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Food in confinement socio-educational units in a southeastern Brazilian capital: nutritional adequacy of the established meal standard

Alimentação em unidades socioeducativas em regime de internação de uma capital do sudeste brasileiro: adequação nutricional do padrão estabelecido para as refeições

Abstract

Introduction: Adolescence is characterized by significant physical and psychosocial changes that necessitate a balanced diet, particularly in environments with limited autonomy, where access to adequate meals is essential. *Objective*: To evaluate the nutritional adequacy of the established meal standard for Socio-educational Confinement Units in the capital of the Brazilian Southeast Region. *Methods*: A cross-sectional study on 30 menus (180 meals), organized based on the established meal standard for the Units (specified foods, monthly frequencies, quantities, and times). A descriptive analysis was performed, including the categorization of foods according to the NOVA classification's degrees of processing and a comparison with the nutritional recommendations (energy, macro and micronutrients) from the Institute of Medicine for the target audience. *Results*: Ultra-processed foods are present in 26.3% of meals, such as the afternoon snack and dinner, where the presence of this food group reaches 50% of the menus. Fresh and minimally processed foods make up 47.6% of the meals and are exclusively offered at the mid-morning snack. The levels of energy, fiber, calcium, iron, and sodium exceeded the recommendations on all menus. There was an excessive range of lipids (35.15%) on one menu. *Conclusions*: The consumption of ultra-processed foods and the inadequate intake of the nutrients evaluated can lead to health problems, such as excessive weight gain and an increased risk of developing NCDs. Therefore, the established meal standard needs to be reformulated, prioritizing fresh and minimally processed foods and meeting the nutritional needs of this life stage.

Keywords: Adolescents. Institutionalized Adolescents. Collective Feeding. Healthy Eating. Nutritional Recommendations.

Resumo

Introdução: A adolescência é marcada por alterações físicas e psicossociais importantes que demandam uma alimentação saudável, especialmente em condição de restrição de liberdade, na qual refeições adequadas precisam

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ser garantidas. *Objetivo*: Avaliar a adequação nutricional do padrão estabelecido para as refeições de Unidades Socioeducativas em regime de internação de uma capital da Região Sudeste brasileira. *Métodos*: Estudo transversal sobre 30 cardápios (180 refeições), organizados a partir do padrão estabelecido para as refeições das Unidades (alimentos, frequências mensais, quantidades e horários determinados). Efetuou-se análise descritiva contemplando a categorização dos alimentos segundo os graus de processamento da classificação NOVA e a comparação com as recomendações nutricionais (energia, macro e micronutrientes) do Institute of Medicine para o público-alvo. *Resultados*: Os alimentos ultraprocessados estão presentes em 26,3% das refeições, como o lanche da tarde e a ceia, em que a presença desse grupo de alimentos alcança 50% dos cardápios. Os alimentos *in natura* e minimamente processados compõem 47,6% das refeições, sendo ofertados de forma exclusiva na colação. Os teores de energia, fibras, cálcio, ferro e sódio ultrapassaram as recomendações em todos os cardápios. Houve oferta excessiva de lipídios (35,15%) em um cardápio. *Conclusões*: O consumo de ultraprocessados e o aporte inadequado dos nutrientes avaliados podem trazer prejuízos à saúde, tais como ganho excessivo de peso e aumento do risco de desenvolver DCNTs. Assim, o padrão estabelecido para as refeições precisa ser reformulado, priorizando alimentos *in natura* e minimamente processados e o atendimento às necessidades nutricionais desse ciclo da vida.

Palavras-chave: Adolescentes. Adolescente Institucionalizado. Alimentação Coletiva. Alimentação Saudável. Recomendações Nutricionais.

INTRODUCTION

The Sistema Nacional de Atendimento Socioeducativo (SINASE - National Socio-educational Service System), instituted and regulated by Law No. 12,594,[1] is a Brazilian public policy that aims to promote and defend the fundamental rights of adolescents between 12 and 17 years old and young people up to 21 years old (in cases specified by Law) who have committed an infringeable act. Depending on the severity of the act, the adolescent may receive a warning, be required to repair the damage caused, perform community service, or be placed under assisted freedom, semi-freedom, or confinement in an educational facility.[1] The socio-educational confinement measure is the most severe, as it deprives the adolescent of their freedom and is governed by the principles of brevity, exceptionality, and respect for their unique condition as a developing person.[1]

Each Brazilian state is responsible for implementing its own Socio-educational Service Plan/Program, establishing parameters for the application of socio-educational measures in accordance with the Plano Nacional (National Plan).[2] Its objectives include breaking the adolescent's infractional trajectory, reintegrating them into society, and protecting their rights during the period of compliance with the measure.[2]

The state of São Paulo (SP) has the most socio-educational confinement and deprivation of liberty units in Brazil, followed by the state of Minas Gerais (MG). Both serve 42.3% and 6.7%, respectively, of the 11,556 adolescents serving a socio-educational measure in the country in 2023.[3] About 63.8% of this national population identifies as brown/black, a large majority is male (95.8%), and 75.1% of these boys were in confinement.[3]

Adolescence is a period marked by significant changes. The physical, biological, and psychosocial development at this stage underscores the importance of a balanced and healthy diet.[4] This, in addition to meeting the energy and nutrient demands of the target audience, needs to consider the local food culture and good cultivation and manufacturing practices.[5]

Adequate food is also a right that must be guaranteed, regardless of the adolescent's race, color, sex, age, and condition. It is contemplated in the Direito Humano à Alimentação Adequada (DHAA - Human Right to Adequate Food), in the 1988[6] Constitution of the Federative Republic of Brazil, and in the Estatuto da Criança e do Adolescente (ECA - Statute of the Child and Adolescent).[1] However, complaints point to irregularities in the food provided to institutionalized adolescents throughout Brazil,[7-15] which suggests the need for monitoring these meals, given their implications for the health of the individuals served.[16]

In Sergipe, the food observed was insufficient, of low quality, and with limited variety, in addition to a long fasting period (about 16 hours) between the last meal of one day and the first of the next.[7] In Santa Catarina, the low quality and quantity of animal protein served, in addition to the altered taste of the beverages, are accused in complaints.[8] In Mato Grosso, the quantity of food served was pointed out as insufficient, leading to weight loss in both male and female populations, in addition to reports of insects and stones in the meals.[9] In Amapá, the lack of variety or absence of leafy greens and vegetables was the main point highlighted about the diet of adolescents serving a socio-educational measure.[10]

Furthermore, a study conducted in a male Educational Center for socio-educational confinement in Piauí (PI) found, in the menus offered during one week, an excessive supply of energy and carbohydrates, in addition to inadequacy in all evaluated micronutrients (copper, zinc, iron, calcium, magnesium, and vitamins A and C), with the exception of sodium (limítrofe).[11] In addition, in a study with adolescents deprived of liberty in Porto Alegre, a significant reduction in the percentage of adolescents in eutrophy was identified after six

months of evaluation (58.4% vs 85.7% in the initial evaluation). The prevalence of overweight and obesity, in turn, increased from 9.09% to 41.6%.[12]

There is also evidence of inadequacies in the Southeast Region, with indications of an insufficient supply of food for the adolescent age group in MG[11] and SP,[12] irregularities in food quality in SP[12] and Rio de Janeiro (RJ),[13] and the absence of a supper and prolonged fasting time (14 hours between the last and first daily meals) in RJ.[13]

Given this problem and the scarcity of studies on the topic, this article aims to evaluate the nutritional adequacy of the established meal standard served in Socio-educational Confinement Units in the capital of the Brazilian Southeast Region.

METHODS

This is a cross-sectional study that examines the standard established for meals at Centros Socioeducativos (Socio-educational Centers - CS) in confinement in the capital of the Brazilian Southeast Region in 2024. This capital has five CS in confinement, with four for male populations and one for female and transgender populations.[2]

The established meal standard is developed in a public partnership (co-management) with a Organização da Sociedade Civil de Interesse Público (Civil Society Organization of Public Interest - OSCIP) and outlines the foods, specifications, monthly preparation frequencies, and quantities that the contracted institution must follow for meal provision, as shown in Chart 1. Table 1 presents the times of the six meals and their respective compositions. It should be noted that these data (Chart 1 and Table 1) were requested through the Sistema Eletrônico do Serviço de Informação ao Cidadão (Electronic Citizen Information Service System, e-SIC), using the Lei de Acesso à Informação. (LAI). (Access to Information Law)[17]

Chart 1. Established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil, containing foods, specifications, monthly frequencies, and final per capita (2024).[a,b,c,17]

STANDARD MEALS Grammages, incidences and nutrients						
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Main dish						
Denomination	Meat type	Cut type	Preparation	Specification	Incidence	*Cooked final Per capita* (g)
Beef	Shoulder steak	steak	Grilled /fried	with onions	4	100
				Pizza style		
				Milanese (breaded)		
	Muscle	Cube/minced/strips	Stewed/stir-fried	with onions	2	
	Beef chuck					
	Flank steak	Cube/strips	stewed	Roll	2	
				in a pan		
	ribs	boneless	Roasted/stewed	with onions	1	
	silverside	Strips/cubes	stewed	with onions/ in a pan	2	
pork	Pork neck	Steak/strips	Grilled/fried	With onions	2	100
		Cubes	stewed	with onions/in a pan		
	Feijoada parts(ear, foot,	Fractionated	Feijoada	-	1	

	Pork sausage, jerky, bacon, pork)					
	Pork leg	chopped	roasted	Sauce/with onions	1	
Poultry	Chicken: thigh and drumstick	Sliced boneless	stewed	Sauce(thigh)	1	100
			Roasted	With onions	2	
	Chicken breast fillet	Steak/strips/cubes	Grilled/fried	Milanese/with onions	2	
			stewed	Stroganoff	2	
Egg	-	whole	Cooked/fried	whole	2	100
				Omelet		
				Stuffed pancake		
				scrambled		
Processed meats	sausage	-	Roasted/fried/stewed	With onions	1	100
	Hamburger					
	Steak			À parmigiana		
	meatball			in sauce		
Fish	Hake fillet	Fillet	Fried	the doré/Milanese	2	100

Salads				
Denomination	Preparation	Specification	Incidence	Final quantity (g)

Leafy	Raw chopped	Chard		30
		Kale	10	
		Wild chicory(Brazilian almeirão)	4	
		Lettuce (crisp/American/plain)		
		Mustard greens		
		Watercress		
		curly endive (Brazilian chicory)		
		Arugula		
		Spinach	6	
Vegetables	Raw grated	Beet		40
		Carrot		
	Raw chopped	turnip		60
		Radish	8	
		Tomato	5	
		Vinaigrette (tomato, onion and pepper) *(R.A)	2	

	Cooked chopped	Squash		45
		zucchini		
		Parsnip		
		Potato		
		Beet		
		Broccoli		
		Carrot		
		Chayote		
		Cauliflower		
		Peas		
		Green corn		
		Peas		
Fruits	Peeled and chopped,	orange	14	45
		watermelon		
Composed	-	Chicken salad	1	80
Side dish				

Denomination	Preparation	Specification	Incidence	*Cooked final Per capita*
Pasta	Macaroni	Bolognese	7	120
		Garlic and oil		
		Parisian style		
		Four cheeses		
		Sugo		
		With sausage		
	Lasagna	Bolognese	1	120
		ham		
		Four cheeses		
		Chicken		
Diverse	Puree	Cassava	14	100
		Carrot		
		Parsnip		
		Potato		
		Pumpkin		
		Mixed		
	Stewed	Chayote/potato/carr		100

		ot/parsnip/cassava/ pumpkin/yam/zucchini		
	Vegetable jardiniere /mixed vegetables// vegetables panache	Various vegetables		100
	Sautéed	cassava		100
		Carrot		
		English potato		
		Sweet potato		
	Roasted	English potato		100
	Braised	Chayote		100
		Kale		
		Wild chicory(Brazilian almeirão)		
		okra		
		Chard		
		Mustard greens		
		Broccoli		
		Green beans		
		Arrow leaf Elephant Ear		

	Breaded	Cauliflower		100
		Banana		
		Eggplant		
	Steamed	Broccoli		100
		Cauliflower		
		Green beans		
	Soufflé	Chayote		80
		Cauliflower		
		Vegetables (pie)		
	Fried	English potato		80
		Cassava		
		Sweet potato		
		Banana		
Flour-based	Angu/polenta	In sauce/Bolognese	2	80
	Farofa/virado	Carrot		
		Kale		
		Eggs/banana		
Rice				

Denomination	Type	Preparation	Incidence	Cooked quantity (g)
Arroz	long-grain	Simple	30	300
Beans				
Denomination	Type	Preparation	Incidence	Cooked quantity (g)
Beans	Black	Composed (for feijoada)	1	150
	Carioca type 1	Simple	27	
		Tropeiro	1	
		Tutu*	1	
Desserts				
Denomination	Composition		Incidence	Quantity (g)
Seasonal fruits	Cavendish banana		3	40
	orange		2	180
	apple		2	130
	Papaya		1	120
	Watermelon		1	120
Sweet	Bananada		16	20
	Dulce de leche			
	peanut brittle			

	Paçoca		
	Creams (cornstarch pudding)		
	Prepared Gelatin		
	Rice-pudding		
	Puddings	5	80

Beverages				
Denomination	Preparation	Specification	Incidence	Quantity (mL)
Whole milk	-	-	30	200
Coffee	Infusion	-	30	100
Milk with chocolate milk powder	Mixture of ingredients	Whole milk with chocolate milk powder	30	300
Artificial juice	Dilution of powdered drink mix in water	-	30	300

Breads				
Denomination	Preparation	Specification	Incidence	Quantity (g)
French bread	Unit	-	30	50
Simple sweet bread	Unit	-	30	50

Various (for breakfast, afternoon snack, festive snack)				
Denomination	Preparation	Specification	Incidence	Quantity (g or mL)

Margarine	-	-	30	10
Luncheon meat	-	-	30	15
Mozzarella	-	-	30	15
Simple cake	Simple (cornmeal, orange, carrot, chocolate or coconut)	-	30	80
Sausage in sauce	Cooking	-	7	60
Soda	-	-	7	300
Cake with frosting	Simple cake with added frosting	-	7	80
Culinary ingredients				
Denomination	Preparation	Specification	Incidence	Quantity (g or mL)
Salt	-		30	5
Oil/fat	40% in the preparation of rice and beans, 20% in the main dish, 20% in the side dish, and 20% in other preparations	oil	30	16

[a] Quantity in grams of banana, orange, and apple (medium size) obtained from the Table for Evaluation of Food Consumption in Household Measures

[b] Recommendation not exceeding 10% of oil in each meal, namely, of the total of 100% (40% for the preparation of rice and beans, 20% for the main dish, 20% for the side dish, and 20% for the other meals)

[c] The grammage of watermelon is without the rind; of papaya is without the rind and seeds

Table 1. General meal structure of Socio-educational Confinement Centers in a capital of southeastern Brazil, containing the foods and quantities recommended in the established meal standard. Belo Horizonte, Minas Gerais, 2024[a,17]

Meal	Food/preparation	Quantity
Breakfast (06:00)	French bread or simple sweet bread	50 grams (unit)
	Margarine	10 grams
	Coffee	100 mL
	Milk	200 mL
Mid-morning snack (09:30)	Fruit	1 unit of banana, apple or orange; or 120 grams of papaya or watermelon
Lunch (12:00) / Dinner (18:00)	White rice	300 grams
	Beans	150 grams
	Main dish (meat, eggs, or processed meat)	100 grams
	Side dish	120 grams of pasta; or 100 grams of various preparations, such as purees and prepared vegetables; or 80 grams of fried foods, soufflé, angu, polenta, farofa or virado
	Salad (leafy greens)	30 grams
	Salad (vegetables)	40 grams of raw grated vegetables; or 60 grams of raw chopped vegetables; or 45 grams of cooked vegetables; or 80 grams of salpicão (chicken salad)
	Dessert (fruit or sweet)	1 unit of banana, apple, orange; or 120 grams of papaya, or watermelon; or 20 grams of candy tablets; or 80 grams of moist/pasty sweets
	Beverage prepared with powdered drink mix	300 mL
Afternoon snack (15:00)	French bread or simple sweet bread	50 grams (unit)
	Margarine	10 grams
	Luncheon meat	15 grams (slide)
	Mozzarella cheese	15 grams (slice)
	Simple cake	80 grams (slice)
	Beverage prepared with powdered drink mix	300 mL
Supper (21:00)	French bread or simple sweet bread	50 grams (unit)
	Margarine	10 grams
	Milk with chocolate milk powder	300 mL

[a] In the last week of the month, the afternoon snack is changed, consisting of 50 grams of French bread or simple sweet bread, 60 grams of sausage in sauce, 300 mL of soda, and 80 grams of cake with frosting.

To cover a month of food supplied to adolescents, the researchers prepared 30 possible menus based on the established meal standard (Supplement 1).

The menus were organized according to the structure outlined in Table 1 and considering the indications of quantity and monthly frequency of foods available in the established meal standard (Chart 1). However, since the indicated frequencies of meats and eggs, side dishes, and fruits for the mid-morning snack were incomplete, not totaling thirty days, a proportion was calculated for the missing data using a simple rule of three and rounding to whole numbers. Additionally, when necessary, the consumption of the Brazilian population as indicated in the POF 2017/2018, was considered to define the greater or lesser supply/frequency of a given food on the menu.[18]

For the mid-morning snack, bananas were used on ten of the 30 days; oranges and apples were used on seven days each; papaya and watermelon were used on three days each.

As a main dish, six cuts of beef are indicated (chuck roll, muscle, neck, flank steak, ribs, and outside flat); pork cuts of copa lombo (pork neck), feijoada parts, and pork leg; chicken thigh, drumstick, and breast; eggs; sausages/processed meats (linguiça, hamburger, steak, meatball); and hake fillet as fish meat. For the preparation and calculation of the menus, the adjusted frequency of beef was considered to be 12 days per month; poultry meat, 8 days; pork, 5 days; eggs, 2 days; hake fillet, 2 days; and linguiça, 1 day. Eggs are consumed more than pork among the Brazilian population, but the decision was made to follow the frequency indicated in the established meal standard. The processed meat most commonly consumed among Brazilians is sausage.[18]

In the calculations for the side dish, pasta (macaroni and lasagna) was included on 10 of the 30 days. On 18 days, various preparations were used, as indicated in the established meal standard, such as purees, stewed vegetables, steamed, sautéed, roasted, à Milanese, stir-fried or fried, and soufflés. Of the tubers and vegetables chosen, those with the highest consumption by the Brazilian population were used, with a focus on English potato, cassava, and carrot.[18] Flours (angu /polenta and farofa/flour mix) were considered for two days.

For desserts, the menu calculations were performed as indicated, consisting of banana, on three of the 30 days; orange and apple, on two days each; watermelon and papaya, on one day each; bananada (banana jam), dulce de leche, peanut brittle, and paçoca (peanut sweet), on four days each; cornstarch cream, on two days; gelatin, rice pudding, and milk pudding, on one day each.

For salads, nine leafy vegetables can be used (chard, cabbage, wild chicory, lettuce, mustard greens, watercress, chicory, arugula, or spinach). The frequencies available in the established meal standard were considered for the calculations, determining for the menus lettuce, on ten days; chard and cabbage, on five days each; wild chicory, on four days; arugula, on two days; mustard greens, watercress, chicory, and spinach, on one day each.

As for vegetables, tomato was considered on five days; vinaigrette, beet, carrot, turnip, and raw radish were considered on two days each; cooked green beans, on two days; and pumpkin, zucchini, parsnip, English potato, beet, carrot, broccoli, chayote, cauliflower, peas, and cooked corn on one day each. In two menus, oranges and watermelon were considered as salad components.

The grammages of the fruits were obtained from the Table for Evaluation of Food Consumption in Household Measure,[19] and the values of available carbohydrate, protein, lipid, fiber, calcium, iron, and sodium were obtained from the Brazilian Food Composition Table (TBCA).[20] Since the established meal standard does not indicate the quantities of salt and oil to be used, the maximum recommendation of five grams of salt[21]

and 16 mL of oil[22] per menu was adopted for calculations, considering 20% of these quantities for each preparation, defining this percentage for rice, beans, main dish, side dish, and others. When the food available in TBCA[20] already contained added salt and/or oil, this addition was discounted. The calories of each of the 30 elaborated menus were calculated by summing the results of multiplying the total carbohydrates and proteins of the respective menu by 4 kcal and lipids by 9 kcal.[23]

The nutritional adequacy of the established meal standard was observed by comparing the averages obtained in the 30 menus prepared by the researchers with the nutritional guidelines for sex and age group from the Institute of Medicine and the National Academies of Sciences, Engineering, and Medicine.[23-25]

As a reference for energy, an average was calculated from the *Estimated Energy Requirement* (EER)[23] values for boys and girls aged 12 to 17, considering the suggested variabilities as minimum and maximum ranges. An inactive physical activity factor (NAF) was adopted, given that the practice of physical exercises and collective activities in the CS (two to three times a week, with a minimum duration of 50 minutes per class)[2,26] falls into this classification by the IOM.[23]

For macronutrients, the Acceptable Macronutrient Distribution Ranges (AMDR) were adopted, while for fiber, the Adequate Intake (AI) values were considered. For the micronutrients calcium and iron, the values were compared to the Estimated Average Requirements (EAR), Recommended Dietary Allowances (RDA), and Tolerable Upper Intake Levels (UL). The Chronic Disease Risk Reduction Intakes (CDRR) parameter was used for sodium. Due to the 12- to 17-year-old age group encompassing two stages (9 to 13 years and 14 to 18 years) as per the recommendations, the average of the menus was compared with the reference values for both ranges separately. The choice of these nutrients was based on their importance for the physical development of adolescents and their implications for both current and future health during this life stage.[4,21]

The food and preparations in the established meal standard were separated and quantified according to the NOVA classification.[5] Categories included fresh and minimally processed foods, culinary preparations/processed culinary ingredients, processed foods, and ultra-processed foods. The flowchart proposed by Botelho et al.[27] assisted in this classification. Preparations such as rice, beans, eggs, and meats (except sausage) were classified as fresh and minimally processed.

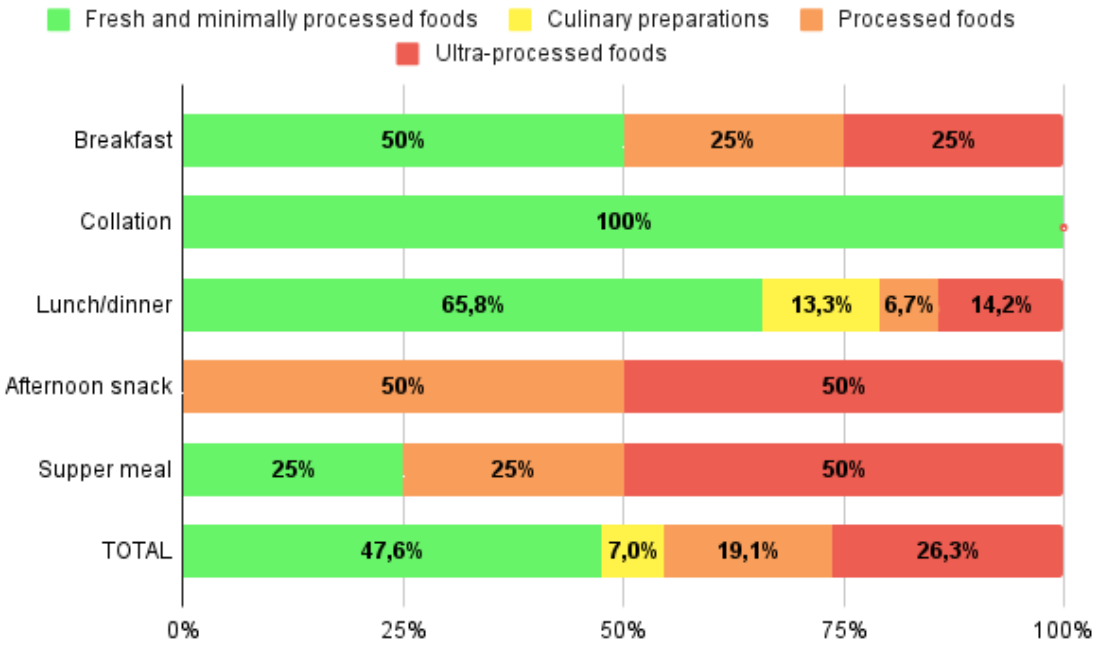
The data collected were organized using Microsoft Office Excel 2019® software, and descriptive statistical analysis was performed using IBM Statistical Package for the Social Sciences version 21 software. After applying the Shapiro-Wilk test, at a significance level of 0.05. The data were presented through measures of central tendency and dispersion, as well as absolute and relative.

Since the established meal standard was obtained through the Access to Information Law (LAI),[17] approval of the study by the Ethics Committee accredited with the Conselho Nacional de Saúde (National Health Council) was not necessary, in view of CNS Resolution No. 510, of April 7, 2016.[28]

RESULTS

The food and preparations present in 180 meals were evaluated. Fresh and minimally processed foods, including fruits, salads, rice, beans, coffee, and milk, are featured in 47.6% of the meals. Meanwhile, ultra-processed foods account for 26.3%, with a focus on margarine, powdered drink mix, luncheon meat, and chocolate milk powder, which are consumed daily. The other foods, including processed foods and side dish culinary preparations, are present in 26.1% of the meals (Figure 1).

Figure 1. Distribution of foods and preparations present in the established meal standard for Socio-educational Centers of a capital of southeastern Brazil, according to the NOVA classification(2024).[5,17,27]



Breakfast is mostly composed of fresh and minimally processed food (50%). Foods in this classification also make up the majority of lunch and dinner meals (65.8%), while ultra-processed foods account for 14.2% of their distribution. On the other hand, ultra-processed foods are prominent in afternoon snacks and supper meals, accounting for 50% of the foods (Figure 1).

The description of the energy levels, percentages of carbohydrates, protein, and lipids, quantities of dietary fiber, and micronutrients in the 30 menus prepared by the researchers is presented in Table 2. A relative homogeneity of the offered values was verified, both in terms of energy and in relation to macro- and micronutrients.

Table 2. Description of the energy and nutrients offered in each of the 30 menus prepared by the researchers following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil. Belo Horizonte, Minas, 2024.[a,17-22]

Menu (n.°)	Calorie (Kcal)	Cho (%)	Ptn (%)	Lip (%)	Fibers (g)	Calcium (mg)	Iron (mg)	Sodium (mg)
1	3708.86	56.30	14.57	29.12	44.46	1160.03	23.02	4170.58
2	3686.02	55.59	14.92	29.49	45.84	1231.71	23.10	4170.58
3	3674.12	55.49	14.,90	29.61	45.52	1237.31	23.22	4171.68
4	3419.39	58.98	15.78	25.23	44.33	1266.33	22.51	4440.65
5	3458.83	58.29	15.23	26.48	44.19	1298.39	21.75	4388.83

Table 2. Description of the energy and nutrients offered in each of the 30 menus prepared by the researchers following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil. Belo Horizonte, Minas, 2024.[a,17-22](Continues)

Menu (n.°)	Calorie (Kcal)	Cho (%)	Ptn (%)	Lip (%)	Fibers (g)	Calcium (mg)	Iron (mg)	Sodium (mg)
6	3715.46	53.36	13.97	32.67	42.31	1342.25	21.42	4391.50
7	3880.85	49.43	15.42	35.15	42.18	1644.28	24.25	4643.42
8	3333.24	55.85	16.83	27.31	41.56	1248.54	20.53	4213.62
9	3437.84	54.39	16.77	28.84	44.69	1218.46	21.03	4172.14
10	3674.53	53.23	15.50	31.28	45.95	1251.64	19.69	4193.25
11	3455.45	54.90	15.85	29.25	42.19	1314.48	19.45	4186.83
12	3397.63	54.49	16.15	29.37	45.83	1203.37	19.68	4177.55
13	3592.26	54.25	15.50	30.25	45.46	1166.74	20.13	4327.73
14	3338.47	54.46	17.29	28.25	51.66	1461.98	18.24	4239.22
15	3306.19	55.05	14.20	30.76	54.49	1547.17	21.00	4339.96
16	3411.55	58.50	13.56	27.94	40.68	1437.32	20.20	4338.72
17	3422.23	58.40	11.73	29.87	44.38	1287.72	20.21	4368.37
18	3479.19	57.08	13.00	29.92	45.22	1423.78	24.63	4731.58
19	3431.80	53.23	13.18	33.59	42.38	1180.93	19.90	7016.86
20	3334.12	56.64	14.26	29.10	47.77	1299.27	21.51	4395.22
21	3541.50	57.72	15.55	26.73	43.61	1206.59	23.84	4180.62
22	3636.93	57.42	15.52	27.06	40.16	1313.91	23.90	4276.12
23	3588.26	59.21	17.56	23.24	42.74	1516.30	21.44	4309.32
24	3754.46	54.47	15.,45	30.08	47.05	1146.69	27.16	4273.10
25	3636.76	56.27	15.61	28.13	43.71	1264.00	22.00	4327.10

Table 2. Description of the energy and nutrients offered in each of the 30 menus prepared by the researchers following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil. Belo Horizonte, Minas, 2024.[a,17-22](Continues)

Menu (n.°)	Calorie (Kcal)	Cho (%)	Ptn (%)	Lip (%)	Fibers (g)	Calcium (mg)	Iron (mg)	Sodium (mg)
26	3636.10	57.32	15.28	27.,41	43.83	1159.52	21.89	4283.41
27	3449.18	58.53	16.71	24.75	50.71	1132.24	21.60	4358.33
28	3515.60	56.34	16.46	27.20	50.57	1214.61	23.33	4625.61
29	3790.85	55.42	15.38	29.20	49.40	1189.97	22.77	4551.57
30	3402.51	58.68	14.28	27.04	48.51	1261.06	23.29	4479.98

[a] Calculations considering maximum recommended daily intake of salt and oil. Cho: Carbohydrate; Ptn: Protein; Lip: Lipids.

All menus offered more than 3,300 kcal, exceeding the recommendations for gender and adolescent age group (Table 3). The percentage distribution of carbohydrates and proteins met the recommendations in all menus evaluated (Table 3). Menu 7 is the only one that presented an excessive participation of lipids (35.15%). The amount of fiber offered was also higher than the recommended values for the respective gender and age group in all evaluated menus, reaching a maximum value of 54.49 grams (Table 3).

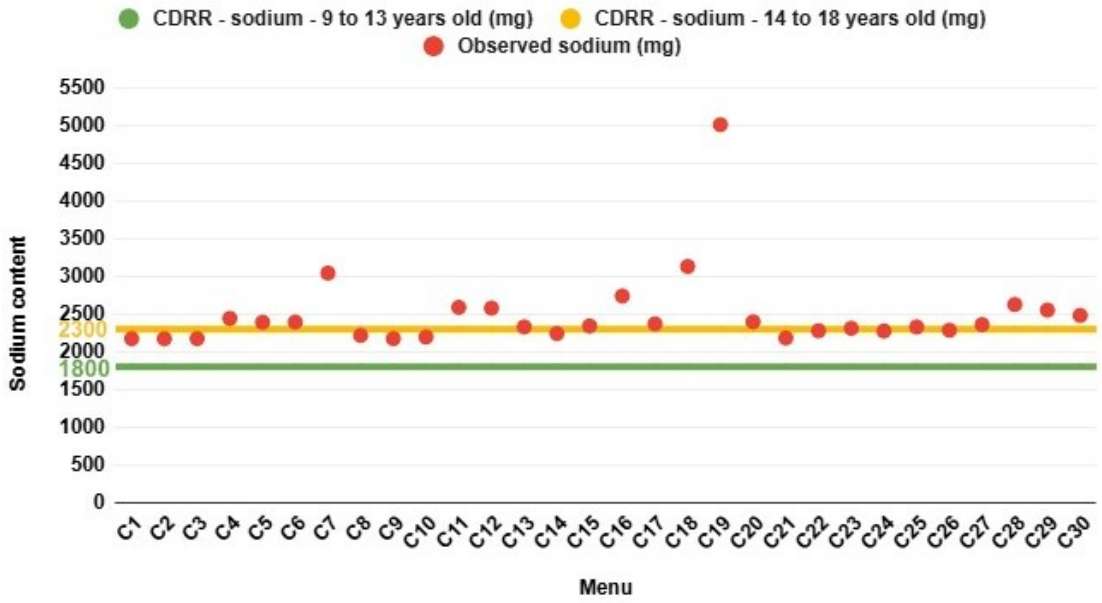
Table 3. Medians, respective confidence intervals, and nutritional recommendation (according to sex and age group) of each nutrient evaluated in the 30 menus prepared by the researchers following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil. Belo Horizonte, Minas Gerais, 2024[a,23-26]

Nutrient	Median	95% CI	Reference value*	
			Male	Female
Energy (Kcal)	3497.40	3479.51 - 3594.50	2144.75 - 3156.11	1663.55 - 2529.87
Carbohydrate (%)	56.06	55.16 – 56.80	45 - 65	
Protein (%)	15.44	14.72 – 15.70	10 - 30	
Lipids (%)	29.11	27.88 – 29.74	25 - 35	
Dietary Fibers (g)	44.56	44.11 – 46.65	31 (9 to 13 years) 38 (up to 18)	26
Calcium (mg)	1256.35	1240.06 – 1335.04	1100 (EAR) / 1300 (RDA) / 3000 (UL)	
Iron (mg)	21.68	21.18 – 22.60	5,9 (EAR) / 8 (RDA) / 40 (UL) – 9 to 13 years 7,7 (EAR) / 11 (RDA) / 45 (UL) – up to 18 years old	5,7 (EAR) / 8 (RDA) / 40 (UL) - 9 to 13 years 7,9 (EAR) / 15 (RDA) / 45 (UL) – up to 18 years old
Sodium (mg)	4327.41	4233.49 – 4616.07	1800 (CDRR) - 9 to 13 years 2300 (CDRR) - 14 to 18 years	

[a]CI: Confidence Interval; CDRR: Chronic Disease Risk Reduction Intakes; EAR: Estimated Average Requirements; RDA: Recommended Dietary Allowances; UL: Tolerable Upper Intake Levels.

Values above the EAR for calcium were found in all evaluated menus. Among them, eight menus had levels above the RDA, but below the UL (Tables 2 and 3). For the micronutrients iron and sodium, values were found above the respective recommendations for both sexes and age groups in all menus (Table 3), but without exceeding the UL for iron. Menu 19, the only one that contains processed meat as a main dish, had 7,016.86 mg of sodium (Table 2). When added salt is disregarded in the calculations, a median value for sodium of 2351.95 (CI 95%: 2295.22 - 2693.34) mg is found, which is still high in relation to the recommended value for the evaluated population (Figure 2).

Figure 2. Sodium content (mg) observed in each menu prepared by the researchers, following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil, and disregarding added salt, in relation to the values recommended by the Institute of Medicine (2024).[a,25]



[a] C: menu; CDRR: Chronic Disease Risk Reduction Intakes.

DISCUSSION

The investigation conducted in 2024 on the nutritional adequacy of the established meal standard for Socio-educational Centers in the capital of southeastern Brazil revealed a high frequency of ultra-processed foods, as well as inadequacies in the supply of energy and the analyzed nutrients. The observed values are above the recommendations for energy, fiber, calcium, iron, and sodium.

The high presence of ultra-processed foods in meals is worrying. Frequent consumption can negatively affect health, as these foods are linked to increased mortality from cardiovascular, respiratory, gastrointestinal, and metabolic diseases. They also raise the risk of developing type 2 diabetes, cancer, anxiety, and depression.[29] Moreover, ultra-processed foods are tied to higher obesity rates in children and adolescents and a greater risk of other chronic non-communicable diseases (NCDs).[30,31] This generates higher public health costs due to the illness of this population.[32]

Because they are nutritionally unbalanced, ultra-processed foods provide a higher intake of calories, saturated and trans fats, sugar, and sodium,[33] contributing to a poorer quality of the diet recommended for the socio-educational confinement centers of the Brazilian capital included in this study. Furthermore, the standardization of portion sizes, which

does not consider the different nutritional needs of males and females, as well as age groups during adolescence,[34] favors the inadequacy of the analyzed energy and nutrients.

The increased caloric intake observed in the established meal standard was similar to the findings of Carvalho et al.[11] among adolescents serving a socio-educational confinement measure (average intake of 3,133 daily calories) and Peixoto[35] (3,000 calories per day) This result can contribute to excessive weight gain during confinement, given the energy offered without the corresponding expenditure through increased physical activity. The caloric intake offered far exceeded the energy recommendations for the age group evaluated, which range from approximately 1,660 to 2,500 kcal for girls and 2,140 to 3,160 kcal for boys.[23] A considerable weight gain was identified in a study with adolescents at the Centro de Atendimento Socioeducativo Feminino (Female Socio-educational Service Center - CASEF) after six months of confinement (62.5% vs 25.0%).[35] Ruschel et al.[12] obtained similar results among male adolescents who served a socio-educational measure in Porto Alegre (RS).

These findings corroborate the projection of the World Atlas of Obesity 2024 for the year 2035, regarding the increase in excess weight in children and adolescents,[36] which highlights the need to adjust the energy content of these meals.

Despite the caloric inadequacy, the macronutrient supply was within the acceptable distribution and closely aligned with that found in the dietary evaluation of Brazilian adolescents highlighted in the Family Budget Survey 2017-2018 (55% carbohydrates, 17% protein, and 29% lipids).[18]

The quantity of dietary fiber in the menus, in turn, was superior to nutritional recommendations and studies with adolescents, with daily values of 6.4 grams of fiber for every 1,000 Kcal ,[37] reaching values close to 25 grams per day.[18] The quantity of beans in the CS menus may contribute to this difference, given that this food alone contributes 21.18 daily grams of fiber. Despite the increased level compared to the recommended, research points to benefits associated with the intake of at least 30 grams of fiber per day in reducing the risk of developing NCDs and 35 grams daily in reducing the risk of developing colorectal neoplasia.[38]

Furthermore, distinct inadequacies were observed in the supplies of the micronutrients calcium, iron, and sodium. For calcium, the values exceeded the EAR, but the RDA was not reached in most menus. Still, these values are higher than those of Carvalho et al.[11] (594 mg) and the average consumption among Brazilian adolescents (457.1 mg for boys and 406.6 mg for girls.[18] A low calcium intake is related to increased adiposity in adolescents. It also increases the risk of developing metabolic disorders, impairs height development, and leads to greater bone fragility and fractures, in addition to osteoporosis in the long term.[39,40]

As for iron, Carvalho et al.[11] also observed high values in a socio-educational confinement unit in Teresina, PI. The presence of meat and flour enriched with this nutrient may have contributed to this result. Despite its health benefits, excessive iron can cause damage to tissues and cells due to the formation of toxic radicals in the body. [41]

The sodium values were also high when compared to the recommendations for the age group and other studies with adolescents from CS[11] or those not deprived of liberty.[18] The association of this nutrient with a greater risk of developing cardiovascular diseases, stroke, and arterial hypertension[21] denotes an alert for the health of young people and points to the need for changes in the foods of the established meal standard, especially regarding the reduction of ultra-processed foods and the inclusion of healthier options, such as fresh and minimally processed.

The presence of healthy foods in the standard used can contribute to better food choices after confinement.[42] For example, Silva, Pinheiro & Dias[43] analyzed the consumption of food groups among male adolescents confined in a CS in the Federal District and observed an increase in the consumption of fresh and minimally processed foods, as well as a reduction in the consumption of sweets, during the period of seclusion. These habits could be maintained after institutionalization. However, it is also noted that there are considerable variations between the established meal standards

in each state and, consequently, for the CS covered. This variability makes it challenging to generalize the findings to other contexts.

The lack of specification of the quantity of oil and salt used in the preparations is a limitation of this research. It can lead to conclusions that diverge from reality, underestimating or overestimating the supply of calories, lipids, and sodium. For the construction of the database and calculations, foods without the addition of oil and salt in their preparation were considered, when available. The need to adjust the frequencies of the main dishes, side dishes, and fruits of the mid-morning snack is also a limitation. This can lead to discrepancies from the reality applied in the Socio-educational Centers. The comparison with national research[18] grounded the decisions to bring them closer to the consumption reality of the Brazilian population. The absence of an *in-loco* evaluation is also a limitation. However, the evaluation of the nutritional adequacy of the established meal standard contributes to the future deepening of the theme of food in Socio-educational Units. Future research, based on in loco evaluations, should consider this demand.

It is essential to highlight the innovative nature of this research, as it is the first investigation into the nutritional adequacy of food provided to adolescents serving a socio-educational confinement measure in the state where the established meal standard of the present study is in effect. As for its potential, this study contributes to the expansion of the still small scientific literature available on the topic of food in Socio-educational Units, which covers a vulnerable population with specific nutritional needs. Thus, the results provided a broader perspective on this group.

CONCLUSION

The present study pointed out important inadequacies in the menus that follow the established meal standard for the Socio-educational Units. The objective of evaluating this standard was met, which in turn reverberates in the finding of the need for adjustments.

The high presence of ultra-processed foods and the increased intake of calories, fiber, iron, calcium, and sodium observed can negatively impact the health of adolescents serving a socio-educational confinement measure.

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Contributors

de Souza MP participated in the conceptualization of the study design, data collection, analysis, and interpretation, as well as in the writing of the study; Magalhães GA participated in the idealization of the study design, final review, and approval of the manuscript for submission; dos Santos LC participated in the data interpretation, final review, and approval of the manuscript for submission.

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SUPPLEMENTARY MATERIAL

Suplementary 1. Detailing of the 30 menus prepared by the researchers following the established meal standard for Socio-educational Confinement Centers in a capital of southeastern Brazil, containing foods, quantities, and (2024)[a,17-22]

30 MENUS PREPARED ACCORDING TO THE ESTABLISHED MEAL STANDARD MENU									
Fixed food (3 weeks – menus 1 to 23)									
FOOD	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON(mg)	SODIUM (mg)	CALORIES (Kcal)
French bread	50/unit	29.5	4.9	1.06	1.31	7.1	2.17	340.5	147
Margarine	10	0	0	7.1	0	0.44	0..01	81.3	64
Whole milk	200	14.32	4.7	6.08	0	214	0	127.6	131
Coffee infusion with sugar	100	9.28	0.67	0.06	0	3.19	0.01	1.92	40
Rice	300	86.4	7.14	1.23	3.6	15.51	0.99	4.74	385
Carioca beans	150	12.3	7.16	0.81	10.59	43.05	2.09	2.85	85
Artificial juice drink	300	6.09	0.03	0	0	78.6	0	30.3	24
French bread	50/unit	29.5	4.9	1.06	1.31	7..1	2.17	340.5	147
Margarine	10	0	0	7.1	0	0.44	0.01	81.3	64
Apresuntado (luncheon meat)	15/slice	0.61	2.18	0.86	0	3.12	0.18	192.3	19
Mozzarella	15/slice	0.3	3.57	3.62	0	116.1	0.04	75.9	48
Simple chocolate cake	80	42.4	4.8	14.4	0.8	59.2	1.6	226	326
Fruit juice drink	300	6.09	0.03	0	0	78.6	0	30.3	24
Rice	300	86.4	7.14	1.23	3.6	15.51	0.99	4.74	385
Carioca beans	150	12.3	7.16	0.81	10.59	43.05	2.09	2.85	85
Fruit juice drink	300	6.09	0.03	0	0	78.6	0	30.3	24

Plain sweet bread	50/unit	26.5	4.5	1.5	1	24.5	1.5	206	146
Margarine	10	0	0	7.1	0	0.44	0.01	81.3	64
Chocolate milk	300	41.7	9.12	9.6	1.8	300	1.83	191.7	290
TOTAL	-	409.78	68.03	63.62	34.6	1088.55	15.69	2052.4	2498
%	-	66	11	23					
KCAL = 4*CHO+4*PTN+9*LIP									2484
Fixed foods (1 week - menus 24 to 30)									
FOODS	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
French bread	50/unit	29.5	4.9	1.06	1.31	7.1	2.17	340.5	147
Margarine	10	0	0	7.1	0	0.44	0.01	81.3	64
Whole milk	200	14.32	4.7	6.08	0	214	0	127.6	131
Coffee infusion with sugar	100	9.28	0.67	0.06	0	3.19	0.01	1.92	40
Rice	300	86.4	7.14	1.23	3.6	15.51	0.99	4.74	385
Carioca beans	150	12.3	7.16	0.81	10.59	43.05	2.09	2.85	85
Artificial juice drink	300	6.09	0.03	0	0	78.6	0	30.3	24
French bread	50/unit	29.5	4.9	1.06	1.31	7.1	2.17	340.5	147
Sausage in sauce	60	4.344	6.84	9.9	0.36	142.8	2.022	481.8	134
Soda	300	29.19	0	0	0	4.77	0	24.36	117
Chocolate cake with frosting	80	42.88	4.912	13.68	2.08	59.76	2	195.2	318..4
Rice	300	86.4	7.14	1.23	3.6	15.51	0.99	4.74	385
Carioca beans	150	12.3	7.16	0.81	10.59	43.05	2.09	2.85	85

Artificial juice drink	300	6.09	0.03	0	0	78.6	0	30.3	24
Plain sweet bread	50/unit	26.5	4.5	1.5	1	24.5	1.5	206	146
Margarine	10	0	0	7.1	0	0.44	0.01	81.3	64
Chocolate milk	300	41.7	9.12	9.6	1.8	300	1.83	191.7	290
TOTAL	-	436.794	69.202	61.22	36.24	1038.42	17.882	2147.96	2587
%		68	11	21					
KCAL = 4*CHO+4*PTN+9*LIP									2575
Menus									
VARIABLE FOODS									
Menu 1	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0..53	0.08	0.68	1.26	0.13	0	35
Blade roast center cut. fried (with oil)	200	0	54.6	29.6	0	10.38	4	106	486
Chard	60	2.1	0.86	0.06	0.68	25.8	0.16	0.7	12
Grated beetroot	80	6.19	1.56	0.07	2.7	11.52	0.26	7.78	32
Pasta with garlic and oil (with oil)	240	60	8.78	16.99	2.28	16.32	2.52	6.5	428
Apple	260	35.94	0.76	0	3.52	5	0.24	0	146
WHO – SALT	5	0	0	0	0	1..2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	522.05	135.12	120.02	44.46	1160.03	23.02	4170.58	3723
%	-	56.30	14.57	29.12	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3708.86

Menu 2	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Blade roast center cut fried (with oil)	200	0	54.6	29.6	0	10.38	4	106	486
Chard	60	2.1	0.86	0.06	0.68	25.8	0.16	0.7	12
Grated beetroot	80	6.19	1.56	0.07	2.7	11.52	0.26	7.78	32
Pasta with garlic and oil (with oil)	240	60	8.78	16.99	2.28	16.32	2.52	6.5	428
Orange	360	26.14	3.14	0.76	4.9	76.68	0.32	0	124
WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	512.25	137.5	120.78	45.84	1231.71	23.10	4170.58	3701
%	-	55.59	14.92	29.49	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3686.02
Menu 3	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Blade roast center cut. fried (with oil)	200	0	54.6	29.6	0	10.38	4	106	486
Chard	60	2.1	0.86	0.06	0.68	25.8	0.16	0.7	12
Grated beetroot	80	3.65	0.9	0.17	2.38	17.12	0.38	8.88	20
Pasta with garlic and oil (with oil)	240	60	8.78	16.99	2.28	16.32	2.52	6.5	428
Orange	360	26.14	3.14	0.76	4.9	76.68	0.32	0	124
WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0

WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	509.71	136.84	120.88	45.52	1237.31	23.22	4171.68	3689
%	-	55.49	14.90	29.61	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3674.12
Menu 4	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Stewed beef muscle (with oil)	200	1.22	55.2	18.42	0.28	11.3	4.98	175	392
Kale	60	0.72	1.72	0.34	1.88	124.8	0.4	5.46	12
Grated carrot	80	3.65	0.9	0.17	2.38	17.12	0.38	8.88	20
Pasta with sugo sauce (with oil)	240	52.08	7.68	3.62	2.98	17.3	0.67	197.76	272
Bananada	40	28.72	0.87	0.02	1.53	4.8	0.24	3.95	119
WHO SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	504.21	134.93	95.87	44.33	1266.33	22.51	4440.65	3434
%	-	58.98	15.78	25.23	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3419.39
Menu 5	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Stewed minced (with oil)	200	1.6	51.8	24.4	0.26	11.28	4.34	129.2	432
Kale	60	0.72	1.72	0.34	1.88	124.8	0.4	5.46	12
Turnip	120	3.11	1.09	0.07	2.26	49.2	0.26	2.86	17

Pasta with sugo sauce (with oil)	240	52.08	7.68	3.62	2.98	17.3	0.67	197.76	272
Bananada	40	28.72	0.87	0.02	1.53	4.8	0.24	3.95	119
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	504.05	131.72	101.75	44.19	1298.39	21.75	4388.83	3471
%	-	58.29	15.23	26.48	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3458.83
Menu 6	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Stewed flank steak	200	0.08	48	51.8	0	6.42	4.06	77.6	658
Kale	60	0.72	1.72	0.34	1.88	124.8	0.4	5.46	12
Radish	120	1.44	1.36	0.1	2.17	24.72	0.42	13.08	12
Pasta with sugo sauce (with oil)	240	52.08	7.68	3.62	2.98	17.3	0.67	197.76	272
Dulce de leche	40	23.52	2.45	2.5	0	78	0.03	48	126
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	495.66	129.77	134.86	42.31	1342.25	21.42	4391.50	3728
%	-	53.36	13.97	32.67	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3715.46
Menu 7	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35

Stewed flank steak	200	0.08	48	51.8	0	6.42	4.06	77.6	658
Kale	60	0.72	1.72	0.34	1.88	124.8	0.4	5.46	12
Tomato	120	2.66	1.25	0.2	1.92	8.33	0.36	3.76	17
Bolognese lasagna (with oil and salt)	240	34.8	27.6	20.23	3.1	336	3.58	859.2	432
Dulce de leche	40	23.52	2.45	2.5	0	78	0.03	48	126
WHO - SALT	4	0	0	0	0	0.92	0	1597	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	479.6	149.58	151.57	42.18	1644.28	24.25	4643.42	3893
%	-	49.43	15.42	35.15	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3880.85
Menu 8	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Stewed outside flat	200	0	63.6	17.84	0	7.96	3.4	82.2	414
Wild chicory	60	0.64	1.06	0.18	1.82	18.24	0.52	1.66	8
Tomato	120	2.66	1.25	0.2	1.92	8.33	0.36	3.76	17
Mashed potatoes (with oil)	200	20..8	3..34	3..94	2..54	45	0.38	28.4	132
Dulce de leche	40	23.52	2.45	2.5	0	78	0.03	48	126
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	465.44	140.26	101.16	41.56	1248.54	20.53	4213.62	3345
%	-	55.85	16.83	27.31	-	-	-	-	-

KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3333.24
Menu 9	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Stewed outside flat	200	0	63.6	17.84	0	7.96	3.4	82.2	414
Wild chicory	60	0.64	1.06	0.18	1.82	18.24	0.52	1.66	8
Tomato	120	2.66	1.25	0.2	1.92	8.33	0.36	3.76	17
Mashed potatoes (with oil)	200	20.8	3.34	3.94	2.54	45	0.38	28.4	132
Peanut brittle	40	20.52	5.28	11.2	1.36	10.84	0.5	6.52	204
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	467.47	144.13	110.16	44.69	1218.46	21.03	4172.14	3450
%	-	54.39	16.77	28.84	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3437.84
Menu 10	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Roasted pork leg	200	6.6	64.2	27.8	0	35.2	2.5	124.8	534
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed zucchini	90	1.19	0.89	0.21	1.36	14.31	0.14	0.71	10
Sautéed sweet potato (with oil)	200	37.8	1.58	11.58	5.08	40.4	0.44	9.6	262
Peanut brittle	40	20.52	5.28	11.2	1.36	10.84	0.5	6.52	204
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0

WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	488.96	142.37	127.69	45.95	1251.64	19.69	4193.25	3689
%	-	53.23	15.50	31.28	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3674.53
Menu 11	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Stewed chicken thigh	200	0	53.6	11.7	0	23.6	1.66	128.6	320
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed parsnip	90	15.48	0.77	0.15	1.58	10.71	0.38	1.89	66
Chayote soufflé (with oil and salt)	160	15.44	6.85	12.34	1.1	118.72	0.82	398.4	200
Peanut brittle	40	20.52	5.28	11.2	1.36	10.84	0.5	6.52	204
WHO - SALT	4	0	0	0	0	0.92	0	1597	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	474.29	136.92	112.29	42.19	1314.48	19.45	4186.83	3469
%	-	54.90	15.85	29.25	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3455.45
Menu 12	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Roasted chicken thigh	200	0.12	57	20.8	0	16.68	2.44	189.6	414
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed potato	90	9.72	1.2	0.05	1.32	3.28	0.18	2.13	44

Vegetable jardiniere (with oil and salt)	200	12.08	2.12	2.68	3.46	23.8	0.52	268	81
Paçoca	40	18.04	6.4	10.44	2.9	9	0.45	66.4	192
WHO - SALT	4	0	0	0	0	0.92	0	1597	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	462.81	137.14	110.87	45.83	1203.37	19.68	4177.55	3410
%	-	54.49	16.15	29.37	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3397.63
Menu 13	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Roasted chicken drumstick	200	0	57.4	30.4	0	21.4	2.42	191.8	502
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed beet	90	3.83	1.11	0.08	1.84	11.97	0.19	17.91	20
Roasted English potato	200	37.6	5.04	0.1	3.26	9.32	1	0	171
Paçoca	40	18.04	6.4	10.44	2.9	9	0.45	66.4	192
WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	16	0	0	16	0	0	0	0	144
TOTAL (fixed and variable foods)	-	487.22	139.18	120.74	45.46	1166.74	20.13	4327.73	3604
%	-	54.25	15.50	30.25	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3592.26
Menu 14	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)

Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Grilled chicken breast	200	0	64	4.96	0	10.68	0.66	100.4	300
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Watermelon	90	5.76	0.63	0.045	0.12	7.25	0.165	0	26.25
Stir-fried kale (with oil)	200	2.98	4.06	12.82	11.18	320	0.9	20.8	144
Paçoca	40	18.04	6.4	10.44	2.9	9	0.45	66.4	192
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	454.53	144.32	104.785	51.66	1461.98	18.245	4239.22	3352
%	-	54.46	17.29	28.25	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3338.47
Menu 15	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Chicken stroganoff (with oil)	200	5.18	35.2	15.92	0	52	3.04	199	304
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Steamed broccoli	90	1.04	2.44	0.49	2.95	51.12	0.54	2.14	18
Stir-fried kale (with oil)	200	2.98	4.06	12.82	11.18	320	0.9	20.8	144
Paçoca	40	18.04	6.4	10.44	2.9	9	0.45	66.4	192
WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	454.99	117.33	112.99	54.49	1547.17	21.00	4339.96	3319

%	-	55.05	14.20	30.76	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3306.19
Menu 16	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Chicken stroganoff (with oil)	200	5.18	35.2	15.92	0	52	3.04	199	304
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed carrot	90	1.92	0.49	0.17	1.96	15.03	0.15	4.62	11
Chayote soufflé (with oil and salt)	160	15.44	6.85	12.34	1.1	118.72	0.82	398.4	200
Cornstarch cream	160	48.64	3.89	4.16	0.16	136.8	0.14	85.28	248
WHO – SALT	4	0	0	0	0	0.92	0	1597	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	498.93	115.66	105.91	40.68	1437.32	20.2	4338.72	3424
%	-	58.50	13.56	27.94	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3411.55
Menu 17	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Papaya	120	11.69	0.98	0.14	2.17	29.88	0.28	3.91	52
Steamed egg	200	2.76	20.8	17.4	0	86.4	2.66	256	250
Mustard greens	60	1.34	1.28	0.3	1.3	47.22	0.76	2	14
Orange	90	6.535	0.786	0.19	1.225	19.17	0.08	0	31
Fried English potato (with oil)	160	47.04	6.5	19.04	5.09	9.12	0.64	2.78	386
Gelatin	160	20.48	1.98	0.1	0	6.18	0.08	54.08	91

WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	499.625	100.356	113.59	44.385	1287.72	20.21	4368.37	3437
%	-	58.40	11.73	29.87	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3422.23
Menu 18	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Papaya	120	11.69	0.98	0.14	2.17	29.88	0.28	3.91	52
Fried egg (with oil)	200	2.38	31.2	37.2	0	145.8	4.2	332	470
Watercress	60	0.36	1.9	0.28	1.18	77.4	1.2	6.42	12
Chayote	90	3.33	0.45	0.14	1.25	7.68	0.06	1.77	16
Angu/polenta ins sauce (with oil and salt)	160	23.04	6.72	2.74	4.66	5.87	2.48	704	144
Rice pudding	160	45.92	3.76	1.95	1.36	67.68	0.72	34.08	216
WHO – SALT	4	0	0	0	0	0.92	0	1597	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	496.5	113.04	115.67	45.22	1423.78	24.63	4731.58	3494
%	-	57.08	13.00	29.92	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3479.19
Menu 19	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Watermelon	120	7.68	0.84	0.06	0.16	9.67	0.22	0	35
Fried sausage (with oil)	200	0	38.8	39.8	0	22	2.14	2748	514
Curly endive (Brazilian chicory)	60	0.34	0.68	0.08	1.32	28.44	0.28	9.78	4

Cauliflower	90	1.22	1.15	0.18	1.85	13.32	0.11	1.48	11
Carrot farofa/virado (with oil)	160	21.6	2.51	14.58	3.09	15.23	1.18	208	228
Dwarf / Cavendish banana	80	16.08	1.06	0.16	1.36	2.52	0.26	0	70
WHO – SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	456.7	113.07	128.08	42.38	1180.93	19.9	7016.86	3446
%	-	53.23	13.18	33.59	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3431.80
Menu 20	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Watermelon	120	7.68	0.84	0.06	0.16	9.67	0.22	0	35
Breaded hake fillet (with oil)	200	26.2	43.6	27	1.92	56.6	3.48	316	526
Arugula	60	0.18	1.48	0.08	1.46	64.2	0.62	4.02	8
Green beans	90	2.43	1.44	0.14	2.11	32.13	0.26	0	17
Sautéed carrot (with oil)	200	9.78	2.4	7.14	6.16	44.4	0.96	25.6	113
Dwarf / Cavendish banana	80	16.08	1.06	0.16	1.36	2.52	0.26	0	70
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	472.13	118.85	107.8	47.77	1299.27	21.51	4395.22	3353
%	-	56.64	14.26	29.10	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3334.12
Menu 21	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)

Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Fried chuck roll steak (with oil)	200	0	54.6	29.6	0	10.38	4	106	486
Chard	60	2.1	0.86	0.06	0.68	25.8	0.16	0.7	12
Turnip	120	3.11	1.09	0.07	2.26	49.2	0.26	2.86	17
Bolognese pasta (with oil)	240	52.08	11.832	2.136	1.872	25.2	3.336	21.456	276
Apple	260	35.94	0.76	0	3.52	5	0.24	0	146
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	511.05	137.702	105.166	43.612	1206.59	23.836	4180.616	3556
%	-	57.72	15.55	26.73	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3541.50
Menu 22	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Dwarf / Cavendish banana	40	8.04	0.53	0.08	0.68	1.26	0.13	0	35
Fried chuck roll steak (with oil)	200	0	54.6	29.6	0	10.38	4	106	486
Chard	60	2.1	0.86	0.06	0.68	25.8	0.16	0.7	12
Radish	120	1.44	1.36	0.1	2.17	24.72	0.42	13.08	12
Bolognese pasta (with oil)	240	52.08	11.832	2.136	1.872	25.2	3.336	21.456	276
Cornstarch cream	160	48.64	3.89	4.16	0.16	136.8	0.14	85.28	248
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	522.08	141.102	109.356	40.162	1313.91	23.896	4276.116	3653

%	-	57.42	15.52	27.06	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3636.93
Menu 23	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Grilled chicken breast	200	0	64	4.96	0	10.68	0.66	100.4	300
Kale	60	0.72	1.72	0.34	1.88	124.8	0.4	5.46	12
Tomato	120	2.66	1.25	0.2	1.92	8.33	0.36	3.76	17
Bolognese pasta (with oil)	240	52.08	11.832	2.136	1.872	25.2	3.336	21.456	276
Milk pudding	160	52.8	9.104	8.208	0.016	219.2	0.816	128.64	321.6
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	531.11	157.506	92.644	42.738	1516.3	21.442	4309.316	3602
%	-	59.21	17.56	23.24	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3588.26
Menu 24	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Beef rib	200	0	61.6	36.2	0	22	6.72	116	572
Wild chicory	60	0.64	1.06	0.18	1.82	18.24	0.52	1.66	8
Tomato	120	2.66	1.25	0.2	1.92	8.33	0.36	3.76	17
Roasted English potato	200	37.6	5.04	0.1	3.26	9.32	1	0	171
Peanut brittle	40	20.52	5.28	11.2	1.36	10.84	0.5	6.52	204

WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	16	0	0	16	0	0	0	0	144
TOTAL (fixed and variable foods)	-	511.284	145.002	125.48	47.05	1146.69	27.162	4273.1	3765
%	-	54.47	15.45	30.08	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3754.46
Menu 25	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Orange	180	13.07	1.57	0.38	2.45	38.34	0.16	0	62
Roasted pork leg	200	6.6	64.2	27.8	0	35.2	2.5	124.8	534
Wild chicory	60	0.64	1.06	0.18	1.82	18.24	0.52	1.66	8
Vinaigrette (with oil)	120	5.736	1.044	10.164	1.2	27.6	0.624	3.936	120
Stewed cassava (with oil)	200	25.2	2.36	1.82	2	27	0.26	3.54	130
Dulce de leche	40	23.52	2.45	2.5	0	78	0.03	48	126
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	511.56	141.886	113.664	43.71	1264	21.996	4327.096	3653
%	-	56.27	15.61	28.13	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3636.76
Menu 26	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Roasted pork leg	200	6.6	64.2	27.8	0	35.2	2.5	124.8	534
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4

Vinaigrette (with oil)	120	5.736	1.044	10.164	1.2	27.6	0.624	3.936	120
Stewed cassava (with oil)	200	25.2	2.36	1.82	2	27	0.26	3.54	130
Bananada	40	28.72	0.87	0.02	1.53	4.8	0.24	3.95	119
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	9.6	0	0	9.6	0	0	0	0	86
TOTAL (fixed and variable foods)	-	521.02	138.876	110.724	43.83	1159.52	21.886	4283.406	1472
%	-	57.32	15.28	27.41	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3636.10
Menu 27	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Grilled chicken breast	200	0	64	4.96	0	10.68	0.66	100.4	300
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Stewed pumpkin	90	1.413	1.098	0.126	2.178	2.844	0	0	15.3
Breaded eggplant (with oil),	200	19.84	7.74	15.64	7.9	49	2.44	106.8	266
Bananada	40	28.72	0.87	0.02	1.53	4.8	0.24	3.95	119
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	504.737	144.11	94.866	50.708	1132.244	21.602	4358.33	3479
%	-	58.53	16.71	24.75	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3449.18
Menu 28	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)

Apple	130	17.97	0.38	0	1.76	2.5	0.12	0	73
Roasted pork leg	200	6.6	64.2	27.8	0	35.2	2.5	124.8	534
Lettuce	60	0	0.82	0.1	1.1	22.8	0.24	2.02	4
Peas	90	12.96	5.103	0.351	4.275	18.81	1.404	344.7	83.7
Steamed vegetables	200	9.16	4.02	0.62	5.02	65.8	0.88	5.02	68
Papaya	120	11.69	0.98	0.14	2.17	29.88	0.28	3.91	52
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	16	0	0	16	0	0	0	0	144
TOTAL (fixed and variable foods)	-	495.174	144.705	106.231	50.565	1214.61	23.326	4625.61	3546
%	-	56.34	16.46	27.20	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3515.60
Menu 29	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Papaya	120	11.69	0.98	0.14	2.17	29.88	0.28	3.91	52
Roasted pork leg	200	6.6	64.2	27.8	0	35.2	2.5	124.8	534
Arugula	60	0.18	1.48	0.08	1.46	64.2	0.62	4.02	8
Green corn	90	15.21	2.601	1.845	4.275	2.277	0.612	270.9	96.3
Fried English potato (with oil)	160	47.04	6.5	19.04	5.09	9.12	0.64	2.78	386
Watermelon	120	7.68	0.84	0.06	0.16	9.67	0.22	0	35
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	525.194	145.803	122.985	49.395	1189.967	22.774	4551.57	3813

%	-	55.42	15.38	29.20	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3790.85
Menu 30	QUANTITY (g or ml)	CHO (g)	PTN (g)	LIP (g)	FIBERS (g)	CALCIUM (mg)	IRON (mg)	SODIUM (mg)	CALORIES (Kcal)
Watermelon	120	7.68	0.84	0.06	0.16	9.67	0.22	0	35
Breaded hake fillet (with oil)	200	26.2	43.6	27	1.92	56.6	3.48	316	526
Spinach	60	0.804	1.344	0.21	1.698	54.72	0.288	13.8	13.8
Green beans	90	2.43	1.44	0.14	2.11	32.13	0.26	0	17
Steamed vegetables	200	9.16	4.02	0.62	5.02	65.8	0.88	5.02	68
Dwarf / Cavendish banana	80	16.08	1.06	0.16	1.36	2.52	0.26	0	70
WHO - SALT	5	0	0	0	0	1.2	0.02	1997.2	0
WHO - OIL	12.8	0	0	12.8	0	0	0	0	115
TOTAL (fixed and variable foods)	-	499.148	121.506	102.21	48.508	1261.06	23.29	4479.98	3432
%	-	58.68	14.28	27.04	-	-	-	-	-
KCAL = 4*CHO+4*PTN+9*LIP	-	-	-	-	-	-	-	-	3402.51

[a]CHO: Carbohydrates; PTN: proteins; LIP: lipids. Foods and preparations without salt or oil available in the Brazilian Food Composition Table were chosen, when possible. The 5 grams of salt or 16 mL of oil were deducted from the calculations when these components were already intrinsic to the preparation