

Nutritional composition of commonly consumed composite dishes for Afro-Caribbeans (mainly Jamaicans) in the United Kingdom

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Abstract

Primary objective To provide the calculated nutritional composition of 18 commonly consumed composite dishes among Afro-Caribbeans residing in the United Kingdom.

Methods and procedures Weighed recipes were collected in Afro-Caribbean households (mainly Jamaicans) in Manchester, UK.

Main outcomes and results A total of 30 weighed recipes were collected for a variety of 18 Afro-Caribbean composite dishes. Among them, fried dumpling, Ackee and saltfish, fried chicken and rice and peas were high in energy, providing 201–356 kcal/100 g. Fried fish, Ackee and saltfish, stewed fish, and fried chicken had a high fat content (between 11.5% and 25.9%).

Conclusions We have provided for the first time some data on the energy, macro-nutrient and micronutrient content per 100 g for 18 Afro-Caribbean foods. These recipe data provide essential information for accurately assessing dietary intake and for determining associations between diet and chronic diseases among this population.

Keywords: *Nutritional composition, recipes, Afro-Caribbeans, United Kingdom, composite dishes*

Introduction

Diet-related chronic diseases such as type 2 diabetes mellitus, cardiovascular disease and hypertension are highly prevalent in Afro-Caribbean populations in the United

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Kingdom (Cruickshank et al. 1980, 1991; Cappuccio et al. 1997; Poulter et al. 1997; Mbanya et al. 1999; Riste et al. 2001). In addition, Afro-Caribbeans were found to have the highest prevalence rate of stroke in the United Kingdom (Department of Health 2006a). The high prevalence of obesity and chronic disease, among this population, has been attributed to a shift from traditional diets and lifestyle to one that is of modern and western societies (Popkin and Gordon-Larsen 2004).

British Afro-Caribbean men and women had the highest (25%) and second highest (32%) prevalence of obesity, respectively, compared with men and women of any other ethnicity in the United Kingdom (Department of Health 2006b). Obese women in the United Kingdom are 13 times more likely to develop diabetes mellitus, whereas men are five times as likely (Department of Health 2006b). British Afro-Caribbeans have a five times greater chance of developing diabetes than the white population (Department of Health 2006a; Diabetes UK 2006).

As of the 2001 census, there were over 560,000 Afro-Caribbeans who resided in the United Kingdom (Office of Population Censuses and Surveys 2001). Most of those who migrated in the 1950s–1960s were from Jamaica, although relatively large numbers of immigrants were from Barbados, Easter Caribbean islands such as St Kitts, St Lucia and Montserrat, and some from Trinidad (Sharma and Cruickshank 2001).

Data on dietary quality among British Afro-Caribbeans are limited. Without data on diet and food composition it is impossible to determine diet and disease associations. We developed a quantitative food frequency questionnaire (FFQ) containing 108 items (including 18 composite dishes) to assess usual intake of this population (Sharma et al. 1996). The process of developing the FFQ provided useful information on dietary habits and food consumption by this population (Sharma et al. 1999, 2002; Mennen et al. 2000; Sharma and Cruickshank 2001). However, to analyze the FFQ data, it is necessary to have a culturally specific food composition table. Although there is a food composition table available for the general British population, nutritional data on many foods commonly consumed by the Afro-Caribbeans are not available in this table (Holland et al. 1991).

The aim of this study is to provide, for the first time, some calculated nutritional compositions of composite dishes and drinks frequently consumed among British Afro-Caribbeans. In this paper, we describe the collection of weighed recipes and present the calculated nutritional composition per 100 g of 18 dishes. The dishes were listed on the FFQ developed specifically for this population. The data presented will provide a platform on which others may build to assess dietary intake and determine diet–disease associations in this high-risk population.

Methods

Sampling

Twenty-nine subjects (13 men and 16 women) who completed a 2-day food diary or a single 24-h recall agreed to collect recipes. These subjects were randomly selected from the 90 Afro-Caribbean participants who had been randomly sampled as part of the main survey described elsewhere (Sharma et al. 1996). Briefly, the subjects for the main survey were randomly selected from the Manchester Family Health Service Association local population registers that were held in four health centers. The four health centers were chosen because they were located in the inner city where most of

the Afro-Caribbeans reside. A complete list of all foods and drinks reported on the diaries and recalls was developed. Based on this list, 18 commonly consumed foods and drinks with no available nutritional composition data were identified.

Recipe data collection

An appointment was scheduled at the home of the participants, where all recipe ingredients as well as the final cooked dishes were weighed. Close attention was paid during the preparation of each dish and ingredients that were discarded were closely monitored. Edible portions were calculated by subtracting the inedible parts (e.g. the weight of the chicken bone was subtracted from the total chicken weight). All food weights were obtained using an electronic Soehnle kitchen scale (Magum Scale & Bretagne Scale, Lithuania) and all weights were taken to one decimal place. All individuals were reimbursed for the cost of the ingredients.

All of the ingredients, edible food weights, and final cooked weight were entered into the Nutribase Clinical Nutrition Manager version 5.18 (Cybersoft Inc., Phoenix, AZ, USA) to obtain the nutritional composition of each dish. Nutribase Clinical is a computerized dietary database with the US Department of Agriculture (USDA) National Nutrient Database for Standard Reference as its base. This database calculates the nutritional composition of each dish, and also an average recipe was calculated per 100 g for each dish. This database was chosen as it contains many more nutrients for single-item foods than the British Food Composition Tables (Holland et al. 1991).

Results

A total of 30 weighed recipes were collected for 18 various Afro-Caribbean composite dishes. Six of the dishes were fish based, three were chicken based, three were starch based, two were beef based, one was a drink and the remaining three were miscellaneous dishes. Fried dumpling, Ackee and saltfish, fried chicken and rice and peas were the high-energy composite dishes (between 201 and 356 kcal/100 g dish). Fried fish, Ackee and saltfish, stewed fish, and fried chicken were the high-fat dishes with a fat content of 11.5%, 12.6%, 14.3% and 25.9%, respectively. Roast pork, fried chicken, curried mutton and roast chicken had high protein (ranging from 20.1 g to 30.1 g per 100 g dish).

Table I presents the calculated amount per 100 g of the average nutritional composition of each composite dish. Ten dishes (fried dumpling, fried fish, roast chicken, roast pork, West Indian soup, fried chicken, rice and peas, curried beef, curried chicken, steamed fish) and one drink (punch) from the Afro-Caribbean dishes are compared with the dishes with similar names (except for West Indian soup) selected from the USDA National Nutrient Database for Standard Reference Release 18 (USDA 2005), the British Food Composition Tables (Holland et al. 1991) and nutritional composition data of dishes from previously studied African-origin population in Barbados (Sharma et al. 2007) and Jamaica population in Jamaica (Samuda et al. 1998) (Table II).

West Indian soup was cooked with beef, pork and mixed vegetables, and therefore beef vegetable soup was selected from the USDA database for comparison. A brief description of the Afro-Caribbean dishes is presented in Table III.

Table I. Nutritional composition (per 100 g) of commonly consumed composite dishes by British Afro-Caribbeans (mainly Jamaicans).

	Roast chicken	Roast pork	Curried beef	Curried chicken	Rice and peas	Steamed fish	Punch	Oxtail stew	Stewed fish
Number of recipes collected	4	3	3	2	2	2	2	2	1
Energy (kcal)	281	161	239	79	356	99	147	187	166
Energy (kJ)	1174	672	1000	331	1490	414	614	784	696
Protein (g)	6.2	8.6	24.2	2.9	23.9	9.1	3.9	10.0	13.5
Carbohydrates (g)	47.9	3.0	2.2	8.9	5.3	3.4	26.6	17.8	1.8
Sugars (g)	6.5	2.3	0.4	0.5	0.1	1.8	7.8	8.1	1.3
Total dietary fiber (g)	1.7	1.8	0.8	0.9	0.3	0.2	1.9	0.7	0.5
Fat (g)	6.6	12.6	14.1	3.6	25.9	5.7	2.7	1.7	11.5
Saturated fat (g)	3.0	0.9	3.3	1.3	6.6	0.9	1.4	4.1	1.5
Vitamin B-6 (mg)	0.0	0.1	0.2	0.1	0.4	0.2	0.1	0.1	0.2
Total folate (mcg)	97.0	24.1	30.7	7.5	11.4	55.3	14.3	26.0	14.5
Folate, DFE (µg DFE)	146	5.3	30.6	5.7	11.4	55.3	11.6	35.3	11.7
Vitamin B-12 (µg)	0.0	0.3	3.2	0.3	0.4	0.3	0.2	0.4	0.8
Vitamin C (mg)	0.0	25.9	1.0	3.1	3.3	26.9	0.5	0.8	3.1
Vitamin E (a-tocopherol) (mg)	0.0	0.2	0.3	0.2	0.0	0.1	0.1	0.2	6.9
Calcium (mg)	214	30.2	25.4	8.5	15.5	135	66.2	102	28.5
Iron (mg)	3.0	0.6	2.8	0.4	1.5	1.6	0.4	0.8	0.8
Zinc (mg)	0.4	0.5	5.0	0.6	2.2	0.8	0.4	0.4	0.3
Selenium (mcg)	21.7	11.3	27.3	2.0	19.5	12.9	2.8	16.8	21.3
% Calories from protein	9.0	24.5	41.8	14.6	27.2	35.2	10.7	21.8	32.6
% Calories from carbohydrates	69.3	32.2	3.9	44.7	6.0	13.9	72.8	38.8	4.8
% Calories from fat	21.7	43.4	54.4	40.5	66.8	50.9	16.5	39.5	62.6

	Roast chicken	Roast pork	Curried beef	Curried chicken	Rice and peas	Steamed fish	Punch	Oxtail stew	Stewed fish
Number of recipes collected	1	1	1	1	1	1	1	1	1
Energy (kcal)	198	123	163	187	201	85	119	130	172
Energy (kJ)	829	512	681	782	840	357	499	542	721
Protein (g)	30.1	20.1	12.0	14.1	5.9	10.8	2.8	12.7	9.1
Carbohydrates (g)	6.1	1.2	4.8	3.6	41.1	1.1	18.1	5.1	1.4
Sugars (g)	0.3	0.6	4.9	2.5	0.6	0.6	17.9	0.7	1.1
Total dietary fiber (g)	0.3	0.3	1.8	1.0	2.6	0.3	0.1	1.6	0.8
Fat (g)	5.0	4.1	1.4	0.8	1.1	4.0	3.1	6.5	14.3
Saturated fat (g)	0.9	1.9	10.8	12.7	0.5	2.1	1.9	2.2	2.1
Vitamin B-6 (mg)	0.7	0.3	0.3	0.3	0.1	0.2	0.0	0.2	0.1

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Table I (Continued)

	Roast chicken	Roast pork	Curried beef	Curried chicken	Rice and peas	Steamed fish	Punch	Oxtail stew	Stewed fish
Total folate (mcg)	17.0	5.2	14.6	12.2	156	7.2	6.2	16.4	10.4
Folate, DFE (μ g DFE)	23.7	2.6	13.0	9.5	219	5.2	5.2	0.9	4.5
Vitamin B-12 (μ g)	0.5	0.6	1.7	0.2	0.0	0.5	0.2	1.6	0.4
Vitamin C (mg)	1.7	0.7	3.1	4.4	0.0	2.8	4.7	0.7	2.4
Vitamin E (a-tocopherol) (mg)	0.2	0.2	0.4	0.1	0.1	0.3	0.1	0.2	0.2
Calcium (mg)	17.5	9.4	34.9	20.4	32.1	13.3	119	18.0	10.4
Iron (mg)	1.4	1.2	2.4	1.3	2.5	0.3	0.1	2.1	0.3
Zinc (mg)	1.1	2.3	3.7	1.4	0.9	0.3	0.3	3.3	0.3
Selenium (mcg)	25.0	6.2	10.8	10.6	7.3	19.7	4.5	1.6	15.6
% Calories from protein	63.1	65.5	29.2	30.4	11.9	51.4	9.5	24.6	20.7
% Calories from carbohydrates	12.7	4.5	11.6	8.1	83.1	5.5	59.3	58.6	3.6
% Calories from fat	24.2	30.1	59.2	61.5	5.1	43.1	22.5	16.8	75.8

DFE: Dietary folate equivalent.

Discussion and conclusions

To our knowledge, there is very limited nutritional composition data available for commonly consumed composite dishes among British Afro-Caribbeans. There have been no studies to date that collected weighed recipes and calculated the nutritional composition of commonly consumed composite dishes by the British Afro-Caribbeans. For this reason, the nutritional composition data we present may contribute to the widening of the British food composition data and will play an important role in assessing the dietary intake of British Afro-Caribbeans. As previously described, this population consumes a mixed diet of West Indian foods and typical British foods (Sharma et al. 2002). Therefore, it is of importance to have culturally specific nutritional composition data of foods/dishes commonly consumed by this population rather than using that for the general British population or US population.

Although one previous study has reported the nutrient content of some commonly consumed prepared dishes in Jamaica population, it did not provide nutritional composition of the composite dishes for the Jamaican population in the United Kingdom (Samuda et al. 1998). Furthermore, the ingredients and methods of preparation are different and thus the nutritional composition of the dishes varies, although some composite dishes/drinks in our study have the same name as those in the previous studies or in the USDA food composition database. For example, rice and peas reported by the Jamaican population in Jamaica had rice, kidney beans, coconut milk, salt, thyme, scallion and/or margarine, pimento seeds, onion, and sugar; however, rice and peas reported by British Afro-Caribbeans in our study consisted of white rice, kidney/black eyed beans and/or coconut cream and onions (Samuda et al. 1998). The former, per 100 g, had 201 kcal, 41.1 g carbohydrates and 1.1 g fat. The latter, per 100 g, had 155 kcal, 30.0 g carbohydrates and 2.0 g fat (Samuda et al.

Table II. Nutritional composition (per 100 g) of commonly consumed composite dishes by British Afro-Caribbeans (AFC) (mainly Jamaicans) compared with dishes from the USDA National Nutrient Database, the Barbados National Cancer Study and the British Food Composition Tables.

	AFC fried dumpling	British ^a dumpling	Barbados ^b dumpling	AFC fried fish	USDA ^c fried fish	Barbados ^b fried flying fish	AFC roast chicken	USDA ^c roast chicken	British ^a roast chicken	AFC roast pork
Number of recipes collected	4	–	5	1	–	5	1	–	15	1
Energy (kcal)	281	208	212	166	232	284	198	165	216	123
Energy (kJ)	1174	871	886	696	971	1187	829	690	902	512
Protein (g)	6.2	2.8	5.1	13.5	14.7	18.2	30.1	31.0	22.6	20.1
Carbohydrates (g)	47.9	24.5	43.9	1.8	17.0	15.3	6.1	0.0	0.0	1.2
Sugars (g)	6.5	0.4	2.0	1.3	n/a ^d	2.3	0.3	0.0	0.0	0.6
Total dietary fiber (g)	1.7	1.0	2.5	0.5	0.5	1.4	0.3	0.0	0.0	0.3
Fat (g)	1.0	11.7	0.6	11.5	12.3	16.6	5.0	3.6	14.0	4.1
Saturated fat (g)	3.0	6.4	0.1	1.5	2.8	2.2	0.9	1.0	4.2	1.9
Vitamin B-6 (mg)	0.0	0.03	0.1	0.2	0.1	0.3	0.7	0.6	n/a	0.3
Total folate (µg)	97.0	3.0	1.0	14.5	17.0	9.3	17.0	4.0	n/a	5.2
Folate, DFE (µg DFE)	146	n/a	n/a	11.7	20.0	5.7	23.7	4.0	n/a	2.6
Vitamin B-12 (mcg)	0.0	Tr ^e	16.9	0.8	1.1	15.3	0.5	0.3	Tr ^e	0.6
Vitamin C (mg)	0.0	0.0	0.7	3.1	0.0	6.4	1.7	0.0	0.0	0.7
Vitamin E (α-tocopherol) (mg):	0.0	0.1	0.1	6.9	n/a	0.1	0.2	0.3	n/a	0.2
Calcium (mg)	214	52.0	66.1	28.5	18.0	81	17.5	15.0	9.0	9.4
Iron (mg)	3.0	0.6	1.9	0.8	2.1	1.9	1.4	1.0	0.8	1.2
Zinc (mg)	0.4	0.2	0.7	0.3	0.4	0.5	1.1	1.0	1.4	2.3
Selenium (µg)	21.7	1.0	12.4	21.3	9.1	79.9	25.0	27.6	6.0 ^f	6.2
% Calories from protein	9.0	5.0 ^g	9.6	32.6	25.3 ^g	25.7	63.1	75.2 ^g	41.9 ^g	65.5
% Calories from carbohydrates	69.3	47.0 ^g	81.9	4.8	29.3 ^g	21.6	12.7	0 ^g	0 ^g	4.5
% Calories from fat	21.7	50.6 ^g	8.5	62.6	47.7 ^g	52.7	24.2	19.6 ^g	58.3 ^g	30.0

Table II (Continued)

	USDA ^c roast pork	British ^a roast pork	AFC West Indian soup	USDA ^c vegetable beef soup	AFC fried chicken	USDA ^c fried chicken	AFC rice and peas	Barbados ^b rice and peas	Jamaica rice and peas ^f
Number of recipes collected	–	15	2	–	2	–	1	5	10
Energy (kcal)	226	286	79	32	356	267	201	102	155
Energy (kJ)	946	1190	331	134	1490	1118	840	428	650
Protein (g)	28.8	26.9	2.9	2.3	23.9	25.1	5.9	2.4	4.3
Carbohydrates (g)	0.0	0.0	8.9	4.2	5.3	5.6	41.1	20.4	30.0
Sugars (g)	0.0	0.0	0.5	0.5	0.1	0.0	0.6	0.6	n/a
Total dietary fiber (g)	0.0	0.0	0.9	0.2	0.3	0.3	2.6	1.3	4.6
Fat (g)	11.4	19.8	3.6	0.8	25.9	16.1	1.1	1.1	2.0
Saturated fat (g)	4.2	7.3	1.3	0.4	6.6	4.2	0.5	0.4	n/a ^d
Vitamin B-6 (mg)	0.4	0.3	0.1	0.0	0.4	0.4	0.1	0.1	n/a
Total folate (µg)	8.0	6.0	7.5	4.0	11.4	5.0	156	31.6	n/a
Folate, DFE (µg DFE)	8.0	n/a	5.7	4.0	11.4	n/a	219	47.1	n/a
Vitamin B-12 (mcg)	0.6	1.0	0.3	0.1	0.4	0.3	0.0	3.0	n/a
Vitamin C (mg)	0.4	0.0	3.1	1.0	3.3	0.0	0.0	5.7	n/a
Vitamin E (a-tocopherol) (mg)	n/a	0.03	0.2	0.1	0.0	0.2	0.1	0.1	n/a
Calcium (mg)	5.0	10.0	8.5	7.0	15.5	13.0	32.1	27.3	30.0
Iron (mg)	0.8	1.3	0.4	0.5	1.5	0.9	2.5	1.2	0.6
Zinc (mg)	2.2	2.9	0.6	0.6	2.2	0.9	0.9	0.4	Tr ^c
Selenium (µg)	45.8	14.0	2.0	1.8	19.5	16.3	7.3	3.1	n/a
% Calories from protein	51.0 ^g	37.6 ^g	14.6	28.8 ^g	27.2	37.6 ^g	11.9	9.6	11.1 ^g
% Calories from carbohydrates	0 ^g	0 ^g	44.7	52.5 ^g	6.0	8.4 ^g	83.1	80.8	77.4 ^g
% Calories from fat	45.4 ^g	62.3 ^g	40.5	22.5 ^g	66.8	54.3 ^g	5.1	9.6	11.6 ^g

Table II (Continued)

	AFC curried beef	British ^a beef curry	AFC curried chicken	British ^a chicken curry	AFC steamed fish	Barbados ^b steamed fish	AFC punch	USDA ^c punch
Number of recipes collected	1	6	1	–	1	5	1	–
Energy (kcal)	163	137	187	205	85	78	119	37
Energy (kJ)	681	575	782	850	357	327	499	155
Protein (g)	12.0	13.5	14.1	10.2	10.8	7	2.8	0.0
Carbohydrates (g)	4.8	6.3	3.6	3.1	1.1	4	18.1	9.5
Sugars (g)	4.9	n/a ^d	2.5	n/a	0.6	1.9	17.9	9.5
Total dietary fiber (g)	1.8	n/a	1.0	1.0	0.3	0.8	0.1	0.0
Fat (g)	1.4	6.6	0.8	1.6	4.0	3.1	3.1	0.0
Saturated fat (g)	10.8	3.1	12.7	17.0	2.1	0.7	1.9	0.0
Vitamin B-6 (mg)	0.3	0.2	0.3	0.2	0.2	0.2	0.0	0.0
Total folate (µg)	14.6	n/a	12.2	15.0	7.2	1.8	6.2	0.0
Folate, DFE (µg DFE)	13.0	n/a	9.5	n/a	5.2	1.3	5.2	0.0
Vitamin B-12 (µg)	1.7	n/a	0.2	1.9	0.5	8.4	0.2	0.0
Vitamin C (mg)	3.1	Tr ^e	4.4	2.0	2.8	9.2	4.7	11.8
Vitamin E (a-tocopherol) (mg)	0.4	0.6	0.1	3.8	0.3	0	0.1	n/a
Calcium (mg)	34.9	n/a	20.4	24.0	13.3	29.1	119	16.0
Iron (mg)	2.4	n/a	1.3	1.9	0.3	0.7	0.1	0.1
Zinc (mg)	3.7	n/a	1.4	0.8	0.3	0.2	0.3	0.0
Selenium (µg)	10.8	n/a	10.6	3.0	19.7	35.5	4.5	0.1
% Calories from protein	29.2	39.4 ^g	30.4	19.9 ^g	51.4	39.0	9.5	0 ^g
% Calories from carbohydrates	11.6	18.4 ^g	8.1	6.0 ^g	5.5	22.5	59.3	100.0 ^g
% Calories from fat	59.2	43.4 ^g	61.5	74.6 ^g	43.1	38.5	22.5	0 ^g

^aHolland et al. (1991). ^bSharma et al. (2007). ^cUSDA (2005). ^dNot available. ^eTrace. ^fSamuda PM et al. 1998. ^gCalculated value using the formula: % calories from protein = ((g protein × 4) / total calories × 100); % calories from carbohydrate = ((g carbohydrate × 4) / total calories × 100); % calories from fat = ((g fat × 9) / total calories × 100). DFE: Dietary folate equivalent.

Table III. Description of commonly consumed composite dishes among British Afro-Caribbeans (mainly Jamaicans).

Name of dish	Description
Ackee and saltfish	A fried dish cooked with saltfish, vegetables and Ackee. Ackee is an oily fruit. It is the national dish of Jamaica.
Callaloo and saltfish	A dish cooked with boiled salted cod and fried onions and callaloo (amaranth leaves).
Cornmeal porridge	A mixture of cornmeal, milk, sugar and water cooked. Cinnamon, nutmeg and salt can be added into the porridge.
Curried beef	Beef is marinated in vinegar and then rinsed. Vegetables and curry sauce are added to the beef and then boiled down with butter.
Curried chicken	Chicken is marinated in vinegar and then rinsed. Fried with curry powder seasoning, onion and tomato.
Curried mutton	Fried mutton cooked with onions, curry powder, coconut cream, chili powder and other seasoning.
Fried chicken	Chicken coated with flour then deep-fried with pepper, salt, garlic granules and chili powder.
Fried dumpling	A fried flour-based dumpling without any filling.
Fried fish	Pan-fried haddock onions and tomato.
Oxtail stew	Oxtail is boiled with beans. Onions, coconut cream and corn flour is added to the oxtail to be boiled down to a thick sauce. May be eaten with dumplings.
Punch	A commonly consumed drink made from carrot juice, condensed milk, dark beer (stout), whole milk, nutmeg and vanilla essence.
Rice and peas	A mixed dish of white rice and gunga (pigeon) peas (or kidney beans or black eyed peas). Coconut cream and onions may also be added.
Roast chicken	Chicken is seasoned in tomato sauce, soy sauce and curry powder and coated in flour then pan-fried before being roasted in the oven.
Roast pork	Pork leg roasted with onions, tomato sauce, and soy sauce.
Saltfish fritters	Mashed saltfish, onions and green onions are added into a flour batter and fried.
Steamed fish	Raw fish (usually hake) is steamed with onions, tomato, garlic and butter. Lemon juice is added when fish is almost done.
Stewed fish	A stew dish with salted cod, onions, tomatoes and eggplant.
West Indian soup	A thin stock soup made with beef, pork, mixed vegetables (onions, potatoes, yam, parsnip, turnip, carrots, pumpkin and cho cho (Christophene) and macaroni. Ingredients may vary according to availability.

1998). Home-made Afro-Caribbean punch is made of carrot juice, condensed sweetened milk, stout and whole milk. Per 100 g, it has 119 kcal, 18 g carbohydrates and 3 g fat (USDA 2005). On the other hand, punch in the United States tend to be characterized as sweetened drinks that are either pre-made or made by adding water to a powdered substance. Punch from the USDA database yields 37 kcal, 10 g carbohydrate and 0 g fat per 100 g (USDA 2005). There was no item labeled 'punch' in the British food composition table (Holland et al. 1991). Another example is found in the differences between fried fish. Fried fish in the USDA database as well as our previous Barbados study were both breaded (USDA 2005; Sharma et al. 2007). Conversely, Afro-Caribbean fried fish (haddock) was not breaded but rather generally cooked with onions and tomatoes. This highlights the importance of obtaining culturally specific nutritional composition table for a more accurate assessment of dietary intake for British Afro-Caribbeans.

Although the best method of obtaining nutritional composition data is the biochemical analysis of each dish (Greenfield and Southgate 2003), this was beyond the financial resources of the project. We calculated the nutritional composition using

weighed recipes as used by other researchers and our previous studies (Sharma et al. 1996, 2007, 2008; Bogнар and Piekarski 2000; Hakala et al. 2003).

Nutritional composition data obtained from calculated weighed recipes were compared with values of biochemical analyses, and the results showed that these two methods produced reasonable agreement (Porrini et al. 1986; Boulous et al. 1996). Porrini et al. (1986) reported that the data of macronutrients were reliable, but less reliable for vitamins. Boulous et al. (1996) and Porrini et al. (1986) discussed that the slight discrepancies found in vitamins may be attributed to variations in food composition tables as well as nutrient modifications that could have occurred during the cooking process.

A limitation of this study is that we were unable to account for any vitamin loss during the cooking process. In addition, we were not able to account for any discrepancy in nutritional composition of each dish due to the difference in soil content between the United States and the United Kingdom. While we appreciate the number of recipes is limited, we hope others will build on this necessary data.

We have provided for the first time the nutritional composition data of 18 commonly consumed composite dishes among Afro-Caribbeans residing in the United Kingdom. These culturally specific nutritional composition data may contribute to existing British food composition tables and are essential in accurately assessing dietary intake and in determining associations between diet and chronic diseases among this population.

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