

What's in your Indian takeaway?

Nutrition takeout series



What's in your Indian takeaway?

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Foreword

This survey is part of a series of nutritional surveys **safefood** has commissioned. These are:

- Chicken and potato products in deli counters and takeaway outlets (2009)
- Survey of salt levels in soup in catering establishments on the island of Ireland (2011)
- What's in that box? – Nutritional content of a range of takeaway and shop-bought pizzas (2012)
- What's in that bun? – Nutritional content of a range of takeaway burgers (2012)
- What's in your Chinese takeaway? – Nutritional content of a range of takeaway Chinese food (2012)
- What's in your wrap sandwich? – Nutritional content of a range of wrap sandwiches (2015)

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1 Key findings

The nutritional contribution of an average Indian takeaway meal

- An average Indian takeaway meal, consisting of an average portion of poppadoms, onion bhajis, chicken tikka masala and pilau rice, provided 2,287 calories, amounting to:
 - 114% of an adult's Guideline Daily Amounts (GDA) for energy
 - 188% of the GDA for total fat
 - 290% of the GDA for saturated fat
 - 150% of the GDA for salt
- The Indian takeaways sampled were a major source of salt.
 - On average, all starters contained one third of the adult GDA for salt.
 - All three main courses provided high amounts of the adult GDA for salt: chicken jalfrezi, 86%; chicken tikka masala, 79%; and chicken korma, 50%.
 - An average portion of pilau rice contained 25% of the adult GDA for salt.
 - Both plain and peshwari naan bread contributed a third of the GDA for salt. Finally, one poppadom provided 10% of the GDA for salt.
- Less than 10% of outlets were found to provide 'healthier options' for their Indian takeaway service.

Starters

- Portion sizes varied considerably and were generally large. Substantial differences were found between the portion sizes of starters analysed: For example, for onion bhajis, there was a fivefold difference in the size of portions provided; for chicken pakoras, there was an eightfold difference; and for chicken tikka starter portions, there was a sevenfold difference.

Main courses

- Main-course portion sizes were found to provide enough for two people. The average portion of chicken tikka masala in this survey was 523g. This is 223g more than the average portion size of 300g detailed in the Food Portion Sizes database (1).
- The three most popular main course dishes identified were high in calories, fat and salt; an average portion of chicken tikka masala and chicken korma had the highest energy and fat

content (over 100% of the adult GDA for total fat and saturated fat), and chicken jalfrezi provided 86% of the adult GDA for salt.

Side dishes

- An average portion of boiled rice and pilau rice contained enough for two people. There was a twofold difference in the portion sizes of rice and naan bread.
- An average portion of pilau rice contained 25% of the adult GDA for energy (489 calories), as well as 13% and 14% of the adult GDA for total fat and saturated fat respectively. Boiled rice was a healthier option, containing approximately 100 calories less than pilau rice and only 2% of the adult GDA for total and saturated fat.
- An average portion of peshwari naan bread contained significantly more energy, total fat and saturated fat than plain naan bread. One average portion of peshwari naan bread provided 748 calories (37% GDA), and in some instances, it had as much as 168% of the GDA for saturated fat and over a third of the adult GDA for salt.
- An average portion of poppadoms contained 113 calories, over 10% of the adult GDA for total fat, 6% of the adult GDA for saturated fat and 10% of the adult GDA for salt. As they are often given out free of charge, these deep fried side dishes are commonly consumed with Indian meals and contribute further to a person's daily calorie intake.

Shop-bought versus Indian takeaways

- Shop-bought Indian meal equivalents analysed in this study were significantly smaller in portion size and contained lower levels of energy, total fat, saturated fat and salt in comparison to similar dishes purchased from Indian takeaway outlets.

2 Background

Eating food prepared outside of the home has become the norm for adults on the island of Ireland (IOI). On 24% of eating or drinking occasions in the Republic of Ireland (2), food is cooked and prepared 'out of the home'. Bought-in cooked food makes up an average of 11% of a person's energy intake in the United Kingdom (3). 'Convenient' and 'fast' cheap food has also become increasingly available to people (4) (5) (6) (7, 8). However, food prepared outside of the home has been found to contain considerably more dietary fat and less fibre and micronutrients than food prepared within the home (9).

Traditionally, Indian diets are low in fat and high in fibre and rich in fruit and vegetables (10). However, these traditional meals have been adapted to suit Western palates and, as such, different ingredients in various quantities are added, potentially increasing their fat and salt content. Given the diversity of Indian takeaway dishes available on the IOI, this survey has been designed to provide an insight into the energy (calorie), total fat, saturated fat, protein and salt content of the most popular starters, main courses and side dishes from various Indian takeaways and Indian restaurants with a takeaway service, as well as supermarkets or shop-bought equivalents.

With two out of every three adults on the IOI currently classified as overweight or obese (11, 12) (4), excess body weight is now one of the most important nutritional issues of our times. In addition to this, salt and fat intake is high and consumption of fruit, vegetables and fibre on the IOI is low (12, 13), increasing the risk of common chronic diseases, such as cardiovascular disease, diabetes and certain cancers. The consumption of excess calories and nutrient-poor foods contributes to our current obesity epidemic.

3 Aims

The aim of this survey is to provide a snapshot of the nutritional composition of a sample of popular takeaway Indian meals, specifically to:

1. Identify the most popular Indian takeaway foods on the IOI
2. Carry out sampling and nutritional analysis of the most popular Indian takeaway foods from a selection of Indian takeaway outlets and Indian restaurants with a takeaway service on the IOI
3. Compare the nutritional composition of Indian takeaway foods to shop-bought versions to determine if any healthier Indian food options for adults or if children's Indian food options are available

4 Methodology

Identification of the most popular Indian takeaway meals

- The number and location of Indian outlets on the IOI were identified from two existing databases (14, 15), NI (n 87) and ROI (n 170) respectively.
- A selection of these establishments (n-60: NI-20; ROI-40) were chosen at random and contacted via telephone to determine the most popular Indian takeaway foods purchased across the IOI. Those establishments surveyed were chosen to reflect geographical spread, including urban and rural locations, and ownership structure – a mix of independent and larger national/multinational chains were surveyed. The most popular Indian takeaway foods identified are shown in Table 1.

Sampling of Indian takeaway foods

- The sampling protocol used comprised the following criteria:
 1. A range of Indian takeaway outlets, including Indian takeaways and Indian restaurants with a takeaway service, were sampled.
 2. A two-third/one-third split between ROI and NI was used.
 3. Both urban and rural outlets were sampled according to the number that was available in those specific locations. For example, more outlets were contacted in Dublin and Belfast as there are a larger number of outlets in those cities than in other locations.
- In total, 280 Indian food samples (ROI, n 185; NI, n 95) were purchased in duplicate from a total of 36 separate takeaway outlets across 12 locations on the IOI (Table 1).
- For the purpose of collection, each sample was purchased and wrapped individually, and the location, name and description of the sample (as described on the menu) were recorded. These samples were weighed to measure portion size. The samples were then returned to the University of Ulster where, within 24 hours, they were frozen until analysed.
- All sampling points were asked if they had a healthier adult's option and a children's Indian food option available and, if so, to provide details of these.

Nutritional analysis of Indian takeaway foods

One of the duplicate samples was used for energy content and the second duplicate sample was used for the analysis of total fat, saturated fat, protein and salt content. The samples were analysed by Foodtest Laboratories Ltd, UK.

Table 1: Summary and description¹ of the most popular Indian takeaway foods identified

Course	Dish and description (number sampled)		
Starters	(n30) Onion bhaji: Sliced onion mixed with seeds and flour, deep fried in oil	(n30) Chicken pakora: Marinated chicken pieces in batter that are deep fried in oil	(n30) Chicken tikka: Marinated chicken in yoghurt and spices
	Main courses	(n30) Chicken tikka masala: Chicken tikka pieces cooked in a cream and tomato-based sauce	(n30) Chicken korma: Chicken pieces cooked in a cream and yoghurt sauce, including nuts and sometimes coconut milk, to make a mild curry sauce
Sides		(n20) Boiled rice: A long-grain or basmati rice that is boiled in water, some of the water is absorbed and the rice becomes soft	(n20) Pilau rice: A long grain or basmati rice that is boiled in seasoned stock with spices
		(n20) Plain naan: A flatbread that is made with white flour and yoghurt	(n20) Peshwari naan: A flatbread that is made with white flour and yoghurt and is then filled with a fruit and nut mixture

¹ The descriptions presented here are based on information provided in sources on the Web, including Wikipedia and online menus and recipes.

Sampling and analysis of shop-bought Indian foods

The nutritional information of a range of frozen and chilled shop-bought versions of the popular dishes identified was also examined. These samples (n=151) were purchased from the top six supermarkets in the ROI and the top six supermarkets in NI for comparative purposes. The nutritional content was taken from package labelling and the portion size was recorded.

Statistical analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS for Windows, version 20.0). P values ≤ 0.05 were considered to be statistically significant. Analysis of variance (ANOVA) with post-hoc tests were used to analyse differences within and between the three starters and the three main dishes. Independent t-tests were used to analyse the differences between both types of rice and naan breads.

Guideline Daily Amounts (GDA) help people to understand approximately how many calories and how much protein, carbohydrate, fat, saturated fat and salt are required for a healthy diet. These values (Table 2) were used to provide an estimate of how much each Indian meal contributes to individual GDA levels and to allow for easy comparison between different meal types.

Table 2: Current adult GDA (16)

Energy or nutrient	Adult GDA
Energy	2000 kcal
Total fat	70g
Saturated fat	20g
Protein	50g
Salt	6g

The typical portion size of each meal component consumed by the UK population was identified from the Food Standards Agency (FSA) portion sizes database (1).

5 Results

Portion size

- Portion sizes varied considerably (Table 3) and were often quite large in size. In some cases, there were sevenfold and eightfold differences found between minimum and maximum portion sizes.
- Poppadoms, often eaten before a starter, ranged in portion size, with the biggest being 50% larger than the smallest, and they were, on average, 8g bigger than the FSA's typical portion (1).
- Differences in portion sizes were also found for onion bhajis (a difference of up to five times), chicken pakoras (a difference of up to eight times) and chicken tikka starters (a difference of up to seven times). In some cases, the larger portion sizes of starters were the same size as the average main course portion size.
- Main course portion sizes were enough for two people. The average portion of chicken tikka masala exceeded the FSA's typical adult portion by 223g; chicken korma, by 168g; and chicken jalfrezi, by 189g (1).
- Portion sizes of rice could be up to double others, and average portions of boiled rice (284g) and of pilau rice (289g) were enough for two people. The average portion of plain naan (173g) was similar to the FSA's typical portion (160g)(1). However, the peshwari naan bread exceeded the typical amount of 155g by 71g (1).

Table 3: Average, minimum and maximum portion size of Indian takeaway dishes sampled

Course	Dish	Typical portion FSA (1)	Average portion size (g)	Min weight (g)	Max weight (g)
Poppadoms	Poppadoms	13g	21	18	27
Starters	Onion bhajis	60g ²	145	67	348
	Chicken pakora	60g ²	170	68	523
	Chicken tikka	120g	169	74	515
Mains	Chicken tikka masala	300g	523	414	697
	Chicken korma	300g	518	384	697
	Chicken jalfrezi	300g	539	372	697
Sides	Boiled rice	300g	284	201	401
	Pilau rice	180g	289	204	388
	Plain naan	160g	173	131	234
	Peshwari naan	160g	226	138	353

² The typical portion size of this meal component was not detailed in the FSA database and was taken instead from the Netwisp programme, NetWISPV4.0

Nutrient content

Indian starters

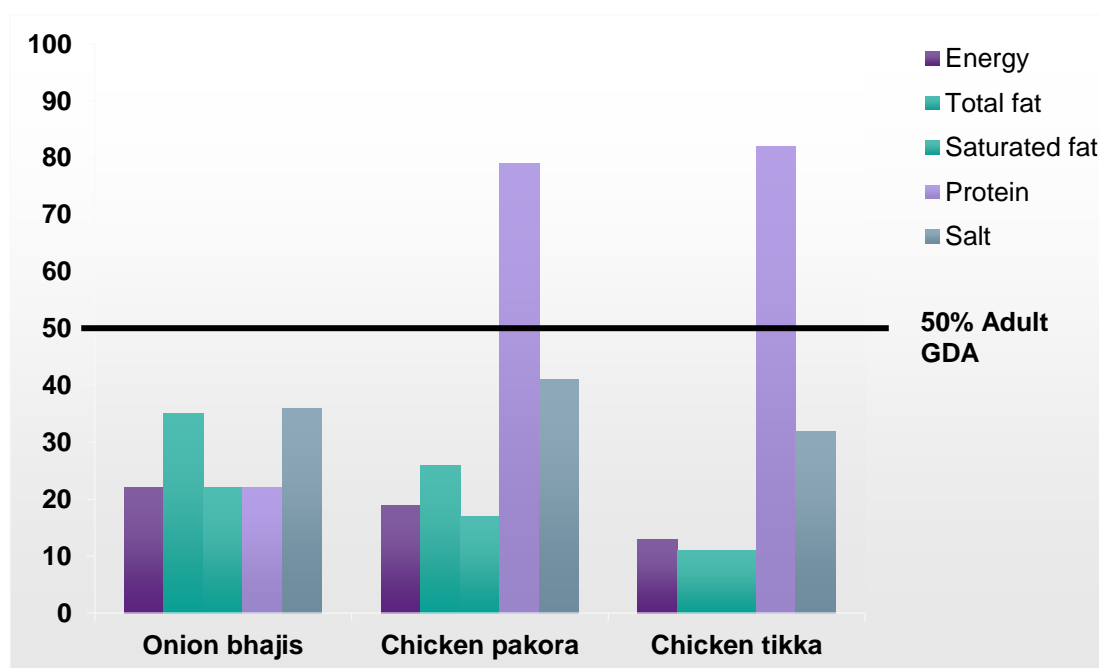
- The energy and nutrition content of the three popular Indian starters analysed is shown in table 4, and Figure 1 shows the nutritional content as a percentage of adult GDA for each dish. Statistical comparisons are presented in Appendices A and B.
- There was a big range in the nutritional content and portion sizes of the starters analysed.
- Although the average portion of onion bhajis (145g) had the smallest portion size of the three starters, it had the highest levels of energy (calories) and total and saturated fat, contributing approximately a fifth of the GDA for energy and over a third of an adult's daily total fat and salt intake.
- An average portion of chicken pakora contained approximately one fifth of an adult's energy intake
- An average portion of chicken tikka had the lowest levels of energy (13% of an adult's GDA), total fat, saturated fat and salt in comparison to the other two starters. This can be attributed to the fact that, unlike onion bhajis and chicken pakora, chicken tikka is not deep fried.
- The onion bhajis and chicken pakora contained a substantial amount of fat – 35% and 26% respectively – with less present in an average portion of chicken tikka (11%).
- Average portions of chicken pakora and chicken tikka contributed to over 80% of the adult GDA for protein while the largest portions contributed nearly 300%. As would be expected, the onion bhajis contributed less protein (22% of adult GDA).
- The salt levels in all three starters were similar, with each starter contributing approximately one third of the adult GDA. The largest portions of all three starters contributed 94%, 221% and 81% of the adult GDA for salt for onion bhajis, chicken pakora and chicken tikka respectively.
- When the three Indian starter types were compared per 100g, the average onion bhajis had the highest energy and total fat content. The chicken tikka contained significantly more protein, and there were no significant differences between any of the starters in terms of saturated fat or salt.

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Table 4: Mean value and minimum, maximum and % adult GDA for energy and nutrient content analysed per Indian starter dish (per portion)

Parameter	Onion bhajis	GDA (%)	Chicken pakora	GDA (%)	Chicken tikka	GDA (%)
Energy (kcal)	429	22	387	19	249	13
Min-Max	167-904	8-45	142-1159	7-58	102-680	5-34
Total fat (g)	24.3	35	18.0	26	8.0	11
Min-Max	2-55	4-79	2-61	3-88	2-24	3-34
Saturated fat (g)	4.3	22	3.5	17	2.3	11
Min-Max	0.4-7	2-39	0.4-12	2-58	0.6-6	3-28
Protein (g)	11.2	22	39.3	79	41.2	82
Min-Max	5-36	10-73	13-140	25-279	18-148	36-295
Salt (g)	2.2	36	2.4	41	1.9	32
Min-Max	0.3-5.6	5-94	0.7-13	12-221	0.5-5	8-81

Figure 1: Nutritional content as % of the adult GDA for an average portion of three popular Indian starter dishes



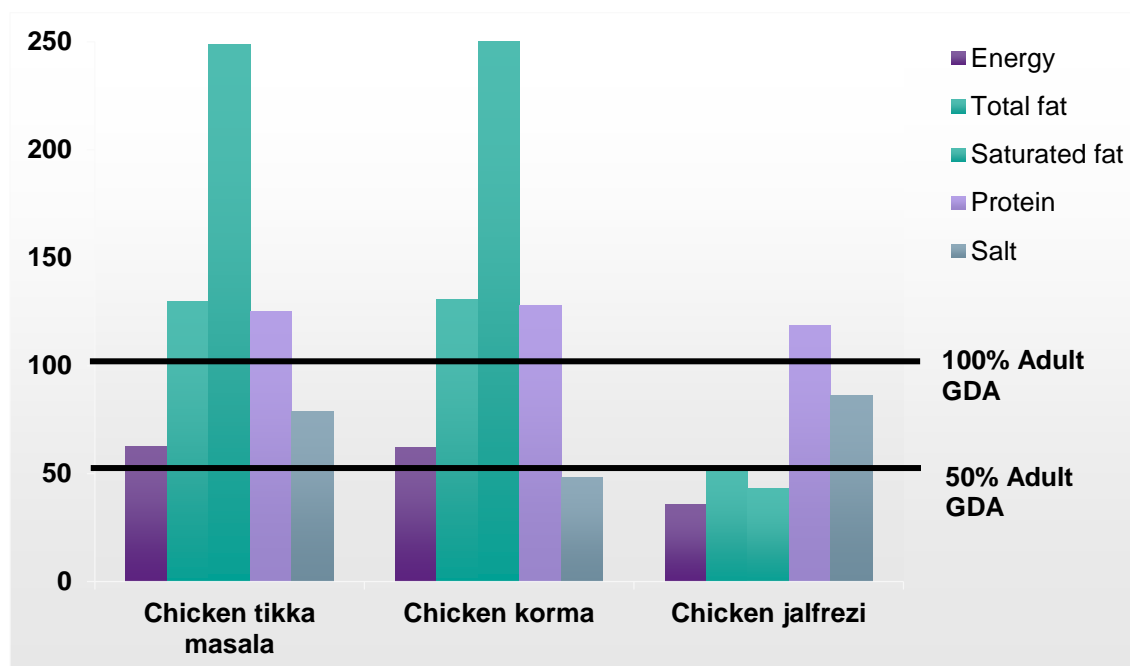
Indian main courses

- The energy and nutrition content of the three popular Indian main courses analysed is shown in Table 5, and Figure 1 shows the nutritional content as a percentage of adult GDA for each dish. Statistical comparisons are presented in Appendices C and D.
- Similarly to the starter dishes, there was a wide range in the portion size and nutrition content of the main course dishes analysed.
- An average portion of all three dishes was high in fat, salt, calories and protein, and an average portion of chicken tikka masala and chicken korma contained more than 50% of an adult GDA for energy, fat, saturated fat and protein.
- There was no significant difference between chicken tikka masala and chicken korma for any of the parameters measured. An average portion of chicken jalfrezi contained significantly less energy (36% adult GDA), total fat and saturated fat than chicken tikka masala or chicken korma. This is not surprising as both tikka masala and korma contain cream.
- Over 130% of the adult GDA for total fat was contained in the average portion of both chicken tikka masala and chicken korma. Both main courses also exceeded the total GDA for saturated fat by approximately 150% (containing 249% and 258% respectively) while chicken jalfrezi contained approximately 50% of the adult GDA for total and saturated fat. The largest portions of both the chicken tikka masala and the chicken korma exceeded the total adult GDA for total fat and saturated fat nearly two-and-a-half times for total fat and there was a fivefold exceedance for saturated fat.
- When compared by portion size, the three dishes exceeded the total adult GDA for salt by 38%, 25% and 25% for the largest portions of chicken tikka masala, chicken korma and chicken jalfrezi respectively. An average portion of chicken jalfrezi contained the highest amount of salt (86% GDA) of the three dishes surveyed. The chicken korma had a significantly lower salt content than the chicken jalfrezi.
- An average portion of all three main course dishes exceeded the total adult GDA for protein by approximately 25%.

Table 5: Mean value and minimum, maximum and % adult GDA for energy and nutrient content analysed per Indian main course dish (per portion)

Parameter	Chicken tikka masala	GDA (%)	Chicken korma	GDA (%)	Chicken jalfrezi	GDA (%)
Energy (kcal)	1,249	63	1,248	62	721	36
Min-Max	510-2033	26-102	646-2074	32-104	457-924	23-46
Total fat (g)	90.8	130	91.4	131	37.4	53
Min-Max	25-173	35-247	29-169	41-241	13-62	19-89
Saturated fat (g)	49.7	249	51.7	258	8.6	43
Min-Max	6-110	28-548	15-100	75-501	3-20	14-99
Protein (g)	62.6	125	63.9	128	59.4	119
Min-Max	49-89	98-178	46-100	91-200	35-104	70-208
Salt (g)	4.7	79	2.9	49	5.2	86
Min-Max	2-8	32-138	1-8	12-125	2-8	40-125

Figure 2: Nutritional content as % of the adult GDA for each Indian main course



Side dishes

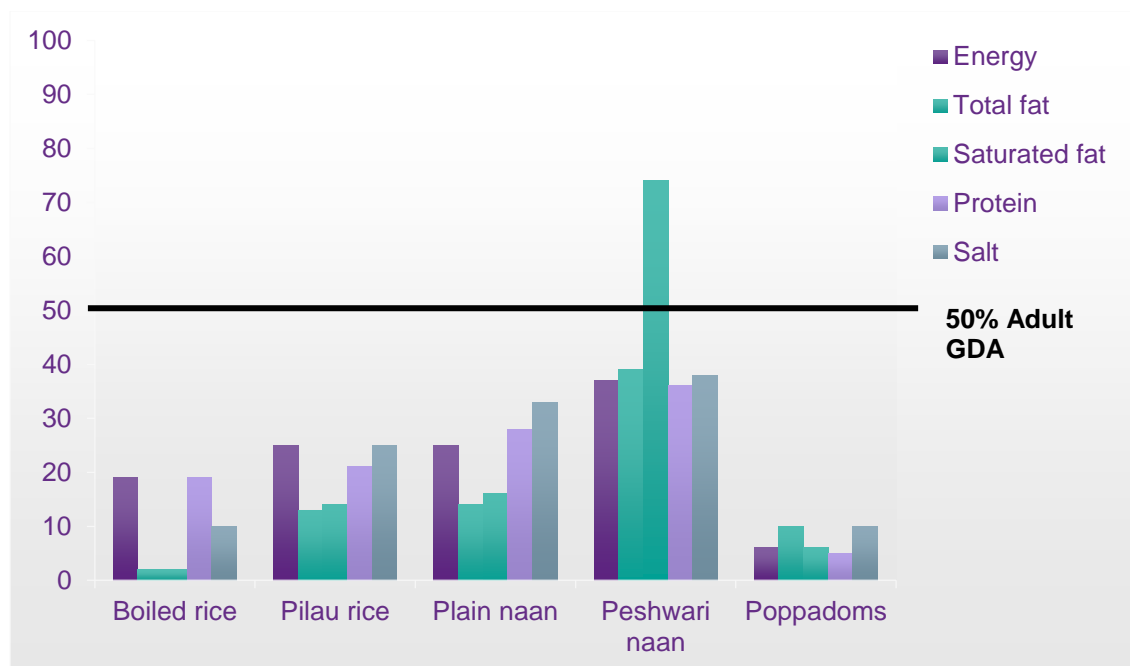
- The energy and nutritional content of the side dishes, comprising rice, naan breads and poppadoms, is shown in Table 6, and Figure 3 shows the nutritional content as a percentage of adult GDA for each dish. Statistical comparisons are presented in Appendices E, F, G and H.
- In respect of rice, a portion of boiled rice contained significantly less energy, total fat, saturated fat and salt than pilau rice, making boiled rice a healthier option. An average portion of pilau rice provided almost 500 calories (25% adult GDA for energy), 13% of the GDA for fat and 14% of the GDA for saturated fat while boiled rice provided 19% of an adult's GDA for energy. There was no difference between the two in respect of protein content.
- An average portion of peshwari naan bread contained significantly more energy (37% GDA), total fat (39%) and saturated fat (74% GDA) than plain naan (it provided 25% GDA for energy, 14% GDA for total fat and 16% GDA for saturated fat). The protein and salt content of both breads was similar, with both breads providing over one third of an adult's GDA for salt.
- The largest portion of peshwari naan bread contained 168% of an adult's daily recommended saturated fat and almost two thirds of an adult's daily GDA for salt.
- An average portion of poppadoms was found to contain 113 calories, 10% of the GDA for total fat, 6% of the GDA for saturated fat and approximately 10% of the adult GDA for salt.

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Table 6: Mean value and % adult GDA for energy and nutrient content analysed per Indian side dish (per portion)

Parameter	Boiled rice	GDA (%)	Pilau rice	GDA (%)	Plain naan	GDA (%)	Peshwari naan	GDA (%)	Poppadoms	GDA (%)
Energy (kcal)	387	19	496	25	504	25	748	37	113	6
Min-Max	285-541	14-27	299-745	15-37	348-666	17-33	436-1228	22-61	81-157	4-8
Total fat (g)	1.2	2	9.3	13	9.5	14	27.3	39	7.3	10
(Min-Max)	0-3.6	0-5	0.9-19.8	1-28	2.8-25.6	4-37	8.9-54.2	13-77	2.8-12.1	4-14
Saturated fat (g)	0.3	2	2.8	14	3.2	16	14.7	74	1.2	6
Min-Max	0-1	0-5	0.02-9.7	1-49	0.7-12.2	4-61	2.6-33.6	13-168	0.4-2.0	2-10
Protein (g)	9.7	19	10.4	21	14.1	28	18.0	36	2.7	5
Min-Max	6.8-15	14-30	7.1-16.1	14-32	10-17.9	20-36	10.3-29.5	21-59	1.6-3.5	3-7
Salt (g)	0.6	10	1.5	25	2.0	33	2.3	38	0.6	10
Min-Max	0-2	0-33	0.3-3.5	5-58	0.5-3.7	8-62	0.7-3.9	12-65	0.2-1	3-17

Figure 3: Nutritional content as % of the adult GDA for each Indian side dish



Healthier Indian options

Only three of the 36 outlets sampled provided menu options marked as 'healthier options' on the menu. Two outlets regarded options as healthier due to the cooking method used, i.e. the food was cooked in a tandoor oven, and one outlet specifically noted that they had 'light dishes with less than 3% fat'.

Children's options

Only five of the 36 outlets surveyed (14%) offered a variety of children's options (Table 7), of which only three establishments (8%) offered an Indian meal option specifically for children.

Table 7: Details of children's options available in five of the outlets surveyed

Outlet	Indian option	Details on menu
1	Yes	<ul style="list-style-type: none"> • Kids' chicken korma – smothered over rice or chips • Kids' chicken tikka masala – smothered over rice or chips • Kiddies' chicken pakora & chips – chicken breast goujons delicately spiced with garlic and ginger, battered in gram flour and deep fried in light vegetable oil
2	Yes	<ul style="list-style-type: none"> • Masala noodles
3	Yes	<ul style="list-style-type: none"> • Chicken tikka masala served with chips or steamed rice • Chicken korma served with chips or steamed rice • Malai tikka served with chips or steamed rice • Chicken pakora and chips
4	No	
5	No	

Differences in takeaway versus shop-bought Indian meals

- The average portion size of the takeaway dishes was significantly larger than that of the average shop-bought equivalents in all cases (Appendices I to L).
- The shop-bought Indian dishes had a significantly lower calorie (energy), total and saturated fat and salt content in comparison to the takeaway samples (Appendices I to L). This was the case for each type of starter (except for chicken pakoras as no shop-bought equivalent could be found), main course and side dish. The only exception was for shop-bought boiled rice, which contained significantly more total fat and saturated fat than the takeaway samples.

6 Conclusions

This survey found that Indian meals bought from takeaway outlets and restaurants with a takeaway service vary considerably in portion size and contain substantial amounts of energy (calories), fat and salt when compared with adult GDA figures. The largest portion sizes of all starters, main dishes, poppadoms, pilau rice and peshwari naan bread were found to be large enough for two people. The average Indian takeaway, comprising a poppadom, a starter and a main course and pilau rice, contained more than the adult GDA for energy (approximately 2,287 calories), almost three times the GDA for saturated fat and approximately one-and-a-half times the GDA for salt.

The shop-bought Indian dishes had significantly smaller portion sizes and lower calorie (energy), fat and salt levels, making them a healthier option than the takeaway dishes. This may be due to shop-bought foods having detailed nutritional labelling and the nutritional content of these foods being driven by pressure from consumers and health groups.

In respect of starters, a portion of onion bhajis was found to contribute approximately a fifth of the GDA for energy, saturated fat and protein, as well as a 33% of the GDA for total fat and salt. The high fat and energy levels is due to onion bhajis being deep fried in batter.

Poppadoms deserve a particular focus as they are generally provided free of charge and are eaten in addition to a takeaway meal consisting of a chosen starter, a main course and a side dish. An average portion of poppadoms was found to contain 113 calories, thus adding to the overall calorie count. An average portion also provided 10% of the GDA for fat, which can be attributed to them being deep fried.

No main course sampled was considered to be a healthy option, with all three containing high levels of calories, fat and salt, and all three main-course portion sizes being big enough for two people. All of them exceeded the FSA's typical portion sizes (1). In comparing the three main dishes with each other, chicken jalfrezi contained the lowest amounts of calories and fat; however, it provided the highest level of salt. For the average portion of chicken tikka masala and chicken korma main courses, the guideline daily amount for adults for saturated fat was exceeded approximately two-and-a-half times and total fat, nearly one-and-a-half times, while both dishes contained over 60% of an adult's daily energy intake. This high calorie and fat content reflects deep frying as a cooking method and the addition of cream in the sauces.

In comparing the side dishes, boiled rice was found to be the healthier option, having significantly lower values across all parameters measured except for protein. However, the average portion of boiled rice still contained a fifth of the adult GDA for energy (387 kcals), and the average portion served was found to be enough for two people. Consumers should be mindful of the portion sizes of rice offered and share these where possible. Both types of naan breads were found to add considerably to the energy intake of

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consumers. An average portion of peshwari naan bread contained over a third of the adult GDA for both salt and energy and, in some instances, as much as 168% of an adult's daily quota for saturated fat. Again, consumers should be aware of the nutritional content of side dishes: if a portion of rice and of naan bread are consumed together, an extra 900–1,300 calories can easily be consumed with a takeaway meal.

7 Recommendations

Key messages for consumers:

- Consider having Indian takeaway meals as an occasional food only.
- One portion of Indian takeaway food should ideally be shared between two people.
- Pay attention to the description on the menu. Dishes labelled deep fried, battered or crispy should be avoided as these are higher in calories, fat and salt than foods that are not deep fried. Items with a high proportion of vegetables should be ordered where possible.
- Consider shop-bought options instead of takeaways, as they are generally smaller in size and have fewer calories, as well as less fat and salt.
- Avoid nibbling on poppadoms and associated dips – on average, one portion of poppadoms contains over 100 calories.
- Choose boiled rice over pilau rice, and share the portion of rice as the average portion provided is enough for two people. Consider not eating both a portion of naan bread and rice unless they are being shared.
- Minimise the intake of sauces as they are usually high in calories, fat and salt. Add extra vegetables to your meal instead.

Key messages for catering industry:

- All menus should be clearly calorie posted.
- Assess current portion sizes offered and highlight which dishes are suitable for sharing. Consider offering smaller portion sizes at a discounted price.
- Alternatives to deep fried and battered dishes should be made available. Consider grilling food instead for dishes like onion bhajis and chicken pakoras.
- Consider highlighting healthier menu options for consumers that are lower in salt, fat and calories so that they can recognise these meals easily.
- Dishes with more vegetables should be made available and reduce the use of added fats and salt in recipes.

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Appendices

Appendix A: Statistical difference between Indian starter types (per portion)

Parameter	Onion bhajis	Chicken pakora	Chicken tikka	Comparison	P value
	Mean (SD)				
Energy (kcal)	429 (168)	387 (251)	249 (125)	OB-CP	1.000
				OB-CT	0.078
				CP-CT	0.319
Total fat (g)	24.30 (11.41)	17.99 (14.34)	8.00 (5.08)	OB-CP	0.977
				OB-CT	0.028*
				CP-CT	0.511
Saturated fat (g)	4.30 (1.92)	3.50 (2.94)	2.30 (1.39)	OB-CP	1.000
				OB-CT	1.000
				CP-CT	1.000
Protein (g)	11.20 (5.80)	39.30 (28.54)	41.20 (24.66)	OB-CP	<0.001*
				OB-CT	<0.001*
				CP-CT	1.000
Salt (g)	2.20 (1.27)	2.40 (2.42)	1.90 (0.92)	OB-CP	0.999
				OB-CT	1.000
				CP-CT	0.911

*Denotes statistical significance (ANOVA); OB = onion bhaji; CP = chicken pakora; CT = chicken tikka

Appendix B: Statistical difference between Indian starter varieties (per 100g)

Parameter	Onion bhajis	Chicken pakora	Chicken tikka	Comparison	P value
	Mean (SD)				
Energy (kcal)	300 (49)	227 (45)	150 (18)	OB-CP	<0.001*
				OB-CT	<0.001*
				CP-CT	<0.001*
Total fat (g)	16.98 (5.46)	10.32 (5.34)	4.83 (2.15)	OB-CP	<0.001*
				OB-CT	<0.001*
				CP-CT	0.003*
Saturated fat (g)	3.04 (1.02)	1.93 (1.03)	1.41 (0.84)	OB-CP	0.624
				OB-CT	1.107
				CP-CT	0.997
Protein (g)	7.74 (1.84)	22.63 (4.18)	24.73 (4.29)	OB-CP	<0.001*
				OB-CT	<0.001*
				CP-CT	0.033*
Salt (g)	1.50 (0.61)	1.35 (0.56)	1.22 (0.50)	OB-CP	0.975
				OB-CT	0.400
				CP-CT	0.991

*Denotes statistical significance (ANOVA); OB = onion bhaji; CP = chicken pakora; CT = chicken tikka

What's in your Indian takeaway?

Appendix C: Comparisons between Indian main varieties (per portion)

Parameter	Chicken tikka	Chicken	Chicken	Comparison	P value
	masala	korma	jalfrezi		
Mean (SD)					
Energy (kcal)	1249 (403)	1248 (301)	720 (128)	CTM-CK	1.000
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Total fat (g)	90.75 (38.31)	91.35 (27.17)	37.38 (13.36)	CTM-CK	1.000
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Saturated fat (g)	49.71 (24.22)	51.67 (18.36)	8.64 (4.40)	CTM-CK	1.000
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Protein (g)	62.64 (9.47)	63.89 (12.43)	59.40 (13.98)	CTM-CK	1.000
				CTM-CJ	0.999
				CK-CJ	0.981
Salt (g)	4.74 (1.71)	2.91 (1.62)	5.17 (1.37)	CTM-CK	<0.001*
				CTM-CJ	0.980
				CK-CJ	<0.001*

*Denotes statistical significance (ANOVA); CTM = chicken tikka masala; CK = chicken korma; CJ = chicken jalfrezi

Appendix D: Comparisons between Indian main varieties (per 100g)

Parameter	Chicken tikka	Chicken	Chicken	Comparison	P value
	masala	korma	jalfrezi		
Mean (SD)					
Energy (kcal)	236 (60)	242 (47)	135 (22)	CTM-CK	1.000
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Total fat (g)	17.18 (6.33)	17.78 (5.07)	7.03 (2.60)	CTM-CK	1.000
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Saturated fat (g)	9.38 (4.07)	10.08 (3.60)	1.59 (0.75)	CTM-CK	0.972
				CTM-CJ	<0.001*
				CK-CJ	<0.001*
Protein (g)	12.06 (1.53)	12.39 (1.72)	11.07 (2.41)	CTM-CK	1.000
				CTM-CJ	0.882
				CK-CJ	0.558
Salt (g)	0.90 (0.30)	0.56 (0.30)	0.97 (0.25)	CTM-CK	0.120
				CTM-CJ	1.000
				CK-CJ	0.023*

*Denotes statistical significance (ANOVA); CTM = chicken tikka masala; CK = chicken korma; CJ = chicken jalfrezi

What's in your Indian takeaway?

Appendix E: Comparison between rice (per portion)

Parameter	Boiled rice	Pilau rice	P value
	Mean (SD)		
Energy (kcal)	387 (67)	496 (122)	0.001*
Total fat (g)	1.17 (0.95)	9.31 (5.12)	<0.001*
Saturated fat (g)	0.34 (0.26)	2.78 (2.20)	<0.001*
Protein (g)	9.74 (2.12)	10.42 (2.40)	0.349
Salt (g)	0.59 (0.56)	1.50 (0.85)	<0.001*

*Denotes statistical significance (Independent samples t-test)

Appendix F: Comparison between rice (per 100g)

Parameter	Boiled rice	Pilau rice	P value
	Mean (SD)		
Energy (kcal)	137 (13)	170 (17)	<0.001*
Total fat (g)	0.42 (0.34)	3.07 (1.37)	<0.001*
Saturated fat (g)	0.12 (0.09)	0.92 (0.64)	<0.001*
Protein (g)	3.42 (0.35)	3.59 (0.28)	0.098
Salt (g)	0.21 (0.19)	0.52 (0.26)	<0.001*

*Denotes statistical significance (Independent samples t-test)

Appendix G: Comparison between naan breads (per portion)

Parameter	Plain naan	Peshwari naan	P value
	Mean (SD)		
Energy (kcal)	504 (94)	748 (213)	<0.001*
Total fat (g)	9.47 (6.32)	27.30 (12.56)	<0.001*
Saturated fat (g)	3.15 (2.74)	14.71 (7.78)	<0.001*
Protein (g)	14.06 (2.40)	17.95 (4.90)	0.003*
Salt (g)	2.03 (0.82)	2.27 (0.89)	0.389

*Denotes statistical significance (Independent samples t-test)

What's in your Indian takeaway?

Appendix H: Comparison between naan breads (per 100g)

Parameter	Plain naan	Peshwari naan	P value
	Mean (SD)		
Energy (kcal)	291 (25)	329 (22)	<0.001*
Total fat (g)	5.43 (3.42)	11.69 (3.44)	<0.001*
Saturated fat (g)	3.15 (2.74)	14.71 (7.78)	<0.001*
Protein (g)	8.12 (0.55)	7.92 (0.60)	0.271
Salt (g)	1.17 (0.43)	1.00 (0.35)	0.196

*Denotes statistical significance (Independent samples t-test)

What's in your Indian takeaway?

Appendix I: Differences in nutritional values of starter dishes between takeaway and shop-bought Indian food; Mean (SD) and P value

Parameter	Onion bhaji			Chicken pakora			Chicken tikka		
	Take away (n=30)	Shop bought (n=23)	P value	Take away (n=30)	Shop bought (n=0)	P value	Take away (n=30)	Shop bought (n=5)	P value
Portion size (g)	142 (61)	68 (25)	<0.001*	170 (106)	- [#]	-	169 (95)	65 (14)	0.020*
Energy (kcal)	421 (179)	157 (63)	<0.001*	387 (251)	-	-	249 (125)	104 (35)	0.015*
Total fat (g/meal)	23.66 (11.87)	8.79 (4.76)	<0.001*	17.99 (14.34)	-	-	7.96 (5.08)	3.52 (2.55)	0.067*
Saturated fat (g/meal)	4.20 (2.00)	0.74 (0.43)	<0.001*	3.45 (2.94)	-	-	2.26 (1.39)	0.51 (0.20)	0.009*
Protein (g/meal)	11.00 (5.99)	3.71 (1.18)	<0.001*	39.29 (28.54)	-	-	41.16 (24.66)	13.40 (1.73)	0.018*
Salt (g/meal)	2.16 (1.29)	0.62 (0.22)	<0.001*	2.44 (2.42)	-	-	1.90 (0.92)	0.50 (0.19)	0.002*

*Denotes statistical significance (ANOVA with post-hoc tests); [#]No values available as none of the supermarkets had chicken pakora available for purchase

What's in your Indian takeaway?

Appendix J: Differences in nutritional values of Indian main course dishes between takeaway and shop-bought Indian food; Mean (SD) and P value

Parameter	Chicken tikka masala			Chicken korma			Chicken jalfrezi		
	Takeaway (n=30)	Shop bought (n=19)	P value	Take away (n=30)	Shop bought (n=13)	P value	Take away (n=30)	Shop bought (n=11)	P value
Portion size (g)	523 (79)	257 (115)	<0.001*	518 (82)	261 (120)	<0.001*	539 (83)	233 (114)	<0.001*
Energy (kcal)	1249 (403)	351 (139)	<0.001*	1248 (301)	424 (210)	<0.001*	721 (128)	292 (143)	<0.001*
Total fat (g/meal)	90.75 (38.31)	19.70 (7.26)	<0.001*	91.35 (27.17)	25.97 (13.67)	<0.001*	37.38 (13.36)	14.27 (7.76)	<0.001*
Saturated fat (g/meal)	49.71 (24.22)	7.52 (2.67)	<0.001*	51.66 (18.36)	10.30 (6.33)	<0.001*	8.64 (4.40)	2.45 (2.25)	<0.001*
Protein (g/meal)	62.63 (9.47)	28.12 (14.74)	<0.001*	63.89 (12.43)	32.17 (17.01)	<0.001*	59.40 (13.98)	24.67 (11.02)	<0.001*
Salt (g/meal)	4.74 (1.71)	1.69 (0.85)	<0.001*	2.91 (1.62)	1.67 (1.08)	0.016*	5.17 (1.37)	1.62 (1.20)	<0.001*

*Denotes statistical significance (ANOVA with post-hoc tests)

What's in your Indian takeaway?

Appendix K: Differences in nutritional values of Indian rice dishes between takeaway and shop-bought Indian food; Mean (SD) and P value

Parameter	Boiled Rice			Pilau Rice		
	Takeaway (n=20)	Shop bought (n=7)	P value	Takeaway (n=30)	Shop bought (n=0)	P value
Portion size (g)	284 (44)	241 (23)	0.025*	289 (51)	209 (42)	<0.001*
Energy (kcal)	387 (67)	383 (20)	0.867	496 (122)	348 (74)	<0.001*
Total fat (g/meal)	1.17 (0.95)	4.74 (1.29)	<0.001*	9.31 (5.12)	6.44 (1.98)	0.017*
Saturated fat (g/meal)	0.34 (0.26)	0.89 (0.28)	<0.001*	2.77 (2.22)	0.61 (0.26)	<0.001*
Protein (g/meal)	9.74 (2.12)	8.18 (1.39)	0.084	10.40 (2.40)	7.02 (1.76)	<0.001*
Salt (g/meal)	0.59 (0.56)	1.32 (1.72)	0.101	1.50 (0.85)	1.51 (2.64)	0.990

*Denotes statistical significance (Independent samples t-test)

What's in your Indian takeaway?

Appendix L: Differences in nutritional values of Indian naan breads and poppadoms between takeaway and shop-bought Indian food; Mean (SD) and P value

Parameter	Plain naan			Peshwari naan			Poppadoms		
	Takeaway (n=20)	Shop bought (n=33)	P value	Takeaway (n=20)	Shop bought (n=7)	P value	Takeaway (n=20)	Shop bought (n=10)	P value
Portion size (g)	173 (30)	100 (34)	<0.001*	226 (58)	104 (48)	<0.001*	21 (3)	11 (3)	<0.001*
Energy (kcal)	504 (94)	270 (92)	<0.001*	748 (213)	254 (145)	<0.001*	113 (21)	49 (23)	<0.001*
Total fat (g/meal)	9.47 (6.32)	6.08 (2.95)	0.011*	27.3 (12.6)	6.32 (4.33)	<0.001*	7.31 (2.95)	1.72 (1.48)	<0.001*
Saturated fat (g/meal)	3.15 (2.74)	1.51 (1.23)	0.004*	14.7 (7.78)	2.76 (2.63)	0.001*	1.15 (0.52)	0.21 (0.14)	<0.001*
Protein (g/meal)	14.1 (2.40)	7.09 (2.51)	<0.001*	18.0 (4.90)	6.09 (3.29)	<0.001*	2.74 (0.54)	2.09 (0.58)	0.005*
Salt (g/meal)	2.03 (0.82)	0.84 (0.47)	<0.001*	2.27 (0.89)	0.74 (0.35)	<0.001*	0.62 (0.21)	0.46 (0.14)	0.050*

*Denotes statistical significance (Independent samples t-test)

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