safefood

CHICKEN & POTATO

Nutritional content of chicken & potato products in deli counters and takeaway outlets

safefood research

Publication date: August 2009
ISBN: 978-1-905767-04-5

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Acknowledgments

safefood would like to thank everyone involved in the research and preparation of this report for their contribution:

- The analytical staff of the Cork and Galway Public Analysts Laboratories (PAL) who carried out this research, especially Dr Fred Davidson and Dr Padraig Burke.
- The Environmental Health Officers (EHO's) in the Republic of Ireland (West, North West, South West and South East) and Northern Ireland (Belfast area) who carried out the data collection for this report.

Background

The most significant nutritional issue of our times is excess body weight. Being overweight or obese can have negative psychological impacts on individuals and also increases the risk of common diseases such as cardiovascular disease, diabetes and certain cancers.

Lifestyles on the island of Ireland have changed a lot over recent decades and this includes diet. One of the most striking changes in more recent times is the rapid rise in the availability of 'convenient' and 'cheap' food. More and more fast food outlets have appeared and many more supermarkets and garages are offering ready-to-eat food for sale. Eating food prepared outside of the home is becoming more the 'norm' on the island of Ireland[1,2,3,4,5,6]. Anecdotal evidence suggests that in the current economic downturn there is a move away from eating in restaurants to eating takeaway foods at home.

The impact of food prepared outside of the home on nutrient intakes of adults has been studied on the island of Ireland[7,8]. Food eaten outside of the home was found to contribute disproportionately more to dietary fat intake (corrected for energy intake) when compared to food prepared at home. This is of concern given the fact that more individuals appear to be eating this type of food. In addition, it is well recognised by health experts that high fat diets can promote over-consumption of calories and therefore promote weight gain[9].

Food eaten outside the home was also more likely to be lower in fibre and micronutrients[8]. The 'takeaway' and 'deli' food service sectors have been shown to have a negative impact on dietary intake. When the contribution of different food groups to fat intake was researched, potato and potato products and meat products contributed the most to total fat intake when compared to food prepared at home[7].

The aim of the current survey was to provide a snap shot of the nutritional value of a range of potato and chicken products from takeaway and deli food outlets on the island of Ireland.

'Eating food prepared outside of the home is becoming more the 'norm' on the island of Ireland.'

Methodology

In January and February 2006, 263 chicken products (ROI, n=242; NI, n=21) (Table 1) and 245 potato products (ROI, n=230; NI, n=15) (Table 2) were purchased for the survey from a range of outlets from deli counters in supermarkets and garages to independent and franchise fast food outlets in the Republic of Ireland (West, North West, South West and South East) and Northern Ireland (Belfast area) by Environmental Health Officers (EHOs).

Table 1: Summary of the chicken and chicken products analysed

Product	N	Product	N
Chicken fillet/breast	71	Chicken thighs/drumsticks	51
Chicken burger	36	Chicken tenders/goujons	73
Chicken nuggets	27	Half/whole chicken	3

Table 2: Summary of the potato and potato products analysed

Product	N	Product	N
Chips	137*	Potato cubes/slices †	6
Potato wedges	52	Potato croquettes/cakes	7
Spicy wedges	12	Roast potatoes	12
Hash browns	13	Spicy potatoes	5

Notes:
** 137 potato chip samples were analysed, but only 135 were included in the statistical analysis.*
† potato cubes/slices are small or finely cut pieces of potato.

EHOs followed a standardised protocol and, where appropriate, purchased more than one type of product from the one outlet. No ingredients such as salt and vinegar were requested or added to the products during purchase and each product was placed in a plastic bag, labelled and transported to the relevant PAL by courier.

Once in the laboratories the products were weighed to measure the total portion size, homogenised and frozen until analysis. Protein, total fat and sodium concentrations were analysed using standardised techniques. The Cork PAL received and analysed 133 chicken and 119 potato products and the Galway PAL analysed 128 chicken and 123 potato products. The Cork PAL also carried out analysis of the saturated fat content of a sub-sample of 250 chicken and potato products.

Data was analysed using the statistical package SPSS© for Windows (Version 15.0). P values less than 0.05 are deemed statistically significant.

Results

In this section results are presented separately for chicken and potato products. A brief overview of the variation in potion size, protein, fat and sodium content is provided. The following criteria were also used to categorise products for their fat, saturated fat and sodium contents (see Table 3).

Table 3: Criteria used to categorise products [10,11,12,13]

	Low	High
Fat	Less than or equal to 3g fat per 100g	Greater than or equal to 20g fat per 100g
Saturated fat	Less than or equal to 1.5g saturated fat per 100g	Greater than or equal to 5g saturated fat per 100g
Sodium	Less than 0.1g sodium per 100g	Greater than 0.6g sodium per 100g

Chicken and potato products were analysed for their sodium content. Salt values can be obtained by multiplying the sodium content by 2.4.

Chicken products

The three most common products sampled were chicken tenders/goujons, chicken fillets and chicken thighs/drumsticks. Tables 4 and 5 show the range of values found in the parameters measured and mean values for these parameters for each type of products sampled (Appendix 1 has full details). The ranges were large. A twelve-fold difference was seen in portion sizes (excluding half and whole chickens), a 25-fold difference in fat and sodium levels which ranged from negligible to 2g/100g.

Table 4: Ranges for nutrition parameters analyzed for chicken products sampled for fast food outlets on the island of Ireland

Parameter	Minimum	Maximum
Portion size (g)	53	631*
Protein (g/100g)	7	39
Fat (g/100g)	1	25
Saturated fat (g/100g)	0.8	7.4
Sodium (g/100g)	0.2	1.9

*Note: *excludes whole/half chicken samples.*

'A twelve-fold difference was seen in portion sizes of chicken products and a 25-fold difference in fat.'

Table 5: Mean (Range) portion size, total fat, saturated fat, protein and sodium contents of chicken products sampled

Product	Portion Size* (g)	Protein (g/100g)	Fat (g/100g)	Saturated Fat (g/100g)	Sodium (g/100g)
Fillet/breast	194 (81-504)	24 (16-34)	8.4 (1-17)	2.1 (0.9-4.1)	0.6 (0.1-2.1)
Burgers	151 (53-302)	18 (10-32)	12 (6-21)	2.4 (1.4-3.6)	0.7 (0.3-1.0)
Nuggets	104 (53-155)	18 (14-39)	14 (8-23)	3.9 (1.3-7.1)	0.7 (0.2-1.9)
Thighs/drumsticks	193 (80-631)	23 (16-32)	15 (5-25)	3.0 (1.3-5.1)	0.7 (0.2-1.5)
Tenders/gougons	160 (62-487)	22 (7-37)	12 (1-24)	3.1 (0.8-7.4)	0.6 (0.1-1.5)
Half/whole chicken	609 (255-1060)	28 (24-30)	8.3 (3-12)	nd	0.2 (0.1-0.4)

Notes:
nd=no data
**Average portion size consumed are chicken fillet – 130g, chicken nuggets – 100g, edible portion of one thigh or one drumstick – 92g[14].*

Portion size

There was a significant difference in portion sizes between chicken products ($p<0.001$). The whole or half chickens provided the largest portions, while chicken nuggets had the smallest average portion sizes. Excluding the half and whole chickens that are not sold as individual portions, fillets and thighs/drumsticks provided the largest sizes.

Protein content

Protein content also differed significantly ($p<0.000$) between products. Chicken nuggets and burgers contained the lowest amount of protein per 100g. The average protein content for these products was 18g/100g compared to the rest of the products whose average protein content ranged from 22-28g/100g.

Fat content

The average fat content of fillets and half/whole chickens was 8g/100g, which was significantly lower ($p<0.000$) when compared to the other products. Thighs/drumsticks had the highest fat content, with 15g/100g. Chicken nuggets had the second highest fat content, at 14g/100g. The other products contained an average fat content of 12g/100g.

The only products that did not have samples that fell into the high fat category were unprocessed chicken products, e.g. chicken fillets. Processed products such as nuggets, tenders and gougons had samples that were more likely to fall into the high saturated fat category.

Sodium content

There were not significant differences in sodium content between products. All products analysed had some samples high in sodium.

Type of fast food outlet

The type of fast food outlet at which the chicken products were bought had a very small impact on the nutritional parameters. Some specific differences that were noted included the portion sizes of burgers being significantly larger in independent local outlets ($p<0.005$) compared to garage forecourts/supermarkets. The fat content of chicken nuggets purchased in an independent local outlet was higher ($p<0.000$) compared in international and regional outlets. The fat content of tenders/goujons purchased in a supermarket/forecourt was lower when compared to independent local outlets ($p<0.05$).

Potato Products

Potato chips were the most common product sampled, followed by wedges. Tables 6 and 7 show the range of values found in the parameters measured and mean values for these parameters for each type of products sampled (Appendix 2 has full details). The ranges were large. An eight-fold difference was seen in portion sizes and fat levels and a five-fold difference in saturated fat levels. Sodium levels ranged from negligible to 1.6g/100g.

Table 6: Ranges for nutrition parameters analysed for potato products sampled for fast food outlets on the island of Ireland

Parameter	Minimum	Maximum
Portion size (g)	54	463
Fat (g/100g)	3	25
Saturated fat (g/100g)	1.2	6.8
Sodium (g/100g)	0	1.6

Table 7: Mean (range) portion size, total fat, saturated fat, protein and sodium contents of potato products sampled

Product	Portion Size (g)	Fat (g/100g)	Saturated Fat (g/100g)	Sodium (g/100g)
Chips	242 (61-463)	11 (4-20)	3.6 (1.5-6.8)	0.1 (0.0-0.9)
Potato wedges	228 (118-434)	11 (3-25)	4.4 (1.6-6.2)	0.6 (0.0-1.5)
Spicy wedges	225 (137-347)	13 (10-16)	3.8 (3.3-4.8)	0.8 (0.6-1.4)
Hash browns	163 (54-269)	10 (6-21)	3.4 (2.4-4.2)	0.8 (0.5-1.6)
Potato cubes/slices	212 (140-312)	14 (8-22)	3.8 (2.8-5.1)	0.9 (0.4-1.2)
Potato croquettes	184 (128-370)	8 (5-12)	1.7 (1.2-2.5)	0.4 (0.1-1.0)
Roast potatoes	240 (153-350)	10 (5-16)	nd	0.4 (0.0-0.6)
Spicy potatoes	269 (151-326)	11 (9-12)	nd	0.5 (0.3-0.8)

Note: nd=no data

> *'An eight-fold difference was seen in portion sizes of potato productsand a five-fold difference in fat and saturated fat levels.'*

Portion size

There was a significant difference in portion sizes between potato products ($p<0.05$). Chips had the largest average portion size and hash browns had the smallest average portion size.

Fat content

There were also significant differences in the total fat content between potato products ($p<0.05$). Potato cubes and slices had the highest fat content, compared to potato croquettes that had the lowest.

Most products had some samples that fell into the high fat category. The exceptions were spicy/roast potatoes and croquettes. Some samples of chips and wedges were high in saturated fat.

Sodium content

Chips had the lowest sodium level compared to all other potato products. All products except roast potatoes had samples that fell into the high sodium category.

Type of fast food outlet

The type of outlet at which the potato products were bought had an impact on the nutritional parameter. International food chains had the smallest portion sizes for chips yet the highest amount of fat per 100g. The local independent fast food restaurant had the highest sodium content for chips.

Conclusions

Chicken products

Portion size

Portion sizes varied hugely in the chicken products. The presence of inedible bones in some products like thighs and drumsticks in part explains some variation, but not all. The removal of bones from these products can result in an edible portion of about 50% of the original portion.

Some products surveyed contained up to four average portions (taking into account that some products contained bones).

This highlights the need to increase awareness around portion size and the importance of sharing a large portion.

Protein content

Chicken nuggets and burgers were found to have the lowest average protein content. These products are more likely to be processed and contain other ingredients, which have the impact of lowering the protein content. Products that are also coated in breadcrumbs and batter will also have a lower protein content per 100g due to the fact the coating will be high in fat and carbohydrate.

The higher the chicken meat content, the higher the protein content.

Fat content

Thighs and drumsticks had the highest average fat content. These products contain skin and are often coated, which contributes to the fat content. Cooked chicken skin contains approximately 46g fat/100g and dark chicken meat on average 10g fat/100g compared to lighter meat which contains only 3.6g/100g [15].

The fat content of the other products, such as burgers and nuggets, can be attributed to the other ingredients used to process the products, such as binders or coatings.

Sodium content

There was large variation in sodium content which may be attributed to the addition of coatings and seasonings including salt during preparation.

When choosing chicken products the healthy option is to choose fresh meat without skin and preferably without coating.

Potato Products

Portion size

An average portion of chips for adults is 165g[14]. Eighty-one per cent of potato chips sampled had a portion size greater than 165g with 19% of samples containing more than two of these portions. This indicates that some products sampled in this survey contained almost three adult portions.

This highlights the need to promote awareness around portion size, the importance of sharing a large portion or requesting a smaller or half portion.

Fat content

Potato cubes and slices and chips from international fast food outlets had the highest fat content.

Chips from international fast food outlets are more likely to be skinnier (ie fries) and, like slices or cube potatoes, they have more surface area exposed to the fat that they are cooked in. This means that they absorb more fat during the cooking process.

When choosing potato products like chips it is better to choose larger chunky varieties as they absorb less fat during the cooking process.

Sodium content

Chips had the lowest sodium content compared to other potato products due to the fact that the other products had seasoning ingredients that contained salt in their preparation.

It is important to note that some fast food outlets added salt to the chips prior to the customer getting the product. This emphasises the need to encourage consumers to ask those preparing their food not to add salt to it.

Summary

This survey provides a snap shot of the nutritional content of potato and chicken products sold in fast food and convenience outlets across the island of Ireland.

The variability in portion sizes is a key issue highlighted in this survey. In addition, the findings of this survey are consistent with previous research[7,8] which shows that foods prepared outside of the home are generally higher in fat and salt than comparable food prepared in the home. Both chicken and potatoes as raw ingredients are low in fat, but many of these products are processed with the addition of ingredients such as coatings that add to the fat and salt content of foods. The use of cooking methods such as deep fat frying commonly used in fast food outlets also results in the addition of excess fat.

The type of outlet influenced the nutritional content of potato chips. Potato chips bought in fast food outlets tended to be higher in fat which is attributable to the fact that the chips tend to be skinnier and absorb more fat during the cooking process. In contrast the independent local outlets had the largest portion sizes.

Key messages for consumers

- Fast food is higher in fat and salt compared to many products prepared at home. Consider it as an "occasional food" (e.g. once a week or less often) but be discerning in your purchases.
- Many fast food outlets, especially the local independent ones, provide very large portion sizes that may appear good value for money, but may not be so good for the waistline. People should ask for a smaller portion or share with others.
- When choosing potato products such as chips opt for the larger chunky varieties as they absorb less fat during the cooking process.
- When choosing chicken products opt for those without or with less coating and remove the skin before eating to help reduce fat intake.
- Consumers should request that salt not be added to food during the preparation process.
- Add some vegetables such as a side salad, salad in a burger or mushy peas to contribute to your 5-a-day.

This survey has shown that healthier choices can be made when choosing chicken and potato foods from fast food outlets. However, they should be considered the exception e.g. 'once a week or less' rather than the norm in the diet.

> *'The variability in portion sizes is a key issue highlighted in this survey.'*

Appendix 1

A: Descriptive analysis of parameters of chicken products analysed by SPSS

Parameter	Product	N	Mean	Std. Deviation	Range	Minimum	Maximum
Portion (g)	Chicken Fillet	71	194.46	81.29	422.90	81.20	504.10
	Chicken Burgers	36	150.93	56.78	249.35	53.10	302.45
	Chicken Nuggets	27	104.44	20.13	102.44	52.54	154.98
	Chicken Thighs/Drumsticks	51	193.01	104.84	550.64	79.92	630.56
	Chicken Tenders/Goujons	73	160.17	76.459	425.24	62.20	487.44
	Half/Whole Chicken	3	608.89	411.64	805.84	254.62	1060.46
	Total	**261**					
Protein (g/100g)	Chicken Fillet	71	23.87	4.99	18.40	16.00	34.40
	Chicken Burgers	36	17.51	5.47	22.37	9.63	32.00
	Chicken Nuggets	27	17.54	4.61	25.20	13.80	39.00
	Chicken Thighs/Drumsticks	49	23.19	3.96	15.70	16.30	32.00
	Chicken Tenders/Goujons	73	22.28	5.84	30.10	6.70	36.80
	Half/Whole Chicken	3	27.74	3.07	5.50	24.20	29.70
	Total	**259**					
Fat (g/100g)	Chicken Fillet	71	8.40	2.85	15.88	0.95	16.83
	Chicken Burgers	32	11.93	4.09	15.06	5.91	20.97
	Chicken Nuggets	26	13.87	3.89	15.24	8.13	23.37
	Chicken Thighs/Drumsticks	50	15.06	3.82	19.96	4.94	24.90
	Chicken Tenders/Goujons	68	11.51	5.52	22.67	1.03	23.70
	Half/Whole Chicken	3	8.33	3.07	8.57	3.27	11.84
	Total	**250**					
Saturated fat (g/100g)	Chicken Fillet	25	2.08	0.91	3.20	0.88	4.08
	Chicken Burgers	4	2.36	0.91	2.17	1.40	3.57
	Chicken Nuggets	8	3.89	2.06	5.76	1.32	7.08
	Chicken Thighs/Drumsticks	16	3.04	1.00	3.80	1.29	5.09
	Chicken Tenders/Goujons	7	3.10	2.42	1.29	0.79	7.35
	Half/Whole Chicken	0	nd	nd	nd	nd	nd
	Total	**60**					

Note: nd=no data

Parameter	Product	N	Mean	Std. Deviation	Range	Minimum	Maximum
Sodium (g/100g)	Chicken Fillet	56	0.63	0.39	2.00	0.07	2.07
	Chicken Burgers	28	0.67	0.22	0.76	0.28	1.04
	Chicken Nuggets	20	0.65	0.45	1.63	0.23	1.86
	Chicken Thighs/Drumsticks	41	0.69	0.28	1.29	0.22	1.51
	Chicken Tenders/Goujons	50	0.63	0.27	1.37	0.13	1.50
	Half/Whole Chicken	3	0.23	0.14	0.28	0.10	0.38
	Total	**198**					

B: Comparisons in chicken products between fast food outlets

	Outlets Mean (SD)				
	International	**Regional**	**Local**	**Supermarket/ Forecourt**	**P – Value**
Portion sizes (g)					
Chicken Fillet	131.53	184.03	201.57	193.29	0.845
Chicken Burgers	142.88^{ab}	139.28^{ab}	187.34^{a}	72.44^{b}	0.005*
Chicken Nuggets	110.09	108.78	100.28	nd	0.501
Chicken Thighs/Drumsticks	130.20	119.66	185.78	202.32	0.578
Chicken Tenders/Goujons	121.98	158.60	167.86	172.62	0.274
Half/Whole Chicken	nd	nd	nd	608.89	ns
Protein (g/100g)					
Chicken Fillet	17.80^{abc}	27.43^{ab}	27.68^{ab}	21.78^{c}	0.000*
Chicken Burgers	15.78	19.52	18.08	16.05	0.446
Chicken Nuggets	17.50	17.33	17.61	nd	0.994
Chicken Thighs/Drumsticks	21.75	23.25	25.21	22.69	0.337
Chicken Tenders/Goujons	20.29	21.10	23.31	23.09	0.380
Half/Whole Chicken	nd	nd	nd	27.74	ns
Total Fat (g/100g)					
Chicken Fillet	10.06	8.36	8.70	8.23	0.865
Chicken Burgers	11.60	12.0	11.24	15.27	0.521
Chicken Nuggets	10.49^{ab}	11.14^{ab}	16.18^{c}	nd	0.000*
Chicken Thighs/Drumsticks	16.78	20.20	14.59	14.83	0.247
Chicken Tenders/Goujons	10.77^{ab}	12.13^{ab}	14.82^{a}	9.62^{b}	0.016*
Half/Whole Chicken	nd	nd	nd	27.74	ns

	International	Regional	Local	Supermarket/ Forecourt	P – Value
Saturated Fat (g/100g)					
Chicken Fillet	nd	nd	2.17	2.05	0.791
Chicken Burgers	1.40	2.04	2.99	nd	0.520
Chicken Nuggets	1.32	nd	4.26	nd	0.201
Chicken Thighs/Drumsticks	nd	nd	2.74	3.12	0.585
Chicken Tenders/Goujons	2.06	2.31	nd	3.83	0.740
Half/Whole Chicken	nd	nd	nd	nd	ns
Sodium (g/100g)					
Chicken Fillet	0.44	0.38	0.50	0.72	0.124
Chicken Burgers	0.76	0.56	0.72	0.57	0.232
Chicken Nuggets	0.33	0.65	0.84	nd	0.088
Chicken Thighs/Drumsticks	0.58	0.38	0.74	0.71	0.375
Chicken Tenders/Goujons	0.73	0.55	0.51	0.67	0.232
Half/Whole Chicken	nd	nd	nd	0.23	ns

Notes:
Test: ANOVA with Tukey ad hoc
a-b=Mean values within a column within the same parameter with unlike superscript letters were significantly different (P<0.05)
** Denotes Significant difference*
nd=no data
ns=no significant difference

Appendix 2

A: Descriptive analysis of parameters of potato products analysed by SPSS

Parameter	Product	N	Mean	Std. Deviation	Range	Minimum	Maximum
Portion (g)	Chips	135	242.13	88.34	402.68	60.81	463.49
	Potato Wedges	52	227.77	68.61	314.90	117.72	432.62
	Spicy Wedges	12	225.09	62.01	210.09	137.28	347.37
	Hash Browns	13	162.68	59.37	215.67	53.59	269.26
	Potato Cubes/Slices	6	212.49	58.64	172.02	140.43	312.45
	Potato Croquettes/Cakes	7	184.08	86.53	242.48	127.82	370.30
	Roast Potatoes	12	240.42	51.01	196.79	152.80	349.59
	Spicy Potatoes	5	269.02	73.15	174.88	150.76	325.64
	Total	**242**					
Total Fat (g/100g)	Chips	135	10.54	3.14	15.85	4.19	20.04
	Potato Wedges	52	11.24	3.61	22.44	2.89	25.33
	Spicy Wedges	12	12.94	2.22	5.99	10.19	16.18
	Hash Browns	13	9.83	4.12	15.51	5.71	21.22
	Potato Cubes/Slices	6	14.23	4.82	13.29	8.35	21.64
	Potato Croquettes/Cakes	7	8.43	2.45	7.25	4.60	11.85
	Roast Potatoes	12	10.40	3.44	10.40	5.41	15.80
	Spicy Potatoes	5	10.50	0.92	2.35	9.33	11.68
	Total	**242**					
Saturated fat (g/100g)	Chips	25	3.57	1.52	5.26	1.51	6.77
	Potato Wedges	10	4.40	1.29	4.62	1.58	6.20
	Spicy Wedges	4	3.79	0.71	1.49	3.34	4.83
	Hash Browns	3	3.36	0.87	1.73	2.43	4.16
	Potato Cubes/Slices	5	3.75	0.87	2.28	2.78	5.06
	Potato Croquettes/Cakes	3	1.66	0.69	1.25	1.20	2.45
	Roast Potatoes	0	nd	nd	nd	nd	nd
	Spicy Potatoes	0	nd	nd	nd	nd	nd
	Total	**50**					

Parameter	Product	N	Mean	Std. Deviation	Range	Minimum	Maximum
Sodium (g/100g)	Chips	116	0.14	0.20	0.86	0.01	0.87
	Potato Wedges	45	0.62	0.25	1.52	0.01	1.53
	Spicy Wedges	6	0.83	0.27	0.80	0.56	1.36
	Hash Browns	11	0.77	0.38	1.15	0.46	1.61
	Potato Cubes/Slices	6	0.85	0.28	0.82	0.37	1.19
	Potato Croquettes/Cakes	7	0.44	0.30	0.88	0.08	0.96
	Roast Potatoes	12	0.39	0.18	0.54	0.01	0.55
	Spicy Potatoes	5	0.51	0.17	0.46	0.32	0.78
	Total	**208**					

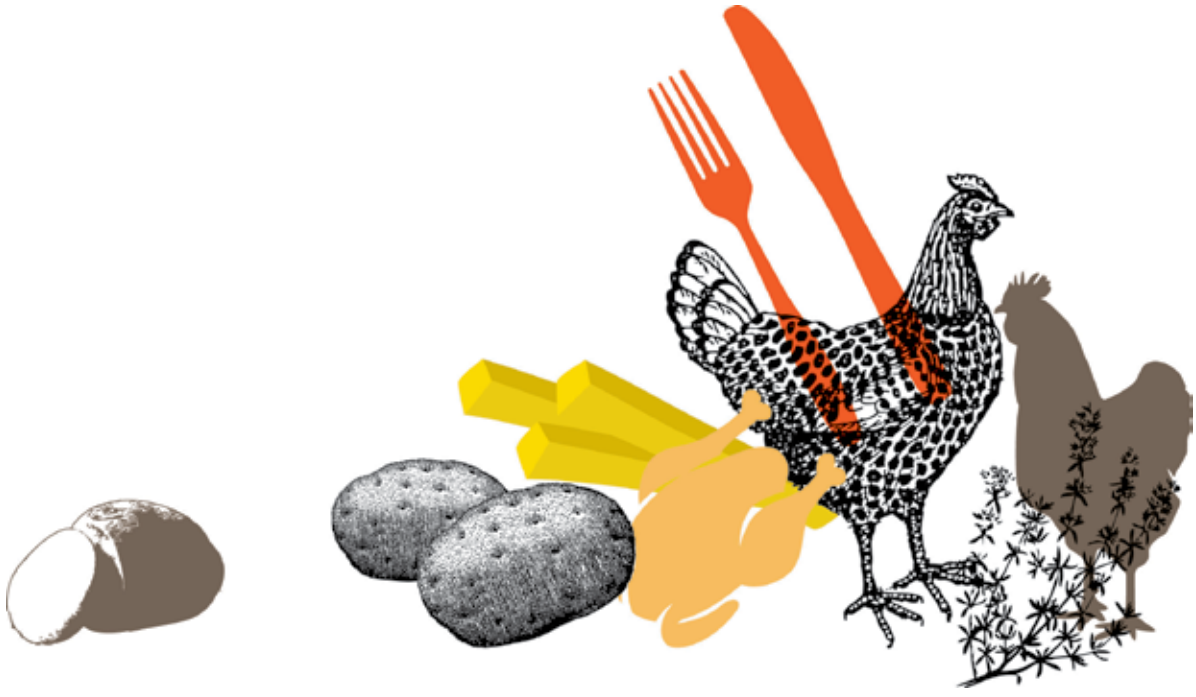
Note: nd=no data

B: Comparisons in potato products from different fast food outlets

	Outlets Mean (SD)				
	International	**Regional**	**Local**	**Supermarket/ Forecourt**	**P – Value**
Portion sizes (g)					
Chips	111.68^{a}	223.68^{bcd}	270.74^{bc}	214.17^{bcd}	0.000*
Potato Wedges	161.85^{ab}	127.62^{abcd}	190.15^{abc}	242.74^{bd}	0.022*
Spicy Wedges	nd	nd	nd	225.09	ns
Hash Browns	nd	nd	162.51	162.69	0.998
Potato Cubes/Slices/Bites	nd	nd	236.17	207.75	0.707
Potato Croquettes/Cakes/ Pies	nd	145.30	140.69	290.25	0.088
Roast Potatoes	nd	nd	nd	240.42	ns
Spicy Potatoes	nd	150.76^{a}	nd	298.58^{b}	0.035*
Total Fat (g/100g)					
Chips	15.34^{a}	9.43^{bcd}	10.20^{bcd}	10.49^{bcd}	0.000*
Potato Wedges	10.09	14.01	11.33	11.25	0.835
Spicy Wedges	nd	nd	nd	12.94	ns
Hash Browns	nd	nd	6.03	10.14	0.360
Potato Cubes/Slices/Bites	nd	nd	14.44	14.19	0.968
Potato Croquettes/Cakes/ Pies	nd	10.45	8.28	7.72	0.732
Roast Potatoes	nd	nd	nd	10.40	ns
Spicy Potatoes	nd	9.33	nd	10.80	0.180
Saturated Fat (g/100g)					
Chips	2.38	1.71	3.89	3.46	0.227
Potato Wedges	nd	nd	3.92	4.52	0.591
Spicy Wedges	nd	nd	nd	3.79	ns
Hash Browns	nd	nd	nd	3.36	ns
Potato Cubes/Slices/Bites	nd	nd	nd	3.75	ns
Potato Croquettes/Cakes/ Pies	nd	nd	1.26	2.45	0.055
Roast Potatoes	nd	nd	nd	nd	ns
Spicy Potatoes	nd	nd	nd	nd	ns

	International	Regional	Local	Supermarket/ Forecourt	P – Value
Sodium (g/100g)					
Chips	0.21^{abcd}	0.19^{abcd}	0.80^{abc}	0.30^{abd}	0.000*
Potato Wedges	0.40	0.30	0.66	0.64	0.323
Spicy Wedges	nd	nd	nd	0.51	ns
Hash Browns	nd	nd	0.54	0.79	0.553
Potato Cubes/Slices/Bites	nd	nd	0.95	0.83	0.737
Potato Croquettes/Cakes/ Pies	nd	0.59^{a}	0.24^{b}	0.78^{ab}	0.042*
Roast Potatoes	nd	nd	nd	0.39	ns
Spicy Potatoes	nd	0.32	nd	0.56	0.263

Notes:
Test: ANOVA with Tukey ad hoc
a-b=Mean values within a column within the same parameter with unlike superscript letters were significantly different (P<0.05)
** Denotes Significant difference*
nd=no data
ns=no significant difference



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