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Background

This report describes the methods used and the main findings for the National Pre-School Nutrition Survey. The survey investigated habitual food and drink consumption, health and lifestyle characteristics and assessed body weight status in 500 pre-school children, aged 1-4 years, living in the Republic of Ireland. The electronic database compiled from the survey represents a valuable resource which will be used to develop nutrition policies and health promotion campaigns for pre-school children in the future.

The survey was carried out by the Irish Universities Nutrition Alliance (IUNA), a formal alliance of the academic nutrition centres at University College Cork, University College Dublin, Trinity College Dublin and the University of Ulster, Coleraine, which is committed to joint initiatives in research and teaching. The survey was carried out by the following teams at University College Cork and University College Dublin:

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National Pre-School Nutrition Survey (NPNS) methodology

Ethical Approval

Ethical approval was obtained from the University College Cork Clinical Research Ethics Committee of the Cork Teaching Hospitals.

Sampling

The National Pre-School Nutrition Survey (NPNS) was a cross-sectional survey that was carried out between October 2010 and September 2011 by the nutrition units in University College Cork and University College Dublin, which form part of the Irish Universities Nutrition Alliance (IUNA). The NPNS examined the dietary intake, anthropometry, eating behaviour and health and lifestyle information of Irish pre-school children aged 1-4 years ($n=500$).

Selection of participants

A sample of 500 participants (251 boys and 249 girls) were selected from a database of names and addresses compiled by 'eumom' (www.eumom.ie), an Irish parenting resource or from randomly chosen childcare facilities in selected locations. A second level of recruitment was used in which names and addresses were compiled through referrals from participants and participation was invited for those that were contactable. In all cases, participation was dependent on the prospective participant 'opting in'.

Respondent recruitment

An introductory information letter and brochure were sent to the parent/guardian of all individuals selected. For those participants that opted in, a researcher called to their home in the following days to explain the survey. Eligible children (aged 12 to 59 months inclusive, who had not yet started primary school) were invited to participate and a consent form was signed by their parent/guardian. A schedule was then organised between the participant and the researcher in which to complete the survey. Demographic analysis of the sample has shown it to be nationally representative of young children in Ireland with respect to age and gender and urban/rural location when compared to Census 2006 (Central Statistics Office, 2007). The sample was also generally representative of social class, although there were a higher proportion of children of professional workers. However, as there were no significant differences seen across social class categories for food and nutrient intakes or body weight, the data have not been adjusted for this.

Food intake data collection

A four-day weighed food record was used to collect food and beverage intake data. The researcher made three visits to the participant during the four-day period: a training visit to demonstrate how to keep the food diary and how to use the weighing scales; a second visit 24-36 hours into the recording period to review the diary, check for completeness and clarify details regarding specific food descriptors and quantities; and a final visit one or two days after the recording period to check the last days and to collect the diary. Caregivers were provided with a food diary and asked to record detailed information regarding the amount and types of all foods, beverages and nutritional supplements consumed, as well as the amount of food leftover by the child over 4 consecutive days. Where applicable, the cooking methods

used, brand names of the foods consumed, the packaging size and type, and details of recipes were also recorded. Additionally, data were collected on the time of each eating or drinking occasion, the participant's definition of each eating or drinking occasion (e.g. morning snack, lunch) and the location of the preparation of the meal or snack consumed (e.g. home, pre-school, crèche, childminder).

Food quantification and coding

A quantification protocol that had been established by the IUNA for the North/South Ireland Food Consumption Survey (NSIFCS) (Harrington *et al.*, 2001) was adapted for the NPNS. It is summarised as follows:

(1) *Weighed* (by respondent/manufacture weights) - A portable food scales (Tanita KD-400, Japan) was given to each participant. The researcher gave detailed instructions (including a demonstration) as to how to use the food scales during the training session. This method was used to quantify 78% of foods and drinks consumed. A further 7% of weights were derived from manufacturer's weights. To facilitate collection of such data, researchers asked participants to collect all packaging of food and beverages consumed in a storage bag provided.

(2) *Food Atlas* – An age-appropriate photographic food atlas (FSA Young Person's Food Atlas (Pre-School) (Foster *et al.* 2010) was also used to quantify 6% of foods and beverages consumed.

(3) *IUNA Weights* - Average portion weights that had been ascertained for certain foods by the IUNA survey team were used. This method was used to quantify 0.5% of foods and beverages consumed.

(4) *Food Portion Sizes* - “Food Portion Sizes” (Ministry of Agriculture, Fisheries and Food, 1997) was used to quantify 1% of foods and beverages consumed.

(5) *Household Measures* - Measures such as teaspoon, tablespoon, fluid ounces, pint etc. were used to quantify 6% of foods and beverages consumed.

(6) *Estimated* - Food quantities were defined as estimated if the researcher made an estimate of the amount likely to have been consumed based on their knowledge of the participant’s general eating habits as observed during the recording period. This method was used to quantify 1.5% of foods and beverages consumed.

Nutrient composition of foods and estimation of nutrient intake

Food intake data were analysed using WISP[®] (Tinuviel Software, Anglesey, UK). WISP[®] contains data from McCance and Widdowson's The Composition of Foods, Sixth (Food Standards Agency, 2002) and Fifth (Holland *et al.*, 1995) editions plus all nine supplemental volumes (Holland *et al.*, 1988; Holland *et al.*, 1989; Holland *et al.*, 1991; Holland *et al.*, 1992; Holland *et al.*, 1993; Chan *et al.*, 1994; Chan *et al.*, 1995; Chan *et al.*, 1996; Holland *et al.*, 1996) to generate nutrient intake data. During the NPNS, modifications were made to the food composition database to include recipes of composite dishes, nutritional supplements, fortified foods, infant specific products and generic Irish foods that were commonly consumed. All previous modifications to the food composition database were also checked and updated from current manufacturer’s information as necessary.

Anthropometry

Anthropometric measurements were taken by the researcher in the participant's home. Weight, height and mid-upper arm circumference were recorded for the child. Height, weight and % body fat were measured for the child's parent/guardians.

The child's weight was measured in duplicate using Seca Scales 385 (AccuScience, Ireland) whilst wearing light clothing without shoes and with a dry nappy where applicable. Children who were unable to stand unaided were weighed sitting down using a detachable weighing tray.

Parent/guardian's weight and body composition were measured in duplicate using a Tanita body composition analyser BC-420MA (Tanita Ltd, GB) to the nearest 0.1kg. Participants were weighed after having voided, wearing light clothing and without shoes.

Height of the participant and parent/guardians were measured to the nearest 0.1cm using the Leicester portable height measures (Chasmores Ltd, UK) with the participant's head positioned in the Frankfurt Plane. Supine length was measured for all children who were under 2 years of age on the day of measuring, using a Seca Measuring Mat 210 (AccuScience, Ireland).

Mid-upper arm circumference was measured in duplicate using a non-stretch tape measure and taken at the naked site where possible. This was done by locating the mid-point of the left upper arm (mid-point between the inferior border of the acromion (shoulder) and the tip of the olecranon process (bump of the elbow) marking this point with a dermatological pen, and measuring the circumference of the arm at this point.

Quality control

A number of quality procedures were put in place in an attempt to minimise error and ensure consistency throughout the collection and manipulation of food intake data. Researchers received training that included role-play workshops prior to commencing fieldwork, where they were trained to take a natural and friendly approach to fieldwork and to avoid prompting foods. It was stressed to participants that they should not try to change or ‘improve’ their child’s diet during the recording period. At the end of the recording period, participants were asked whether their child’s food intake had been the same as usual, less than usual or more than usual during the recording period and to explain why this might have been and if there were any items consumed during the recording period which had not yet been written down. Details on such items were then recorded by the researcher in the food diary.

Each fieldworker was primarily responsible for the collection, quantification, coding and data entry of their own participant’s food diaries in an attempt to maintain consistency. WISP-DES© (the food data entry system) was set up to incorporate over-range checks for portion sizes, by generating a warning if a food weight was entered as five times a typical “large” portion size.

Databases

The food intake database from the NPNS comprises of over 36,000 rows of data that describe every food and drink item consumed by each of the participants, at every eating occasion, for each of the four recording days. For each item consumed, the database contains the actual day of the week and meal number in the day, the definition of the eating occasion, the time and location of consumption, the weight of food/drink consumed, the brand information, packaging type and size, and a full nutrient breakdown for the amount of food consumed. Each food was assigned to one of 77 food groups in the database. For the purposes of this

report, these food groups were reduced to 19 food groups and data was aggregated to examine day by day intakes and mean daily intakes of foods and nutrients.

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Table 2.1 Number of respondents by sex and age (number and (%))

	Total	1y	2y	3y	4y
Boys	251	63 (50)	64 (52)	61 (48)	63 (51)
Girls	249	63 (50)	60 (48)	65 (62)	61 (49)
<i>n</i>	<i>500</i>	<i>126</i>	<i>124</i>	<i>126</i>	<i>124</i>

Table 2.2 Numbers of respondents by season and by demographics (number & (%))

	Total
Season	<i>n=500</i>
Summer	123 (25)
Winter	377 (75)
Geographical location	<i>n=500</i>
Open country/village	211 (42)
Small town	22 (4)
Large town	218 (44)
City	49 (10)
Social class*	<i>n=493</i>
Professional workers	310 (62)
Non-manual workers	80 (16)
Skilled manual workers	74 (15)
Unskilled workers	29 (6)
Socio-economic group	<i>n=500</i>
Employers and managers	31 (6)
Higher professional	110 (22)
Lower professional	112 (22)
Non-manual	41 (8)
Manual skilled	8 (2)
Semi-skilled	12 (2)
Own account workers	172 (34)
Agricultural workers	2 (0.4)
Occupation unknown	7 (1)
Students	5 (1)
Education	<i>n=500</i>
Primary & Intermediate	24 (5)
Secondary	63 (13)
Tertiary	413 (83)

* Social class excludes 7 missing values

Table 3.1 Mean, SD and Median values of intakes of milk, dairy products and spreading fats (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total milk	455	208	447	328	221	302	247	170	199	238	136	218
<i>of which is</i>												
Whole milk	283	228	259	232	226	201	195	171	156	173	148	150
Reduced fat milk	19	87	0	32	92	0	38	101	0	52	112	0
Soya/rice milk	4	33	0	5	30	0	2	12	0	6	43	0
Breast milk	35	151	0	3	33	0	0	0	0	0	0	0
Infant/growing up milk	113	200	0	56	137	0	13	63	0	6	46	0
Dairy products												
Cheese	8	10	5	9	10	5	8	11	3	10	12	6
Yoghurt	32	40	19	41	52	24	47	58	31	46	49	34
Fromage frais	31	36	19	19	31	0	18	27	5	18	23	10
Cream	0	2	0	0	1	0	0	4	0	0	2	0
Ice cream	2	7	0	7	14	0	10	15	0	13	16	8
Butter and spreading fats	3	3	2	5	5	4	6	6	5	5	5	5
<i>Of which is</i>												
Dairy spread (40-80% fat)	2	2	1	3	4	2	3	4	3	3	4	1
Butter (>80% fat)	1	2	0	1	4	0	2	4	0	1	4	0
Low fat spread (<40% fat)	0	2	0	1	2	0	1	5	0	1	2	0

Table 3.2 Mean, SD and Median values of intakes of milk, dairy products and spreading fats (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Total milk	124	98	462	202	451	123	99	331	220	304	125	99	249	170	199	123	99	240	135	220
<i>Of which is</i>																				
Whole milk	111	88	321	216	301	107	86	269	222	229	109	87	225	164	192	97	78	222	131	209
Reduced fat milk	18	14	135	196	40	19	15	211	134	234	34	27	140	155	86	33	27	197	136	176
Soya/rice milk	3	2	163	172	72	5	4	124	100	96	2	2	99	6	99	4	3	175	190	93
Breast milk	9	7	496	314	363	1	1	365	n/a	365	0	0	n/a	n/a	n/a	0	0	n/a	n/a	n/a
Infant/growing up milk	39	31	364	196	379	22	18	314	158	281	7	6	225	163	200	3	2	239	214	161
Dairy products																				
Cheeses	81	64	12	10	10	84	68	13	10	10	71	56	14	10	12	85	69	14	12	10
Yoghurt	68	54	59	37	54	74	60	69	51	59	83	66	71	58	50	81	65	70	44	63
Fromage frais	78	62	50	35	39	57	46	42	33	30	63	50	36	28	30	66	53	34	20	30
Cream	5	4	5	9	1	3	2	7	3	8	6	5	10	14	7	6	5	7	4	7
Ice cream	23	18	14	11	11	36	29	23	18	19	59	47	22	14	18	64	52	25	13	23
Butter and spreading fats	100	79	4	3	3	110	89	6	5	5	117	93	7	6	5	111	90	6	4	5
<i>Of which is</i>																				
Dairy spread (40-80% fat)	66	52	3	2	3	80	65	5	4	4	85	67	5	4	4	77	62	5	4	4
Butter (>80% fat)	39	31	3	3	2	29	23	6	6	4	42	33	5	6	3	30	24	6	6	4
Low fat spread (< 40% fat)	11	9	4	4	2	17	14	5	4	4	19	15	8	11	4	24	19	5	3	4

Table 3.3 Mean, SD and Median values of intakes of meat, fish and eggs (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total meats	77	55	65	75	51	67	76	48	68	83	52	74
<i>Of which is</i>												
<i>Meat dishes</i>	43	44	37	38	52	25	32	40	18	33	42	18
<i>Processed/cured meats</i>	16	22	7	25	23	19	30	23	25	34	29	25
Bacon & ham	4	7	0	7	12	2	9	12	5	11	13	8
Burgers (beef & pork)	1	3	0	2	6	0	2	6	0	3	9	0
Sausages	6	12	0	8	10	4	8	11	0	8	13	0
Meat pies & pastries	1	6	0	0	2	0	1	5	0	2	7	0
Meat products	4	11	0	7	13	0	10	14	2	10	18	0
<i>Fresh meat</i>	7	9	3	11	15	6	12	14	9	15	18	11
Poultry	5	8	0	7	12	0	8	11	0	10	16	2
Beef & veal	1	3	0	2	6	0	3	6	0	2	5	0
Lamb	0	2	0	0	2	0	1	4	0	1	4	0
Pork	0	2	0	1	4	0	1	3	0	3	9	0
<i>Infant meals, meat</i>	12	31	0	1	8	0	3	16	0	1	7	0
Total fish	14	19	7	10	16	5	10	16	0	13	18	7
<i>Of which is</i>												
Fish & fish products	8	11	3	7	11	0	8	12	0	10	15	3
Fish dishes	4	12	0	3	11	0	3	11	0	3	11	0
Infant meals, fish	2	9	0	0	4	0	0	0	0	0	4	0
Eggs & egg dishes	6	11	0	9	14	0	8	12	0	8	15	0

Table 3.4 Mean, SD and Median values of intakes of meat, fish and eggs (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Total meats	119	94	81	53	71	123	99	76	51	68	125	99	76	48	68	121	98	86	51	76
<i>Of which is</i>																				
Meat dishes	93	74	58	42	47	87	70	54	54	39	82	65	48	41	37	75	60	55	42	39
Processed/cured meats	87	69	23	23	14	102	82	30	22	24	114	90	33	22	28	112	90	38	28	31
Bacon & ham	51	40	9	8	7	65	52	14	14	9	83	66	13	12	10	85	69	16	13	11
Burgers (beef & pork)	7	6	13	7	10	14	11	17	9	19	17	13	15	7	14	17	14	20	15	13
Sausages	48	38	16	14	13	63	51	16	9	15	57	45	18	10	16	57	46	18	13	14
Meat pies & pastries	6	5	22	20	12	3	2	10	3	8	6	5	19	10	18	11	9	22	10	20
Meat products	33	26	15	17	10	48	39	18	16	12	64	51	19	14	17	56	45	23	20	17
Fresh meat	69	55	12	9	9	75	60	18	15	15	83	66	18	13	15	87	70	22	18	17
Poultry	55	44	11	8	8	60	48	15	13	12	60	48	16	11	13	63	51	19	17	14
Beef & veal	15	12	9	6	9	22	18	12	9	9	25	20	13	8	13	19	15	12	7	10
Lamb	3	2	12	5	10	4	3	10	5	12	7	6	13	10	8	13	10	11	5	12
Pork	8	6	7	5	6	12	10	11	9	8	17	13	8	6	6	18	15	19	16	17
Infant meals, meat	20	16	73	41	71	3	2	50	19	58	5	4	65	56	46	2	2	52	13	52
Total fish	74	59	23	20	15	68	55	19	17	14	56	44	23	16	18	70	56	24	18	20
<i>Of which is</i>																				
Fish & fish products	64	51	15	11	13	58	47	15	13	13	50	40	19	12	17	65	52	20	15	15
Fish dishes	17	13	29	19	21	15	12	24	22	16	11	9	32	20	34	10	8	34	21	36
Infant meals, fish	6	5	40	20	44	1	1	50		50	0	0				1	1	50		50
Eggs & egg dishes	42	33	19	10	17	56	45	21	15	15	50	40	19	12	14	41	33	24	18	17

Table 3.5 Mean, SD and Median values of intakes of fruit & fruit juices (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Fruit & fruit juices	132	100	115	163	103	144	191	125	171	198	125	172
<i>Of which is</i>												
Apples, pears, pineapples, berries etc.	43	39	31	56	55	41	59	57	49	59	50	46
Bananas	29	28	23	30	29	25	30	34	23	30	30	25
Fruit purées & smoothies (100% fruit)	25	45	0	23	45	0	21	43	0	19	43	0
Citrus fruits	8	17	0	12	22	0	12	27	0	11	24	0
Dried fruit	4	7	0	4	6	0	3	6	0	2	5	0
Tinned fruit	1	3	0	1	4	0	0	2	0	1	3	0
Fruit juices (100% juice)	23	50	0	38	61	0	65	82	46	77	99	49

Table 3.6 Mean, SD and Median values of intakes of fruit & fruit juices (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Fruit & fruit juices	124	98	134	100	116	122	98	166	102	146	121	96	199	122	172	122	98	202	123	174
<i>Of which is</i>																				
Apples, pears, pineapples, berries etc.	104	83	52	38	45	103	83	67	53	47	107	85	70	56	55	113	91	65	49	54
Bananas	100	79	36	27	30	89	72	42	26	39	84	67	45	33	40	82	66	45	27	40
Fruit purées & smoothies (100% fruit)	51	40	61	54	45	37	30	76	52	63	36	29	75	50	55	33	27	70	58	55
Citrus fruits	41	33	26	20	18	49	40	30	25	23	45	36	34	35	27	44	35	32	31	25
Dried fruit	57	45	9	7	8	47	38	10	6	8	31	25	10	7	10	24	19	10	8	8
Tinned fruit	10	8	10	6	10	7	6	12	13	9	5	4	10	8	7	6	5	14	5	15
Fruit juices (100% juice)	41	33	69	68	50	58	47	81	66	63	78	62	105	81	85	81	65	118	100	85

Table 3.7 Mean, SD and Median values of intakes of **vegetables and potatoes** (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total vegetables	62	40	50	53	36	50	53	34	48	60	37	54
Discrete vegetables	30	33	20	28	28	21	31	28	26	38	30	32
<i>Of which is</i>												
Peas, bean & lentils	7	11	1	8	12	3	8	12	0	10	16	1
<i>Baked beans</i>	6	12	0	6	12	0	6	12	0	9	17	0
Carrots	6	11	0	5	9	0	8	12	3	8	12	4
Other vegetables	8	14	1	7	13	0	6	10	1	8	12	0
Green vegetables (including green beans)	5	9	0	4	8	0	5	11	0	6	10	0
Salad vegetables	2	5	0	3	8	0	2	6	0	3	8	0
Tinned & jarred vegetables	1	5	0	1	3	0	1	3	0	2	6	0
Vegetables in composite dishes*	33	27	26	25	26	16	22	22	16	23	21	18
Total potatoes	36	36	25	39	33	32	43	30	40	47	35	39
<i>Of which is</i>												
Mashed & boiled potatoes	28	33	16	25	31	14	26	27	20	28	31	19
Processed & homemade potato products	2	5	0	4	10	0	5	12	0	5	11	0
Chipped, fried & roasted potatoes	7	15	0	10	17	0	12	15	6	14	22	6

* including vegetables in composite foods and dishes, excluding tomato ketchup and dried vegetables in soups and sauces

Table 3.8 Mean, SD and Median values of intakes of **vegetables and potatoes** (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Total vegetables	125	99	63	40	51	121	98	55	35	50	121	96	55	32	51	122	98	61	37	55
Discrete vegetables	116	92	32	34	24	109	88	32	27	24	109	87	36	27	30	113	91	41	29	37
<i>Of which is</i>							0										0			
Peas, bean & lentils	66	52	14	12	12	68	55	14	12	10	61	48	16	12	12	63	51	20	18	15
<i>Baked beans</i>	67	53	16	14	11	68	55	16	15	11	61	48	18	14	12	63	51	23	22	16
Carrots	61	48	12	13	9	52	42	12	10	10	67	53	15	13	12	68	55	15	13	11
Other vegetables	67	53	14	16	9	57	46	16	16	11	64	51	12	11	7	60	48	16	13	12
Green vegetables (including green beans)	53	42	11	12	8	37	30	12	11	8	51	40	13	15	8	56	45	14	10	12
Salad vegetables	18	14	12	8	10	26	21	14	12	10	18	14	14	10	11	31	25	14	11	12
Tinned & jarred vegetables	15	12	10	10	6	12	10	8	7	7	6	5	12	6	11	18	15	13	11	9
Vegetables in composite dishes*	114	90	36	26	29	114	92	28	26	18	109	87	25	21	20	111	90	25	20	21
Total potatoes	114	90	40	36	29	111	90	43	31	38	117	93	46	29	42	118	95	50	34	41
<i>Of which is</i>																				
Mashed & boiled potatoes	95	75	37	33	26	85	66	36	31	27	90	71	36	25	30	83	67	42	29	33
Processed & homemade potato products	17	13	12	7	14	28	23	19	12	16	27	21	23	17	18	36	29	18	12	14
Chipped, fried & roasted potatoes	46	37	18	20	11	51	41	23	20	18	73	58	21	13	20	67	54	26	25	19

* including vegetables in composite foods and dishes excluding tomato ketchup and dried vegetables in soups and sauces

Table 3.9 Mean, SD and Median values of intakes of **beverages excluding milk** (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Water (as a beverage)	126	145	86	164	207	96	135	133	111	131	142	102
Soft drinks, not low calorie	21	66	0	49	103	0	52	91	0	77	181	27
Soft drinks, low calorie	68	144	0	103	181	0	104	156	32	111	177	4
Fruit juice	23	50	0	38	61	0	65	82	46	77	99	49
Tea	4	23	0	2	12	0	2	16	0	9	33	0
Coffee	0	0	0	0	0	0	0	0	0	0	0	0

Table 3.10 Mean, SD and Median values of intakes of beverages excluding milk (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Water (as a beverage)	95	75	167	144	120	93	75	219	213	145	99	79	172	127	142	90	73	181	138	148
Soft drinks, not low calorie	27	21	96	115	63	52	42	117	131	70	59	47	111	106	72	66	53	145	228	77
Soft drinks, low calorie	37	29	233	180	176	56	45	228	210	154	66	52	198	167	153	62	50	223	196	160
Fruit juice	41	33	70	67	50	58	47	81	66	63	78	62	105	81	85	81	65	119	100	85
Tea	7	6	80	61	90	4	3	61	37	60	9	7	35	50	14	14	11	76	71	47
Coffee	0	0	n/a	n/a	n/a	0	0	n/a	n/a	n/a	0	0	n/a	n/a	n/a	0	0	n/a	n/a	n/a

Table 3.11 Mean, SD and Median values of intakes of **bread, breakfast cereals and rice, pasta & savouries** (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total bread	26	21	21	46	30	40	53	31	50	60	32	58
<i>Of which is</i>												
White bread	13	17	8	21	25	14	29	26	24	34	28	28
Wholemeal brown bread	10	15	3	21	24	15	20	21	14	20	24	12
Scones, croissants, muffins												
&speciality bread	2	5	0	4	9	0	5	12	0	6	15	0
Breakfast cereals												
Ready to eat breakfast cereal	13	11	12	18	14	17	22	15	20	25	18	22
Other breakfast cereal	23	39	0	22	41	0	21	47	0	15	36	0
Infant cereal	5	23	0	1	6	0	0	0	0	0	1	0
Rice, pasta & Savouries	28	26	24	41	45	31	39	38	33	49	45	42
<i>Of which is</i>												
Rice, pasta, grains & starch	18	19	15	24	28	17	22	30	13	28	35	21
Savouries including pizza	10	19	0	17	33	0	16	26	0	21	30	12

Table 3.12 Mean, SD and Median values of intakes of **bread, breakfast cereals and rice, pasta & savouries** (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Total bread	114	90	29	20	24	119	96	48	29	41	121	96	55	29	29	121	98	61	31	59
<i>of which is</i>																				
White bread	82	65	21	17	15	81	65	32	25	25	98	78	37	24	30	107	86	39	26	34
Wholemeal brown bread	67	53	20	16	15	80	65	33	22	29	79	63	30	19	28	74	60	34	22	29
Scones, croissants, muffins & speciality bread	32	25	9	8	7	28	23	16	12	13	33	26	20	16	16	33	27	22	22	16
Breakfast cereals																				
Ready to eat breakfast cereal	108	86	15	10	14	106	85	21	13	20	116	92	24	14	23	112	90	27	17	24
Other breakfast cereal	56	44	52	44	46	42	34	66	45	49	44	35	61	63	41	24	19	77	43	77
Infant cereal	23	18	28	49	16	4	3	29	23	23	0	0				1	1	12		12
Rice, pasta and Savouries	97	77	37	24	30	104	83	49	45	37	102	81	48	36	40	109	88	56	44	49
<i>Of which is</i>																				
Rice, pasta, grains & starch	86	68	27	17	23	83	67	36	26	28	80	63	35	30	29	83	67	42	36	35
Savouries including pizza	42	33	30	23	26	57	46	37	40	24	58	46	35	27	32	69	56	38	31	29

Table 3.13 Mean, SD and Median values of intakes of biscuits, cakes, confectionery and savoury snacks (g/d) by age in the total population

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Biscuits including crackers	7	9	4	11	11	7	11	13	8	13	11	10
Infant biscuits & rusks	3	6	0	2	6	0	1	3	0	1	1	0
Cakes, pastries & buns	5	9	0	6	14	0	6	10	0	10	15	5
Chocolate confectionery	2	5	0	5	7	0	6	8	3	7	9	5
Non-chocolate confectionery	1	4	0	5	10	0	5	7	0	7	11	0
Savoury snacks	2	4	0	3	4	0	6	7	4	6	7	4
Desserts	5	20	0	7	17	0	5	13	0	9	22	0
Rice puddings & custards	6	22	0	6	17	0	5	19	0	3	11	0
Infant desserts	3	11	0	0	2	0	0	0	0	0	0	0

Table 3.14 Mean, SD and Median values of intakes of biscuits, cakes, confectionery and snacks (g/d) by age in consumers only

	1y					2y					3y					4y				
	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median	<i>n</i>	%	Mean	SD	Median
Biscuits including crackers	97	77	9	9	6	95	77	14	11	12	95	75	15	12	12	105	85	15	10	13
Infant biscuits & rusks	47	37	9	7	7	21	17	11	11	9	11	9	11	10	10	4	3	20	14	20
Cakes, buns & pastries	40	32	15	11	13	45	36	17	18	12	55	44	13	11	10	65	52	20	15	15
Chocolate confectionery	40	32	7	7	5	58	47	10	7	8	75	60	11	8	8	82	66	11	8	9
Non-chocolate confectionery	20	16	7	8	5	52	42	12	12	10	57	45	10	7	8	55	44	15	13	13
Savoury snacks	51	40	5	4	4	50	40	7	4	6	80	63	10	7	8	78	63	9	6	8
Desserts	22	17	28	40	16	33	27	25	25	19	23	18	25	22	18	35	28	32	32	23
Rice puddings & custards	20	16	38	43	27	19	15	40	21	38	15	12	41	43	23	11	9	35	16	38
Infant desserts	11	9	33	23	20	1	1	28	0	28	0	0	0	0	0	0	0	0	0	0

Table 4.1 Mean, SD, median and percentile values of daily energy, macronutrient, vitamin and mineral intakes in Irish pre-school children for the total population

	Total Population (<i>n</i> =500)				
	Mean	SD	Median	Percentiles	
				5th	95th
Macronutrients & Fibre					
Energy (MJ)	4.8	1.1	4.7	3.1	6.8
Energy (kcal)	1134	257	1125	739	1628
Protein (g)	42.8	10.9	42.3	27.3	64.2
Total Fat (g)	41.4	12.3	39.9	23.7	64.7
Saturated fat (g)	18.9	6.3	18.3	10.1	30.7
Monounsaturated fat (g)	14.2	4.5	13.5	7.7	22.7
Polyunsaturated (g)	5.4	2.6	5.0	2.3	9.4
Carbohydrate (g)	149.1	37.5	145.7	90.1	214.9
Total sugars (g)	75.9	23.0	74.0	44.6	115.9
Non-milk sugars (g)	57.0	22.9	55.5	26.2	96.8
Starch (g)	71.3	23.5	69.5	34.7	111.1
% total energy from protein	15.2	2.4	15.1	11.3	19.2
% total energy from fat	32.7	5.3	32.4	24.2	42.4
% total energy from saturated fat	14.9	3.3	14.7	9.7	21.1
% total energy from monounsaturated fat	11.2	2.4	10.9	7.7	15.8
% total energy from polyunsaturated fat	4.2	1.8	4.0	2.2	6.8
% total energy from carbohydrate	52.6	6.2	52.6	41.8	63.3
Dietary fibre (g)	11.7	3.9	11.5	5.9	18.4
Non-starch polysaccharides (g)	8.4	2.8	8.1	4.1	13.4
Minerals*					
Sodium (mg)	1193	415	1152	591	2010
Salt equivalent (g)	3.0	1.0	2.9	1.5	5.0
Calcium (mg)	773	273	746	402	1319
Iron (mg)	7.4	3.2	6.9	3.7	12.6
Magnesium (mg)	155	41	149	94	227
Zinc (mg)	5.3	1.8	5.0	3.1	8.7
Copper (mg)	0.6	0.2	0.5	0.3	0.9
Phosphorus (mg)	834	232	818	506	1268
Potassium (mg)	1750	431	1727	1077	2475
Vitamins*					
Total Vitamin A (µg)	688	497	583	205	1465
Retinol (µg)	350	259	371	101	840
Carotene (µg)	2033	1953	1439	153	5667
Vitamin D (µg)	3.3	3.8	1.8	0.4	11.4
Thiamin (mg)	1.1	0.4	1.0	0.6	1.8
Riboflavin (mg)	1.6	0.6	1.5	0.8	2.6
Pre-formed Niacin (mg)	11.9	4.9	10.8	5.6	21.0
Total Niacin Equivalents (mg)	20.2	6.2	19.3	11.6	31.5
Vitamin B6 (mg)	1.4	0.6	1.3	0.7	2.5
Vitamin B12 (µg)	4.0	2.0	3.6	1.4	7.5
Folate (µg)	179	80	158	90	327
Biotin (µg)	22.9	16.3	19.3	9.9	53.4
Pantothenate (mg)	4.5	1.8	4.1	2.4	8.0
Vitamin C (mg)	85	52	73	23	175

* All sources including nutritional supplements

Table 4.2 Mean, SD, and median values of daily energy, macronutrient, vitamin and mineral intakes in Irish pre-school children by age

	1y (n=126)			2y (n=124)			3y (n=126)			4y (n=124)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Macronutrients & Fibre												
Energy (MJ)	4.2	0.9	4.2	4.7	1.2	4.6	4.8	0.9	4.8	5.3	1.0	5.2
Energy (kcal)	1005	222	1000	1122	281	1105	1148	213	1144	1264	240	1241
Protein (g)	39.2	10.3	38.6	42.6	11.7	41.5	42.7	9.9	40.9	47.0	10.5	46.2
Total Fat (g)	38.1	11.0	37.5	41.5	14.4	39.6	41.2	11.1	38.9	44.9	11.5	43.8
Saturated fat (g)	17.7	5.8	17.7	18.8	7.2	18.3	18.9	5.9	18.0	20.0	6.1	19.2
Monounsaturated fat (g)	13.6	4.6	13.1	14.0	5.1	13.2	13.8	4.0	13.2	15.2	4.3	14.7
Polyunsaturated fat (g)	4.2	1.9	3.8	5.4	3.2	5.0	5.5	1.9	5.2	6.3	2.6	5.9
Carbohydrate (g)	126.3	31.7	125.4	146.2	36.0	144.3	153.7	29.9	153.5	170.6	38.0	171.1
Total sugars (g)	69.6	21.8	69.3	74.3	22.7	73.0	76.0	20.3	75.0	83.6	25.1	80.7
Non-milk sugars (g)	43.4	19.9	39.5	55.3	19.9	55.2	60.7	19.8	57.5	68.8	24.2	66.2
Starch (g)	55.2	17.4	52.7	70.2	23.6	68.4	75.8	19.8	74.0	84.2	22.8	83.6
% total energy from protein	15.6	2.5	15.7	15.3	2.5	14.8	14.9	2.4	14.5	15.0	2.4	15.0
% total energy from fat	34.0	5.8	33.7	32.9	5.2	32.2	32.1	4.9	32.2	31.9	5.2	31.9
% total energy from saturated fat	15.8	3.8	15.6	14.9	3.3	14.8	14.7	3.0	14.7	14.2	3.0	14.0
% total energy from monounsaturated fat	12.1	2.9	11.7	11.1	2.1	10.7	10.7	2.0	10.7	10.8	2.4	10.7
% total energy from polyunsaturated fat	3.7	1.4	3.6	4.3	2.6	4.2	4.4	1.5	4.1	4.5	1.5	4.2
% total energy from carbohydrate	50.4	6.9	50.8	52.4	5.9	53.3	53.7	5.7	54.1	54.0	5.8	53.5
Dietary fibre (g)	10.5	3.7	10.0	11.6	4.1	11.4	12.0	3.4	11.9	12.8	3.9	12.5
Non-starch polysaccharides (g)	7.7	2.8	7.6	8.3	3.0	7.9	8.5	2.5	8.4	9.1	2.7	8.9
Minerals*												
Sodium (mg)	918	341	876	1186	381	1090	1250	336	1228	1421	431	1362
Salt equivalent (g)	2.3	0.9	2.2	3.0	1.0	2.7	3.1	0.8	3.1	3.6	1.1	3.4
Calcium (mg)	840	297	829	786	280	754	718	264	696	748	233	728
Iron (mg)	7.0	3.0	6.4	7.6	3.2	6.9	7.2	3.5	6.9	7.8	2.7	7.3
Magnesium (mg)	143	38	140	154	43	147	154	37	148	167	44	161
Zinc (mg)	5.4	1.8	5.1	5.4	1.9	5.0	5.2	1.8	4.9	5.5	1.5	5.1
Copper (mg)	0.5	0.2	0.5	0.6	0.3	0.5	0.5	0.2	0.5	0.6	0.2	0.6
Phosphorus (mg)	815	237	827	839	256	821	814	217	781	868	212	857
Potassium (mg)	1716	435	1721	1724	466	1669	1732	408	1701	1830	410	1789
Vitamins*												
Total Vitamin A (µg)	757	481	634	649	605	572	696	450	583	650	434	560
Retinol (µg)	390	357	289	358	508	251	330	274	243	320	301	231
Carotene (µg)	2203	1977	1505	1744	1673	1326	2198	2283	1422	1982	1806	1491
Vitamin D (µg)	4.2	5.2	2.0	3.4	3.5	1.7	3.0	3.3	1.8	2.8	2.6	1.9
Thiamin (mg)	1.0	0.4	0.9	1.1	0.5	1.0	1.1	0.4	1.0	1.1	0.3	1.1
Riboflavin (mg)	1.6	0.7	1.5	1.6	0.6	1.5	1.5	0.5	1.4	1.5	0.5	1.4
Pre-formed Niacin (mg)	10.0	4.5	9.3	12.2	5.6	11.2	12.3	4.7	10.9	13.0	4.2	12.5
Total Niacin Equivalents (mg)	17.5	5.7	16.5	20.6	6.5	19.6	20.7	5.7	19.5	22.2	6.0	21.3
Vitamin B6 (mg)	1.2	0.6	1.1	1.4	0.6	1.2	1.5	0.6	1.4	1.5	0.6	1.4
Vitamin B12 (µg)	4.1	2.0	3.8	4.2	2.4	3.9	3.8	1.8	3.5	4.0	1.8	3.6
Folate (µg)	159	80	143	180	72	160	188	84	170	189	80	173
Biotin (µg)	20.6	8.1	18.7	21.8	13.5	19.1	26.5	24.3	19.4	22.5	14.3	19.6
Pantothenate (mg)	4.4	1.7	4.1	4.7	2.0	4.2	4.5	1.8	4.1	4.4	1.6	4.0
Vitamin C (mg)	75	44	64	85	64	73	85	45	73	94	53	78

* All sources including nutritional supplements

Table 4.3 Contribution of food groups (kcal & %) to mean daily energy intake in Irish pre-school children for total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%
Total milk	196	17.7	286	28.5	203	17.9	152	13.1	142	11.2
Whole milk	133	11.8	172	17.1	142	12.1	113	9.7	105	8.2
Reduced fat milk	15	1.4	7	0.8	14	1.7	17	1.5	22	1.8
Infant/growing up milk	31	3.0	75	7.6	35	3.2	8	0.7	4	0.3
Other milk & milk based beverages	17	1.5	32	3.1	11	1.0	14	1.2	11	0.8
Meat & meat products	131	11.6	107	10.4	129	11.6	134	11.8	155	12.5
Meat/meat dishes	65	5.7	59	5.8	66	5.9	60	5.2	74	6.0
Cured/processed meats	64	5.5	39	3.7	62	5.6	71	6.4	81	6.4
Bread & rolls	112	9.6	63	6.2	110	9.8	130	11.1	147	11.4
Breakfast cereals	99	8.8	90	9.1	94	8.3	103	9.1	108	8.8
Ready to eat breakfast cereals	71	6.2	47	4.8	65	5.8	81	7.1	90	7.3
Fruit & fruit juices	97	8.8	86	8.6	97	9.0	104	9.2	103	8.3
Biscuits, cakes & pastries	80	6.8	64	6.1	78	6.7	77	6.7	101	7.9
Total Yoghurt	60	5.4	64	6.7	58	5.2	61	5.2	59	4.6
Yogurt	36	3.2	29	3.1	36	3.3	41	3.4	39	3.0
Fromage Frais	24	2.2	34	3.5	22	2.0	20	1.7	20	1.7
Confectionery	58	5.0	23	2.3	52	4.5	76	6.7	83	6.5
Chocolate confectionery	26	2.2	11	1.0	25	2.2	32	2.8	36	2.9
Non Chocolate confectionery	12	1.0	4	0.4	12	1.0	13	1.2	17	1.3
Savoury snacks	21	1.8	9	0.9	15	1.3	31	2.7	29	2.3
Grains, rice, pasta & savouries	54	4.8	37	3.8	57	5.2	55	4.8	68	5.3
Potatoes & potato dishes	51	4.4	38	3.7	49	4.3	56	4.9	60	4.8
Cheeses	30	2.6	27	2.7	31	2.8	29	2.5	34	2.6
Creams, ice-creams & chilled desserts	31	2.6	19	1.8	27	2.5	34	2.8	45	3.5
Butter, spreading fats & oils	30	2.6	19	1.9	32	2.8	37	3.2	33	2.6
Vegetables & vegetable dishes	21	1.9	23	2.3	21	1.8	18	1.6	23	1.9
Beverages	21	1.8	11	1.1	22	2.0	21	1.9	30	2.3
Fish & fish dishes	20	1.8	21	2.1	17	1.6	19	1.6	24	1.9
Eggs & egg dishes	15	1.4	13	1.3	18	1.7	14	1.3	15	1.3
Soups, sauces & miscellaneous foods	13	1.1	9	0.9	13	1.1	12	1.0	17	1.4
Sugars, syrups, preserves, sweeteners	10	0.9	4	0.4	11	1.0	12	1.0	15	1.1
Nuts, seeds, herbs & spices	3	0.3	2	0.2	3	0.3	5	0.4	3	0.3
Nutritional supplements	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	1134	100	1005	100	1122	100	1148	100	1264	100

Table 4.4 Contribution of food groups (g & %) to mean daily **fat** intakes in Irish pre-school children for total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	g	%	g	%	g	%	g	%	g	%
Total milk	9.9	24.1	14.6	38.2	10.1	23.8	7.7	18.4	7.1	15.8
Whole milk	7.1	16.9	9.1	23.5	7.5	17.3	6.0	14.5	5.6	12.3
Reduced fat milk	0.5	1.4	0.2	0.8	0.5	1.6	0.5	1.5	0.7	1.9
Infant/growing up milk	1.3	3.6	3.3	9.4	1.5	3.7	0.3	0.7	0.2	0.4
Other milk & milk based beverages	1.0	2.2	1.9	4.4	0.6	1.2	0.8	1.8	0.6	1.3
Meat & meat products	6.9	16.7	5.5	14.4	6.7	16.8	7.0	17.5	8.2	18.1
Biscuits, cakes & pastries	3.3	7.9	2.5	6.4	3.1	7.3	3.2	8.0	4.5	9.9
Butter, spreading fats & oils	3.4	7.9	2.1	5.5	3.5	8.4	4.1	9.7	3.6	7.9
Cheeses	2.4	5.7	2.1	5.7	2.5	6.0	2.3	5.4	2.6	5.8
Potatoes & potato dishes	1.7	4.1	1.1	2.8	1.7	3.9	2.0	4.8	2.0	4.8
Total Yoghurt	1.6	4.0	1.7	4.9	1.5	3.9	1.6	3.9	1.5	3.5
Yoghurts	1.0	2.4	0.8	2.3	1.0	2.5	1.0	2.5	1.0	2.2
Fromage frais	0.6	1.7	0.9	2.6	0.5	1.4	0.5	1.3	0.5	1.2
Confectionery	1.6	3.8	0.6	1.7	1.8	4.2	1.9	4.4	2.1	4.8
Chocolate confectionery	1.4	3.3	0.6	1.6	1.4	3.4	1.7	4.0	1.9	4.3
Non chocolate confectionery	0.2	0.4	0.0	0.1	0.5	0.8	0.2	0.4	0.2	0.5
Bread & rolls	1.5	3.7	0.8	2.2	1.4	3.5	1.8	4.4	2.1	4.7
Breakfast cereals	1.3	3.2	1.4	3.9	1.2	2.9	1.2	3.1	1.2	2.9
Creams, ice-creams & chilled desserts	1.3	3.0	0.6	1.6	1.1	2.7	1.4	3.3	1.9	4.3
Eggs & egg dishes	1.2	2.9	1.0	2.6	1.5	3.6	1.2	2.8	1.2	2.8
Grains, rice, pasta & savouries	1.2	2.9	0.7	1.7	1.3	3.4	1.3	3.1	1.5	3.4
Savoury snacks	1.0	2.4	0.4	1.0	0.7	1.6	1.6	3.8	1.5	3.2
Fish & fish dishes	0.9	2.4	1.0	2.7	0.7	2.0	0.9	2.2	1.1	2.6
Soups, sauces & miscellaneous foods	0.7	1.6	0.5	1.3	0.8	1.8	0.6	1.3	1.0	2.1
Vegetables & vegetable dishes	0.6	1.5	0.7	1.7	0.7	1.6	0.4	1.1	0.6	1.3
Fruit & fruit juices	0.4	1.0	0.4	1.2	0.4	1.0	0.4	0.9	0.3	0.8
Nuts, seeds, herbs & spices	0.3	0.6	0.1	0.3	0.3	0.6	0.4	0.9	0.3	0.6
Sugars, syrups, preserves & sweeteners	0.2	0.4	0.1	0.1	0.2	0.5	0.2	0.5	0.2	0.5
Beverages	0.1	0.2	0.0	0.1	0.0	0.1	0.1	0.3	0.2	0.3
Nutritional supplements	0.1	0.1	0.0	0.0	0.2	0.3	0.0	0.1	0.1	0.1
Total	41.4	100	38.1	100	41.5	100	41.2	100	44.9	100

Table 4.5 Contribution of food groups (g & %) to mean daily **protein** intakes in Irish pre-school children for total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	g	%	g	%	g	%	g	%	g	%
Meat & meat products	11.5	26.1	8.9	21.9	11.1	25.7	12.1	28.0	13.8	28.8
<i>Cured/processed meats</i>	4.6	10.5	2.6	6.2	4.4	10.2	5.3	12.7	6.1	12.8
<i>Meat/meat dishes</i>	6.7	15.2	5.9	14.6	6.7	15.3	6.7	15.0	7.7	15.9
Total milk	9.1	21.2	11.8	29.9	9.4	21.4	7.7	17.7	7.5	15.8
<i>Whole milk</i>	6.7	15.1	8.6	20.7	7.1	15.4	5.7	13.1	5.3	11.0
<i>Reduced fat milk</i>	1.1	2.6	0.5	1.4	1.1	2.9	1.3	2.8	1.6	3.4
<i>Infant/growing up milk</i>	0.7	2.0	1.7	5.1	0.9	2.3	0.2	0.5	0.1	0.2
<i>Other milk & milk based beverages</i>	0.6	1.5	0.9	2.6	0.3	0.7	0.6	1.3	0.5	1.1
Bread & rolls	4.1	9.5	2.3	5.9	4.0	9.7	4.6	11.0	5.3	11.4
Breakfast cereals	2.8	6.8	2.8	7.5	2.8	6.6	2.8	6.6	2.9	6.4
Total Yoghurt	2.7	6.5	2.9	8.0	2.6	6.3	2.6	6.3	2.5	5.4
<i>Yoghurts</i>	1.5	3.6	1.3	3.5	1.6	3.8	1.7	4.0	1.6	3.3
<i>Fromage frais</i>	1.1	2.9	1.7	4.6	1.0	2.5	0.9	2.3	0.9	2.1
Cheeses	2.0	4.5	1.7	4.2	2.0	4.9	1.9	4.2	2.2	4.6
Grains, rice, pasta & savouries	1.7	4.0	1.2	3.0	1.6	4.1	1.7	4.1	2.2	4.8
Fish & fish dishes	1.7	3.9	1.8	4.3	1.6	3.8	1.5	3.4	1.9	4.0
Biscuits, cakes & pastries	1.2	2.9	1.0	2.7	1.2	3.0	1.2	2.9	1.5	3.3
Fruit & fruit juices	1.2	2.8	1.0	2.7	1.1	2.8	1.3	3.1	1.2	2.7
Vegetables & vegetable dishes	1.1	2.5	1.1	2.7	1.0	2.4	1.0	2.3	1.2	2.6
Potatoes & potato dishes	0.9	2.2	0.7	1.9	0.9	2.1	1.0	2.4	1.1	2.5
Eggs & egg dishes	1.0	2.2	0.8	2.0	1.1	2.5	0.9	2.2	1.0	2.1
Sugars, confectionary, preserves & savoury snacks	0.8	2.0	0.4	1.0	0.8	1.9	1.1	2.8	1.2	2.6
Creams, ice-creams & chilled desserts	0.6	1.5	0.5	1.2	0.6	1.4	0.6	1.5	0.8	1.8
Soups, sauces & miscellaneous foods	0.3	0.7	0.3	0.7	0.4	0.8	0.4	0.8	0.3	0.7
Nuts, seeds, herbs & spices	0.1	0.3	0.0	0.1	0.1	0.3	0.2	0.4	0.1	0.2
Beverages	0.1	0.3	0.1	0.2	0.1	0.3	0.1	0.2	0.1	0.3
Butter, spreading fats & oils	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1
Nutritional supplements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	42.8	100	39.2	100	42.6	100	42.7	100	47.0	100

Table 4.6 Contribution of food groups (g & %) to mean daily carbovhdrate intake in Irish pre-school children for total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	g	%	g	%	g	%	g	%	g	%
Fruit & fruit juices	23.5	15.8	20.4	15.8	23.4	16.2	25.2	16.4	25.1	14.9
<i>Fruit juices</i>	4.7	3.0	2.1	1.4	3.6	2.5	6.1	3.9	7.2	4.3
Bread & rolls	20.7	13.5	11.6	9.2	20.4	13.9	24.1	15.6	27.0	15.6
Breakfast cereals	18.7	12.6	16.0	12.8	17.7	12.0	20.0	13.1	21.2	12.6
<i>Ready to eat breakfast cereals</i>	14.6	9.7	9.6	7.6	13.4	9.2	16.6	10.9	18.6	11.0
Total milk	16.6	11.9	25.2	20.4	17.4	12.3	12.3	8.2	11.3	6.8
<i>Whole milk</i>	9.3	6.8	12.1	10.4	9.9	6.9	7.9	5.3	7.4	4.5
<i>Reduced fat milk</i>	1.6	1.1	0.7	0.6	1.5	1.3	1.7	1.2	2.3	1.4
<i>Infant/growing up milk</i>	3.8	2.8	9.3	7.1	4.6	3.2	1.1	0.7	0.4	0.3
<i>Other milk & milk based beverages</i>	1.9	1.2	3.1	2.3	1.5	0.9	1.6	1.0	1.3	0.7
Biscuits, cakes & pastries	12.1	7.9	9.9	7.4	12.1	7.8	11.8	7.6	14.7	8.6
Grains, rice, pasta & savouries	9.5	6.4	6.9	5.6	9.9	6.8	9.5	6.1	11.8	6.8
Total Yoghurt	8.5	5.8	8.5	7.1	8.1	5.6	8.7	5.4	8.7	5.1
<i>Yoghurts</i>	5.4	3.6	4.1	3.6	5.3	3.7	6.1	3.7	6.0	3.4
<i>Fromage frais</i>	3.1	2.2	4.4	3.5	2.8	1.9	2.6	1.7	2.7	1.7
Potatoes & potato dishes	8.6	5.8	6.9	5.4	8.1	5.5	9.2	6.1	10.2	6.0
Confectionery	8.2	5.3	3.2	2.5	7.3	4.8	10.5	7.0	11.8	6.9
<i>Chocloate confectionery</i>	3.1	2.1	1.2	0.9	2.9	2.0	3.8	2.6	4.5	2.7
<i>Non chocolate confectionery</i>	2.6	1.6	0.8	0.6	2.7	1.6	3.0	2.0	3.9	2.2
<i>Savoury snacks</i>	2.5	1.6	1.2	1.0	1.8	1.2	3.7	2.4	3.4	2.0
Meat & meat products	5.3	3.7	5.7	4.6	5.0	3.6	4.9	3.2	5.4	3.3
Beverages	4.9	3.1	2.4	1.8	5.1	3.4	5.0	3.3	7.2	3.9
Creams, ice-creams & chilled desserts	4.2	2.7	2.9	2.1	3.8	2.7	4.2	2.7	5.7	3.3
Vegetables & vegetable dishes	3.1	2.2	3.3	2.8	3.0	2.0	2.7	1.8	3.5	2.1
Sugars, syrups, preserves & sweeteners	2.3	1.4	0.8	0.7	2.5	1.6	2.6	1.6	3.3	1.9
Soups, sauces & miscellaneous foods	1.3	0.9	0.9	0.7	1.1	0.8	1.4	0.9	1.7	1.0
Fish & fish dishes	1.3	0.9	1.4	1.1	0.9	0.7	1.2	0.8	1.7	1.0
Cheeses	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1
Nuts, seeds, herbs & spices	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0
Butter, spreading fats & oils	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eggs & egg dishes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nutritional supplements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	149.1	100	126.3	100	146.2	100	153.7	100	170.6	100

Table 4.7 Contribution of food groups (g & %) to **total sugar** intake in Irish pre-school children for total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	g	%	g	%	g	%	g	%	g	%
Fruit & fruit juices	22.6	29.5	19.4	27.2	22.4	30.5	24.3	31.2	24.2	29.0
<i>Juices</i>	4.7	5.8	2.1	2.6	3.6	4.5	6.0	7.6	7.2	8.4
<i>Fruit</i>	15.1	20.1	14.1	20.4	15.9	22.0	15.5	20.1	14.8	18.0
<i>Smoothies/pureés</i>	2.8	3.6	3.1	4.2	3.0	4.0	2.8	3.4	2.3	2.7
Total milk	15.6	21.4	23.2	33.7	16.0	21.7	11.8	16.1	11.3	13.9
<i>Whole milk</i>	9.3	13.2	12.1	19.1	9.9	13.4	7.9	11.0	7.4	9.3
<i>Reduced fat milk</i>	1.6	2.2	0.7	1.0	1.5	2.4	1.7	2.5	2.3	2.8
<i>Infant/growing up milk</i>	3.0	3.9	7.3	9.8	3.3	4.4	0.8	1.0	0.4	0.4
<i>Other milk & milk-based beverages</i>	1.7	2.1	3.1	3.8	1.2	1.5	1.3	1.6	1.2	1.3
Total yoghurt	8.0	10.6	8.0	12.0	7.6	10.1	8.2	10.6	8.2	9.7
<i>Yoghurt</i>	5.1	6.6	3.8	6.1	4.9	6.6	5.8	7.4	5.7	6.4
<i>Fromage frais</i>	3.0	4.0	4.2	5.8	2.6	3.5	2.5	3.3	2.5	3.2
Biscuits, cakes & pastries	4.9	6.4	3.7	5.1	4.6	6.0	4.9	6.6	6.4	7.8
Confectionery	4.7	5.9	1.7	2.4	4.5	5.6	5.8	7.6	6.9	8.0
<i>Chocolate confectionery</i>	2.9	3.7	1.2	1.6	2.7	3.5	3.6	4.8	4.1	4.9
<i>Non-chocolate confectionery</i>	1.8	2.2	0.5	0.8	1.8	2.1	2.2	2.8	2.7	3.1
Beverages	4.8	5.7	2.3	3.0	5.0	6.1	4.9	6.2	6.9	7.5
Breakfast cereals	3.6	5.0	3.0	4.5	3.0	4.2	3.6	5.1	4.8	6.1
Creams, ice-creams, & chilled desserts	3.0	3.8	2.0	2.6	2.7	3.7	3.2	4.2	4.2	4.9
Sugars, syrups, preserves & sweeteners	2.3	2.9	0.8	1.2	2.5	3.2	2.6	3.2	3.3	3.9
Vegetables & vegetable dishes	1.4	2.0	1.5	2.4	1.4	1.9	1.3	1.8	1.6	2.0
Breads & rolls	1.4	1.9	0.8	1.2	1.4	1.9	1.8	2.4	1.8	2.3
Meat & meat products	1.3	1.8	1.5	2.3	1.3	1.9	1.2	1.6	1.1	1.5
Soups, sauces & miscellaneous foods	0.8	1.1	0.5	0.7	0.7	1.2	0.9	1.2	1.1	1.3
Grains, rice, pasta & savouries	0.6	0.9	0.4	0.6	0.6	0.8	0.7	1.0	0.8	1.0
Potatoes & potato products	0.4	0.6	0.4	0.6	0.4	0.5	0.5	0.8	0.4	0.5
Cheeses	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fish & fish products	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Savoury snacks	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Butter, spreading fats & oils	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Nuts, seeds, herbs & spices	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Eggs & egg dishes	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Nutritional supplements	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	75.9	100	69.6	100	74.3	100	76.0	100	83.6	100

Table 4.8 Contribution (% & g) of food groups to mean daily **dietary fibre** intakes in preschool children, for the total population and by age

	Total		1y		2y		3y		4y	
	(n=500)		(n=126)		(n=124)		(n=126)		(n=124)	
	g	%	g	%	g	%	g	%	g	%
Fruit & fruit juices	2.7	22.4	2.4	23.1	2.8	23.4	2.8	22.4	2.7	20.5
<i>Fruit juices</i>	<i>0.1</i>	<i>0.5</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.3</i>	<i>0.1</i>	<i>0.8</i>	<i>0.1</i>	<i>0.5</i>
<i>Smoothies & pureés</i>	<i>0.4</i>	<i>3.5</i>	<i>0.5</i>	<i>4.0</i>	<i>0.5</i>	<i>3.9</i>	<i>0.5</i>	<i>3.4</i>	<i>0.4</i>	<i>2.6</i>
<i>Fruit</i>	<i>2.2</i>	<i>18.4</i>	<i>2.0</i>	<i>18.9</i>	<i>2.3</i>	<i>19.3</i>	<i>2.3</i>	<i>18.2</i>	<i>2.3</i>	<i>17.4</i>
Bread & rolls	1.8	15.6	1.1	10.3	1.9	16.6	2.1	17.6	2.3	18.0
<i>White breads</i>	<i>0.6</i>	<i>5.8</i>	<i>0.3</i>	<i>3.9</i>	<i>0.5</i>	<i>5.5</i>	<i>0.7</i>	<i>6.8</i>	<i>0.8</i>	<i>7.2</i>
<i>Brown breads</i>	<i>1.1</i>	<i>8.6</i>	<i>0.6</i>	<i>5.6</i>	<i>1.3</i>	<i>10.2</i>	<i>1.2</i>	<i>9.4</i>	<i>1.3</i>	<i>9.4</i>
<i>Other breads</i>	<i>0.1</i>	<i>1.1</i>	<i>0.1</i>	<i>0.9</i>	<i>0.1</i>	<i>0.9</i>	<i>0.2</i>	<i>1.4</i>	<i>0.2</i>	<i>1.4</i>
Breakfast cereals	1.8	15.5	1.7	17.1	1.7	15.2	1.9	15.2	1.9	14.5
<i>Ready to eat breakfast cereals</i>	<i>1.3</i>	<i>11.4</i>	<i>1.0</i>	<i>10.3</i>	<i>1.2</i>	<i>11.0</i>	<i>1.4</i>	<i>12.0</i>	<i>1.6</i>	<i>12.2</i>
<i>Infant breakfast cereals</i>	<i>0.1</i>	<i>0.5</i>	<i>0.2</i>	<i>1.4</i>	<i>0.1</i>	<i>0.4</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>
<i>Other breakfast cereals</i>	<i>0.4</i>	<i>3.7</i>	<i>0.5</i>	<i>5.3</i>	<i>0.5</i>	<i>3.8</i>	<i>0.4</i>	<i>3.3</i>	<i>0.3</i>	<i>2.3</i>
Vegetables & vegetable dishes	1.4	11.5	1.3	12.6	1.3	10.4	1.3	10.7	1.6	12.2
Potatoes & potato products	0.9	7.9	0.7	6.9	0.8	7.8	0.9	8.4	1.0	8.5
Grains, rice, pasta & savouries	0.7	6.1	0.5	5.1	0.7	6.0	0.7	5.8	0.9	7.5
Meat & meat products	0.6	5.5	0.7	7.5	0.6	5.3	0.5	4.7	0.5	4.4
Milk & yoghurt	0.6	4.3	1.1	8.7	0.6	4.6	0.4	2.5	0.2	1.3
Biscuits, cakes & pastries	0.5	4.2	0.4	4.0	0.5	4.3	0.4	3.8	0.6	4.6
Sugars, confectionery, preserves & savoury snacks	0.4	3.8	0.2	1.6	0.3	3.3	0.6	5.4	0.6	4.8
Soups, sauces & miscellaneous foods	0.1	1.3	0.1	1.3	0.1	1.0	0.2	1.5	0.2	1.4
Fish & fish products	0.1	0.7	0.1	0.9	0.1	0.6	0.1	0.6	0.1	0.8
Creams, ice-creams, & chilled desserts	0.1	0.5	0.0	0.4	0.1	0.6	0.0	0.4	0.1	0.7
Beverages	0.0	0.4	0.0	0.2	0.0	0.4	0.0	0.3	0.1	0.4
Nuts, seeds, herbs & spices	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eggs & egg dishes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Butter, spreading fats & oils	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cheeses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nutritional supplements	0.0	0.0	0.0	0.2	0.1	0.4	0.1	0.5	0.0	0.3
Total	11.7	100.0	10.5	100.0	11.6	100.0	12.0	100.0	12.8	100.0

Table 4.9 Mean, SD and median values of daily energy, macronutrient and fibre intake by social class in total population[#]

	Professional/Managerial/Technical			Non-manual Skilled			Manual Skilled			Semi-skilled/Unskilled		
	(n=310)			(n=80)			(n=74)			(n=29)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Energy (kcal)	1115	236	1114	1162	263	1171	1162	310	1155	1162	271	1107
Energy (MJ)	18.7	4.0	18.7	19.5	4.4	19.7	19.5	5.2	19.4	19.5	4.5	18.6
Protein (g)	42.6	10.0	42.4	43.4	11.7	43.1	42.0	12.6	38.2	43.7	12.1	43.4
Total fat (g)	40.7	11.7	39.7	42.8	11.7	43.4	41.2	14.0	38.1	44.9	14.9	43.1
Saturated fat (g)	18.7	6.3	18.4	19.2	5.7	19.7	18.4	6.3	17.2	20.2	7.5	19.6
Monounsaturated fat (g)	13.9	4.3	13.4	14.6	4.0	14.4	14.0	5.3	12.9	15.7	6.1	14.0
Polyunsaturated fat (g)	5.1	2.3	4.9	5.8	3.4	5.1	5.6	2.9	4.8	5.9	2.2	6.0
Carbohydrate (g)	146.3	34.7	144.0	152.1	37.5	149.7	157.7	46.3	151.7	147.8	34.9	136.2
Total sugars (g)	75.0	21.3	74.0	74.6	22.0	72.8	80.8	29.8	76.6	75.9	21.4	73.3
Non-milk sugars (g)	55.3	21.2	53.6	56.7	22.1	56.0	64.7	28.4	62.6	55.5	23.4	52.7
% total energy from protein	15.4	2.3	15.3	15.0	2.5	14.9	14.5	2.5	14.4	15.1	2.7	14.8
% total energy from total fat	32.6	5.2	32.2	33.2	6.0	32.7	31.9	5.2	31.4	34.3	5.7	33.6
% total energy from saturated fat	15.0	3.5	14.7	14.9	3.1	15.0	14.3	3.0	14.1	15.4	3.5	15.3
% total energy from monounsaturated fat	11.2	2.4	11.0	11.4	2.4	11.1	10.8	2.2	10.6	12.0	3.1	11.8
% total energy from polyunsaturated fat	4.1	1.5	3.9	4.5	3.0	4.0	4.3	1.6	4.0	4.5	1.2	4.3
% total energy from carbohydrate	52.5	6.2	52.4	52.5	6.3	51.4	54.2	5.9	54.4	51.2	6.4	50.5
Dietary fibre (g)	11.8	3.8	11.6	11.4	3.3	11.6	11.6	4.9	10.8	11.5	3.4	11.5
Dietary fibre (g/MJ)	2.5	0.7	2.5	2.4	0.6	2.3	2.4	0.8	2.3	2.4	0.6	2.4
Non-starch polysaccharides (g)	8.5	2.8	8.2	8.2	2.4	8.6	8.3	3.4	8.0	8.2	2.2	7.7
Non-starch polysaccharides (g/MJ)	1.8	0.5	1.8	1.7	0.5	1.7	1.7	0.6	1.6	1.7	0.4	1.7

[#] Social class excludes 7 missing values

Table 4.10 Mean, SD and median values of daily energy, macronutrient and fibre intake by level of education in total population[#]

	Primary/Intermediate			Secondary			Tertiary		
	(n=24)			(n=63)			(n=413)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Energy (kcal)	1110	271	1050	1091	242	1096	1142	258	1132
Energy (MJ)	18.7	4.5	17.6	18.4	4.1	18.5	19.2	4.3	19.0
Protein (g)	40.7	11.5	41.0	40.2	10.4	40.1	43.4	11.0	42.6
Total fat (g)	41.0	14.5	38.5	38.2	11.4	38.3	41.9	12.2	40.1
Saturated fat (g)	18.5	6.2	18.7	17.6	5.9	18.1	19.1	6.4	18.3
Monounsaturated fat (g)	13.6	6.1	13.4	13.0	4.1	12.5	14.4	4.5	13.7
Polyunsaturated fat (g)	6.0	5.6	4.5	5.0	2.4	4.5	5.4	2.3	5.0
Carboyhdrate (g)	147.6	32.8	138.4	148.8	36.1	149.6	149.3	38.0	145.5
Total sugars (g)	79.0	23.1	77.6	74.5	21.4	73.2	75.9	23.3	74.0
Non-milk sugars (g)	61.2	20.5	57.1	59.2	21.9	58.5	56.4	23.2	55.3
% total energy from protein	14.7	2.3	15.4	14.8	2.3	14.6	15.3	2.5	15.1
% total energy from total fat	33.1	7.2	31.9	31.3	5.7	31.8	32.9	5.1	32.4
% total energy from saturated fat	14.9	3.2	14.8	14.4	3.6	14.2	15.0	3.3	14.7
% total energy from monounsaturated fat	10.8	2.4	10.4	10.7	2.2	10.6	11.3	2.4	11.0
% total energy from polyunsaturated fat	5.0	5.3	4.0	4.1	1.6	3.7	4.2	1.4	4.0
% total energy from carboyhdrate	53.5	5.0	53.0	54.7	6.3	54.4	52.3	6.2	52.3
Dietary fibre (g)	11.6	4.2	11.6	11.5	3.7	11.4	11.7	3.9	11.5
Dietary fibre (g/MJ)	2.5	0.7	2.5	2.6	0.7	2.6	2.5	0.7	2.4
Non-starch polysaccharides (g)	8.4	3.2	7.7	8.3	2.7	7.9	8.4	2.8	8.2
Non-starch polysaccharides (g/MJ)	1.8	0.4	1.8	1.8	0.5	1.8	1.8	0.5	1.7

[#] parental education (highest level of education)

Table 4.11 Mean, SD and median values of daily energy, macronutrient and fibre intake by geographical location in total population

	Open country/village			Small town			Large town			City		
	(n=211)			(n=23)			(n=217)			(n=49)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Energy (kcal)	1116	245	1079	1204	225	1194	1151	265	1161	1110	280	1109
Energy (MJ)	18.7	4.1	18.1	20.2	3.8	20.0	19.3	4.5	19.6	18.6	4.7	18.7
Protein (g)	41.8	10.2	41.1	45.7	10.6	42.4	43.9	11.4	43.4	41.4	11.8	40.6
Total fat (g)	40.9	12.0	39.6	45.6	12.3	44.1	41.6	12.7	39.6	40.7	11.5	40.8
Saturated fat (g)	18.6	5.7	18.3	20.7	6.8	19.7	19.0	6.8	18.0	18.5	6.3	18.4
Monounsaturated fat (g)	14.0	4.6	13.4	15.6	4.6	15.9	14.2	4.5	13.5	14.1	4.6	13.5
Polyunsaturated fat (g)	5.5	2.9	4.9	6.0	3.7	5.0	5.2	2.1	5.1	5.1	2.5	4.4
Carbohydrate (g)	146.3	34.2	139.6	153.4	34.5	146.7	152.2	38.8	151.8	145.7	45.6	136.2
Total sugars (g)	73.3	20.2	72.4	76.4	20.4	76.6	78.3	24.2	75.0	76.0	28.8	76.8
Non-milk sugars (g)	56.0	19.8	53.3	59.4	21.4	60.1	58.3	23.3	56.4	54.6	32.7	44.3
% total energy from protein	15.1	2.2	15.1	15.3	2.8	15.7	15.4	2.6	15.0	15.0	2.6	14.7
% total energy from total fat	32.9	5.5	32.6	33.9	5.0	32.8	32.4	5.3	32.2	33.1	5.3	31.8
% total energy from saturated fat	14.9	3.1	14.9	15.4	3.6	15.8	14.7	3.3	14.5	15.2	4.2	14.3
% total energy from monounsaturated fat	11.2	2.4	11.1	11.6	2.4	12.0	11.1	2.5	10.8	11.5	2.4	10.7
% total energy from polyunsaturated fat	4.4	2.2	4.1	4.4	2.1	4.0	4.1	1.4	4.0	4.0	1.4	3.7
% total energy from carbohydrate	52.5	5.6	52.4	51.0	6.5	50.6	52.9	6.5	53.3	52.3	7.3	54.2
Dietary fibre (g)	11.7	4.0	11.3	11.5	4.1	9.9	11.8	3.8	11.7	11.4	3.6	11.5
Dietary fibre (g/MJ)	2.5	0.7	2.5	2.3	0.8	2.2	2.5	0.7	2.4	2.5	0.6	2.5
Non-starch polysaccharides (g)	8.4	2.9	8.1	8.1	2.8	7.7	8.4	2.7	8.2	8.3	2.8	8.0
Non-starch polysaccharides (g/MJ)	1.8	0.5	1.8	1.6	0.5	1.7	1.8	0.5	1.7	1.8	0.5	1.8

Table 4.12 Mean, SD, median and percentile values of calcium (mg) intake from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	773	840	786	718	748
SD	273	297	280	264	233
Median	746	829	754	696	728
Percentiles					
5th	402	440	417	368	376
95th	1319	1441	1366	1370	1277
97.5th	1452	1601	1486	1512	1363
Food Sources					
Mean	769	839	780	712	744
SD	271	297	282	259	227
Median	741	829	754	683	724
Percentiles					
5th	402	440	416	368	376
95th	1296	1441	1366	1280	1198
97.5th	1452	1601	1486	1498	1326

Table 4.13 Mean, SD, median and percentile values of **iron** intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	7.4	7.0	7.6	7.2	7.8
SD	3.2	3.0	3.2	3.5	2.7
Median	6.9	6.4	6.9	6.9	7.3
Percentiles					
5th	3.7	3.3	3.6	3.9	4.9
95th	12.6	13.3	14.6	11.0	12.6
97.5th	15.0	15.0	16.9	12.3	16.5
Food Sources					
Mean	7.1	7.0	7.2	6.7	7.4
SD	2.5	3.0	2.8	1.8	2.0
Median	6.7	6.3	6.7	6.6	7.2
Percentiles					
5th	3.7	3.3	3.6	3.9	4.9
95th	12.0	13.3	13.2	9.5	11.4
97.5th	13.2	15.0	15.0	10.8	12.6

Table 4.14 Mean, SD, median and percentile values of magnesium intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	155	143	154	154	167
SD	41	38	43	37	44
Median	149	140	147	148	161
Percentiles					
5th	94	85	93	98	108
95th	227	200	229	227	236
97.5th	242	236	261	230	271
Food Sources					
Mean	154	143	154	153	166
SD	40	38	43	37	39
Median	149	140	147	148	161
Percentiles					
5th	94	85	93	98	108
95th	227	200	229	223	236
97.5th	240	236	261	230	260

Table 4.15 Mean, SD, median and percentile values of **zinc** intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	5.3	5.4	5.4	5.2	5.5
SD	1.8	1.8	1.9	1.8	1.5
Median	5.0	5.1	5.0	4.9	5.1
Percentiles					
5th	3.1	3.0	3.0	3.1	3.4
95th	8.7	8.9	9.6	8.7	8.4
97.5th	10.1	9.8	10.4	11.0	10.4
Food Sources					
Mean	5.2	5.4	5.2	4.9	5.3
SD	1.6	1.8	1.7	1.4	1.3
Median	4.9	5.0	4.9	4.6	5.0
Percentiles					
5th	3.1	3.0	3.0	3.1	3.4
95th	8.1	8.9	8.3	7.5	7.9
97.5th	9.2	9.8	10.2	8.9	8.3

Table 4.16 Mean, SD, median and percentile values of **copper** intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	0.6	0.5	0.6	0.5	0.6
SD	0.2	0.2	0.3	0.2	0.2
Median	0.5	0.5	0.5	0.5	0.6
Percentiles					
5th	0.3	0.3	0.3	0.3	0.3
95th	0.9	0.8	1.0	0.8	1.0
97.5th	1.1	1.0	1.2	1.1	1.5
Food Sources					
Mean	0.5	0.5	0.6	0.5	0.6
SD	0.2	0.2	0.3	0.2	0.2
Median	0.5	0.5	0.5	0.5	0.6
Percentiles					
5th	0.3	0.3	0.3	0.3	0.3
95th	0.9	0.8	1.0	0.8	1.0
97.5th	1.0	1.0	1.2	0.9	1.0

Table 4.17 Mean, SD, median and percentile values of **phosphorous** intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (n=500)	1y (n=126)	2y (n=124)	3y (n=126)	4y (n=124)
All Sources					
Mean	834	815	839	814	868
SD	232	237	256	217	212
Median	818	827	821	781	857
Percentiles					
5th	506	464	484	538	558
95th	1268	1255	1398	1309	1229
97.5th	1410	1347	1505	1369	1448
Food Sources					
Mean	833	814	839	813	868
SD	231	235	256	217	212
Median	817	827	819	781	857
Percentiles					
5th	506	464	484	538	558
95th	1268	1233	1398	1309	1229
97.5th	1410	1347	1505	1369	1448

Table 4.18 Mean, SD, median and percentile values of potassium intake (mg) from all sources and from food sources (excluding supplements) in Irish pre-school children for total population and by age

	Total (<i>n</i> =500)	1y (<i>n</i> =126)	2y (<i>n</i> =124)	3y (<i>n</i> =126)	4y (<i>n</i> =124)
All Sources					
Mean	1750	1716	1724	1732	1830
SD	431	435	466	408	410
Median	1727	1721	1669	1701	1789
Percentiles					
5th	1077	1048	1020	1076	1246
95th	2475	2333	2583	2431	2541
97.5th	2701	2451	2855	2533	2814
Food Sources					
Mean	1750	1716	1724	1732	1830
SD	431	435	466	408	410
Median	1727	1721	1669	1701	1789
Percentiles					
5th	1077	1048	1020	1076	1246
95th	2475	2333	2583	2431	2541
97.5th	2701	2451	2855	2533	2814

Table 4.19 Mean, SD and median values of mineral intakes (mg) from all sources by social class in total population[#]

	Professional/Managerial/Technical			Non-manual Skilled			Manual Skilled			Semi-skilled/Unskilled		
	(n=310)			(n=80)			(n=74)			(n=29)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Calcium (mg)	785	269	768	756	286	722	726	267	668	825	289	836
Iron (mg)	7.5	3.1	6.9	7.7	3.9	7.1	6.9	2.9	6.2	7.1	2.3	7.0
Magnesium (mg)	156	41	150	152	39	148	151	48	142	154	30	151
Zinc (mg)	5.4	1.7	5.1	5.4	1.7	5.2	4.9	1.9	4.6	5.4	1.7	4.8
Copper (mg)	0.6	0.2	0.5	0.5	0.2	0.5	0.5	0.2	0.5	0.6	0.3	0.5
Phosphorus (mg)	837	219	830	832	247	806	808	255	750	859	238	835
Potassium (mg)	1750	404	1728	1763	447	1730	1727	509	1660	1745	360	1776

[#] Social class excludes 7 missing values

Table 4.20 Mean, SD and median values of mineral intakes (mg) from all sources by level of education in total population[#]

	Primary/Intermediate			Secondary			Tertiary		
	(n=24)			(n=63)			(n=413)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Calcium (mg)	739	296	668	696	259	691	787	272	757
Iron (mg)	7.0	2.8	6.3	7.3	3.4	6.6	7.4	3.1	7.0
Magnesium (mg)	156	49	142	147	38	147	156	41	151
Zinc (mg)	5.0	2.1	4.8	4.9	1.8	4.6	5.4	1.7	5.1
Copper (mg)	0.5	0.2	0.5	0.6	0.4	0.5	0.5	0.2	0.5
Phosphorus (mg)	824	286	783	776	222	768	843	229	828
Potassium (mg)	1732	473	1635	1669	407	1678	1764	432	1733

[#] parental education (highest level of education)

Table 4.21 Mean, SD and median values of mineral intakes (mg) from all sources by geographical location in total population

	Open country/village			Small town			Large town			City		
	<i>(n=211)</i>			<i>(n=23)</i>			<i>(n=217)</i>			<i>(n=49)</i>		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Calcium (mg)	727	243	709	802	242	773	803	295	770	827	287	795
Iron (mg)	7.3	2.7	6.5	8.2	4.0	7.2	7.4	3.4	7.0	7.6	3.3	7.1
Magnesium (mg)	151	40	143	164	61	151	158	41	157	153	38	148
Zinc (mg)	5.2	1.7	4.9	5.7	1.9	5.3	5.4	1.7	5.1	5.6	2.1	5.1
Copper (mg)	0.5	0.2	0.5	0.6	0.3	0.5	0.5	0.2	0.5	0.6	0.4	0.5
Phosphorus (mg)	807	220	788	881	203	935	855	243	840	834	235	818
Potassium (mg)	1697	411	1639	1778	403	1787	1803	454	1769	1731	409	1699

Table 4.22 Mean, SD, median and percentile values of **vitamin A** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	688	757	649	696	650
SD	497	481	605	450	434
Median	583	634	572	583	560
Percentiles					
5th	205	277	161	189	202
95th	1465	1604	1374	1633	1413
97.5th	1701	1952	1595	1953	1620
Food sources					
Mean	631	735	591	619	575
SD	462	460	533	422	411
Median	528	620	506	514	474
Percentiles					
5th	192	277	142	160	168
95th	1337	1512	1201	1299	1216
97.5th	1610	1637	1546	1919	1620

Table 4.23 Mean, SD, median and percentile values of **retinol** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	350	390	358	330	320
SD	371	357	508	274	301
Median	259	289	251	243	231
Percentiles					
5th	101	163	107	87	97
95th	840	895	737	866	892
97.5th	1156	1366	1075	1298	1168
Food sources					
Mean	295	368	304	257	250
SD	305	324	421	171	232
Median	233	289	221	212	211
Percentiles					
5th	96	159	84	74	92
95th	620	706	600	568	496
97.5th	706	913	665	838	625

Table 4.24 Mean, SD, median and percentile values of carotene intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	2033	2203	1744	2198	1982
SD	1953	1977	1673	2283	1806
Median	1439	1505	1326	1422	1491
Percentiles					
5th	153	270	99	119	189
95th	5667	5863	5027	6775	5940
97.5th	7418	7661	7560	8223	7106
Food sources					
Mean	2015	2203	1723	2175	1953
SD	1927	1977	1614	2276	1753
Median	1435	1505	1326	1356	1491
Percentiles					
5th	153	270	99	119	189
95th	5634	5863	5027	6775	5500
97.5th	7185	7661	7073	8223	7025

Table 4.25 Mean, SD, median and percentile values of **vitamin D** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total	1y	2y	3y	4y
	<i>n=500</i>	<i>n=126</i>	<i>n=124</i>	<i>n=126</i>	<i>n=124</i>
All sources					
Mean	3.3	4.2	3.4	3.0	2.8
SD	3.8	5.2	3.5	3.3	2.6
Median	1.8	2.0	1.7	1.8	1.9
Percentiles					
5th	0.4	0.4	0.4	0.5	0.4
95th	11.4	13.3	11.7	10.8	8.7
97.5th	13.6	21.4	14.7	12.3	11.3
Food sources					
Mean	2.5	3.4	2.6	2.0	2.1
SD	2.7	3.6	2.7	2.0	1.7
Median	1.6	1.8	1.6	1.5	1.7
Percentiles					
5th	0.4	0.4	0.4	0.5	0.4
95th	9.1	12.2	9.9	5.7	6.0
97.5th	11.2	13.4	10.7	7.7	8.0

Table 4.26 Mean, SD, median and percentile values of **thiamin** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	1.1	1.0	1.1	1.1	1.1
SD	0.4	0.4	0.5	0.4	0.3
Median	1.0	0.9	1.0	1.0	1.1
Percentiles					
5th	0.6	0.5	0.6	0.7	0.7
95th	1.8	2.0	2.0	1.8	1.7
97.5th	2.1	2.4	2.3	2.2	2.0
Food sources					
Mean	1.0	0.9	1.0	1.0	1.1
SD	0.3	0.3	0.3	0.3	0.3
Median	0.9	0.9	0.9	1.0	1.1
Percentiles					
5th	0.6	0.5	0.6	0.6	0.7
95th	1.6	1.5	1.6	1.6	1.6
97.5th	1.8	1.9	1.8	1.9	1.7

Table 4.27 Mean, SD, median and percentile values of **riboflavin** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	1.6	1.6	1.6	1.5	1.5
SD	0.6	0.7	0.6	0.5	0.5
Median	1.5	1.5	1.5	1.4	1.4
Percentiles					
5th	0.8	0.7	0.7	0.7	0.8
95th	2.6	2.8	2.6	2.6	2.6
97.5th	3.0	3.5	3.3	2.8	2.9
Food sources					
Mean	1.5	1.5	1.5	1.4	1.5
SD	0.5	0.5	0.6	0.5	0.5
Median	1.4	1.5	1.5	1.4	1.4
Percentiles					
5th	0.7	0.7	0.6	0.7	0.8
95th	2.4	2.5	2.4	2.4	2.4
97.5th	2.6	2.7	2.6	2.7	2.6

Table 4.28 Mean, SD, median and percentile values of **pre-formed niacin** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	11.9	10.0	12.2	12.3	13.0
SD	4.9	4.5	5.6	4.7	4.2
Median	10.8	9.3	11.2	10.9	12.5
Percentiles					
5th	5.6	4.2	5.1	6.7	6.9
95th	21.0	18.7	23.5	21.1	21.1
97.5th	23.8	24.9	26.4	24.0	21.9
Food sources					
Mean	11.1	9.4	11.0	11.4	12.5
SD	3.9	3.3	4.1	3.8	3.7
Median	10.5	8.9	10.4	10.4	11.9
Percentiles					
5th	5.6	4.2	5.1	6.7	6.9
95th	18.3	16.6	19.1	18.7	19.5
97.5th	20.1	17.7	20.5	22.8	21.1

Table 4.29 Mean, SD, median and percentile values of **total niacin** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	20.2	17.5	20.6	20.7	22.2
SD	6.2	5.7	6.5	5.7	6.0
Median	19.3	16.5	19.6	19.5	21.3
Percentiles					
5th	11.6	9.8	11.6	13.3	14.4
95th	31.5	29.1	33.4	31.2	31.9
97.5th	34.0	33.1	35.7	34.4	37.9
Food sources					
Mean	19.5	16.8	19.4	19.8	21.8
SD	5.6	4.8	5.6	5.1	5.6
Median	18.7	16.4	18.6	18.9	20.9
Percentiles					
5th	11.6	9.8	11.6	13.1	14.4
95th	30.0	27.0	31.5	30.8	31.4
97.5th	31.9	28.8	33.5	32.7	34.1

Table 4.30 Mean, SD, median and percentile values of **vitamin B6** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	1.4	1.2	1.4	1.5	1.5
SD	0.6	0.6	0.6	0.6	0.6
Median	1.3	1.1	1.2	1.4	1.4
Percentiles					
5th	0.7	0.6	0.7	0.9	0.9
95th	2.5	2.3	2.8	2.7	2.6
97.5th	3.0	3.2	3.2	2.9	3.3
Food sources					
Mean	1.3	1.1	1.3	1.4	1.4
SD	0.4	0.4	0.5	0.4	0.4
Median	1.2	1.1	1.2	1.3	1.4
Percentiles					
5th	0.7	0.6	0.7	0.8	0.9
95th	2.2	1.8	2.4	2.3	2.3
97.5th	2.4	2.3	2.8	2.5	2.3

Table 4.31 Mean, SD, median and percentile values of **vitamin B12** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total populationa and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	4.0	4.1	4.2	3.8	4.0
SD	2.0	2.0	2.4	1.8	1.8
Median	3.6	3.8	3.9	3.5	3.6
Percentiles					
5th	1.4	1.3	1.3	1.3	1.8
95th	7.5	7.8	8.1	7.2	7.2
97.5th	8.4	9.2	10.5	8.2	8.1
Food sources					
Mean	3.8	4.1	4.0	3.5	3.8
SD	1.9	2.0	2.3	1.5	1.7
Median	3.5	3.8	3.5	3.1	3.5
Percentiles					
5th	1.3	1.3	1.2	1.2	1.8
95th	7.2	7.8	7.7	6.5	6.9
97.5th	8.1	9.2	10.4	7.4	7.3

Table 4.32 Mean, SD, median and percentile values of **folate** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	179	159	180	188	189
SD	80	80	72	84	80
Median	158	143	160	170	173
Percentiles					
5th	90	83	93	92	112
95th	327	321	330	338	351
97.5th	395	424	359	440	470
Food sources					
Mean	169	157	165	174	178
SD	71	78	62	78	62
Median	154	142	151	162	166
Percentiles					
5th	88	83	82	87	112
95th	297	305	310	303	277
97.5th	333	424	326	440	306

Table 4.33 Mean, SD, median and percentile values of pantothenate intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	4.5	4.4	4.7	4.5	4.4
SD	1.8	1.7	2.0	1.8	1.6
Median	4.1	4.1	4.2	4.1	4.0
Percentiles					
5th	2.4	2.5	2.0	2.4	2.3
95th	8.0	7.5	9.1	8.7	8.1
97.5th	9.8	10.4	11.0	9.8	8.7
Food sources					
Mean	4.1	4.3	4.1	4.0	4.1
SD	1.3	1.3	1.5	1.2	1.3
Median	4.0	4.1	4.0	3.8	4.0
Percentiles					
5th	2.2	2.4	1.8	2.3	2.3
95th	6.6	6.6	6.7	6.1	6.4
97.5th	7.4	7.6	7.9	7.1	7.4

Table 4.34 Mean, SD, median and percentile values of **biotin** intake (μg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n=500</i>	1y <i>n=126</i>	2y <i>n=124</i>	3y <i>n=126</i>	4y <i>n=124</i>
All sources					
Mean	22.9	20.6	21.8	26.5	22.5
SD	16.3	8.1	13.5	24.3	14.3
Median	19.3	18.7	19.1	19.4	19.6
Percentiles					
5th	9.9	10.7	9.1	9.4	10.2
95th	53.4	35.4	43.8	65.7	60.7
97.5th	65.5	41.3	59.7	113.4	75.5
Food sources					
Mean	20.9	20.6	20.3	22.9	19.7
SD	12.5	8.1	11.6	18.8	8.1
Median	18.7	18.7	18.8	18.5	19.1
Percentiles					
5th	9.8	10.7	9.1	9.3	10.2
95th	35.7	35.4	35.0	58.1	32.0
97.5th	43.8	41.3	39.6	111.3	35.0

Table 4.35 Mean, SD, median and percentile values of **vitamin C** intake (mg) from all sources and from food sources (excluding nutritional supplements) in Irish pre-school children for total population and by age.

	Total <i>n</i> =500	1y <i>n</i> =126	2y <i>n</i> =124	3y <i>n</i> =126	4y <i>n</i> =124
All sources					
Mean	85	75	85	85	94
SD	52	44	64	45	53
Median	73	64	73	73	78
Percentiles					
5th	23	22	18	23	32
95th	175	164	173	170	204
97.5th	203	177	210	189	242
Food sources					
Mean	78	73	79	74	85
SD	48	40	62	38	50
Median	68	64	69	69	71
Percentiles					
5th	22	22	18	21	29
95th	161	157	171	148	189
97.5th	184	170	198	175	228

Table 4.36 Mean, SD and median values of vitamin intakes from all sources by social class in total population[#]

	Professional/Managerial/Technical			Non-manual Skilled			Manual Skilled			Semi-skilled/Unskilled		
	(n=310)			(n=80)			(n=74)			(n=29)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total Vitamin A (µg)	704	530	584	714	422	588	602	387	549	687	608	572
Retinol (µg)	367	422	273	325	202	263	292	225	214	421	456	250
Carotene (µg)	2021	1945	1441	2333	2180	1662	1859	1857	1244	1597	1566	975
Vitamin D (µg)	3.6	4.2	1.9	3.1	3.0	1.8	2.7	2.9	1.6	3.0	3.3	1.5
Thiamin (mg)	1.1	0.4	1.0	1.1	0.4	1.0	1.1	0.4	0.9	1.0	0.3	0.9
Riboflavin (mg)	1.6	0.6	1.5	1.5	0.6	1.4	1.4	0.6	1.3	1.6	0.4	1.5
Pre-formed Niacin (mg)	11.9	5.0	10.7	12.3	4.8	11.2	11.5	4.7	10.0	11.4	4.3	11.1
Total Niacin Equivalents (mg)	20.3	6.2	19.2	20.7	6.4	19.4	19.6	6.4	18.3	19.7	5.6	19.9
Vitamin B6 (mg)	1.4	0.6	1.3	1.5	0.5	1.4	1.4	0.7	1.3	1.4	0.5	1.3
Vitamin B12 (µg)	4.1	2.1	3.7	3.9	2.0	3.4	3.7	1.6	3.3	4.4	2.2	4.3
Folate (µg)	182	84	158	184	82	167	169	70	150	170	52	163
Biotin (µg)	23.2	15.7	19.7	24.0	20.5	19.7	19.0	10.8	16.7	26.3	20.9	23.1
Pantothenate (mg)	4.6	1.9	4.2	4.5	1.8	4.3	4.2	1.8	3.9	4.4	1.3	4.3
Vitamin C (mg)	85	55	72	81	41	73	89	50	83	86	58	74

[#] Social class excludes 7 missing values

Table 4.37 Mean, SD and median values of vitamin intakes from all sources by level of education in total population[#]

	Primary/Intermediate			Secondary			Tertiary		
	(n=24)			(n=63)			(n=413)		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total Vitamin A (µg)	691	518	594	738	879	567	681	410	586
Retinol (µg)	306	265	201	377	742	217	348	282	272
Carotene (µg)	2310	2296	1557	2163	2052	1413	1997	1919	1438
Vitamin D (µg)	2.7	3.0	1.7	3.3	4.0	1.7	3.4	3.8	1.9
Thiamin (mg)	1.0	0.4	0.9	1.1	0.6	0.9	1.1	0.4	1.0
Riboflavin (mg)	1.5	0.7	1.3	1.5	0.6	1.4	1.6	0.6	1.5
Pre-formed Niacin (mg)	11.2	4.2	10.4	11.7	6.0	10.0	11.9	4.7	11.1
Total Niacin Equivalents (mg)	19.4	5.7	18.2	19.4	6.8	18.4	20.4	6.2	19.5
Vitamin B6 (mg)	1.4	0.9	1.3	1.5	0.8	1.3	1.4	0.6	1.3
Vitamin B12 (µg)	4.0	2.1	3.7	3.9	2.5	3.6	4.0	1.9	3.6
Folate (µg)	168	67	152	174	87	148	181	79	160
Biotin (µg)	25.6	23.5	20.0	20.3	11.4	18.2	23.1	16.4	19.4
Pantothenate (mg)	4.3	2.0	3.8	4.4	2.2	3.9	4.5	1.7	4.2
Vitamin C (mg)	93	42	93	80	45	69	85	54	72

[#] parental education (highest level of education)

Table 4.38 Mean, SD and median values of vitamin intakes from all sources by geographical location in total population

	Open country/village			Small town			Large town			City		
	<i>(n=211)</i>			<i>(n=23)</i>			<i>(n=217)</i>			<i>(n=49)</i>		
	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Total Vitamin A (µg)	703	444	615	686	438	547	637	369	583	857	982	557
Retinol (µg)	319	272	249	330	244	283	332	228	261	565	891	279
Carotene (µg)	2301	2089	1711	2138	2294	905	1826	1823	1267	1751	1607	1280
Vitamin D (µg)	3.1	3.3	1.8	3.5	3.3	2.8	3.3	3.5	1.8	4.7	6.5	2.1
Thiamin (mg)	1.1	0.4	0.9	1.1	0.2	1.1	1.0	0.4	1.0	1.2	0.6	1.1
Riboflavin (mg)	1.5	0.5	1.4	1.6	0.5	1.5	1.6	0.6	1.5	1.7	0.8	1.4
Pre-formed Niacin (mg)	11.7	4.7	10.7	12.3	3.8	12.3	11.9	4.6	11.0	12.4	7.0	10.0
Total Niacin Equivalents (mg)	19.8	6.0	18.7	21.2	5.1	19.9	20.5	6.3	19.5	20.5	7.6	19.3
Vitamin B6 (mg)	1.4	0.6	1.3	1.5	0.6	1.4	1.4	0.5	1.3	1.5	0.8	1.3
Vitamin B12 (µg)	3.9	1.9	3.6	4.0	1.5	3.6	4.0	2.0	3.6	4.3	2.7	3.5
Folate (µg)	170	73	151	172	56	167	190	89	166	174	67	163
Biotin (µg)	23.2	20.3	18.4	23.2	14.7	18.6	21.9	10.5	19.7	25.8	18.7	20.3
Pantothenate (mg)	4.4	1.9	4.0	4.3	1.2	4.3	4.5	1.7	4.3	5.0	2.2	4.4
Vitamin C (mg)	80	45	71	74	53	61	88	58	73	92	53	87

Table 5.1 Mean, SD, median and percentile values of anthropometric measurements by age for Irish pre-school children aged 1-4 years

	1y (<i>n</i> =126)						2y (<i>n</i> =124)						3y (<i>n</i> =126)						4y (<i>n</i> =124)					
						Percentile						Percentile						Percentile						Percentile
	<i>n</i>	Mean	(SD)	Median	5 th		<i>n</i>	Mean	(SD)	Median	5 th		<i>n</i>	Mean	(SD)	Median	5 th		<i>n</i>	Mean	(SD)	Median	5 th	
Weight (kg)	126	11.9	(1.7)	11.8	9.5	14.8	122	14.2	(1.9)	14.0	11.3	17.6	126	16.7	(2.2)	16.6	13.2	20.6	123	18.0	(2.0)	18.0	14.6	21.2
Height (cm)	124	82.5	(4.6)	82.8	74.8	90.0	122	91.1	(5.2)	90.4	82.6	99.7	126	99.2	(4.7)	98.5	92.6	108.1	123	104.7	(4.9)	104.7	95.6	112.3
Mid upper arm circumference (cm)	115	16.5	(1.3)	16.5	14.5	18.6	115	17.0	(1.3)	17.0	15.0	19.5	122	17.8	(1.5)	17.6	15.7	20.2	119	17.7	(1.1)	18.0	15.6	19.5
BMI (kg/m ²)	124	17.4	(1.8)	17.4	14.4	20.7	122	17.1	(1.3)	17.1	15.0	19.6	126	16.9	(1.3)	16.8	14.8	19.4	123	16.4	(0.9)	16.5	14.8	17.8

Table 5.2 Mean, SD and median values of weight (kg) for Irish pre-school children aged 1-4 years by demographic and lifestyle factors and by age

	1y (<i>n</i> =126)				2y (<i>n</i> =124)				3y (<i>n</i> =126)				4y (<i>n</i> =124)			
	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median
Location																
Open country/village	54	11.7	(1.5)	11.6	42	14.2	(1.8)	13.9	59	16.9	(2.5)	16.6	55	17.8	(2.1)	18.0
Small town	6	12.7	(2.1)	12.6	6	14.2	(1.9)	14.1	1	19.7	-	19.7	9	18.4	(1.9)	17.9
Large town	49	12.1	(1.6)	12.1	57	14.3	(1.8)	14.2	60	16.6	(1.8)	16.8	50	18.2	(2.0)	18.0
City	17	11.5	(1.8)	10.8	17	13.8	(2.3)	13.7	6	15.9	(2.5)	15.1	9	18.4	(1.4)	18.6
Education level																
Primary/Intermediate	3	10.7	(2.2)	11.3	8	14.1	(1.3)	13.8	7	17.2	(2.9)	16.3	6	16.8	(1.0)	16.4
Secondary	15	12.5	(1.7)	12.3	11	14.9	(1.9)	14.9	21	17.0	(2.0)	16.5	16	17.7	(1.8)	17.6
Tertiary	108	11.8	(1.6)	11.6	103	14.1	(1.9)	13.7	98	16.6	(2.2)	16.7	101	18.1	(2.1)	18.1
Social class																
Professional/managerial/technical	92	11.6	(1.6)	11.5	79	14.3	(1.8)	14.2	71	16.6	(2.1)	16.6	67	18.0	(1.7)	18.0
Non-manual skilled	17	12.7	(1.4)	12.7	15	13.4	(1.5)	13.0	23	17.1	(2.6)	16.7	24	18.6	(2.5)	19.0
Manual skilled	9	12.7	(1.4)	12.0	20	14.2	(2.1)	13.4	23	16.3	(2.2)	16.2	22	17.3	(1.8)	17.5
Semi-skilled/unskilled	7	12.0	(1.7)	11.0	8	14.5	(2.1)	14.6	7	17.4	(1.4)	17.1	7	18.5	(2.7)	18.1

Table 5.3 Mean, SD and median values of height (cm) for Irish pre-school children aged 1-4 years by demographic and lifestyle factors and by age

	1y (<i>n</i> =126)				2y (<i>n</i> =124)				3y (<i>n</i> =126)				4y (<i>n</i> =124)			
	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median
Location																
Open country/village	54	82.1	(4.3)	91.1	42	90.8	(5.1)	89.6	59	99.2	(4.8)	99.1	55	104.7	(5.1)	104.6
Small town	6	85.9	(3.8)	85.1	6	90.2	(4.2)	91.0	1	108.1	-	108.1	9	105.8	(4.2)	104.9
Large town	47	83.4	(4.1)	84.0	57	91.6	(4.7)	90.7	60	99.3	(4.2)	98.5	50	104.2	(5.0)	104.0
City	17	80.2	(5.7)	78.5	17	90.3	(7.1)	88.6	6	97.3	(7.4)	94.5	9	106.3	(3.5)	105.3
Education level																
Primary/Intermediate	3	89.9	(4.9)	89.6	8	90.1	(4.0)	89.4	7	99.6	(5.3)	98.3	6	102.0	(3.7)	100.5
Secondary	15	83.2	(5.6)	82.4	11	92.6	(5.4)	95.5	21	99.6	(5.1)	97.6	16	105.3	(4.4)	105.3
Tertiary	106	82.2	(4.3)	82.5	103	91.0	(5.3)	90.2	98	99.2	(4.6)	98.9	101	104.8	(5.0)	104.8
Social class																
Professional/managerial/technical	91	81.9	(4.7)	81.5	79	91.3	(4.9)	91.0	71	98.9	(4.3)	98.1	67	104.8	(4.3)	104.9
Non-manual skilled	17	84.8	(4.1)	84.5	15	89.0	(4.0)	89.5	23	100.3	(4.9)	101.2	24	106.0	(5.6)	105.9
Manual skilled	8	82.8	(1.9)	84.0	20	91.9	(6.9)	89.7	23	98.8	(5.6)	98.5	22	103.1	(5.0)	103.1
Semi-skilled/unskilled	7	84.0	(4.0)	82.5	8	90.1	(4.7)	91.7	7	101.3	(5.2)	99.9	7	106.1	(6.4)	104.6

Table 5.4 Mean, SD and median values of mid-upper arm circumference (cm) for Irish pre-school children aged 1-4 years by demographic and lifestyle factors and by age

	1y (<i>n</i> =126)				2y (<i>n</i> =124)				3y (<i>n</i> =126)				4y (<i>n</i> =124)			
	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median	<i>n</i>	Mean	(SD)	Median
Location																
Open country/village	52	16.5	(1.3)	16.5	39	17.0	(1.3)	17.1	56	17.9	(1.9)	17.5	52	17.6	(1.2)	17.5
Small town	6	16.9	(1.8)	17.6	6	17.1	(1.1)	17.3	1	18.3	-	18.3	9	18.1	(0.5)	18.2
Large town	40	16.4	(1.3)	16.1	54	17.0	(1.3)	17.0	59	17.7	(1.1)	17.8	49	17.8	(1.2)	18.0
City	17	16.7	(1.4)	16.6	16	16.5	(1.4)	16.5	6	17.4	(0.8)	17.4	9	18.1	(0.7)	18.1
Education level																
Primary/Intermediate	3	15.9	(1.3)	16.1	8	16.8	(1.3)	16.4	7	18.3	(1.8)	17.7	5	17.3	(1.2)	17.7
Secondary	14	17.0	(1.2)	16.5	10	17.7	(1.1)	17.8	21	17.9	(1.3)	17.8	16	17.3	(1.0)	17.2
Tertiary	98	16.5	(1.3)	16.4	97	16.9	(1.3)	17.0	94	17.7	(1.5)	17.6	98	17.8	(1.1)	18.0
Social class																
Professional/managerial/technical	83	16.4	(1.3)	16.4	76	17.0	(1.4)	17.0	69	17.7	(1.4)	17.6	65	17.8	(1.2)	18.0
Non-manual skilled	17	16.8	(1.3)	16.7	14	16.6	(0.8)	16.4	22	18.1	(1.9)	17.8	24	17.9	(1.0)	18.1
Manual skilled	8	16.9	(1.2)	16.9	17	16.8	(1.6)	16.9	22	17.6	(1.5)	17.5	21	17.7	(1.1)	17.7
Semi-skilled/unskilled	6	16.2	(1.2)	15.9	8	17.3	(1.1)	17.6	7	17.5	(0.6)	17.6	6	17.4	(1.2)	17.3

Table 5.5 The proportion (%) of Irish pre-school children aged 2-4 years defined as normal, overweight and obese using IOTF cut-offs *

	2y	3y	4y	Total
Total (n)	122	126	123	371
Thinness	4	1	1	2
Normal	79	73	89	80
Overweight	13	22	10	15
Obese	4	4	-	3
Boys (n)	62	61	63	186
Thinness	8	2	2	4
Normal	74	72	92	80
Overweight	13	21	6	13
Obese	5	5	-	3
Girls (n)	60	65	60	185
Thinness	-	-	-	-
Normal	83	74	87	81
Overweight	13	23	13	17
Obese	4	3	-	2

* Data only included for valid measurements

Table 5.6 The proportion (%) of Irish pre-school children aged 2-4 years defined as overweight and obese using WHO centile cut-offs*

	2y	3y	4y	Total
Total (n)	122	126	123	371
Over 91 st , ≤98 th (% overweight)	20	21	7	16
Over 98 th (% Obese)	7	11	1	7
Over 91 st (%Overweight, including obese)	27	32	8	23
Boys (n)	62	61	63	186
Over 91 st , ≤98 th (% overweight)	19	25	6	17
Over 98 th (% Obese)	10	13	2	8
Over 91 st (%Overweight, including obese)	29	38	8	25
Girls (n)	60	65	60	185
Over 91 st , ≤98 th (% overweight)	20	19	8	16
Over 98 th (% Obese)	5	9	2	5
Over 91 st (%Overweight, including obese)	25	28	10	21

*Data only included for valid measurements

A child was classified as obese if BMI was >98th centile for gender and age; and as overweight if BMI was >91st and ≤98th centile for gender and age.

[More information on cut-offs used at http://www.iuna.net/wp-content/uploads/2012/06/Summary_Report_National_PreSchool_Nutrition_Survey_June_2012.pdf](http://www.iuna.net/wp-content/uploads/2012/06/Summary_Report_National_PreSchool_Nutrition_Survey_June_2012.pdf)