6	7	68	8	8	12	12	88	13	12

**Table 3.** Mean daily intakes (g) of meat, fish, eggs, nuts & seeds (g/d) in teenagers (total population and consumers only) in the NTFS II and NTFS

	NTFS II (2019-20)					NTFS (2005-06)				
	13-18y (n = 428)					13-17y (n = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Total meat</b>	166	107	98	170	105	160	78	98	163	75
<i>of which</i>										
Meat dishes	62	77	61	101	76	53	55	72	73	52
Processed meat	60	52	91	66	51	62	44	96	64	43
<i>Meat products</i>	45	48	78	58	47	46	40	90	51	38
<i>Bacon &amp; ham</i>	15	21	59	25	23	16	17	77	21	16
Fresh meat	44	52	72	61	52	45	38	89	50	36
<i>Poultry</i>	28	41	56	50	44	25	28	71	35	27
<i>Beef</i>	11	23	28	38	28	12	19	42	27	21
<i>Pork</i>	2	13	6	41	36	4	11	16	22	17
<i>Lamb</i>	3	11	8	36	20	5	10	24	21	12
<b>Total fish</b>	17	38	32	52	50	10	19	39	26	23
<i>of which</i>										
White fish, coated	4	13	12	34	19	5	11	22	21	14
Oily fish	4	13	10	36	23	2	8	7	25	19
White fish, uncoated	1	8	4	38	21	1	5	5	20	10
Other fish	2	7	6	24	18	1	4	12	12	7
Fish dishes	6	30	7	94	78	1	10	3	43	41
<b>Eggs &amp; egg dishes</b>	14	29	36	39	36	8	14	41	20	16
<b>Nuts &amp; seeds</b>	2	9	13	17	19	<1	2	7	6	5

**Table 4.** Mean daily intakes (g) of fruit, fruit juices & vegetables in teenagers (total population and consumers only) in the NTFS II and NTFS

	NTFS II (2019-20)					NTFS (2005-06)				
	13-18y (n = 428)					13-17y (n = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Total fruit &amp; vegetables</b>	217	158	100	217	158	240	185	100	240	185
<b>Fruit &amp; fruit juices</b>	122	126	93	131	126	154	161	99	156	161
<b>Discrete Fruit</b>	67	76	72	92	75	53	101	66	80	115
<i>of which</i>										
Apples	23	38	39	58	39	23	57	41	56	79
Bananas	15	26	35	43	26	13	28	34	39	37
Citrus fruits	7	17	18	37	22	6	20	17	37	35
Other fruits	22	44	39	57	54	11	25	35	31	35
<b>Fruit in composite dishes</b>	9	16	76	12	17	18	20	96	19	20
<b>Fruit juice (100% fruit)</b>	32	74	29	107	103	78	113	59	133	120
<b>Smoothies</b>	15	54	10	151	102	5	19	7	67	35
<b>Total vegetables</b>	95	75	98	97	74	86	56	100	86	56
<b>Discrete vegetables</b>	47	61	84	56	62	52	46	91	57	45
<i>of which</i>										
Peas, beans & lentils	10	23	38	27	31	16	22	56	28	23
<i>Baked beans</i>	5	17	13	34	35	9	18	33	28	22
Carrots	8	15	37	21	18	9	14	51	18	15
Green vegetables	7	17	31	24	24	7	12	38	18	13
Other vegetables	22	44	62	35	51	20	28	68	29	29
<b>Vegetables in composite dishes</b>	48	42	94	51	41	34	29	97	35	29

**Table 5.** Mean daily intakes (g) of biscuits, cakes, confectionery & savoury snacks in teenagers (total population and consumers only) in the NTFS II and NTFS

	<b>NTFS II (2019-20)</b> 13-18y ( <i>n</i> = 428)					<b>NTFS (2005-06)</b> 13-17y ( <i>n</i> = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Total confectionery/snacks</b>	80	61	97	83	60	87	59	100	88	59
<i>of which</i>										
Biscuits & crackers	16	22	62	25	23	12	17	69	17	18
Cakes, pastries & buns	15	24	44	33	26	13	23	50	25	27
Chocolate confectionery	12	19	53	23	21	21	20	94	25	20
Desserts	11	29	24	46	44	10	24	31	32	35
Savoury snacks	10	16	54	18	18	13	14	75	17	14
Sugar confectionery	6	16	23	25	26	8	16	50	16	19
Sugars, sweeteners, preserves & chocolate spreads	6	9	50	11	11	8	13	66	13	15
Cereal bars	5	13	22	22	18	3	7	39	8	10
Protein bars	0	3	2	18	13	0	0	0	0	0

**Table 6.** Mean daily intakes (g) of beverages in teenagers (total population and consumers only) in the NTFS II and NTFS

	<b>NTFS II (2019-20)</b> 13-18y ( <i>n</i> = 428)					<b>NTFS (2005-06)</b> 13-17y ( <i>n</i> = 441)				
	Population			Consumers only		Population			Consumers only	
	Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
<b>Water as a beverage</b>	850	677	94	907	661	-	-	-	-	-
<i>of which</i>										
Flavoured water	27	125	8	335	302	-	-	-	-	-
<b>Soft drinks*</b>	153	219	58	263	231	238	212	90	263	207
<i>of which</i>										
Soft drinks, added sugar <sup>±</sup>	84	152	45	187	180	213	199	87	244	194
Soft drinks, no added sugar <sup>±</sup>	69	146	31	224	185	25	67	24	105	103
<b>Milk as a beverage</b>	61	147	32	193	206	-	-	-	-	-
<b>Fruit juice (100% juice)</b>	32	74	30	108	102	81	114	60	81	114
<b>Teas</b>	86	162	35	245	189	110	189	54	136	119
<b>Coffees</b>	26	76	18	148	120	9	37	14	203	218
<b>Smoothies</b>	15	54	10	147	101	5	19	7	68	78
<b>Sweetened milk drinks</b>	13	46	12	108	85	10	34	14	77	60
<b>Energy drinks</b>	11	54	6	169	137	1	8	3	44	19

\*carbonated beverages, fruit juice drinks, squashes and cordials

<sup>±</sup> Amended 11<sup>th</sup> August 2021







## Introduction

This chapter describes the average daily intakes of energy, dietary fibre and nutrients of Irish teenagers aged 13-18 years. For energy, dietary fibre and selected nutrients, the key dietary sources are also shown. Energy and nutrient intakes have been estimated using food composition tables, updated with current manufacturers' information where applicable. Estimates of nutrient intakes include contributions from nutritional supplements and fortified foods.

## Energy and macronutrients

Average daily intakes of energy and macronutrients of Irish teenagers aged 13-18 years are reported in **Table 7**, together with data for 13-17 year olds from the NTFS (2005-06). On average, 13-18 year old teenagers consumed 1812kcal of energy per day. The main sources of energy (**Figure 6**) were meat and meat products (18%), grains, rice, pasta and savouries (12%), bread and rolls (12%), potatoes and potato products (7%) and breakfast cereals (7%). When combined, 18% of energy was provided by 'top shelf' foods (i.e. 'biscuits, cakes and pastries', 'sugars, confectionery, preserves and savoury snacks' and sugar-sweetened drinks). While the percentage of energy consumed outside the home environment in this survey (19%) was lower than that reported in 2005-06 (25%), it still represents almost one-fifth of energy intake.

The average percentage of energy coming from protein was 17% and the main contributors to protein intake

were meat and meat products (39%), grains, rice, pasta and savouries (11%) and bread and rolls (11%) (**Figure 7**).

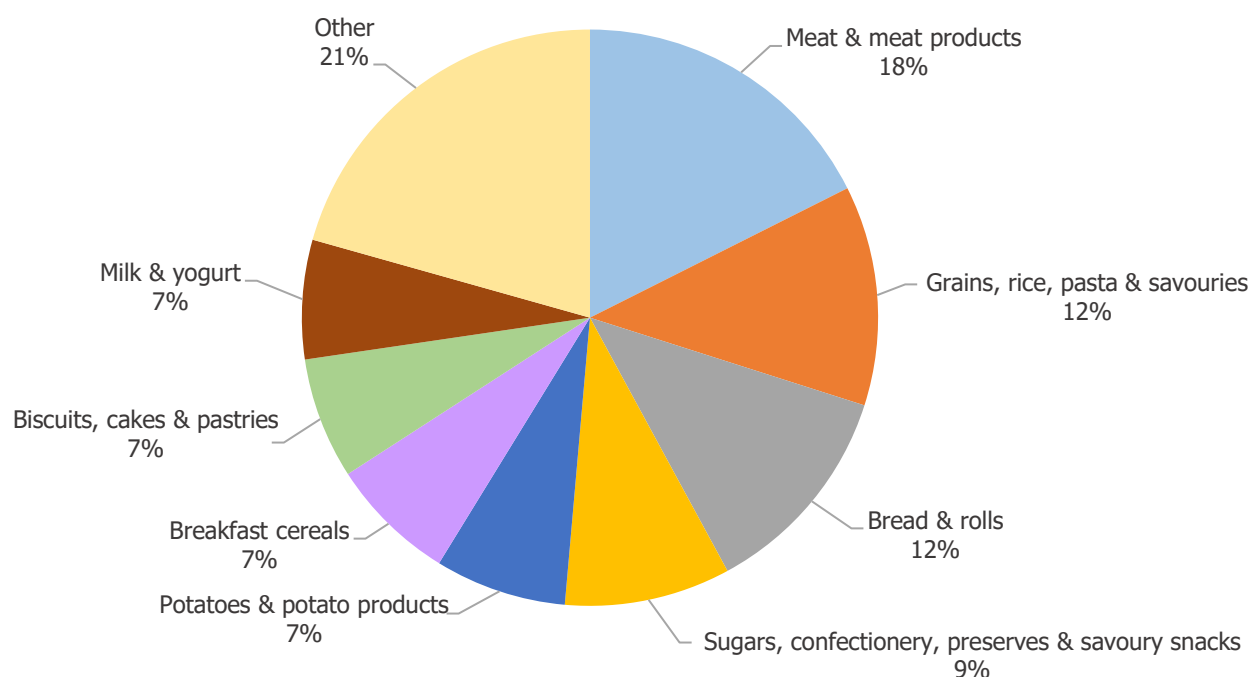
The average percentage of energy from fat was 35%, which is in line with the UK Department of Health recommendation of approximately 35%. The average contribution of saturated fat to energy intake (14%) was higher than recommended (less than 10%). The key contributors to saturated fat intake were meat and meat products (22%), milks (11%) and cheeses (7%), while 'top shelf' foods combined (i.e. 'biscuits, cakes and pastries' and 'sugars, confectionery, preserves and savoury snacks') contributed 21% (**Figure 9**).

The average percentage of energy from carbohydrate was 48%, which is below the recommendation from the UK Scientific Committee on Nutrition of approximately 50%. The main contributors to carbohydrate intake were bread and rolls (19%), grains, rice, pasta and savouries (16%) and breakfast cereals (10%) (**Figure 10**). When combined, 21% of carbohydrate was provided by 'top shelf' foods (i.e. 'biscuits, cakes and pastries', 'sugars, confectionery, preserves and savoury snacks' and sugar-sweetened drinks).

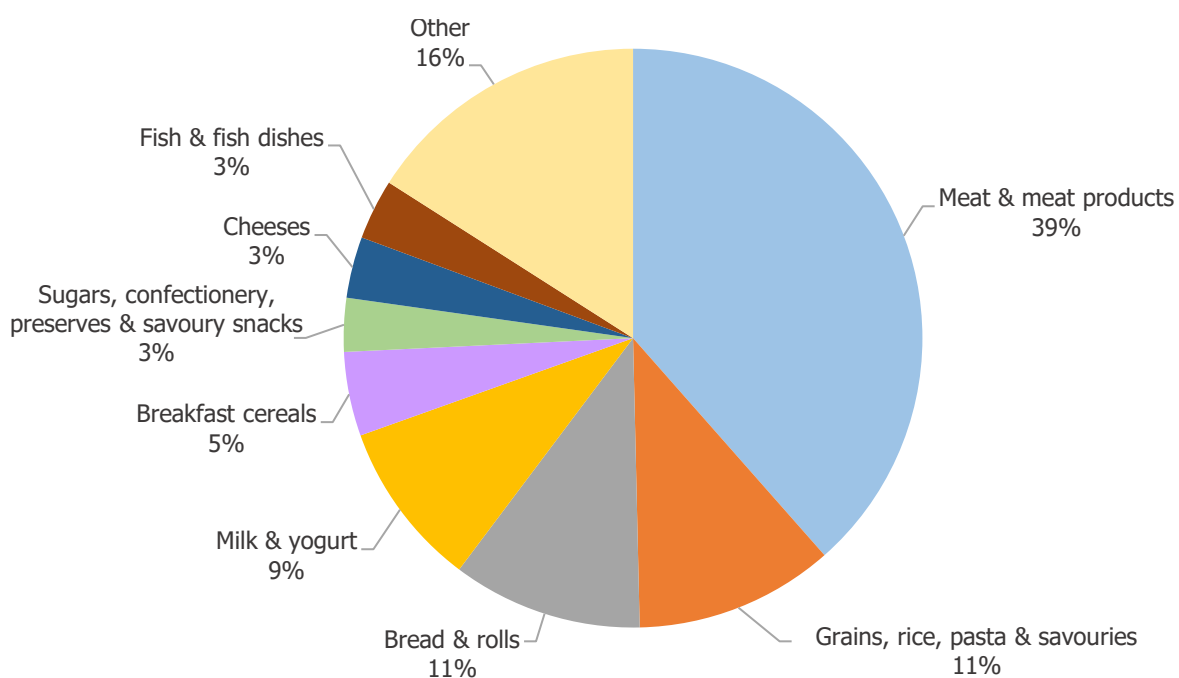
Mean intake of free sugars in Irish teenagers was 9% of energy with 30% of teenagers having intakes above the World Health Organisation recommendation of less than 10% of energy. This was lower than in the previous NTFS (2005-06) (14%), mainly due to a switch from sugar-sweetened beverages to water. Overall, 61% of free sugar intake was provided by 'top shelf' foods (**Figure 11**).

**Table 7.** Mean daily intakes of energy, dietary fibre and macronutrients in the NTFS II and NTFS

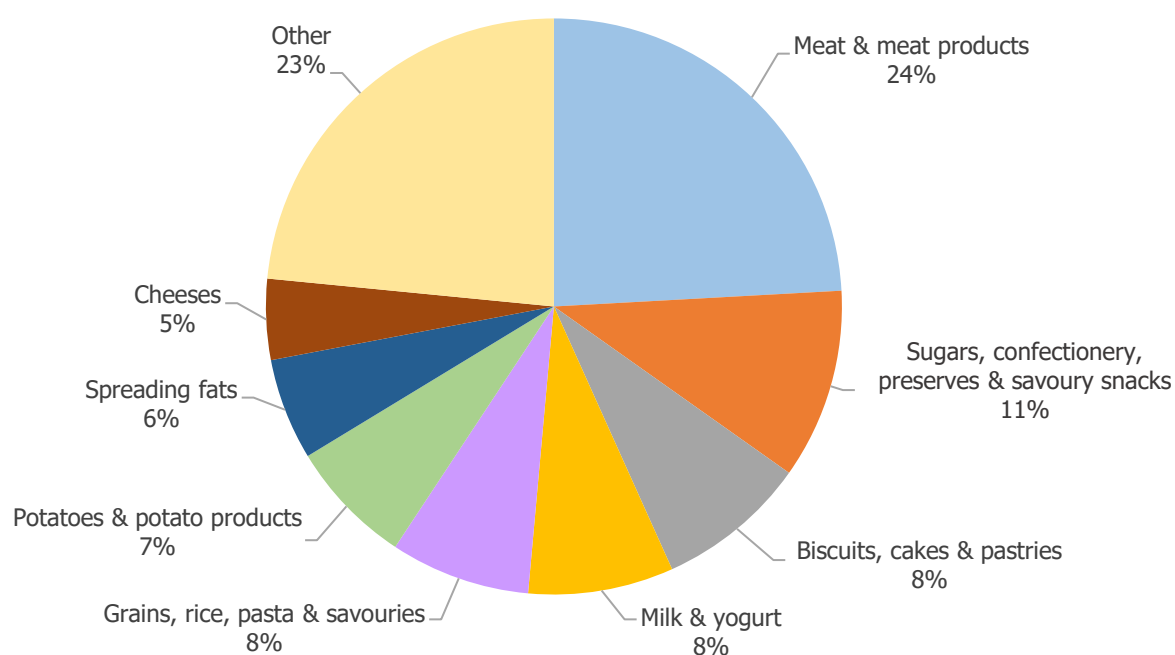
		<b>NTFS II (2019-20)</b> 13-18y ( <i>n</i> = 428)		<b>NTFS (2005-06)</b> 13-17y ( <i>n</i> = 441)	
		Mean	SD	Mean	SD
Energy	MJ	7.6	2.2	8.3	2.2
	kcal	1812	531	1978	537
Protein	g	74.4	24.6	73.0	22.6
	(%E)	16.6	2.5	14.9	2.2
Total fat	g	71.0	22.3	78.8	24.0
	(%E)	34.6	3.7	35.4	4.1
Saturated fat	g	29.0	10.5	34.5	11.8
	(%E)	14.2	2.4	15.4	2.3
Carbohydrate	g	229	70.2	258	70.7
	(%E)	47.8	4.1	49.2	4.2
Total sugars	g	76.2	31.3	108	38.3
	(%E)	15.7	4.0	20.4	4.2
Free sugars	g	42.3	25.3	74.2	30.3
	(%E)	8.5	4.1	14.0	4.6
Dietary fibre	g	16.9	5.5	15.5	5.5



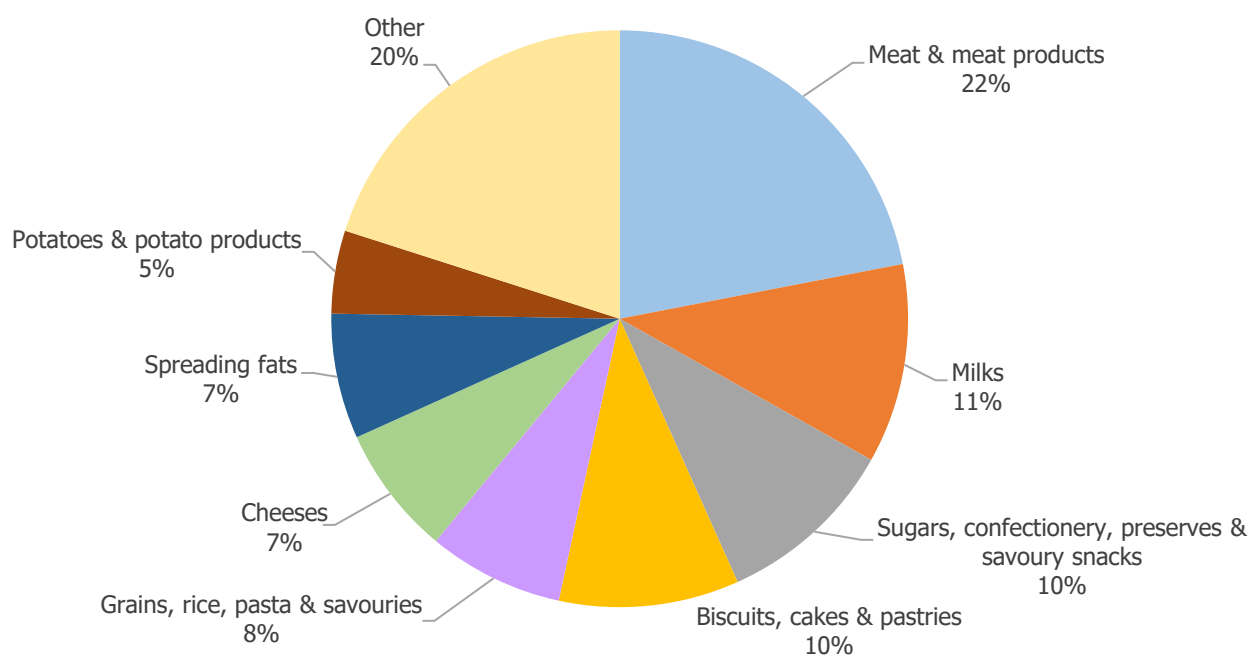
**Figure 6.** Sources of energy in Irish teenagers aged 13-18 years



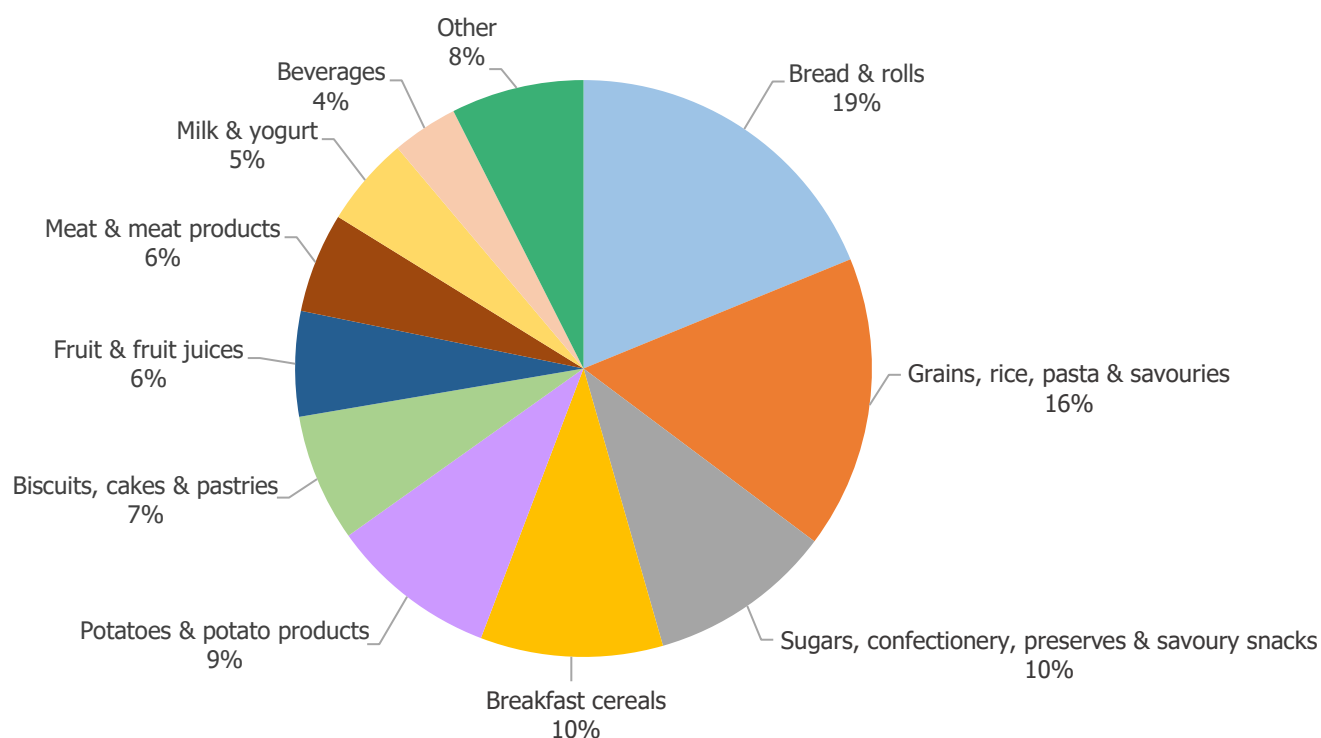
**Figure 7.** Sources of protein in Irish teenagers aged 13-18 years



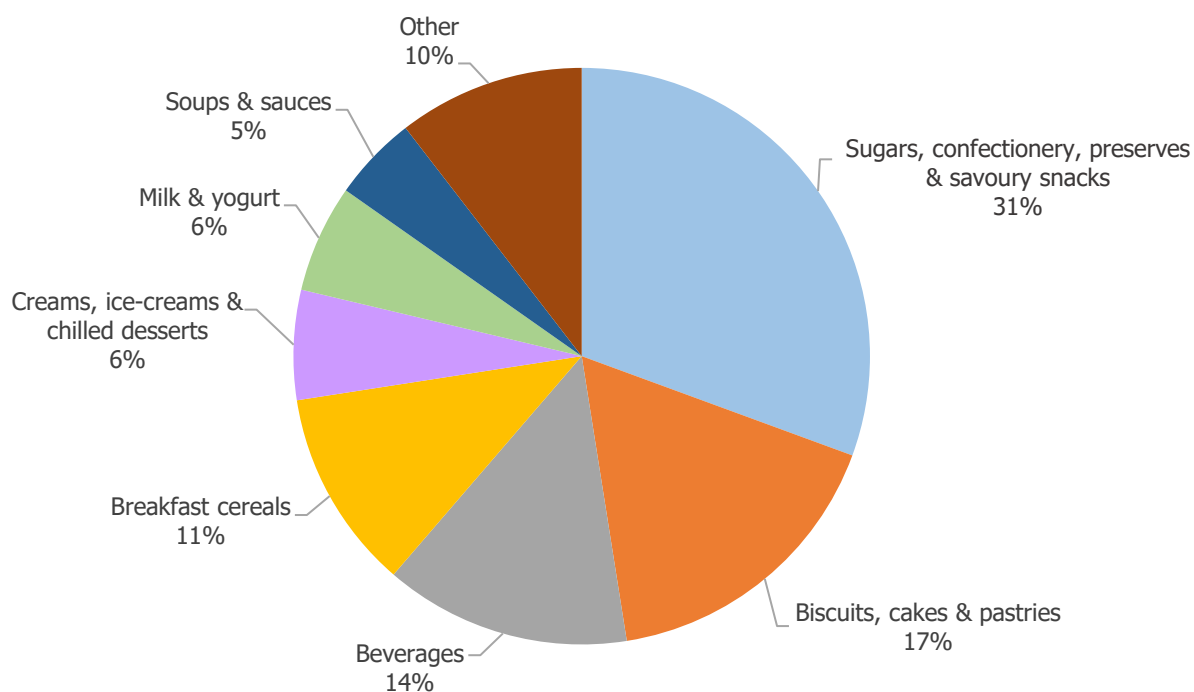
**Figure 8.** Sources of total fat in Irish teenagers aged 13-18 years



**Figure 9.** Sources of saturated fat in Irish teenagers aged 13-18 years



**Figure 10.** Sources of carbohydrate in Irish teenagers aged 13-18 years

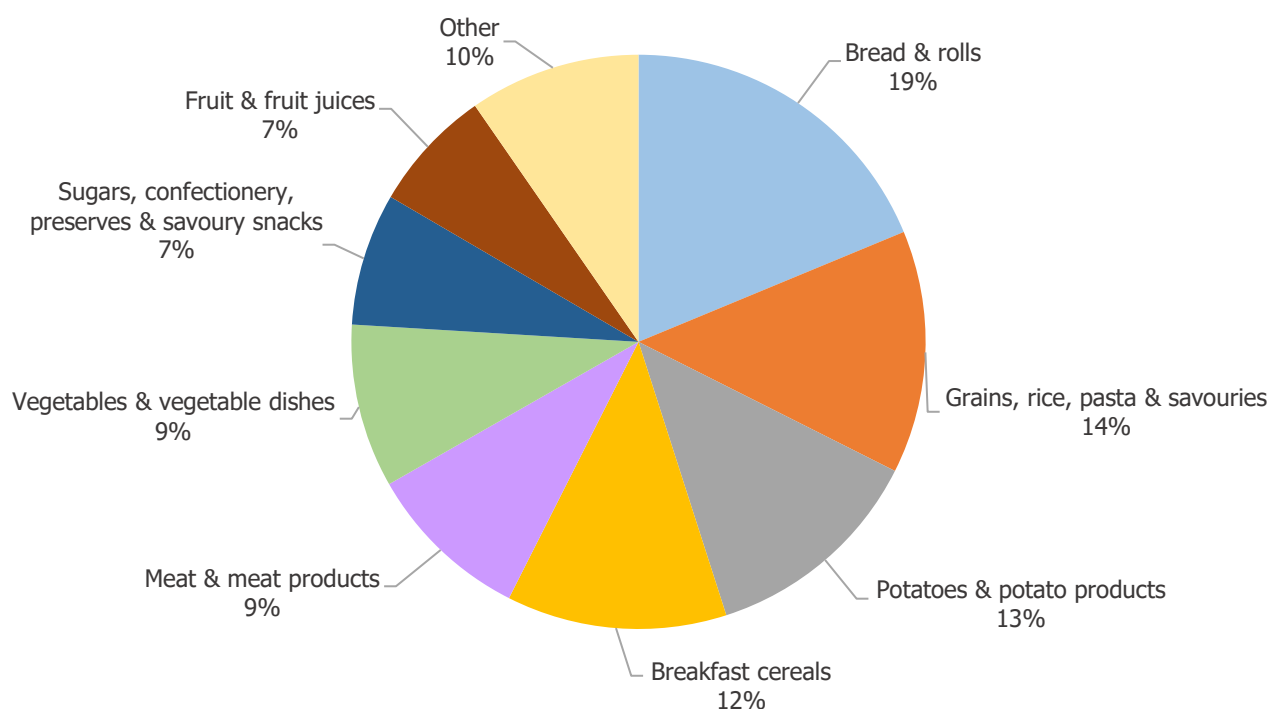


**Figure 11.** Sources of free sugars in Irish teenagers aged 13-18 years

## Dietary fibre

Dietary fibre plays a role in normal bowel function and is required in the diet to prevent constipation. The average daily intake of dietary fibre in Irish teenagers was 17g (**Table 7**). The main food sources of dietary fibre were bread and rolls (19%), grains, rice, pasta and savouries (14%), potatoes and potato products (13%), breakfast cereals (12%), meat and meat products (9%) and vegetables and vegetable dishes (9%) (**Figure 12**).

The average dietary fibre intake was similar to that reported in the NTFS (2005-06) (16g) with intakes still below the adequate intake established by the EFSA (19-25g) for each age group examined.



**Figure 12.** Sources of dietary fibre in Irish teenagers aged 13-18 years

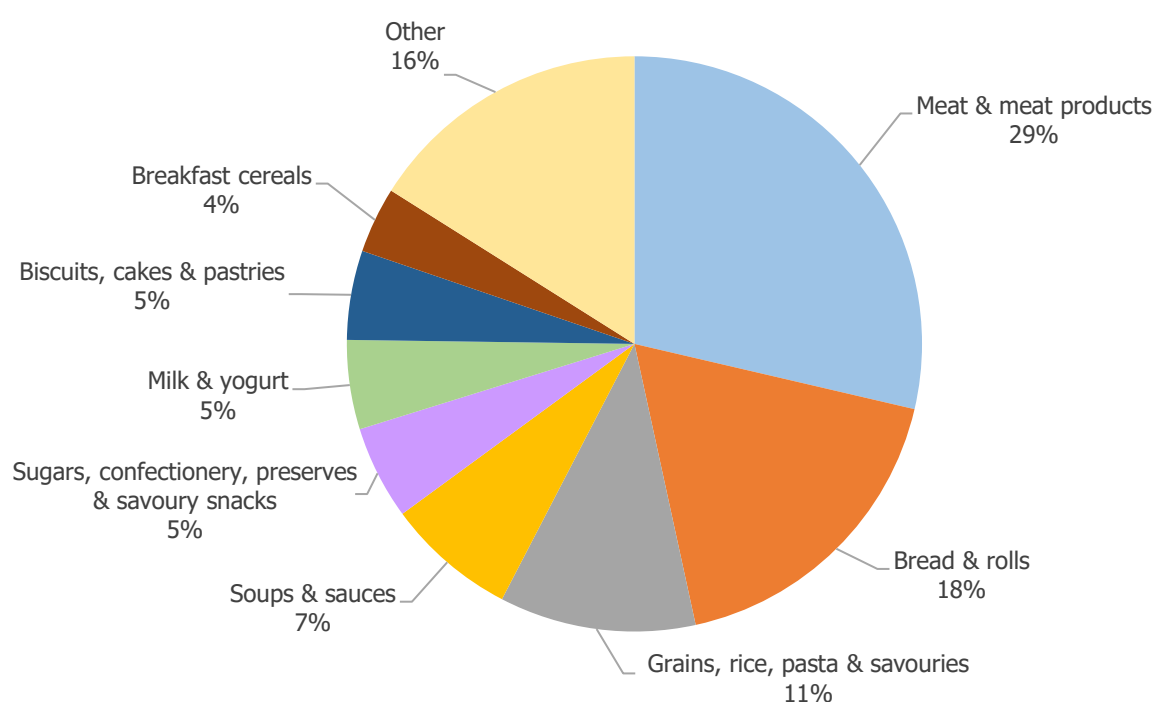
## Salt

High intakes of dietary sodium (salt) are associated with increased blood pressure. Mean daily salt intake (estimated from urinary output) was 6g and exceeded the target maximum daily level set by the FSAI (6g).

Salt intakes from food sources only (excluding discretionary salt i.e. that added in cooking or at the table) were estimated from food intake also. From these data, it was seen that salt intake was lower than in the NTFS (2005-06) (5g v 6g), which may be partly

attributable to reformulation of foods in line with the FSAI salt reduction programme.

The main dietary contributors to sodium intake in Irish teenagers are shown in **Figure 13**. Meat and meat products contributed 29% of sodium intake, with 17% attributable to processed meats. Bread and rolls contributed 18%, with grains, pasta, rice and savouries contributing a further 11%.



**Figure 13.** Sources of salt in Irish teenagers aged 13-18 years



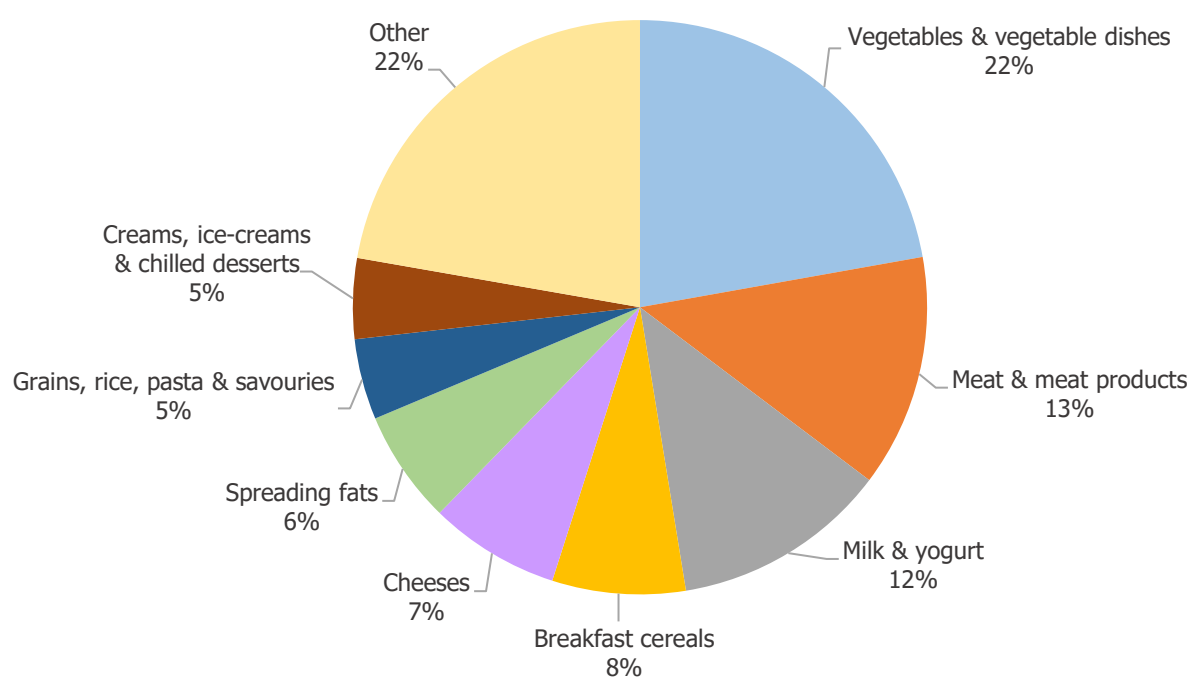
## Vitamin and mineral intakes

Adequate micronutrient intakes during the teenage years are important for optimum growth and development. Mean intakes of selected vitamins and minerals in Irish teenagers aged 13-18 years are reported in **Table 8** for the NTFS II (2019-20) and NTFS (2005-06). **Figures 14-21** show the main food contributors to intakes of vitamins A, D, C, riboflavin, vitamin B6, folate, calcium and iron.

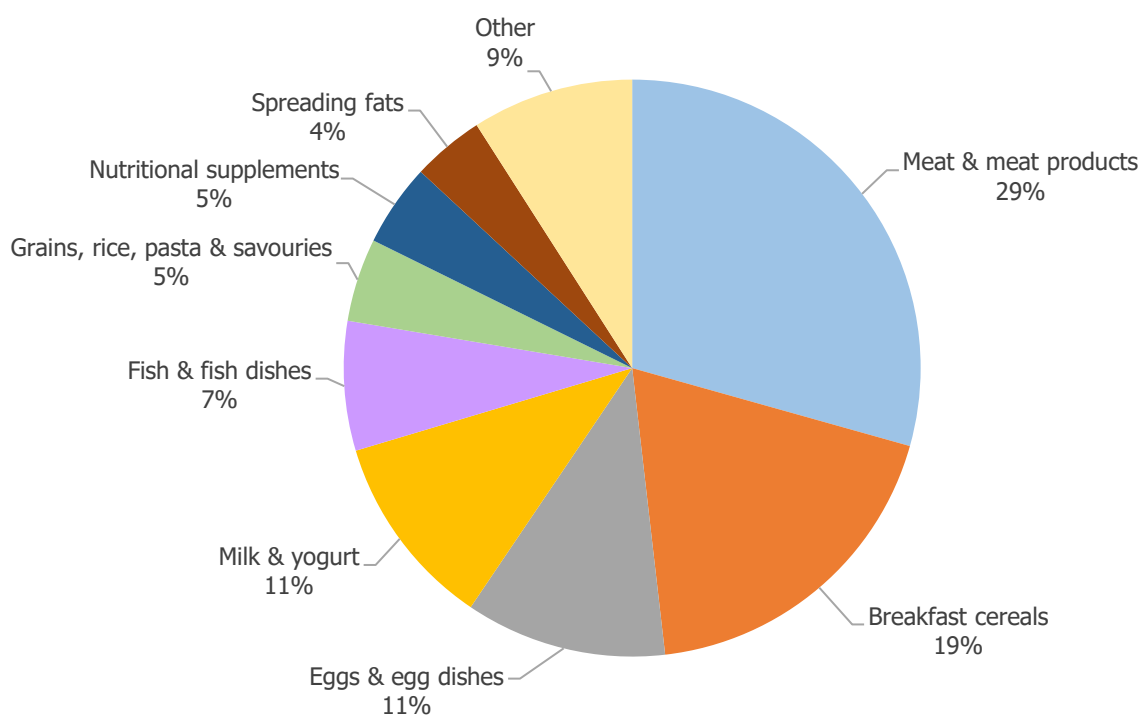
A large proportion of Irish teenagers had inadequate intakes of calcium (51%) and vitamin D (94%) which may impair the development of bone mass during this crucial period of growth. Overall, 48% of teenagers were estimated to have inadequate intakes of vitamin C, 33% for folate, 28% for vitamin A, 20% for riboflavin and 14% for vitamin B6. Nine percent of teenage girls had inadequate intakes of iron.

**Table 8.** Mean daily intakes of vitamins and minerals in the NTFS II and NTFS

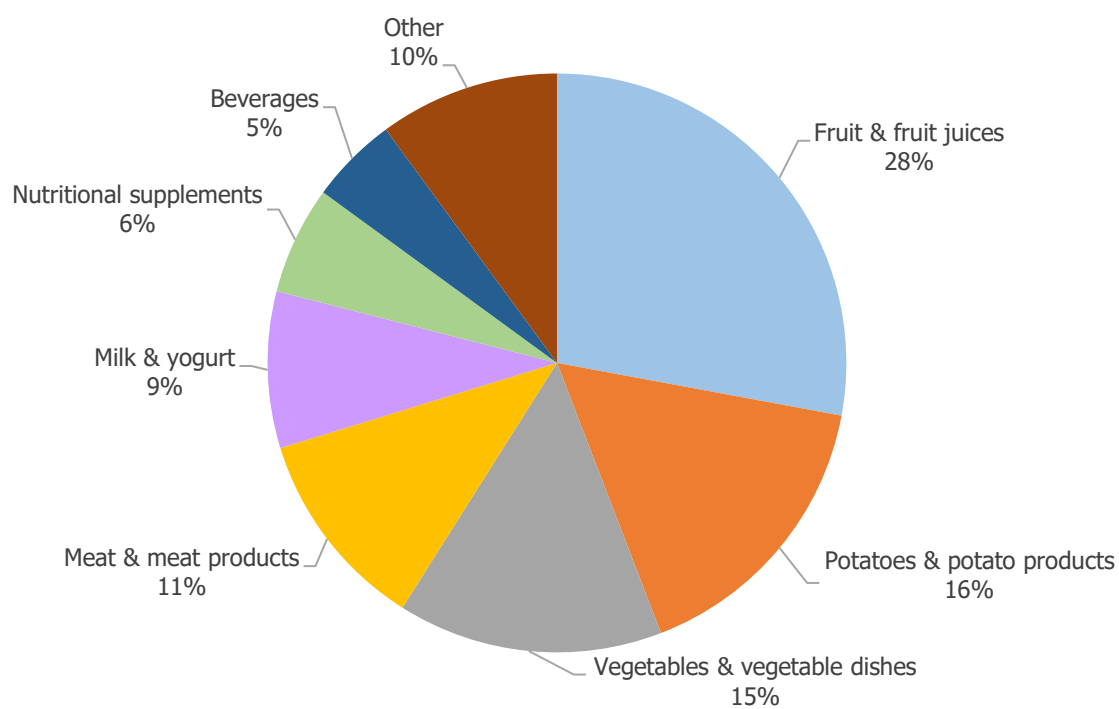
	NTFS II (2019-20) 13-18y (n = 428)		NTFS (2005-06) 13-17y (n = 441)	
	Mean	SD	Mean	SD
<b>Vitamins</b>				
Total Vitamin A (µg)	635	368	793	482
Retinol (µg)	277	172	360	245
Carotene (µg)	2139	1686	2662	2108
Vitamin D (µg)	3.7	3.0	3.0	2.0
Vitamin E (mg)	8.5	4.0	8.5	4.8
Thiamin (mg)	1.7	0.8	1.9	1.0
Riboflavin (mg)	1.8	1.1	2.2	1.4
Total Niacin Equivalents (mg)	37.4	12.3	37.0	13.0
Pantothenate (mg)	6.5	2.8	6.2	3.1
Biotin (µg)	29.3	14.8	30.6	20.3
Vitamin B6 (mg)	1.9	0.9	2.7	1.4
Vitamin B12 (µg)	5.5	2.7	5.1	2.6
Total Folate (µg)	239	107	262	116
Dietary Folate Equivalents (DFE) (µg)	287	154	390	235
Vitamin C (mg)	78.0	58	93.3	62.6
<b>Minerals</b>				
Sodium (mg)	2076	642	2538	713
Potassium (mg)	2404	753	2657	771
Calcium (mg)	812	331	905	366
Iron (mg)	11.0	4.4	12.1	6.3
Magnesium (mg)	236	80.4	234	77.6
Copper (mg)	1.1	0.7	1.0	0.4
Phosphorous (mg)	1180	388	1209	399



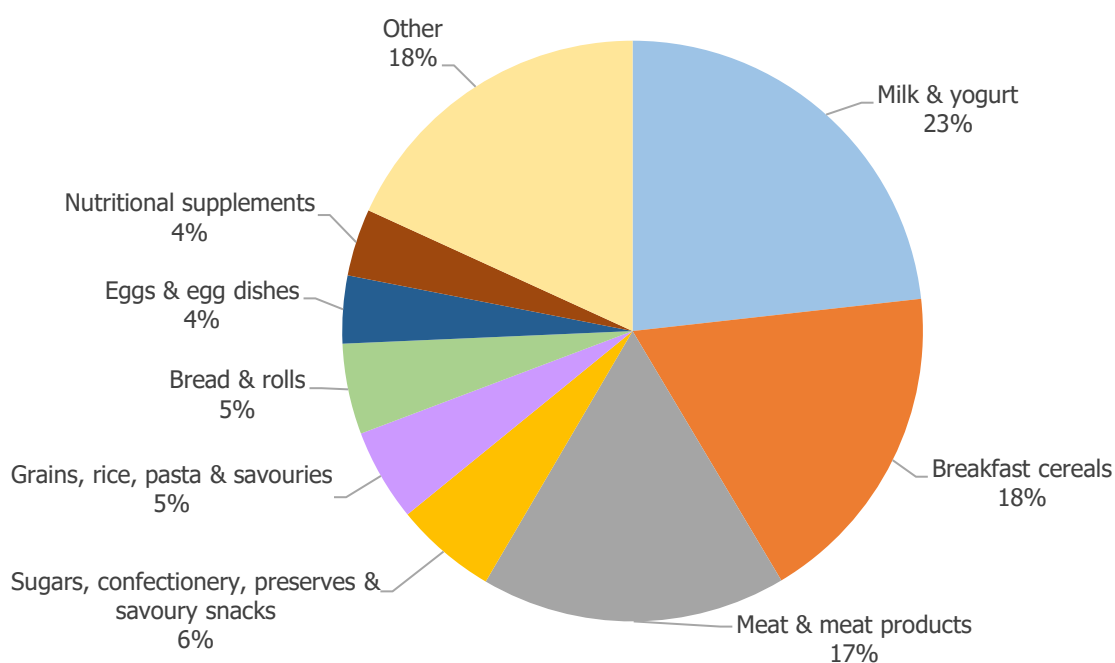
**Figure 14.** Sources of vitamin A in Irish teenagers aged 13-18 years



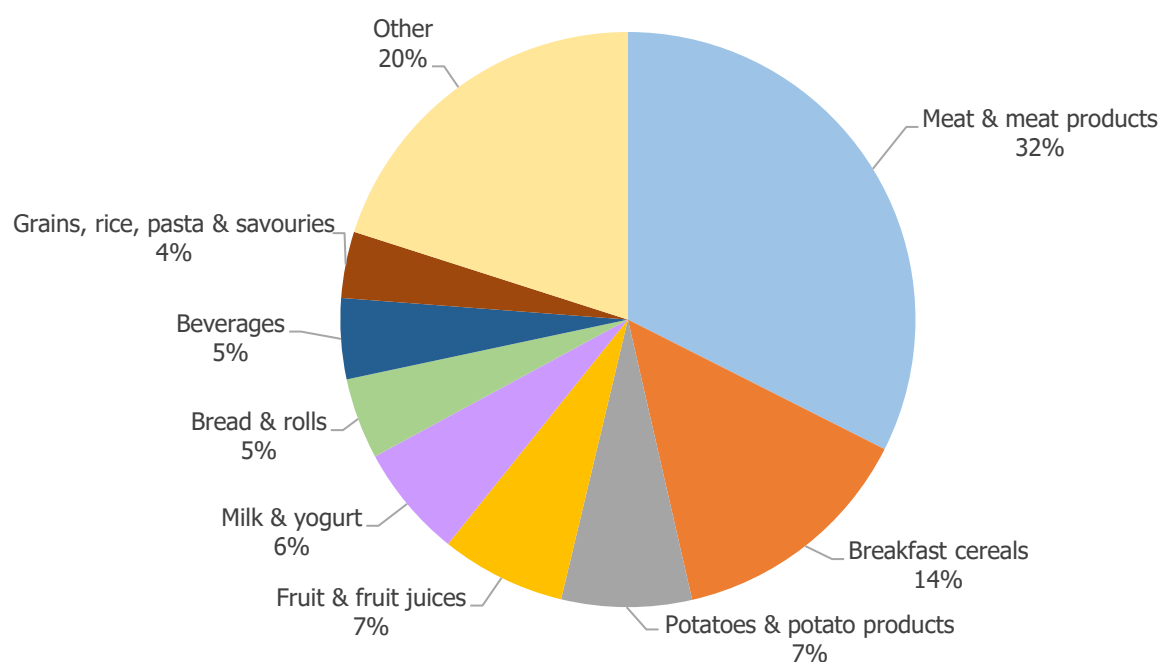
**Figure 15.** Sources of vitamin D in Irish teenagers aged 13-18 years



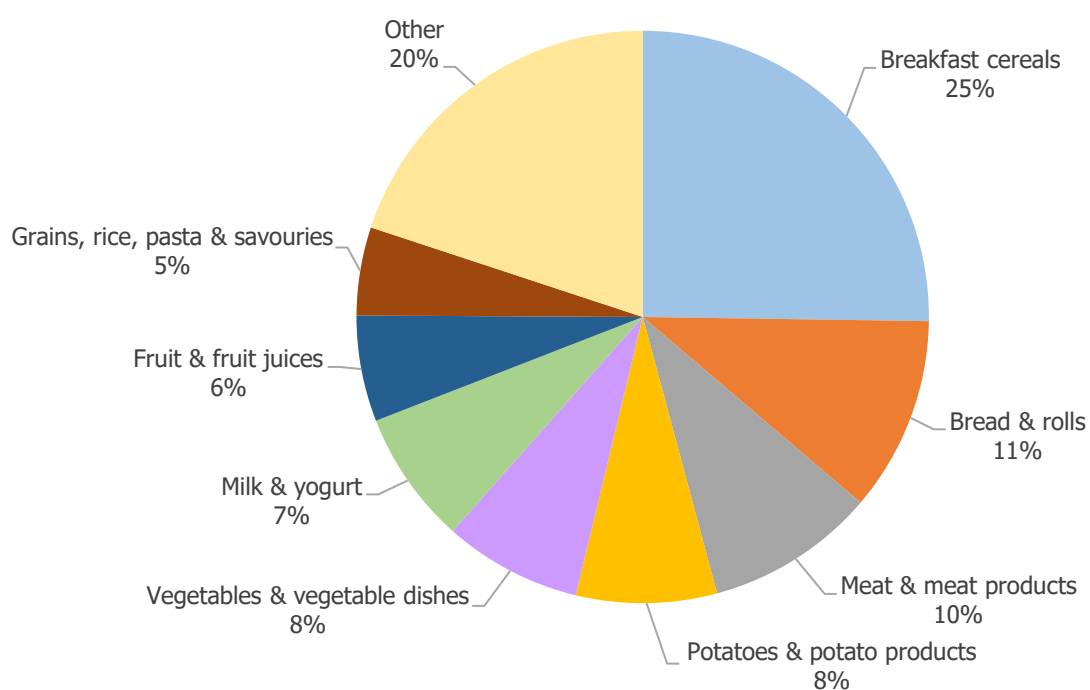
**Figure 16.** Sources of vitamin C in Irish teenagers aged 13-18 years



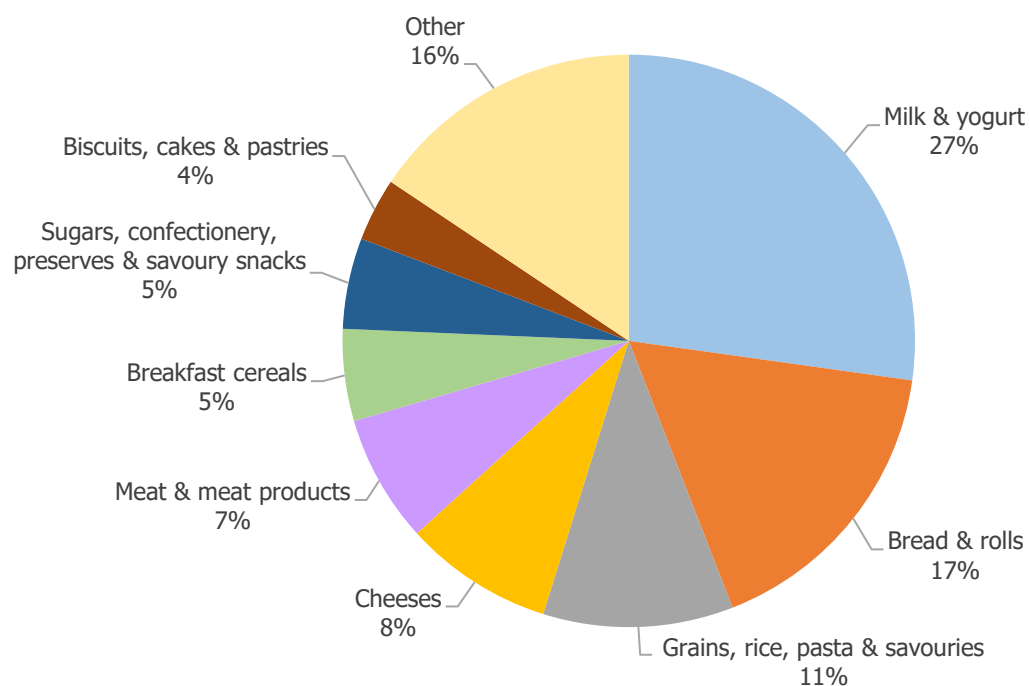
**Figure 17.** Sources of riboflavin in Irish teenagers aged 13-18 years



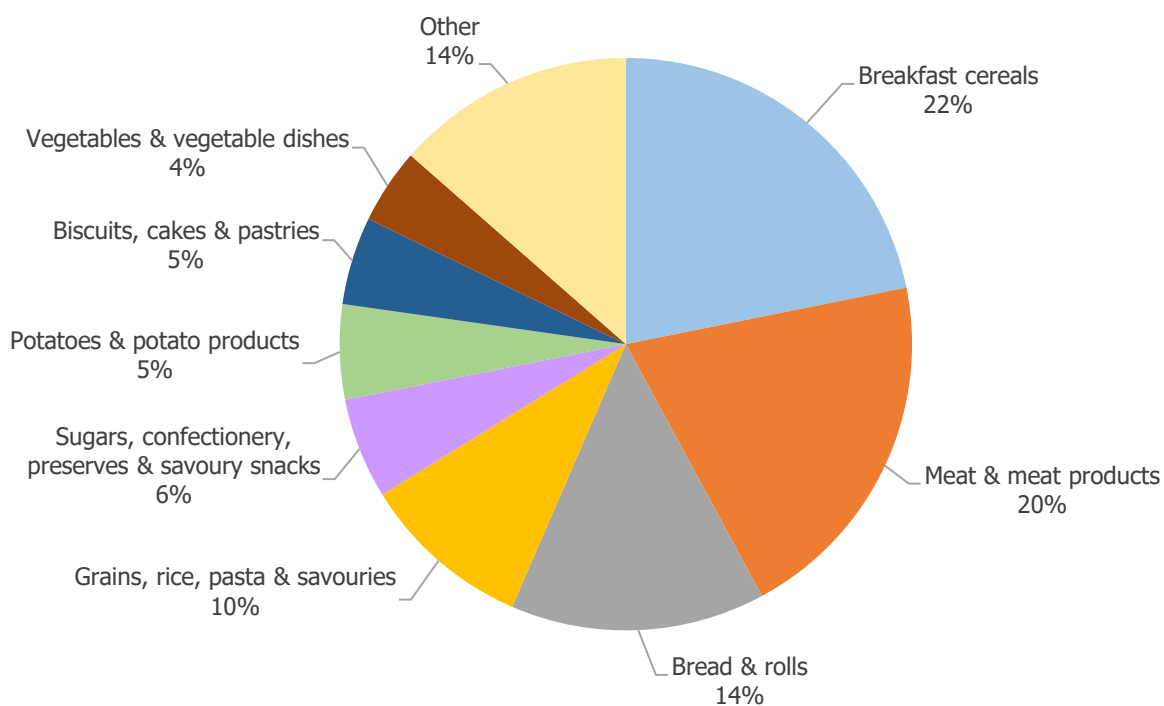
**Figure 18.** Sources of vitamin B6 in Irish teenagers aged 13-18 years



**Figure 19.** Sources of dietary folate equivalents (DFE) in Irish teenagers aged 13-18 years



**Figure 20.** Sources of calcium in Irish teenagers aged 13-18 years



**Figure 21.** Sources of iron in Irish teenagers aged 13-18 years



## **Chapter 3**

## **Body weight and physical activity**

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## Body weight

Anthropometric data including weight, height, body mass index (BMI: body weight in kilograms divided by body height in metres squared), % body fat, waist circumference and hip circumference are shown in **Table 9**.

**Table 10** presents the proportion of Irish teenagers aged 13-18 years classified as having overweight and obesity using the International Obesity Task Force (IOTF) age- and-gender specific BMI cut-offs to define thinness, overweight and obesity. IOTF cut-offs are based on

pooled international data for BMI and are linked to the widely accepted adult definitions. Overall, 71% of 13-18 year olds were classified as normal weight using the IOTF criteria. There were 5% of teenagers defined as thin (boys 6%, girls 5%) and 24% (boys 23%, girls 24%) defined as having overweight or obesity. This prevalence of overweight and obesity was higher than that reported in the NTFS (2005-06) of 18% (boys 18%, girls 18%). These data show that the prevalence of overweight and obesity in Irish teenagers appears to have increased in recent years.

**Table 9.** Mean values for anthropometric measurements of Irish teenagers aged 13-18 years in the NTFS II

	Total			Boys			Girls		
	<i>n</i>	Mean	SD	<i>n</i>	Mean	SD	<i>n</i>	Mean	SD
Weight (kg)	425	62.4	13.7	211	64.8	15.3	214	60.1	11.7
Height (cm)	426	167	8.8	211	172	8.4	215	163	6.5
BMI (kg/m <sup>2</sup> )	425	22.2	4.0	211	21.8	4.1	214	22.7	3.9
% Body fat	424	20.8	9.2	211	14.5	6.6	213	27.0	7.0
Waist circumference (cm)	426	73.0	9.4	211	75.2	10.0	215	71.0	8.4
Hip circumference (cm)	426	93.9	8.6	211	92.8	8.7	215	94.9	8.4

**Table 10.** The prevalence (%) of overweight and obesity in Irish teenagers aged 13-18 years as defined using IOTF cut-offs\* in the NTFS II

	Total population ( <i>n</i> = 425)	Boys ( <i>n</i> = 211)	Girls ( <i>n</i> = 214)
	%		
Thin	5.3	6.2	4.5
Normal weight	71.1	70.7	71.4
Overweight and obese	23.6	23.1	24.1
of which			
Overweight	15.8	15.2	16.4
Obese	7.8	7.9	7.7

\* Cole & Lobstein (2012) Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity. *Pediatric Obesity*, 7(4), p.284-294.



## Physical Activity

World Health Organisation (WHO) guidelines published in 2020 outline that many of the benefits of physical activity are observed with an average of 60 minutes of moderate to-vigorous physical activity (MVPA) daily. The accumulation of such physical activity is associated with important health benefits such as the maintenance of normal weight, while conversely, time spent in sedentary behaviours, including screen usage, is associated with increased risk of overweight and obesity in young people. In relation to sedentary behaviour, the WHO advise that teenagers should limit the amount of time spent being sedentary, particularly the amount of recreational screen time with the UK's National Institute for Health and Care Excellence recommending limiting screen time to no more than 2 hours per day.

**Table 11** shows that the median daily time that teenagers engaged in physical activities was 81 minutes (80 minutes in boys, 81 minutes in girls). A total of 67%

of teenagers met the recommendation of 'an average of 60 minutes' of physical activity per day. The most popular sporting activity in boys was football (52%) and in girls was running and jogging (45%).

Teenagers engaged in sedentary activities for a median time of 455 minutes (approximately 7.5 hours) per day, which included a median screen time of 231 minutes per day (236 minutes in boys, 223 minutes in girls). Only 21% of teenagers met the recommendation of no more than 2 hours of screen time per day.

Overall, findings suggest that a high proportion of Irish teenagers are meeting the physical activity recommendations. On the contrary, the average time spent in sedentary behaviours was above the guidelines and teenagers should be encouraged to reduce time spent in these types of activities, especially screen usage, to help maintain a healthy weight.

**Table 11.** Median time (min/d) spent participating in physical activity and sedentary behaviours in Irish teenagers aged 13-18 years in the NTFS II

	Total population			Boys			Girls		
	<i>n</i>	Median	Mean	<i>n</i>	Median	Mean	<i>n</i>	Median	Mean
	(min/day)			(min/day)			(min/day)		
Physical activities	427	81	95	211	80	90	216	81	98
Sedentary behaviours	426	455	532	210	442	504	216	474	559
<i>of which</i>									
screen time	418	231	275	209	236	289	209	223	261



## **Chapter 4 Factors associated with teenagers' eating behaviours**

## Introduction

The teenage years are a key time of physical, mental and social development. Health-related habits developed during the teenage years tend to persist into adulthood, making this life stage an optimal time to encourage

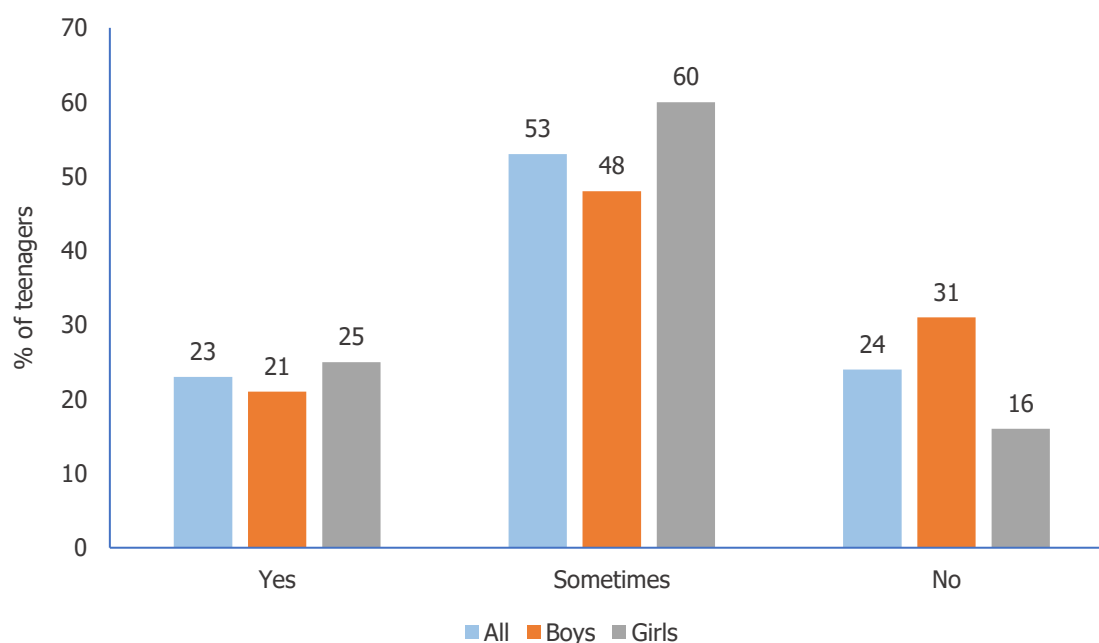
healthy eating behaviours. The NTFS II examined teenagers' eating behaviour styles and barriers towards a healthy diet using self-reported questionnaires.

## Perceived barriers to providing a healthy diet

Overall, 32% of teenagers agreed that their diet was healthy enough and does not need to change. Most teenagers (93%) had a medium to high level of interest in eating a healthy diet with girls displaying a higher level of interest in eating a healthy diet than boys.

Girls reported a higher level of difficulty in eating a healthy diet than boys whilst older teenagers were twice as likely to find it difficult to eat a healthy diet than younger teenagers.

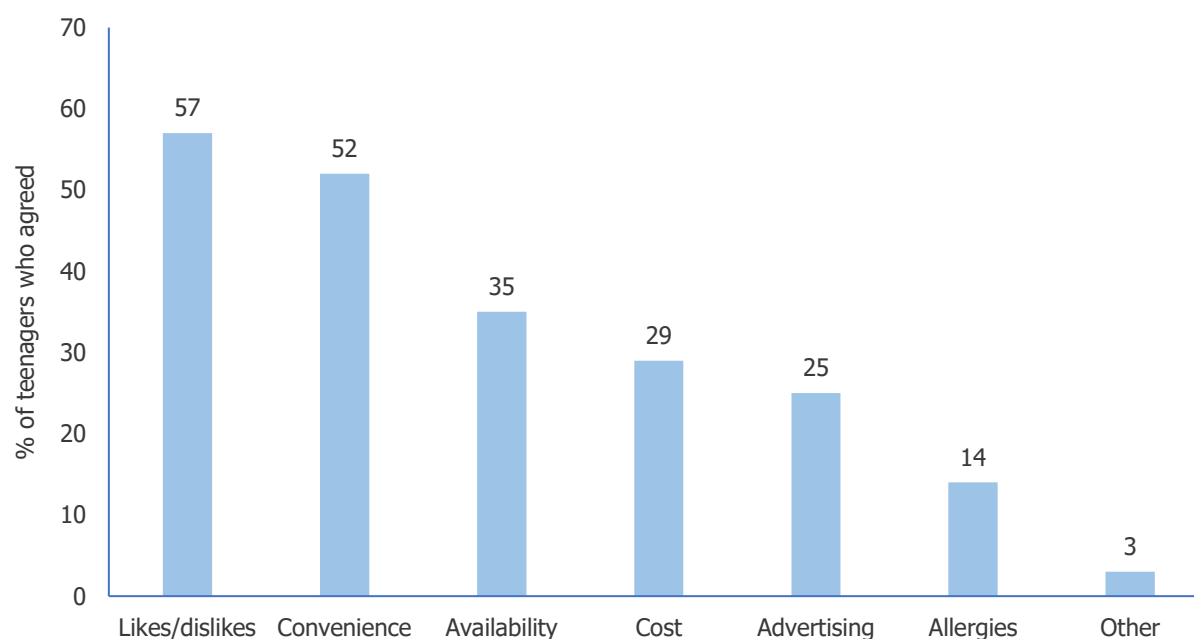
Three quarters of teenagers felt it was difficult to eat a healthy diet either all the time or sometimes (**Figure 22**).



**Figure 22.** Teenagers' opinions on whether it is difficult to eat a healthy diet

The main perceived barriers to healthy eating identified by teenagers were food preferences (likes/dislikes) (57%), convenience (52%), availability (35%), cost (29%), advertising (25%), allergies (14%) and others

(3%) (**Figure 23**). Cost and other barriers were bigger concerns for girls than boys whilst convenience and cost were a bigger barrier for older teenagers than younger teenagers.



**Figure 23.** Factors that make it difficult for teenagers to eat a healthy diet

## Notes

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## Amendments

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16<sup>th</sup> November 2021:

Figure 7: % contribution from 'sugars, confectionery, preserves & savoury snacks' and 'other' amended

Figure 9: % contribution from 'grains, rice, pasta & savouries', 'cheeses', 'spreading fats' and 'other' amended

Figure 10: % contribution from 'grains, rice, pasta & savouries' amended

Figure 13: % contribution from 'grains, rice, pasta & savouries' and 'other' amended

Figure 15: % contribution from 'spreading fats' and 'other' amended

Figure 16: % contribution from 'nutritional supplements' and 'other' amended

Figure 17: % contribution from 'milk & yogurt', 'bread & rolls' and 'other' amended

30<sup>th</sup> November 2021:

Table 8: Mean and SD values for dietary folate equivalents intake in NTFS II (2019-20) amended

Page 29: % with inadequate intakes for folate amended (correct value: 33%)

Figure 19: % contribution from 'grains, rice, pasta & savouries' and 'other' amended

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