R&D REPORT No. 273

Evaluating the acceptability of new healthy products with adolescent consumers in the UK

2008

Campden BRI

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- Campden BRI (United Kingdom)
- Campden & Chorleywood Food Development Institute (Hungary)
- Cárnicas Serrano SL (Spain)
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- Lantmännen Food R&D AB (Sweden)
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EXECUTIVE SUMMARY

Within the scope of the HELENA ("Healthy Lifestyle in Europe by Nutrition in Adolescence") study, focus group discussions and concept testing of new product ideas took place with adolescents in five European countries (Belgium, Hungary, Spain, Sweden and UK). Based on the results of these discussions, three wholegrain cereal drinks, three snack bars with fibre and milk protein, and three lower calorie hamburgers were developed. These were submitted to acceptability tests with adolescent consumers in the same five countries. Results of UK acceptability tests are presented in this report.

A central location test was carried out over two consecutive Saturdays in April 2007. A total of 144 consumers were recruited from the Guildford (Greater London) and Nottingham areas. Respondents assessed three samples of drinks followed by three samples of snack bars on Day 1. On Day 2 they assessed the three samples of hamburgers and completed a Food Choices and Preferences questionnaire. A 9-point scale was used to measure degree of liking for overall acceptability, appearance, odour, flavour and texture. Likelihood of purchase was also captured.

Three variants of the lower calorie hamburgers were tested: 0% dietary fibre; 2% dietary fibre with beef flavour; and 3% dietary fibre with grill flavour. These were developed by Cárnicas Serrano SL in collaboration with Productos Aditivos SA, Spain. The Fibre 0% sample with no added flavour was significantly the most preferred sample, although none of the samples scored very highly. Results showed that as the fibre content increased, the liking levels decreased. Furthermore, the appearance of all 3 samples was generally disliked. None of the hamburgers were significantly likely to be purchased, when examining the results overall. However, cluster analysis revealed that there were two segments of consumers (out of 4), accounting for 66% of adolescents, who moderately liked the Fibre 0% sample. These two consumer segments showed a higher purchase intention for the hamburgers.

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Three flavours of a new drink with whole grain cereals, fruit and milk were evaluated: banana; pineapple banana; and apple cranberry. These were developed by Lantmännen Food R&D, Sweden. All three drinks recorded exceptionally low liking levels. The pineapple banana sample, which had the weakest grain/cereal flavour, was significantly preferred over the banana and apple/cranberry flavours. The adolescents disliked the texture of all three drinks and none of the samples were significantly likely to be purchased. Results of cluster analysis also suggested that the pineapple banana flavour held the most promise, although it did not achieve very high liking scores within the largest cluster of consumers. The lack of familiarity with this type of cereal-based drink may have been a contributing factor to the samples being disliked.

Three versions of a new cereal bar with fibre and milk protein were assessed: coarse texture with milk chocolate coating and enriched with vitamin D and calcium; smooth texture with dark chocolate coating and enriched with vitamin D and calcium; and smooth texture with milk chocolate coating without enrichment. These were developed by Cederroth International AB, Sweden. The acceptability scores for the snack bars were slightly higher than for the hamburgers and drinks, with mean scores clustering around the 'like slightly' level. The sample with coarse texture and milk chocolate coating was significantly preferred over the two smooth-textured samples for overall liking, flavour and texture. Furthermore, focusing on the coarse-textured snack bar would maximise the chance of satisfying three of the four consumer segments that were identified. Finally, the coarse-textured snack bar was the only sample in the study that was significantly likely to be purchased by the adolescents.

Despite the fact that the samples in this study were developed using insights gained from focus groups and concept testing exercises, it would appear that the products were not entirely successful when evaluated with adolescents in the UK. The most promising sample was the cereal bar with fibre and milk protein, characterised by coarse texture, milk chocolate coating and enriched with vitamin D and calcium. Further development work would be recommended for the burgers and the drinks prior to launching these products on the UK market, although the Fibre 0% hamburger may appeal to some segments of adolescent consumers.

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1 INTRODUCTION

1.1 Background: The HELENA Project

The HELENA ("Healthy Lifestyle in Europe by Nutrition in Adolescence") study was a three-year project which started in May 2005, designed to assess the health status of adolescents in Europe and enhance their nutrition and lifestyle habits. Until now, the health status of adolescents has not been evaluated at a European level using the same methodology in all countries. The HELENA project has undertaken this research with adolescents between the ages of 13 and 16, providing insights into adolescent dietary intake, body composition, metabolic profile, vitamin status, physical fitness, food choices and preferences, nutrition knowledge, and attitudes towards nutrition and physical activity. The study took place in 10 European countries and involved 26 partners from multiple sectors: 16 academic institutions, five food research institutes and five small- to medium-sized enterprises (SMEs).

The HELENA project was divided into four main inter-related studies. One of these studies, the 'behaviour and food' study (HELENA-BEFO), investigated adolescent food choices and preferences and developed 'new healthy foods' targeted to adolescents. The HELENA-BEFO group included five food research institutes (AINIA, Campden BRI, CCFRA Hungary, Meurice R&D and SIK) and four food, drink and ingredient companies (Cederroth, Lantmännen, PASA and Serrano). The inclusion of this study within the overall scope of the HELENA project highlights the importance placed on industry, as well as young consumers themselves, in understanding and addressing the issue of adolescent health and lifestyle.

In the first stage of the HELENA-BEFO study, focus group discussions and concept testing of new product ideas took place with adolescents in five European countries (Belgium, Hungary, Spain, Sweden and the UK). Based on the results of these discussions, three wholegrain cereal drinks, three snack bars with fibre and milk protein, and three lower calorie hamburgers were developed. These nine products were submitted to acceptability tests with adolescent consumers in the same five countries. Details regarding the development, composition and sensory properties of the nine new products are presented in Section 2, methods for the acceptability tests are outlined in Section 3, and results of the UK acceptability study are presented in Section 4.

1.2 Aims

To determine the degree of liking of three wholegrain smoothies, three healthy snack bars and three lower calorie hamburgers among UK adolescents and more generally to explore their food choices and preferences.

1.3 Scope

This work was undertaken by Campden BRI within the scope of the EU-funded project HELENA. Results of the UK acceptability study are presented in this report. Results are based on a Central Location Test, undertaken with a pre-recruited sample of 144 adolescents from the Guildford and Nottingham areas.

2 DEVELOPMENT OF NEW HEALTHY PRODUCTS

2.1 Prior research

Focus groups to explore adolescent food choices and preferences were organised and administered by food research institutes in five European countries: Belgium, Hungary, Spain, Sweden and the UK. Results of the UK focus groups can be found in Gilbert (2008) and a pan-EU report with focus group results is also in development. A total of 44 focus groups with 304 adolescents took place across the 5 countries, where the groups were evenly divided by gender and age (13-14 and 15-16 years old). Topics of discussion included eating habits at various meal occasions; factors that influence food choice; favourite foods, healthy foods and traditional foods; healthy lifestyle and physical activity; and sources of information for healthy eating and lifestyle.

In order to help guide the product development activities envisaged for the HELENA project, the final activity which took place within the focus groups was a set of concept testing exercises to explore nine different concepts for new healthy products. These concepts (product ideas), which could be of potential interest for the target group of adolescent consumers, were developed in collaboration with the industrial partners of the HELENA-BEFO group. The concepts were in the form of verbal and graphical product descriptions, or descriptions of various product benefits. The nine concepts fell into one of three different categories: cereal-based, meat-based and vitamin-enriched. The three meat concepts were 'traditional meat products with nutritional characteristics adapted to a healthy and modern way of eating', 'fat free (1% fat) hamburger' and 'cold meats with intensive flavour and odour enriched with fish protein and other natural ingredients'. The three vitamin-enriched concepts were a 'chewable multivitamineral tablet', a 'vitamineral tablet for fizzy drink' and a 'healthy snack bar'. The final set of concepts explored properties associated with cereal-based snacks. These properties fell into the following three concept categories: 'good for your health', 'good for your looks' and 'good ingredients'.

Based on the results of these concept tests across all five countries, each participating food company selected one idea to progress for product development. These were: a low fat hamburger, a cereal-based nutrient-fortified snack bar and a cereal-based drink with fruit and milk. Input from nutrition and health experts was also sought to ensure that the nutritional characteristics of the selected product concepts met the special needs of adolescents. Three variants of each type of product were developed. Detailed information regarding each of the products is now presented.

2.2 Description of new healthy hamburgers with fewer calories

Three variants of the lower calorie hamburgers were tested: 0% dietary fibre; 2% dietary fibre with beef flavour; and 3% dietary fibre with grill flavour. These were developed and supplied by Cárnicas Serrano SL (Valencia, Spain) in collaboration with Productos Aditivos SA (Barcelona, Spain).

Traditional hamburgers show some negative aspects from a nutritional point of view, mainly as a result of their high animal fat content. In order to address this, researchers and food developers investigated various options to manipulate the fatty acid composition, such as fat substitution using gums, protein emulsions, vegetable oils, etc. The low fat hamburger developed in this project incorporates a cooked paste made out of turkey breast and olive oil as a fat analogue. This emulsion helps the product achieve similar sensory characteristics to a normal hamburger, but with a fat content less than 2% and less than 90 kcal in 100g, representing a reduction of 60% when compared to non fat reduced hamburgers. The use of olive oil improves the fatty acid profile of the final product, increasing the unsaturated/saturated fatty acid ratio and reducing the cholesterol level in the daily diet. Other ingredients used to manufacture the hamburger were pork picnic shoulder, isolated soy protein, cooked rice, salt, sodium sulphite, dextrose, sodium tripolyphosphate, ascorbic acid and sodium glutamate. The general composition of the hamburgers is shown in Table 1, while the principal differences between the products are shown in Table 2.

Table 1. General composition and ingredients of the low-fat hamburgers

Component	Percent (%)
Polished pork picnic shoulder	30 -40
Vegetable protein	5-10
Cooked rice	3-8
Turkey breast cooked	10-20
Ingredients, spices and additives	3-4
Water content	30-35

Table 2. Principal differences between the hamburger samples

Hamburger 726	Hamburger 480	Hamburger 938
Standard flavour (Red harrow)	Beef Flavour	Grill Flavour
0% beet fibre	2% beet fibre	3% beet fibre

The nutritional characteristics of the hamburgers were as a follows (Table 3; data supplied by Cárnicas Serrano).

Table 3. Nutritional characteristics of the hamburgers

	Hamburger 726	Hamburger 480	Hamburger 938
Fat (g/100g)	1.4	1.5	1.8
Saturated fat (%)	56.66	56.66	53.16
Monounsaturated fat (%)	42.38	42.38	45.94
Polyunsaturated fat (%)	0.96	0.96	0.90
Cholesterol (mg/kg)	86	76	81
Protein (g/100g)	16.0	15.9	14.90
Total dietetic fibre (g/100g)	3.2	4.6	4.8
Carbohydrate (g/100g)	1.9	0.8	1.4
Energy (kcal/100g)	84	80	82

Asociación de Investigación de la Industria Agroalimentaria (Ainia), Valencia, Spain, carried out a sensory characterisation of the three hamburger samples. A panel of eight trained assessors independently described the appearance, odour, taste and texture of the three hamburgers by means of Free Description. A total of 32 attributes were selected, based mainly on the number of times each descriptor was used by the assessors. The main sensory differences between the three samples are:

Hamburger 726: Fibre 0%

This hamburger has a compact, uniform, juicy and slightly grainy and fatty appearance. It also has a moderate artificial appearance and a moderate pepper, spice and barbecue odour. It has a noticeable pepper and hot taste and a marked spice taste. It is adequately salty. It seems to have a juicy and slightly fatty texture.

Hamburger 480: Fibre 2% Beef flavour

This hamburger is grainy in appearance, has a little shine and has a noticeable artificial appearance. It has a moderate chicken/poultry odour and a marked paté/cold meat odour. It has a weak barbecue odour. It has a marked pepper, spice and hot taste and a moderate chicken/poultry taste. It is adequately salty. It has an artificial taste and a compact and grainy texture.

Hamburger 938: Fibre 3% Grill flavour

This hamburger has a compact, grainy and artificial appearance. It has a spice and barbecue odour. It has a marked pepper and hot taste and an intense spice taste. It is adequately salty and has a moderate artificial taste. It has a compact and fairly grainy texture.

2.3 Description of new healthy wholegrain smoothies

Three flavours of a new drink with whole grain cereals, fruit and milk were developed and evaluated: banana; pineapple banana; and apple cranberry. These were developed and supplied by Lantmännen Food R&D (LF R&D), Jarna, Sweden. The company was already manufacturing and marketing whole grain smoothies targeted towards adults. In their development work of the new products, LF R&D considered the special needs and demands of adolescent consumers. Thus, the new drinks aimed at reaching the following nutrition- and health-related goals: the drinks should contain whole grain for dietary fibre, other biologically active components such as antioxidants, and fruit and/or berries for vitamins and flavour, and no extra sugar should be added if not considered necessary from a taste point of view. The milk used was low fat (1.5%) lactose-free milk – for lactose intolerant consumers. Lactose-free milk has a somewhat sweeter taste than standard milk (3% fat) but has similar protein content. The drinks, therefore, benefited from some sweetness without the addition of sugar. Extra sugar was only used in the formulation of one of the finally selected samples. Another aim with the product development was to slightly increase the protein content. This was done by adding more low fat milk to the formulation – but without increasing the fat content compared to the original whole grain smoothie for adults.

In their development work LF R&D tested various types of fruit juices to get drinks that varied in their sensory characteristics. Thus, a larger number of samples were manufactured in laboratory and pilot scale. Based on their sensory evaluation of these samples, LF R&D selected the following three versions of the new drink for the HELENA acceptance tests (Table 4).

Table 4. Ingredients in the three selected flavour variants of cereal-based drinks

Apple-cranberry	Banana	Pineapple-banana
(Sample code 382)	(Sample code 553)	(Sample code 691)
Milk, water, whole grain flakes	Milk, water, banana 5%, whole	Milk, water, fruit juice 13%
5% (oat, rye, wheat, barley),	grain flakes 5% (oat, rye,	(pineapple, banana), whole grain
fruit juice 3.3%, (apple,	wheat, barley), inulin, fructose,	flakes 5% (oat, rye, wheat,
cranberry), inulin, salt,	sucrose, salt.	barley), inulin, salt, modified
flavourings, citric acid.		starch, flavourings, colour (beta
_		carotene).

The drinks were aseptically filled into white 300 ml plastic bottles without any label. One bottle was considered as one portion.

The general nutritional characteristics of the drinks were as a follows (Table 5; data supplied by LF R&D).

Table 5. Nutritional characteristics of the cereal-based drinks

	Per 100 ml of drink
Energy	220 kJ
	50 Kcal
Protein	2.5 g
Carbohydrate	8 g
of which sugars	5 g
Fat	1 g
of which saturated fat	0.6 g
Dietary fibre	1.0 g
Sodium	0.07 g
equivalent as salt	0.17 g

SIK-The Swedish Institute for Food and Biotechnology, Gothenburg, Sweden, carried out a sensory characterisation of the three samples using the method free profiling. The samples were presented to the panel in the bottles. The panel, which consisted of three sensory experts, considered the following sensory properties: appearance of the drinks by looking into the opening of the bottle, aroma by sniffing in the opening of the bottle, flavour by taking a sip from the bottle and finally mouth feel by taking a sip from the bottle. A five-point intensity scale ranging from just recognizable to very strong was used to describe the perceived intensities.

The following consensus-descriptions of the three samples were obtained (Table 6).

Table 6: Sensory descriptions of the cereal-based drinks

Sensory	Flavour version		
characteristic	Apple-cranberry (382)	Banana (553)	Pineapple-banana (691)
Appearance	Greyish and somewhat	Greyish colour;	Yellow colour; Moderate
	reddish colour;	Moderate with particles	with particles on bottle
	Moderate with particles on	on bottle neck and surface	neck, somewhat less on
	bottle neck and surface		surface
Aroma	Moderate overall aroma	Moderate overall aroma	Strong overall aroma
	intensity;	intensity;	intensity;
	Strong vanilla odour	Strong banana odour	Moderate banana and weak
	together with weak	together with moderate	pineapple odours together
	cranberry/lingonberry	grain/cereal and weak	with just recognizable
	cinnamon/apple and	sweetish odours	grain/cereal and sweetish
	sweetish odours		odours

Sensory	Flavour version		
characteristic	Apple-cranberry (382)	Banana (553)	Pineapple-banana (691)
Flavour	Moderate overall flavour intensity; Strong vanilla and grain/cereal flavours together with weak cinnamon/apple flavour and just recognizable cranberry/lingonberry and milk flavours	Moderate overall flavour intensity; Moderate grain/cereal and milk flavours together with weak banana and sweet flavours	Weak overall flavour intensity; Weak banana, grain/cereal and milk flavours together with a just recognizable pineapple flavour
Mouth feel	Quite thick and moderate particle perception	Medium thick and moderate particle perception	Quite thin and low particle perception

2.4 Description of new healthy snack bars

Three versions of a new cereal bar with fibre and milk protein were assessed: coarse texture with milk chocolate coating and enriched with vitamin D and calcium; smooth texture with dark chocolate coating and enriched with vitamin D and calcium; and smooth texture with milk chocolate coating without enrichment. These were developed and supplied by Cederroth International AB (CIAB), Upplands Vaesby, Sweden.

The development work with the new bars aimed at reaching the following nutrition- and health-related goals: the bars should have lower energy content than traditional snack bars; they should also have high fibre content while the protein content should not be too high; the sugar and sodium contents should be low; and it should be possible to enrich them with various micronutrients that might be beneficial for adolescents. In their development work CIAB also tested various types of coatings with various combinations of crumb textures. Based on the outcomes of preliminary trials in which a large number of different flavoured cereal bars were tested by Swedish adolescents, the following three variants of the cereal bars were finally selected for the HELENA acceptance tests (Table 7).

Table 7. Ingredients in the three selected flavour variants of the new cereal bars

Snack bar variant	Ingredients
Dark chocolate coated, smooth	Milk protein, glucose syrup, chocolate coating (sugar, hardened
texture, enriched (Sample code	vegetable fat, low fat cocoa powder (1%), emulsifier (soya
465)	lecithin), flavour), fructose syrup, sorbitol, oat fibre, cichory root
	fibre (inulin), rape seed oil, chocolate (5%) (cocoa mass, sugar,
	cocoa butter, emulsifier (soya lecihin)), coconut, softening agent
	(glycerol), flavour
Milk chocolate coated, smooth	Milk protein, glucose syrup, chocolate coating (sugar, hardened
texture, not enriched (Sample	vegetable fat, low fat cocoa powder (1%), skim milk powder,
code 798)	emulsifier (soya lecithin), flavour), fructose syrup, sorbitol, oat
	fibre, cichory root fibre (inulin), rape seed oil, chocolate (5%)
	(cocoa mass, sugar, cocoa butter, emulsifier (soya lecithin)),
	coconut, softening agent (glycerol), flavour.
Milk chocolate coated,	Glucose syrup, soya crisps (17%), milk protein, chocolate coating
Coarse texture, enriched	(sugar, hardened vegetable fat, low fat cocoa powder (1%), skim
(Sample code 132)	milk powder, emulsifier (soya lecithin), flavour), sorbitol, oat fibre,
	cichory root fibre (inulin), fructose syrup, chocolate (5%) (cocoa
	mass, sugar, cocoa butter, emulsifier (soya lecithin)), rape seed oil,
	softening agent (glycerol), flavour.

The bars weighed 40g. One bar was considered as one portion. The bars were packed in aluminium foil.

The nutritional characteristics of the bars were as a follows (Table 8; data supplied by CIAB). No trans fatty acids were detected in the bars in a specially performed fatty acid analysis.

Table 8. Nutritional characteristics of the cereal bars

		ocolate / xture (465)	Milk cho smooth tex		Milk chocolate / coarse texture (132)		
	Per 100 g	Per 40 g	Per 100 g	Per 40 g	Per 100 g	Per 40 g	
Energy (kJ)	1450	580	1450	580	1480	592	
Energy (kcal)	346	138	346	138	353	141	
Protein (g)	23	9.2	23	9.2	27	11	
Carbohydrates (g)	42	17	42	17	40	16	
of which sugars (g)	16.8	6.7	16.8	6.7	14.3	5.7	
Fat (g)	8.8	3.5	8.8	3.5	9.4	3.8	
of which saturated (g)	7.6	3.0	7.6	3.0	7.6	3.0	
of which single	0.6	0.2	0.6	0.2	0.9	0.4	
unsaturated (g)							
of which	0.2	0.1	0.2	0.1	0.4	0.2	
polyunsaturated (g)							
Fibre (g)	9.0	3.6	9.0	3.6	8.2	3.3	
Calcium (mg)	352	141	352	141	302	121	
Iron (mg)	33	13.2	33	13.2	4.9	1.96	
Sodium (mg)	46	18.4	46	18.4	220	88	
Potassium (mg)	270	108	270	108	260	104	
D-vitamin (μg)	3.8	1.5	3.8	1.5	3.8	1.5	
		(30%RDI)		(30%RDI)		(30%RDI)	

Campden BRI carried out a sensory characterisation of the three cereal bars. A panel of seven trained assessors was asked to independently describe the appearance, odour, flavour, texture and aftertaste/mouthfeel of the three cereal bars by means of Free Description (Campden BRI test method TES-S-011).

The samples were presented under random three digit codes. For each sample, the panellists were asked to write down descriptions on external appearance first. They were then instructed to break the sample in two to evaluate the internal appearance and the odour attributes by smelling the inside. They then continued the evaluation with the description of flavour, texture, and aftertaste/mouthfeel characteristics.

The descriptors used by the panel were collated, and the number of times each descriptor was used and the intensity found were recorded. The following scale was used to indicate the intensity of the attributes used:

1	2	3	4	5
Very slight	Slight	Moderate	Strong	Very strong

The collated results showed that overall sample 465 (Dark/Smooth) was perceived differently from samples 132 (Milk/Coarse) and 798 (Milk/Smooth). It was less uniform in shape, more glossy with a thicker coating and a stronger brown colour. For internal appearance, it was moderate in density. For both odour and flavour, it was characterised by a moderate dark chocolate note. Slight coconut and a moderate bitterness were also detected. Sample 465 (Dark/Smooth) was perceived to be chewy and the quickest to break down in mouth. The aftertaste was dominated by a moderate sweetness with a slight dark chocolate note and a slight/moderate bitterness.

Sample 132 (Milk/Coarse) was characterised by a strong internal beige colour and the presence of yellow bits that was not found in the other samples. For odour, flavour and aftertaste, the sample was perceived to have milk chocolate notes (as opposed to dark chocolate). Mint and cereal notes were also identified solely in this sample. For texture, it had a moderate firmness and crunchy bits.

Sample 798 (Milk/Smooth) was more uniform in shape compared to the other samples. Similar to sample 132 (Milk/Coarse), the sample was perceived to have milk chocolate notes (as opposed to dark chocolate) for odour, flavour and aftertaste. However, it differed from the other two samples by having moderate almond and caramel odours and moderate coconut and strong almond flavours.

3 ACCEPTABILITY TESTS: METHODS

3.1 Test samples

The test samples were supplied by each of the food companies that developed them, as described in Section 2. A summary description of each of the samples, along with the blinding codes used, report name used and best before date, is presented in Table 9.

Table 9a. Summary description of the "healthy hamburger" samples for acceptability testing

Code	Full description	Report Name	Best Before Date
726	0% Dietary Fibre	Fibre 0%	04/05/2007
480	2% Dietary Fibre with Beef Flavour	Fibre 2% Beef	04/05/2007
938	3% Dietary Fibre with Grill Flavour	Fibre 3% Grill	04/05/2007

Table 9b. Summary description of the "healthy drink" samples for acceptability testing

Code	Full description	Report Name	Best Before Date
553	Drink with whole grain cereals (whole grain smoothie), banana and milk	Banana	23/10/2007
691	Drink with whole grain cereals (whole grain smoothie), pineapple/banana and milk	Pineapple banana	23/10/2007
382	Drink with whole grain cereals (whole grain smoothie), apple/cranberry and milk	Apple cranberry	23/10/2007

Table 9c. Summary description of the "healthy snack bar" samples for acceptability testing

Code	Full description	Report Name	Best Before Date
132	Coarse structure with milk chocolate coating and enriched with Vitamin D and Ca	Coarse Milk Enr.	01/03/2008
465	Smooth texture with dark chocolate coating and enriched with Vitamin D and Ca	Smooth Dark Enr.	01/03/2008
798	Smooth texture with milk chocolate coating without enrichment	Smooth Milk	23/01/2008

At Campden BRI the drinks were stored in a refrigerator, the snack bars were stored at ambient temperature and the hamburgers were kept in a freezer up until 48 hours before the day of assessment, when they were moved to a refrigerator. All samples were sent to the venues the day before they were due to be assessed. The drinks and hamburgers were transported in a chilled van and were stored in refrigerators at the venues. The snack bars were kept at ambient temperature at all times.

Samples were coded using 3-digit blinding codes; the same codes were used for all respondents. Each respondent was given a fresh pre-coded bottle of each drink from the fridge. The snack bars were unwrapped and served on pre-coded paper plates. The hamburgers were cooked on griddles then served as a whole hamburger on pre-coded paper plates. The hamburgers were cooked using Carbonell olive oil; this was for the purpose of standardisation, as the same tests took place in four other countries. No hamburger was kept for more than 10 minutes on hot plates and as a general rule hamburgers were served straight from the griddle onto the pre-coded plates. Mineral water and unsalted crackers were provided as palate cleansers before and between each sample.

3.2 Recruitment and consumer demographics

A total of 144 adolescents were recruited from the Guildford and Nottingham areas. The adolescents were fairly evenly split between gender, with 47% being male and 53% being female. Their ages ranged between 13-16 years, with the age distribution being fairly evenly split: 24% were 13 years old, 30% were 14 years old, 26% were 15 years old, and 21% were 16 years old.

The family's social grade was also fairly evenly split, with 47% being A/B/C1 and 53% being C2/D/E. All of the adolescents attended full time education, with 94% attending state school and 5% attending private school. None of the respondents indicated that they were disinterested in healthy eating, with 88% indicating that they were interested to some degree. The full set of demographic results is shown in Appendix I.

3.3 Test method and experimental design

A pre-recruited central location test (CLT) was carried out over two consecutive Saturdays: 21st April 2007 (Day 1) and 28th April 2007 (Day 2). A total of 144 consumers were recruited from the Guildford (Greater London) and Nottingham areas. Respondents were asked to come on both Saturdays.

Table 10. Overall structure of acceptability tests

Country	Category	Day	Order of category
UK	Drinks	1	1 st
UK	Snack bars	1	2^{nd}
UK	Hamburgers	2	1 st
UK	FCP	2	2 nd

The overall structure of the acceptability tests is shown in Table 10. Each respondent assessed three samples of drinks followed by three samples of snack bars on Day 1 and three samples of hamburgers on Day 2. The order of assessments on Day 1 (drinks followed by snacks) was the preassigned order for the UK (the order was randomised across all five countries taking part in the study). Due to the difficult cooking constraints for the hamburgers, it was decided that the burgers would be evaluated first on Day 2 of testing; this was true for all countries. Adolescents were also asked to complete a Food Choices and Preference (FCP) questionnaire on Day 2, after the assessment of the hamburgers. The FCP questionnaire (see Appendix VIII) was developed within the scope of the HELENA project, using insights gained from focus groups with adolescents in five countries. The presentation order for this last questionnaire was not randomised because the FCP needed to be completed last to avoid biasing the participants.

Products were sampled in rotation according to a defined experimental design. As there were no constraints for the products presented on Day 1, the presentation order for samples within the snack bar and drink categories followed a randomised complete block design (RCBD). The sample distribution for the burgers also followed a RCBD, but in this case assessors were 'blocked' into groups of 15, with assessors within each block receiving samples in the same order. Different blocks received the burgers in different orders with eventually all presentation orders being covered an equal number of times. This was in order to facilitate the cooking and serving of the burgers, and to minimise experimental error. A partial example of the experimental design used is shown in Table 11.

Table 11. Example of sample distribution design

			DAY 1					DAY 2	2					
Country	Session	Set No.	1st	2nd	3rd	Break	4th	5th	6th	1st	2nd	3rd	Break	4th
UK	1	1	553	691	382		798	132	465	938	726	480		FCP
UK	1	2	553	382	691		798	465	132	938	726	480		FCP
UK	1	3	691	553	382		132	465	798	938	726	480		FCP
UK	1	4	691	382	553		132	798	465	938	726	480		FCP
UK	1	5	382	553	691		465	132	798	938	726	480		FCP
UK	1	6	382	691	553		465	798	132	938	726	480		FCP
UK	1	7	553	691	382		465	798	132	938	726	480		FCP
UK	1	8	553	382	691		798	132	465	938	726	480		FCP
UK	1	9	691	553	382		798	465	132	938	726	480		FCP
UK	1	10	691	382	553		132	465	798	938	726	480		FCP
UK	1	11	382	553	691		132	798	465	938	726	480		FCP
UK	1	12	382	691	553		465	132	798	938	726	480		FCP
UK	1	13	553	691	382		465	132	798	938	726	480		FCP
UK	1	14	553	382	691		465	798	132	938	726	480		FCP
UK	1	15	691	553	382		798	132	465	938	726	480		FCP
UK	2	16	553	691	382		132	465	798	480	726	938		FCP
UK	2	17	553	382	691		132	798	465	480	726	938		FCP
UK	2	18	691	553	382		465	132	798	480	726	938		FCP
UK	2	19	691	382	553		465	798	132	480	726	938		FCP
UK	2	20	382	553	691		798	132	465	480	726	938		FCP
UK	2	21	382	691	553		798	465	132	480	726	938		FCP
UK	Etc.	Etc.												

3.4 Questionnaires

Separate questionnaires were developed for each of the three products (see Appendix VIII). Degree of liking was measured for overall acceptability, appearance, odour, flavour and texture/mouthfeel. A nine-point hedonic scale was used to capture respondents' degree of liking for each characteristic, a five-point scale was used for the diagnostic (just about right) attributes, and a five-point scale was used to capture likelihood of purchase. Other usage and attitude questions were also included as appropriate.

Scales used in the acceptability study

Hedonic scale:

Label	Code
Like extremely	9
Like very much	8
Like moderately	7
Like slightly	6
Neither like nor dislike	5
Dislike slightly	4
Dislike moderately	3
Dislike very much	2
Dislike extremely	1

Just About Right scale:

Label	Code
Much too much	5
A little too much	4
Just about right	3
Not quite enough	2
Not nearly enough	1

Purchase intent scale:

Label	Code
Definitely not	5
Probably not	4
Might/might not	3
Probably yes	2
Definitely yes	1

Food Choices and Preferences scales

Agreement/Disagreement scale:

Label	Code
Strongly agree	7
Moderately agree	6
Slightly agree	5
Neither agree nor disagree	4
Slightly disagree	3
Moderately disagree	2
Strongly disagree	1

Liking scale:

Label	Code
Like strongly	5
Like slightly	4
Neither like or dislike	3
Dislike slightly	2
Dislike strongly	1

Frequency scale:

Label	Code
Often	3
Sometimes	2
Never	1

Healthiness scale:

Label	Code
Very healthy	5
Slightly healthy	4
Neither healthy nor unhealthy	3
Slightly unhealthy	2
Very unhealthy	1

Influence scale:

Label	Code
Very strong influence	5
Strong influence	4
Moderate influence	3
Slight influence	2
No influence	1

3.5 Data analysis

Summary statistics were applied along with a breakdown of full counts and percentages per sample. The data were analysed by a number of methods, which are described below.

ANOVA

The hedonic data were then analysed using analysis of variance (ANOVA) to determine if there were significant differences between the samples with respect to acceptability. A two-way ANOVA (respondent and sample main effects) was performed. Following ANOVA, a Newman-Keuls (NK) multiple comparison test was undertaken to establish which samples were different at the 5% level of significance. Samples with non-overlapping letters were significantly different from each other.

T-Test

A one sample t-test was performed on the intent to purchase attribute, to establish if each sample's mean was significantly different from the "might/might not buy" score of 3 (H_0 : μ = 3, H_1 : μ ≠ 3).

Cross-tabulations

Selected categorical variables were cross-tabulated and analysed using Pearson's Chi-Squared Test.

Cluster analysis

Cluster analysis was used to identify groups of consumers with similar preference behaviour. Clustering was conducted on the overall liking attribute. The Ward agglomeration method of clustering was used.

4 ACCEPTABILITY TESTS: RESULTS AND DISCUSSION

4.1 Hedonic test results and purchase intention

Results of the product testing exercise are discussed in this section. Adolescents evaluated each sample and rated their overall liking of the samples as well as liking for appearance, odour, flavour, and texture/mouthfeel. Adolescents were also asked to rate their purchase intention for each of the products.

4.1.1 New healthy hamburgers

Hedonic results

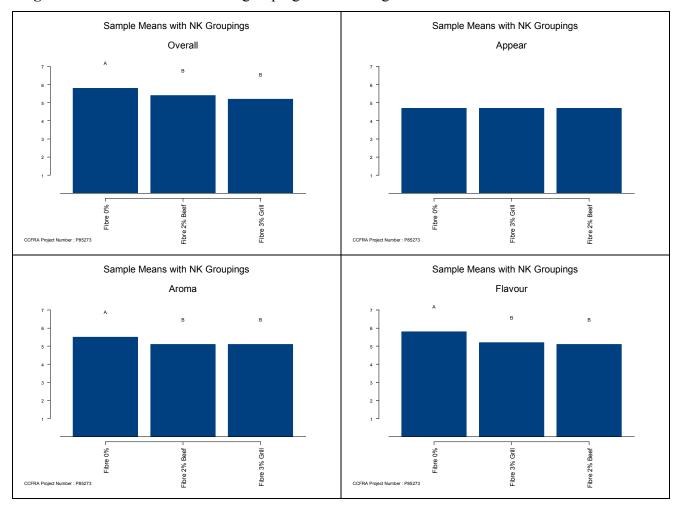
Significant differences in liking between the hamburger samples were found for overall liking, liking of odour and liking of flavour (Table 12). Means and NK results for all attributes can be visualised in Figure 1. Table 13 shows the collapsed table of counts and percentage, indicating the proportion of respondents who liked, disliked or 'neither liked nor disliked' each of the products. The full set of tabulated results for the hamburger questionnaire can be found in Appendix II.

Table 12. Summary statistics, ANOVA and Newman Keuls (NK) multiple comparison results: hamburgers

Variable	Sample	N	Mean	Median	Standard Deviation	P. Value		K ups
Overall	Fibre 0%	144	5.8	6.0	2.04		Α	
	Fibre 2% Beef	144	5.4	6.0	1.96	0.002		В
Impression	Fibre 3% Grill	144	5.2	6.0	1.98			В
	Fibre 0%	144	4.7	5.0	1.90			
Appearance	Fibre 3% Grill	144	4.7	5.0	1.77	0.850		
	Fibre 2% Beef	144	4.7	5.0	1.74			
	Fibre 0%	144	5.5	6.0	1.77		Α	
Aroma	Fibre 2% Beef	144	5.1	5.0	1.84	0.010		В
	Fibre 3% Grill	144	5.1	5.0	1.86			В
	Fibre 0%	144	5.8	6.0	2.14		Α	
Flavour	Fibre 3% Grill	144	5.2	6.0	2.18	< 0.001		В
	Fibre 2% Beef	144	5.1	6.0	2.13			В
Taytura/	Fibre 0%	144	5.6	6.0	1.80			
Texture/ Mouthfeel	Fibre 2% Beef	144	5.3	6.0	1.79	0.079		
Mounifeer	Fibre 3% Grill	144	5.2	5.0	1.83			

p-value ≤ 0.05 was considered to be statistically significant. Newman Keuls groupings are provided for significant ANOVA results. Samples with non-overlapping letters were significantly different at the 5% level.

Figure 1. Hedonic means and NK groupings for hamburgers



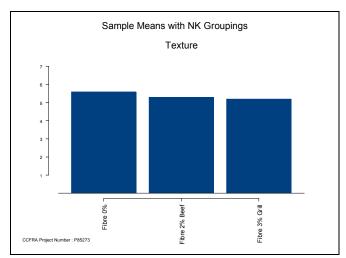


Table 13. Summarised table of counts and percentages for hamburgers

Overall		Count Mean					
Impression	Like	Neither	Dislike	iviean	Like	Neither	Dislike
Fibre 0%	96	12	36	5.8 a	66.7	8.3	25.0
Fibre 2% Beef	86	10	48	5.4 b	59.7	6.9	33.3
Fibre 3% Grill	74	18	52	5.2 b	51.4	12.5	36.1

Annagranca		Count		Mean	%			
Appearance	Like	Neither	Dislike		Like	Neither	Dislike	
Fibre 0%	52	25	67	4.7	36.1	17.4	46.5	
Fibre 2% Beef	46	32	66	4.7	31.9	22.2	45.8	
Fibre 3% Grill	46	34	64	4.7	31.9	23.6	44.4	

Anoma		Count		Mean	%			
Aroma	Like	Neither	Dislike	ivican	Like	Neither	Dislike	
Fibre 0%	85	30	29	5.5 a	59.0	20.8	20.1	
Fibre 2% Beef	66	29	49	5.1 b	45.8	20.1	34.0	
Fibre 3% Grill	62	31	51	5.1 b	43.1	21.5	35.4	

Flavour		Count		Mean	%			
riavour	Like	Neither	Dislike	ivican	Like	Neither	Dislike	
Fibre 0%	101	9	34	5.8 a	70.1	6.2	23.6	
Fibre 2% Beef	80	9	55	5.1 b	55.6	6.2	38.2	
Fibre 3% Grill	76	15	53	5.2 b	52.8	10.4	36.8	

Texture	Texture Count Mean		%				
Mouthfeel	Like	Neither	Dislike	ivican	Like	Neither	Dislike
Fibre 0%	84	27	33	5.6	58.3	18.8	22.9
Fibre 2% Beef	77	22	45	5.3	53.5	15.3	31.2
Fibre 3% Grill	69	30	45	5.2	47.9	20.8	31.2

For the healthy hamburger samples, the Fibre 0% sample was the most preferred overall, being liked significantly more than the other two samples for overall impression, aroma and flavour.

For overall impression, aroma, flavour and texture the Fibre 0% sample recorded the highest liking levels, accruing mean values of 5.5-5.8, with liking to some degree expressed by 58-70% of respondents. The Fibre 2% beef and Fibre 3% grill samples recorded similarly low liking levels. The Fibre 2% beef sample recorded means of 5.1-5.4, with liking to some degree expressed by 46-60% of respondents. The Fibre 3% grill sample recorded means of 5.1-5.2, with liking to some degree expressed by 43-53% of respondents.

None of the samples were liked for appearance, with liking to some degree recorded by only 32-36% of respondents. All 3 samples recorded means of 4.7, indicating the appearance of the products to be disliked generally.

Finally, the adolescents were asked whether the hamburgers met their expectations. Their responses were split, with 45% indicating that it was better than expected, 31% indicating that it was worse than expected and 24% indicating that it met their expectation.

Purchase intention

None of the hamburger samples were significantly likely to be purchased, with the intention to purchase split between 'would purchase' and 'would not purchase' (Table 14, Figure 2). For the Fibre 0% sample, intention to buy was recorded by 42% of respondents, with 31% indicating that they would not purchase. For the Fibre 2% beef sample 35% indicated that they would buy it, with 40% indicating that they would not, and for the Fibre 3% grill sample, 34% indicated that they would buy it, with 42% indicating that they would not.

The split in responses for purchase intention, in addition to the divided opinions for the expectation question above, can be explained by differences in consumer segments, as discussed in Section 4.3.1.

Table 14. Purchase intent for hamburgers: summary statistics and results of one-sample T-test

Sample	N	Mean	Median	Standard Deviation	P Value	Significance
Fibre 0%	144	3.1	3.0	1.10	0.498	NS
Fibre 2% Beef	144	2.9	3.0	1.12	0.121	NS
Fibre 3% Grill	144	2.8	3.0	1.16	0.054	NS

 H_0 : sample mean = 3 (might/might not), H_1 : sample mean $\neq 3$.

NS = not significant, p-value ≤ 0.05 is considered to be statistically significant.

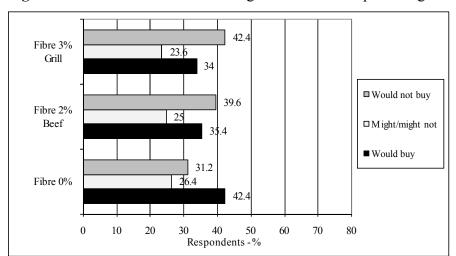


Figure 2. Purchase intent for hamburgers: summarised percentages

4.1.2 New healthy drinks

Hedonic results

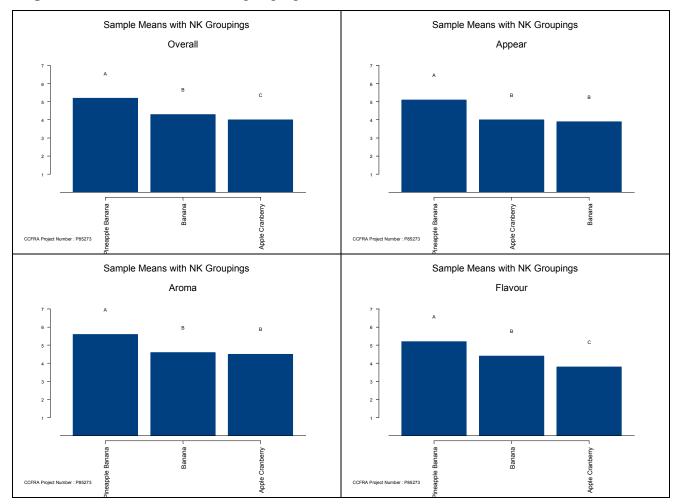
Significant differences in liking between the smoothie samples were found for all of the attributes (Table 15). Means and NK results for the drinks can be visualised in Figure 3. Table 16 shows the collapsed table of counts and percentage, indicating the proportion of respondents who liked, disliked or 'neither liked nor disliked' each of the products. The full set of tabulated results for the drinks questionnaire can be found in Appendix III.

Table 15. Summary statistics, ANOVA and Newman Keuls multiple comparison results: drinks

Variable	Sample	N	Mean	Median	Standard Deviation	P. Value	NK	gro	ups
Overall	Pineapple Banana	144	5.2	5.5	1.93		Α		
	Banana	144	4.3	4.0	2.16	< 0.001		В	
Impression	Apple Cranberry	144	4.0	4.0	1.99				С
	Pineapple Banana	144	5.1	5.0	1.71		Α		
Appearance	Apple Cranberry	143	4.0	4.0	1.60	< 0.001		В	
	Banana	144	3.9	4.0	1.61			В	
	Pineapple Banana	143	5.6	6.0	1.76		Α		
Aroma	Banana	144	4.6	5.0	1.95	< 0.001		В	
	Apple Cranberry	144	4.5	5.0	2.03			В	
	Pineapple Banana	144	5.2	5.5	1.95		Α		
Flavour	Banana	144	4.4	4.0	2.18	< 0.001		В	
	Apple Cranberry	144	3.8	3.0	1.92				С
Toytura	Pineapple Banana	144	4.9	5.0	2.02		Α		
Texture Mouthfeel	Banana	144	4.3	4.0	2.04	< 0.001		В	
Mouniter	Apple Cranberry	144	4.2	4.0	1.84			В	

p-value ≤ 0.05 is considered to be statistically significant. Newman Keuls groupings are provided for significant ANOVA results. Samples with non-overlapping letters were significantly different at the 5% level.

Figure 3. Hedonic means and NK groupings for drinks



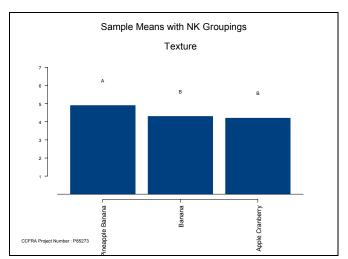


Table 16. Summarised table of counts and percentages for drinks

Overall		Count		Mean	%			
Impression	Like	Neither	Dislike	Mean	Like	Neither	Dislike	
Apple Cranberry	40	13	91	4.0 c	27.8	9.0	63.2	
Banana	55	13	76	4.3 b	38.2	9.0	52.8	
Pineapple Banana	72	20	52	5.2 a	50.0	13.9	36.1	

Appearance		Count		Mean	%			
	Like	Neither	Dislike	ivican	Like	Neither	Dislike	
Apple Cranberry	27	29	87	4.0 b	18.9	20.3	60.8	
Banana	21	35	88	3.9 b	14.6	24.3	61.1	
Pineapple Banana	62	26	56	5.1 a	43.1	18.1	38.9	

Aroma		Count		Mean	%			
	Like	Neither	Dislike	Ivican	Like	Neither	Dislike	
Apple Cranberry	48	26	70	4.5 b	33.3	18.1	48.6	
Banana	46	37	61	4.6 b	31.9	25.7	42.4	
Pineapple Banana	83	22	38	5.6 a	58.0	15.4	26.6	

Flavour		Count		Mean	%			
	Like	Neither	Dislike	Mean	Like	Neither	Dislike	
Apple Cranberry	36	10	98	3.8 c	25.0	6.9	68.1	
Banana	58	9	77	4.4 b	40.3	6.2	53.5	
Pineapple Banana	72	21	51	5.2 a	50.0	14.6	35.4	

Texture / Mouthfeel		Count		Mean %			
	Like	Neither	Dislike	ivican	Like	Neither	Dislike
Apple Cranberry	36	31	77	4.2 b	25.0	21.5	53.5
Banana	42	28	74	4.3 b	29.2	19.4	51.4
Pineapple Banana	65	23	56	4.9 a	45.1	16.0	38.9

Generally speaking, all three drinks recorded exceptionally low liking levels, with mean values of 3.8-5.6 across all attributes, and with liking to some degree expressed by only 15-58% of respondents.

The Pineapple Banana sample faired the best, accruing mean values of 4.9-5.6 across all hedonic attributes, with liking to some degree indicated by 43-58% of respondents. This sample was liked significantly more than the Apple Cranberry and the Banana samples for overall impression, appearance, aroma, flavour and texture. In turn, the Banana sample was liked significantly more than the Apple Cranberry sample for overall impression and flavour.

The Banana sample recorded very low liking levels, recording means of 3.9-4.6 across all hedonic attributes, indicating the product generally to be disliked, with liking to some degree indicated by only 14-40% of respondents.

The Apple Cranberry sample was the least preferred, recording very low liking levels across all hedonic attributes, with liking to some degree indicated by only 19-33% of respondents. Means of 3.8-4.5 were recorded, indicating the product generally to be disliked, with 49-68% of respondents indicating they disliked the product to some degree.

None of the drinks accrued means of above 5 for texture/mouthfeel, indicating all the drinks to be generally disliked for texture.

At the time of the study, there were no similar products on the UK market. Most of the smoothies available on the UK market were fruit-based, or yoghurt-based with added fruit (Beuzit and Gilbert, 2007). There were a few examples of smoothie products on the market which incorporated oats or cereal, but these tended to be yoghurt-based and had a much different texture and flavour profile compared to the samples tested in this study. The adolescents in the UK, therefore, will not have had any previous exposure to this type of cereal-based drink, and it was felt that this lack of familiarity may have been a contributing factor to the samples being disliked.

Purchase intention

All of the drink samples were significantly not likely to be purchased, as indicated by 65% of respondents for the Apple Cranberry sample, 57% for the Banana sample, and 42% for the Pineapple Banana sample (Table 17, Figure 4).

Table 17. Purchase intent for drinks: summary statistics and results of one-sample T-test

Sample	N	Mean	Median	Standard Deviation	P Value	Significance
Apple Cranberry	144	2.2	2.0	0.99	0.000	0.1%
Banana	144	2.4	2.0	1.09	0.000	0.1%
Pineapple Banana	144	2.8	3.0	1.07	0.017	5%

 H_0 : sample mean = 3 (might/might not), H_1 : sample mean $\neq 3$.

 $NS = not \ significant, \ p-value \le 0.05 \ is \ considered \ to \ be \ statistically \ significant.$

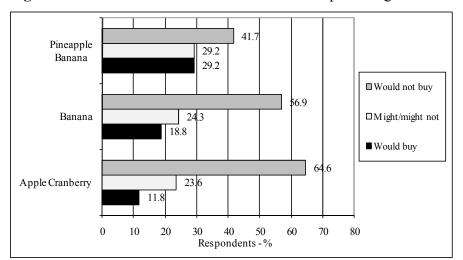


Figure 4. Purchase intent for drinks: summarised percentages

4.1.3 New healthy snack bars

Hedonic results

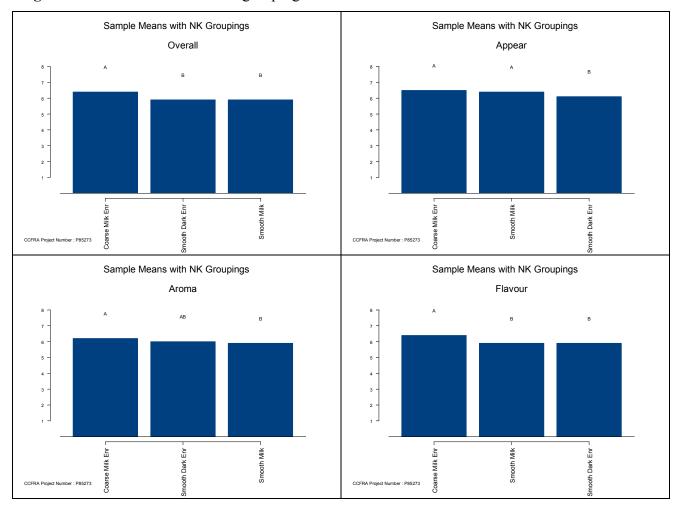
Significant differences in liking between the snack bar samples were found for all five attributes (Table 18). Means and NK results for the snack bars can be visualised in Figure 5. Table 19 shows the collapsed table of counts and percentage, indicating the proportion of respondents who liked, disliked or 'neither liked nor disliked' each of the products. The full set of tabulated results for the snack bars questionnaire can be found in Appendix IV.

Table 18. Summary statistics, ANOVA and Newman Keuls multiple comparison results: snack bars

Variable	Sample	N	Mean	Median	Standard Deviation	P. Value		K ups
Overall	Coarse Milk Enr	144	6.4	7.0	1.69		A	
	Smooth Dark Enr	144	5.9	6.0	1.88	< 0.001		В
Impression	Smooth Milk	144	5.9	6.0	1.84			В
	Coarse Milk Enr	144	6.5	7.0	1.35		A	
Appearance	Smooth Milk	144	6.4	7.0	1.36	< 0.001	A	
	Smooth Dark Enr	144	6.1	6.0	1.54			В
	Coarse Milk Enr	144	6.2	6.0	1.53		A	
Aroma	Smooth Dark Enr	144	6.0	6.0	1.59	0.030	Α	В
	Smooth Milk	144	5.9	6.0	1.32			В
	Coarse Milk Enr	144	6.4	7.0	1.85		Α	
Flavour	Smooth Milk	144	5.9	6.0	2.06	0.005		В
	Smooth Dark Enr	144	5.9	6.0	1.99			В
Tarretura	Coarse Milk Enr	144	6.2	6.0	1.75		A	
Texture Mouthfeel	Smooth Milk	144	5.8	6.0	1.89	0.004		В
Moutifieer	Smooth Dark Enr	144	5.7	6.0	1.85			В

p-value ≤ 0.05 is considered to be statistically significant. Newman Keuls groupings are provided for significant ANOVA results. Samples with non-overlapping letters were significantly different at the 5% level.

Figure 5. Hedonic means and NK groupings for snack bars



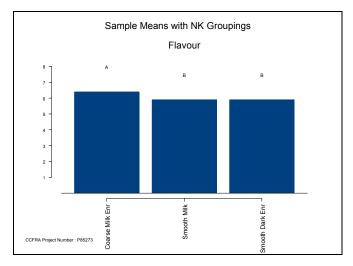


Table 19. Summarised table of counts and percentages for snack bars

Overall	Count			Mean		%	
Impression	Like	Neither	Dislike	Ivican	Like	Neither	Dislike
Coarse Milk Enr.	109	14	21	6.4 a	75.7	9.7	14.6
Smooth Dark Enr.	97	15	32	5.9 b	67.4	10.4	22.2
Smooth Milk	97	18	29	5.9 b	67.4	12.5	20.1

Ann 2 2 2 2 2 2 2	Count			Mean		%	
Appearance	Like	Neither	Dislike	Ivican	Like	Neither	Dislike
Coarse Milk Enr.	112	23	9	6.5 a	77.8	16.0	6.2
Smooth Dark Enr.	93	27	24	6.1 b	64.6	18.8	16.7
Smooth Milk	107	27	10	6.4 a	74.3	18.8	6.9

4	Count			Mean		%	
Aroma	Like	Neither	Dislike	ivican	Like	Neither	Dislike
Coarse Milk Enr.	99	28	17	6.2 a	68.8	19.4	11.8
Smooth Dark Enr.	91	31	22	6.0 ab	63.2	21.5	15.3
Smooth Milk	87	35	22	5.9 b	60.4	24.3	15.3

Elmonn		Count		Mean		%	
Flavour	Like	Neither	Dislike	ivican	Like	Neither	Dislike
Coarse Milk Enr.	107	11	26	6.4 a	74.3	7.6	18.1
Smooth Dark Enr.	98	9	37	5.9 b	68.1	6.2	25.7
Smooth Milk	96	11	37	5.9 b	66.7	7.6	25.7

Texture /		Count		Mean	%			
Mouthfeel	Like	Neither	Dislike	ivican	Like	Neither	Dislike	
Coarse Milk Enr.	100	16	28	6.2 a	69.4	11.1	19.4	
Smooth Dark Enr.	85	17	42	5.7 b	59.0	11.8	29.2	
Smooth Milk	85	18	41	5.8 b	59.0	12.5	28.5	

Reasonable levels of consumer satisfaction were recorded for the snack bars samples.

The Coarse Milk Enriched sample was liked significantly more than the other two samples for overall impression, flavour and texture/mouthfeel and significantly more than the Smooth Milk sample for aroma. For appearance the Smooth Dark Enriched sample was liked significantly less than the other two samples.

The Coarse Milk Enriched sample recorded marginally higher liking levels than the other two samples, accruing means of 6.2-6.5 across all hedonic attributes, with liking to some degree recorded by 69-78% of respondents.

The Smooth Dark Enriched sample recorded means of 5.7-6.1 across all hedonic attributes, with liking to some degree expressed by 59-68% of respondents.

The Smooth Milk sample recorded means of 5.8-6.4, with liking to some degree expressed by 59-74% of respondents.

Purchase intention

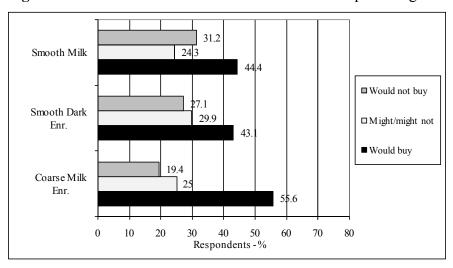
Intention to purchase was indicated by 56% of respondents for the Coarse Milk Enriched sample (whose overall mean for purchase intent was significant at 0.1%), by 43% for the Smooth Dark Enriched sample, and by 44% for the Smooth Milk sample (Table 20, Figure 6). The Coarse Milk Enriched sample was the only product in the study which achieved significant purchase intention.

Table 20. Purchase intent for snack bars: summary statistics and results of one-sample T-test

Sample	N	Mean	Median	Standard Deviation	P Value	Significance
Coarse Milk Enr	144	3.4	4.0	1.03	0.000	0.1%
Smooth Dark Enr	144	3.2	3.0	1.09	0.080	NS
Smooth Milk	144	3.1	3.0	1.13	0.304	NS

 H_0 : sample mean = 3 (might/might not), H_1 : sample mean $\neq 3$.

Figure 6. Purchase intent for snack bars: summarised percentages



NS = not significant, p-value ≤ 0.05 is considered to be statistically significant.

4.2 Usage and attitude summary

Several usage and attitude questions were asked about each of the products. Figure 7 shows the responses to several attitudinal questions about the new healthy drink samples.

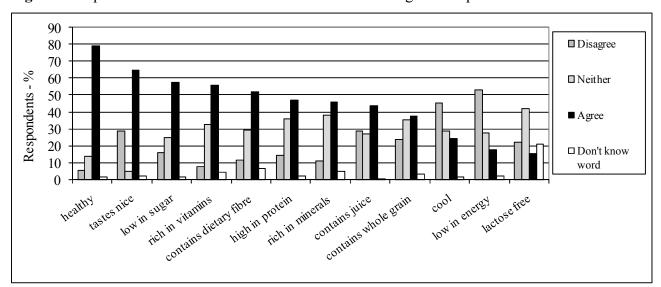


Figure 7. Importance of various characteristics when choosing a drink product

Adolescents were asked to rate the importance of various characteristics when generally choosing a drink product. A high proportion of respondents agreed that the drinks should be healthy (79%) and that they should taste nice (65% agreeing to some degree with 49% indicating that they strongly agreed). There was also fairly high agreement that the drinks should be low in sugar (58% agreed), rich in vitamins (56%), and/or contain dietary fibre (52%). About half the respondents didn't agree that the drinks should be low in energy (53% disagreed) or that they should be 'cool' (46%). Respondents seemed uncertain as to whether the drinks should be lactose free, with 42% neither agreeing nor disagreeing and 21% indicating that they didn't know the word (Appendix III).

Regarding the portion sizes for the snack bars and the drink bottles, 88% and 87% (respectively) of respondents indicated the size to be just about right (see Appendix V).

More respondents considered the drinks to be healthy compared to the snack bars. For the drinks, 64% of respondents indicated them to be healthy with 35% not knowing. For the snack bars, only 17% of respondents indicated them to be healthy with 46% considering them to be unhealthy and 37% not knowing (Appendix V).

Nearly half of respondents seemed uncertain as to whether they would choose the snack bar if it was enriched with iron over one which was not, with 46% indicating that they didn't know and 35% indicating that they would (Appendix IV).

Adolescents were asked to select 'major reasons for choosing' each of the 3 types of products (Figure 8). The most popular reason for choosing the healthy drinks was health, indicated by 65% of respondents, followed by thirst (51%). For the healthy snack bars the main reason was hunger, indicated by 71% of respondents, followed by pleasure (37%) and health (32%). For the healthy hamburger the main reason was hunger (52%), followed by taste (47%) and health (42%) (Appendix V).

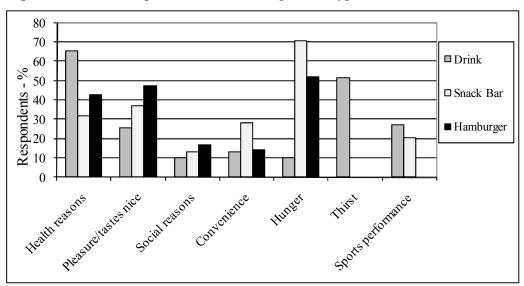


Figure 8. Reasons to purchase each of the product types

For the drinks and the snack bars, respondents were also asked to identify in which situations they would be likely to choose this product (Figure 9). The most popular situations for consuming the healthy drinks were at breakfast, indicated by 51% of respondents, followed by when thirsty (38%) and at home (35%). For the healthy snack bars the most popular situations were when hungry (60%), followed by at home (43%) and in school (38%) (Appendix V).

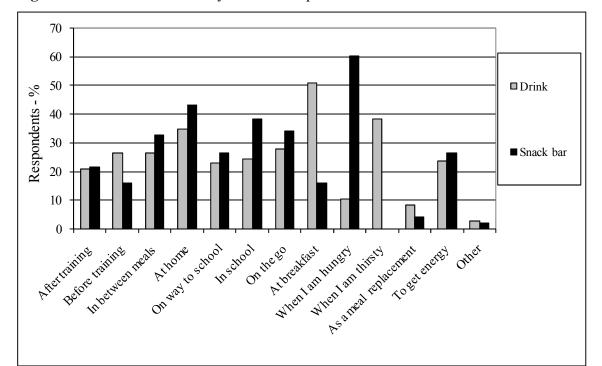


Figure 9. Situations when likely to consume products

4.3 Consumer segments for liking of products

Sections 4.1 and 4.2 displayed the results of the acceptability tests overall for the full sample of respondents. However, as is often the case with consumer responses, individual differences in liking could exist between adolescents. To investigate this, cluster analysis was applied to identify segments of consumers with similar liking patterns across products. This was applied separately for each of the three product categories.

4.3.1 New healthy hamburgers

Four segments were identified when investigating similarities and differences in liking patterns for the healthy hamburgers. The sample means for each cluster are shown in Figure 10.

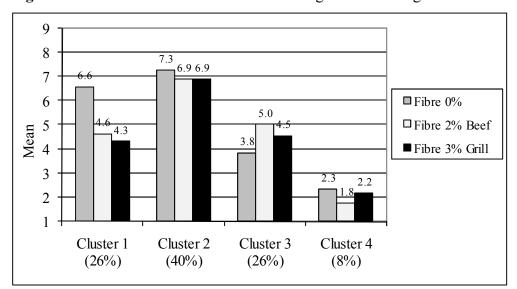


Figure 10. Cluster means for each consumer segment: hamburgers

Cluster 2 was the largest cluster (40% of respondents); adolescents in this cluster liked all of the samples, scoring all of the samples fairly equally around the 'like moderately' mark.

Adolescents in cluster 1 (26%) moderately liked the Fibre 0% sample and neither liked nor disliked (verging on slightly disliking) the other two samples.

Adolescents in cluster 3 (26%) were fairly indifferent towards all of the samples. They neither liked nor disliked the Fibre 2% Beef flavoured sample, neither liked nor disliked (verging on slightly disliking) the Fibre 3% Grill flavoured sample, and slightly disliked the Fibre 0% sample.

Finally, adolescents in cluster 4 (8%) strongly disliked all three of the products, but especially the Fibre 2% Beef sample.

Section 4.1.1 highlighted that the adolescents were divided in terms of their purchase intention, and also whether the hamburgers met their expectations. The responses to both of these questions were significantly associated ($p \le 0.001$) with the differences between consumer segments. In particular, the adolescents in cluster 2 (who liked all three products), and to a lesser extent those in cluster 1 (who liked the Fibre 0% sample), were more likely to say that the hamburgers met their expectations and were also more likely to purchase the products (see Appendix VII).

Taking into account the 66% of adolescents in clusters 1 and 2, we could recommend the Fibre 0% sample as being the most promising hamburger prototype, having achieved an overall liking mean of 7 ('like moderately') between the two groups.

4.3.2 New healthy drinks

Three segments were identified when investigating similarities and differences in liking patterns for the healthy wholegrain drinks. The sample means for each cluster are shown in Figure 11.

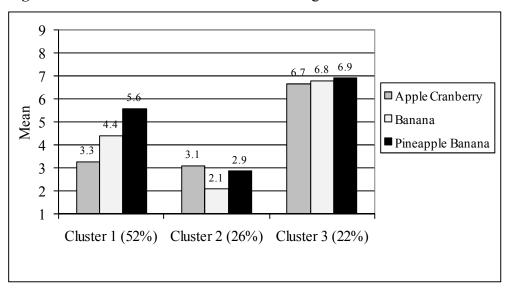


Figure 11. Cluster means for each consumer segment: drinks

Cluster 1 was the largest cluster (52% of respondents); adolescents in this cluster only showed a very slight liking of the pineapple banana smoothie. They slightly disliked the banana flavoured smoothie and moderately disliked the apple cranberry flavoured smoothie.

Adolescents in cluster 2 (the second largest cluster with 26% of respondents) disliked all three of the products, but especially the banana flavoured sample.

Finally, adolescents in cluster 3 liked all three samples fairly equally, although this was the smallest cluster, accounting for only 22% of respondents.

Overall, it would appear that the pineapple banana sample was the most popular, although it did not achieve very high liking scores within the largest cluster of consumers. Therefore, further development work would be recommended for this product.

4.3.3 New healthy snack bars

Four segments were identified when investigating similarities and differences in liking patterns for the healthy snack bars. The sample means for each cluster are shown in Figure 12.

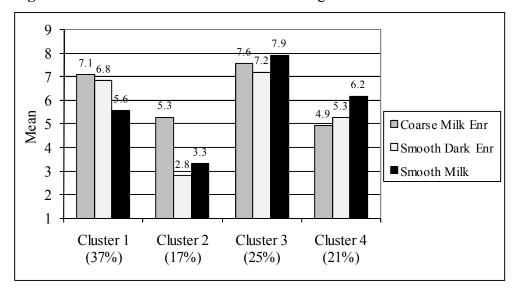


Figure 12. Cluster means for each consumer segment: snack bars

Cluster 1, with 37% of respondents, moderately liked the enriched samples (Coarse Milk Enriched and Smooth Dark Enriched) and very slightly liked the Smooth Milk sample.

Adolescents in cluster 2 (17%) disliked the two smooth samples, but didn't mind the sample with coarse texture, giving it a mean score around the 'neither like nor dislike' point.

Cluster 3, with 25% of adolescents, liked all three samples fairly equally, giving them fairly high liking scores. Adolescents in this cluster had a very slight preference for the milk chocolate coating as opposed to the dark chocolate coating.

Finally, adolescents in cluster 4 (21%) slightly liked the Smooth Milk sample, and neither liked nor disliked the two enriched samples.

These results suggest two possible courses of action. The first would be to develop and market both the coarse milk enriched and the smooth milk samples in order to appeal to different segments of consumers. The second would be to focus on the coarse milk enriched sample: as well as being the most preferred sample overall, this sample would satisfy three of the four consumer segments, appealing to 79% of consumers.

4.4 Food choices & preferences (FCP)

After completion of the acceptability tests, adolescents were asked to complete a more general questionnaire exploring food choices and preferences. This questionnaire, developed within the scope of the HELENA project, was based on results of focus groups with adolescents in five European countries (Belgium, Hungary, Spain, Sweden and the UK). The full set of tabulated results for the FCP questionnaire for this sample of adolescent consumers can be found in Appendix VII.

Adolescents rated their level of agreement/disagreement to a series of 27 attitudinal statements (Figure 13). The statement which generated the most agreement was that the taste of food is very important, where 92% of respondents expressed agreement to some degree (with 46% indicating strong agreement). In addition, 58% of respondents agreed that taste was more important than healthiness. Other statements which generated high levels of agreement included: "I choose my own snacks" (85% agreed), "I like the food my parents prepare at home" (85%), "I enjoy eating fruit and vegetables" (85%), "What I eat now will have a big impact on my future health" (79%), "I like the food I eat when I am out with my friends" (78%), "I feel well informed about what are healthy foods" (72%), "I think that my diet is healthy" (66%), and "Food I eat at home is healthy" (66%).

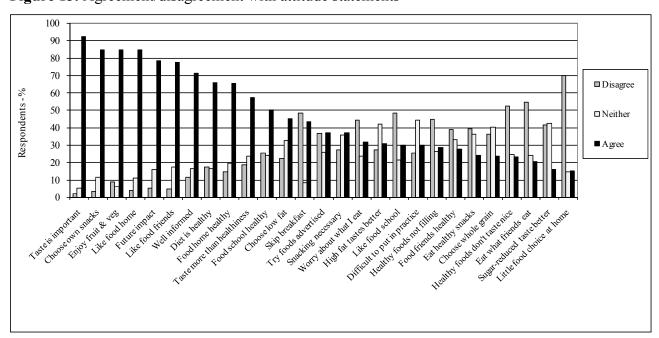


Figure 13. Agreement/disagreement with attitude statements

The two statements with the highest level of disagreement were "I have little choice over what I eat at home" (70% disagreed to some extent) and "I tend to eat whatever my friends are eating" (55% disagreed). This, along with the statement "I choose my own snacks" which achieved the second highest level of agreement (85% agreed), demonstrates how important it is for adolescents to express their independence.

Around half (52%) of the adolescents indicated that they liked the taste of healthy foods by disagreeing with the statement "healthy foods don't taste very nice". Unfortunately the exception seems to be with school meals, as 49% of adolescents disagreed with the statement "I like the food prepared at the school canteen" while they agreed with the statement "food I eat at school (in the canteen) is healthy" (50% agreed).

There were four statements that split the respondents. For the statement "I often skip breakfast", 48% of adolescents disagreed while 43% agreed. Girls were more likely to agree with this statement than boys (of those that agreed, 61% were female and of those that disagreed, 57% were male), although this association was not significant (p=0.114). Similarly, 44% disagreed and 32% agreed with the statement "I worry about what I eat because I do not want to gain weight". This had a significant association with gender ($p \le 0.001$), with girls far more likely to agree with the statement than boys (of those that agreed, 74% were female and of those that disagreed, 66% were male). There was equal reaction to the statement "I often try foods that I see advertised in the media" (37% agreed and 37% disagreed) and this was significantly associated with age (p=0.007). During the focus groups, the younger adolescents (13-14 year olds) were found to be more influenced by brands and the media. In this case, the results were not as clear: out of all the 16 year olds, the majority (57%) disagreed with the statement, in line with the results of the groups; the majority of 15 year olds (57%), however, agreed with the statement; the 13 year olds were fairly evenly split between agree, and neither agree nor disagree, while the 14 year olds were split between agree and disagree. Finally the last statement, "snacking is a necessary part of a healthy diet", also divided respondents, although no significant association was found with age or gender.

When asked to identify their 'main reason for snacking', by far the most popular response was being hungry (53%), followed by feeling bored (18%). All remaining reasons recorded 5% or less (Figure 14).

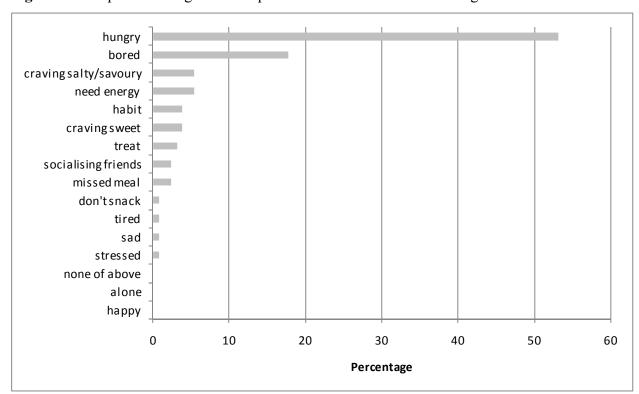


Figure 14. Response to single choice question 'main reason for snacking'

In a separate question, adolescents were also able to indicate their reasons for snacking by 'selecting all that apply'. This highlighted several other reasons for snacking: in addition to hunger (88%) and boredom which came third (43%), other popular reasons were 'craving something sweet' (44%), need energy (42%), 'craving something salty/savoury' (31%), and socialising with friends (21%). Adolescents do not appear to snack due to feeling happy, sad, tired, stressed or lonely.

During the school week, snacking occurs most frequently when the adolescents arrive home after school, as indicated by 70% of respondents (Table 21). Only 4% of adolescents said that they didn't snack. At the weekend, snacking was most frequent in the afternoon (48%). Snacking appears to be more frequent at the weekend, with 40% of adolescents saying they snack regularly throughout the day at the weekends, compared to only 22% during the week. This is in agreement with results of focus groups (Gilbert, 2008), where adolescents expressed an increased tendency to snack at the weekends out of boredom.

Table 21. Snacking patterns on a regular school day and at the weekend (adolescents selected all that applied)

	% - school day	% - weekend
I snack in the morning	34.7	16.0
I snack in the afternoon	24.3	47.9
I snack when I get home after school	70.1	
I snack in the evening (after dinner)	27.8	25.7
I snack regularly throughout the day	22.2	40.3
I don't snack	4.2	11.1

During the school week, the most popular place where lunch was purchased was from the school restaurant/canteen (46%), followed by bringing a packed lunch from home (39%). Few adolescents bought their lunch outside of the school grounds, with only 8% indicating they bought their lunch at a local shop, and less than 1% from fast food restaurants. When asked to indicate the frequency of purchasing lunch 'outside' of school, 39% said this only occurred 1-3 times per month or less, 41% said once a week or more frequently, and 20% said 'never'.

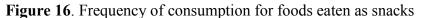
Adolescents identified parents (68%) and doctors (58%) as the most trustworthy sources of information regarding healthy eating and lifestyle. The least trustworthy sources of information were the internet (16%), followed by adverts (20-23%) and friends (26%).

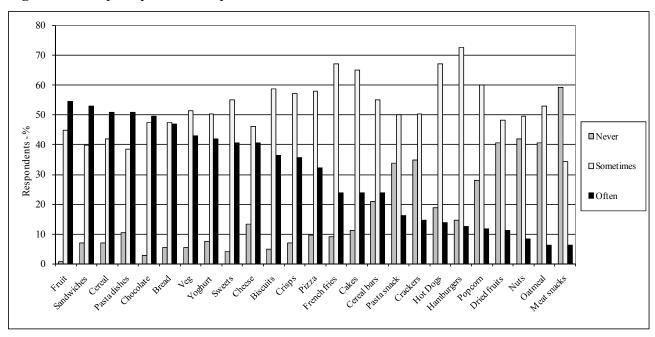
Figures 15 and 16 show the liking and frequency of consumption for a series of foods eaten as snacks. Most of the snack foods were fairly well liked, with the most popular items being sweets, chocolate, bread, sandwiches, pizza, biscuits and fruit. The most disliked products were meat snacks, nuts, dried fruits, oatmeal, crackers, pasta snack and popcorn. Unsurprisingly the disliked products were mostly eaten 'sometimes' or 'never'.

Fruit was the most often consumed snack product, with 54% of respondents indicating that they often ate fruit and 89% indicating that they liked fruit to some degree. Other snacks that were frequently eaten included sandwiches (53%), bowl of cereal (51%), pasta dishes (51%), chocolate (50%), bread (47%), vegetables (43%) and yoghurt (42%). These were identified as being liked by 86-92% of respondents, with the exception of vegetables which were only liked by 73% of adolescents. These results are reasonably in line with information gathered from the focus groups, although it must be noted that vegetables were almost exclusively *not* mentioned in the context of snacks during the groups.

100 90 80 70 60 Respondents -% □Dislike 50 □Neither 40 30 ■ Like 20 10 Popedit Stark Pasta dishes Handhigers Dried fruits Cisps Calco Yoghur. Oatmeal Certeal Hot Coreal hars

Figure 15. Chart 8: Liking of foods eaten as snacks





There was not always a high correlation between what was liked and what was often snacked on. Pizza recorded high liking levels, with liking to some degree recorded by 92% of respondents, with only 32% indicating that they ate this often as a snack. Hamburgers and hot dogs were liked by 81% of adolescents but were only often eaten as a snack by 13-14%. French fries were liked by 89% with only 24% indicating that they ate this often. Sweets and chocolate recorded the highest liking levels indicated by 92% of respondents, with 41% indicating that they often ate sweets and 50% indicating that they often ate chocolate.

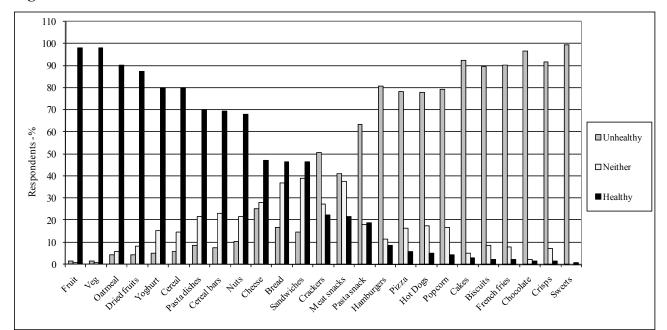


Figure 17. Perceived healthiness of foods eaten as snacks

Figure 17 shows that fresh fruit and vegetables scored highest on the perceived healthiness scale, with 98% of adolescents identifying them to be healthy to some degree (with 89-92% saying they were very healthy). This was followed by oatmeal/porridge (which 90% said were healthy), dried fruit (88%), yoghurt (80%) and cereal (80%). Although 88% of respondents indicated dried fruit to be healthy, only 11% ate this often as a snack, with 40% disliking dried fruit to some degree.

Sweets (99%), chocolate (97%), cakes (92%), crisps (92%), french fries (90%) and biscuits (90%) were all perceived to be unhealthy to some degree. These recorded liking levels of 87-92%, but were only eaten often by 24-36% of respondents, except for chocolate and sweets, which were eaten often by 41-50% of respondents.

Water was the drink which was most often consumed (68%) and was also liked by 83% of respondents (Appendix VII). Coffee was the least liked drink, with only 35% of respondents saying they liked it and only 15% saying they drank it often. Fruit juice/smoothies recorded the highest liking levels (88%), and were consumed often by 56% of respondents. Fizzy drinks recorded similar liking levels, being liked by 87% of respondents and consumed often by 41% of respondents. Water (97%), fruit juice/smoothies (90%) and milk (82%) had the highest perceived healthiness of all of the drinks listed; they were liked by 73-88% of respondents, with 50-68% drinking them often.

The main meal in the UK is dinner (evening meal), as indicated by 83% of respondents; 85% of adolescents indicated that this meal is usually eaten at home.

Figures 18-20 show that for all three meal occasions, the two strongest influences on food choice were 'the taste of the food' (with 71-74% indicating this had a strong to very strong influence) and 'how hungry you are' (65-69% saying strong to very strong influence).

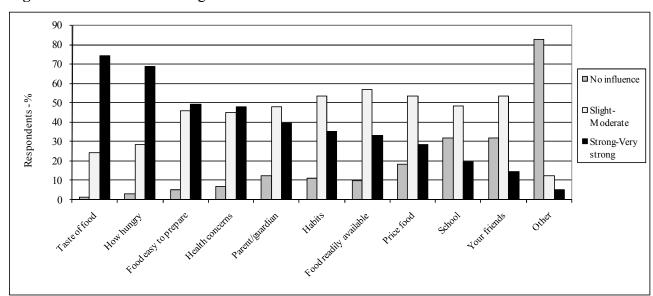
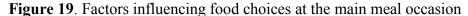
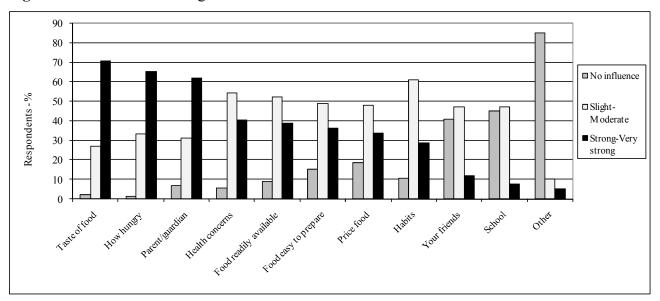


Figure 18. Factors influencing food choices at breakfast





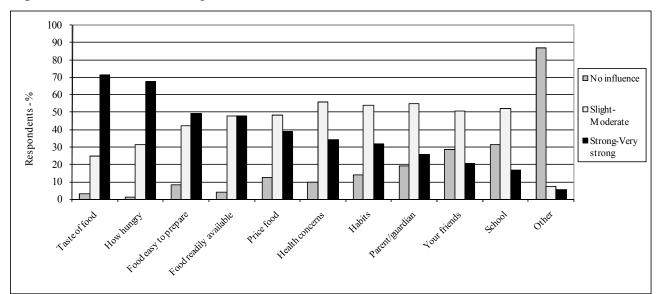


Figure 20. Factors influencing choice of snacks

Health concerns played an important role at breakfast (48% said strong to very strong influence) and main meal (40%) occasions, but had a much lesser role on choice of snacks (34%). Conversely, price played a more important role on snack food choices, compared to breakfast and main meal.

Because snacking is driven by convenience, whether the food was easy to prepare and whether it was readily available, both had strong influences on snack choices, as indicated by 48-49% of respondents. These influences were stronger for snacks than for the main meal occasion, where easy to prepare and readily available were rated as strong influences by only 36-39% of respondents. On the other hand, having food that is easy to prepare was the third most important influence at breakfast (49%), most probably because adolescents were responsible for making their own breakfast.

For the main meal occasion, 62% indicated that their parents/guardians had a strong to very strong influence on their food choices; this was considerably higher than for breakfast (40%) or snacks (26%). These differences reflect that for the majority of respondents, the main meal is generally provided by their parents, compared to breakfast and snacks. This is supported by a high level of agreement with the statement "I choose my own snacks" (85% agreement).

Friends and school environment had the least amount of influence for all 3 meal occasions. It is likely that friends and school environment do have an influence on choices at lunch time; however, influences at lunch were not specifically captured in this questionnaire, and the main meal responses related mostly to dinner for the majority of the UK respondents.

5 CONCLUSION

The adolescents in this study showed a high level of awareness regarding what foods and drinks are healthy and unhealthy, with the healthiness of foods and drinks having an impact on what they ate and drank. The adolescents felt well informed about healthy eating and lifestyle and understood that what they eat now will have a big impact on their future health. Many of the respondents indicated that they snacked on what they considered to be healthy products, with the exception of chocolate. None of the adolescents said they were disinterested in healthy eating and in fact most of them indicated an interest in eating healthily. Foods and drinks identified as being unhealthy, although highly liked, were not necessarily consumed very often as snacks. For example, crisps were highly liked by the majority of adolescents and nearly all of the respondents considered them to be unhealthy; however, only a small percentage reported a high frequency of consumption. A high percentage of respondents indicated that they liked fresh fruit, with just over half of them indicating that they are fruit often as a snack, and water was the most consumed and most liked drink.

Although health concerns played a much smaller role in snacking, there was still a good percentage (34%) of adolescents who felt this played a strong role in their choices, with only 10% indicating that this had 'no influence'. The main reasons that adolescents gave for snacking were hunger and boredom, although cravings and the need for energy also played a role.

The biggest influences over what the adolescents ate were the taste of the food, how hungry they are, their parents, and convenience factors such as having food that is easy to prepare and/or readily available. Friends seemed to have little influence over what they are and many of the adolescents didn't agree that they were influenced by what their friends ate.

In terms of the acceptability of the new products, the Fibre 0% sample with no added flavour was significantly the most preferred hamburger sample, although none of the samples scored very highly overall. Results showed that as the fibre content increased, the liking levels decreased. Furthermore, the appearance of all 3 samples was generally disliked. None of the hamburgers were significantly likely to be purchased, when examining the results overall. However, cluster analysis revealed that there were two out of four segments of consumers, accounting for 66% of adolescents, who moderately liked the Fibre 0% sample. These two consumer segments showed a higher purchase intention for the hamburgers.

All three healthy smoothie samples recorded very low liking levels. The pineapple banana sample, which had the weakest grain/cereal flavour, was significantly preferred over the banana and apple/cranberry flavours. The adolescents disliked the texture of all three drinks and none of the samples were significantly likely to be purchased. Results of cluster analysis also suggested that the pineapple banana flavour held the most promise, although it did not achieve very high liking scores within the largest cluster of consumers. The lack of familiarity with this type of cereal-based drink may have been a contributing factor to the samples being disliked.

The acceptability scores for the snack bars were slightly higher than for the hamburgers and drinks, with mean scores clustering around the 'like slightly' level. The sample with coarse texture and milk chocolate coating was significantly preferred over the two smooth-textured samples for overall liking, flavour and texture. Furthermore, focusing on the coarse-textured snack bar would maximise the chance of satisfying three of the four consumer segments that were identified, although the smooth milk snack bar did appeal to two consumer segments as well. Finally, the coarse-textured snack bar was the only sample in the study that was significantly likely to be purchased by the adolescents.

Finally, despite the fact that the samples in this study were developed using insights gained from focus groups and concept testing exercises, it would appear the products were not entirely successful when evaluated with adolescents in the UK. The most promising samples were the snack bars, in particular the cereal bar with fibre and milk protein, characterised by coarse texture, milk chocolate coating and enriched with vitamin D and calcium. Further development work would be recommended for the burgers and the drinks prior to launching these products on the UK market, although the Fibre 0% hamburger may appeal to some segments of consumers.

REFERENCES

Beuzit, W. and Gilbert, C. (2007) Report on whole grain smoothies, snack bars and low-fat burgers in the UK market. Internal report. Campden BRI.

Gilbert, C.C. (2008) Adolescent food choices and preferences: results of UK focus groups. Campden BRI R&D Report No. 267.

APPENDICES

APPENDIX I **DEMOGRAPHIC TABULATIONS**

DEMOGRAPHIC INFORMATION

Child's Gender V Age : Count & %

	13 years		14 y	ears	15 y	ears	16 y	ears	То	tal
	Count	%	Count	%	Count	%	Count	%	Count	%
Male	20	13.9	17	11.8	19	13.2	12	8.3	68	47.2
Female	14	9.7	26	18.1	18	12.5	18	12.5	76	52.8
Total	34	23.6	43	29.9	37	25.7	30	20.8	144	100

Social Grade: Count & %

	Count	%
A/B/C1	68	47.2
C2/D/E	76	52.8
Total	144	100

Location: Count & %

	Count	%
Guildford	72	50
Nottingham	72	50
Total	144	100

Type of School attended : Count & %

	Count	% from 143	% from 144
State	135	94.4	93.8
Private	7	4.9	4.9
Other	1	0.7	0.7
Total	143	100	99.3
Missing	1		0.7
Total	144		100

USAGE FACTORS

Child's Interest in Healthy Eating

	Count	%
Very interested	66	45.8
Slightly interested	61	42.4
Neither interested nor disinterested	17	11.8
Slightly disinterested	0	0
Not at all interested	0	0
Total	144	100

Types of products child would consider eating/drinking

	Count	%
Smoothies/Juice/Milk Drinks	44	100
Snack Bars/Cereal Bars	44	100
Burgers/Meat based products	44	100

Respondent relationship with child

	Count	%
Father	8	5.6
Mother	130	90.1
Step Father		
Step Mother		
Guardian	5	3.5
Other		
Total	143	100

APPENDIX II

NEW HEALTHY HAMBURGERS: FULL COUNTS & PERCENTAGES

HEDONIC: FULL COUNTS & PERCENTAGES

	Fibre 0%		Fibre 2% Beef		Fibre 3% Grill	
Overall Acceptability	Count	%	Count	%	Count	%
Like extremely	7	4.9	3	2.1	3	2.1
Like very much	22	15.3	16	11.1	15	10.4
Like moderately	30	20.8	24	16.7	21	14.6
Like slightly	37	25.7	43	29.9	35	24.3
Neither like or dislike	12	8.3	10	6.9	18	12.5
Dislike slightly	15	10.4	20	13.9	26	18.1
Dislike moderately	10	6.9	15	10.4	11	7.6
Dislike very much	2	1.4	7	4.9	6	4.2
Dislike extremely	9	6.2	6	4.2	9	6.2
Total	144	100	144	100	144	100

	Fibre 0%		Fibre 2	Fibre 2% Beef		% Grill
Appearance	Count	%	Count	%	Count	%
Like extremely	1	0.7	0	0.0	1	0.7
Like very much	10	6.9	6	4.2	6	4.2
Like moderately	14	9.7	18	12.5	14	9.7
Like slightly	27	18.8	22	15.3	25	17.4
Neither like or dislike	25	17.4	32	22.2	34	23.6
Dislike slightly	38	26.4	29	20.1	32	22.2
Dislike moderately	10	6.9	23	16.0	14	9.7
Dislike very much	6	4.2	6	4.2	9	6.2
Dislike extremely	13	9.0	8	5.6	9	6.2
Total	144	100	144	100	144	100

	Fibre 0%		Fibre 2% Beef		Fibre 3% Grill	
Aroma	Count	%	Count	%	Count	%
Like extremely	4	2.8	1	0.7	5	3.5
Like very much	11	7.6	14	9.7	9	6.2
Like moderately	22	15.3	19	13.2	14	9.7
Like slightly	48	33.3	32	22.2	34	23.6
Neither like or dislike	30	20.8	29	20.1	31	21.5
Dislike slightly	13	9.0	24	16.7	22	15.3
Dislike moderately	3	2.1	8	5.6	15	10.4
Dislike very much	6	4.2	13	9.0	9	6.2
Dislike extremely	7	4.9	4	2.8	5	3.5
Total	144	100	144	100	144	100

HEDONIC: FULL COUNTS & PERCENTAGES

	Fibre 0%		Fibre 2% Beef		Fibre 3% Grill	
Flavour	Count	%	Count	%	Count	%
Like extremely	10	6.9	5	3.5	5	3.5
Like very much	19	13.2	10	6.9	15	10.4
Like moderately	34	23.6	28	19.4	23	16.0
Like slightly	38	26.4	37	25.7	33	22.9
Neither like or dislike	9	6.2	9	6.2	15	10.4
Dislike slightly	8	5.6	16	11.1	17	11.8
Dislike moderately	11	7.6	21	14.6	12	8.3
Dislike very much	6	4.2	8	5.6	15	10.4
Dislike extremely	9	6.2	10	6.9	9	6.2
Total	144	100	144	100	144	100

	Fibre 0%		Fibre 2% Beef		Fibre 3% Grill	
Texture/Mouthfeel	Count	%	Count	%	Count	%
Like extremely	5	3.5	2	1.4	3	2.1
Like very much	12	8.3	11	7.6	12	8.3
Like moderately	25	17.4	26	18.1	20	13.9
Like slightly	42	29.2	38	26.4	34	23.6
Neither like or dislike	27	18.8	22	15.3	30	20.8
Dislike slightly	14	9.7	22	15.3	20	13.9
Dislike moderately	7	4.9	11	7.6	13	9.0
Dislike very much	8	5.6	8	5.6	7	4.9
Dislike extremely	4	2.8	4	2.8	5	3.5
Total	144	100	144	100	144	100

PURCHASE INTENT: FULL COUNTS & PERCENTAGES

	Fibre 0%		Fibre 2% Beef		Fibre 3% Grill	
Purchase Intent	Count	%	Count	%	Count	%
Definitely would buy	8	5.6	5	3.5	7	4.9
Probably would buy	53	36.8	46	31.9	42	29.2
Might/might not	38	26.4	36	25.0	34	23.6
Probably would not buy	30	20.8	37	25.7	39	27.1
Definitely would not buy	15	10.4	20	13.9	22	15.3
Total	144	100	144	100	144	100

How well did the burgers meet your expectations of a hamburger?

Expectation	Count	%	Count	%	
Much better than expected	23	16.0	65	45.1	
Slightly better than expected	42	29.2	0.3	43.1	
Met expectation	34	23.6	34	23.6	
Slightly worse than expected	33	22.9	45	31.2	
Much worse than expected	12	8.3	43		
Total	144	100	144	100	

What would the major reason be for choosing this hamburger?

Purchase reason	Count	%
It is healthy	61	42.4
It tastes nice	68	47.2
Hunger	75	52.1
Social reasons	24	16.7
Convenience	20	13.9
Other	6	4.2

APPENDIX III

NEW HEALTHY DRINKS: FULL COUNTS & PERCENTAGES

HEDONIC: FULL COUNTS & PERCENTAGES

	Apple Cranberry		Banana		Pineapple Banana	
Overall Acceptability	Count	%	Count	%	Count	%
Like extremely	0	0.0	1	0.7	2	1.4
Like very much	5	3.5	8	5.6	12	8.3
Like moderately	12	8.3	17	11.8	25	17.4
Like slightly	23	16.0	29	20.1	33	22.9
Neither like or dislike	13	9.0	13	9.0	20	13.9
Dislike slightly	31	21.5	17	11.8	25	17.4
Dislike moderately	22	15.3	23	16.0	11	7.6
Dislike very much	18	12.5	20	13.9	9	6.2
Dislike extremely	20	13.9	16	11.1	7	4.9
Total	144	100	144	100	144	100

	Apple Cranberry		Banana		Pineapple Banana	
Appearance	Count	%	Count	%	Count	%
Like extremely	0	0.0	0	0.0	2	1.4
Like very much	1	0.7	1	0.7	5	3.5
Like moderately	7	4.9	6	4.2	29	20.1
Like slightly	19	13.3	14	9.7	26	18.1
Neither like or dislike	29	20.3	35	24.3	26	18.1
Dislike slightly	36	25.2	35	24.3	29	20.1
Dislike moderately	25	17.5	19	13.2	17	11.8
Dislike very much	16	11.2	23	16.0	8	5.6
Dislike extremely	10	7.0	11	7.6	2	1.4
Total	143	100	144	100	144	100

	Apple C	pple Cranberry Banana		Pineapple Banan		
Aroma	Count	%	Count	%	Count	%
Like extremely	0	0.0	0	0.0	2	1.4
Like very much	1	0.7	1	0.7	5	3.5
Like moderately	7	4.9	6	4.2	29	20.1
Like slightly	19	13.3	14	9.7	26	18.1
Neither like or dislike	29	20.3	35	24.3	26	18.1
Dislike slightly	36	25.2	35	24.3	29	20.1
Dislike moderately	25	17.5	19	13.2	17	11.8
Dislike very much	16	11.2	23	16.0	8	5.6
Dislike extremely	10	7.0	11	7.6	2	1.4
Total	143	100	144	100	144	100

HEDONIC: FULL COUNTS & PERCENTAGES

	Apple C	ranberry	Banana		Pineappl	e Banana
Flavour	Count	%	Count	%	Count	%
Like extremely	1	0.7	1	0.7	2	1.4
Like very much	4	2.8	8	5.6	14	9.7
Like moderately	6	4.2	21	14.6	24	16.7
Like slightly	25	17.4	28	19.4	32	22.2
Neither like or dislike	10	6.9	9	6.2	21	14.6
Dislike slightly	25	17.4	18	12.5	24	16.7
Dislike moderately	33	22.9	22	15.3	9	6.2
Dislike very much	22	15.3	24	16.7	12	8.3
Dislike extremely	18	12.5	13	9.0	6	4.2
Total	144	100	144	100	144	100

	Apple C	ranberry	Banana		Pineappl	e Banana
Texture/Mouthfeel	Count	%	Count	%	Count	%
Like extremely	1	0.7	2	1.4	3	2.1
Like very much	4	2.8	5	3.5	9	6.2
Like moderately	7	4.9	12	8.3	18	12.5
Like slightly	24	16.7	23	16.0	35	24.3
Neither like or dislike	31	21.5	28	19.4	23	16.0
Dislike slightly	28	19.4	26	18.1	22	15.3
Dislike moderately	19	13.2	15	10.4	14	9.7
Dislike very much	16	11.1	13	9.0	7	4.9
Dislike extremely	14	9.7	20	13.9	13	9.0
Total	144	100	144	100	144	100

PURCHASE INTENT: FULL COUNTS & PERCENTAGES

	Apple Cranberry		Ban	nana	Pineapple Banana	
Purchase Intent	Count	%	Count	%	Count	%
Definitely would buy	1	0.7	3	2.1	5	3.5
Probably would buy	16	11.1	24	16.7	37	25.7
Might/might not	34	23.6	35	24.3	42	29.2
Probably would not buy	54	37.5	48	33.3	42	29.2
Definitely would not buy	39	27.1	34	23.6	18	12.5
Total	144	100	144	100	144	100

AFTER TASING ALL 3 DRINKS

Agreement/Disagreement with drink statements – When I choose a drink it is important that:

Count	Strongly disagree	Moderat ely disagree	Slightly disagree	Neither	Slightly agree	Moderat ely agree	Strongly agree	Don't know word
It contains juice	11	9	21	39	33	20	10	1
It contains dietary fibre	6	7	4	42	41	21	13	10
It is low in sugar	4	10	9	36	29	27	27	2
It is high in protein	3	6	12	52	44	13	11	3
It contains whole grain	12	7	15	51	20	20	14	5
It is lactose free	13	11	8	60	16	4	2	30
It tastes nice	20	10	11	7	4	18	71	3
It is healthy	1	5	2	20	34	40	40	2
It is up-to-date ("cool")	33	11	21	41	13	15	7	2
It is rich in vitamins	4	3	4	47	38	32	10	6
It is rich in minerals	5	3	8	55	39	19	8	7
It is low in energy	14	27	35	40	14	6	5	3

%	Strongly disagree	Moderat ely disagree	Slightly disagree	Neither	Slightly agree	Moderat ely agree	Strongly agree	Don't know word
It contains juice	7.6	6.3	14.6	27.1	22.9	13.9	6.9	0.7
It contains dietary fibre	4.2	4.9	2.8	29.2	28.5	14.6	9.0	6.9
It is low in sugar	2.8	6.9	6.3	25.0	20.1	18.8	18.8	1.4
It is high in protein	2.1	4.2	8.3	36.1	30.6	9.0	7.6	2.1
It contains whole grain	8.3	4.9	10.4	35.4	13.9	13.9	9.7	3.5
It is lactose free	9.0	7.6	5.6	41.7	11.1	2.8	1.4	20.8
It tastes nice	13.9	6.9	7.6	4.9	2.8	12.5	49.3	2.1
It is healthy	0.7	3.5	1.4	13.9	23.6	27.8	27.8	1.4
It is up-to-date ("cool")	23.1	7.7	14.7	28.7	9.1	10.5	4.9	1.4
It is rich in vitamins	2.8	2.1	2.8	32.6	26.4	22.2	6.9	4.2
It is rich in minerals	3.5	2.1	5.6	38.2	27.1	13.2	5.6	4.9
It is low in energy	9.7	18.8	24.3	27.8	9.7	4.2	3.5	2.1

$Agreement/Disagreement\ with\ drink\ statements-When\ I\ choose\ a\ drink\ it\ is\ important\ that:$

	Disa	gree	Nei	ther	Ag	ree		know ord	Total
Summarised Counts & %	Count	%	Count	%	Count	%	Count	%	Count
It contains juice	41	28.5	39	27.1	63	43.8	1	0.7	144
It contains dietary fibre	17	11.8	42	29.2	75	52.1	10	6.9	144
It is low in sugar	23	16.0	36	25.0	83	57.6	2	1.4	144
It is high in protein	21	14.6	52	36.1	68	47.2	3	2.1	144
It contains whole grain	34	23.6	51	35.4	54	37.5	5	3.5	144
It is lactose free	32	22.2	60	41.7	22	15.3	30	20.8	144
It tastes nice	41	28.5	7	4.9	93	64.6	3	2.1	144
It is healthy	8	5.6	20	13.9	114	79.2	2	1.4	144
It is up-to-date ("cool")	65	45.5	41	28.7	35	24.5	2	1.4	143
It is rich in vitamins	11	7.6	47	32.6	80	55.6	6	4.2	144
It is rich in minerals	16	11.1	55	38.2	66	45.8	7	4.9	144
It is low in energy	76	52.8	40	27.8	25	17.4	3	2.1	144

	Mean	Median	Std Deviation
It contains juice	4.2	4.0	1.60
It contains dietary fibre	4.9	5.0	1.63
It is low in sugar	4.9	5.0	1.63
It is high in protein	4.6	4.0	1.35
It contains whole -rain	4.4	4.0	1.74
It is lactose free	4.6	4.0	2.14
It tastes nice	5.2	7.0	2.34
It is healthy	5.6	6.0	1.35
It is up-to-date ("cool")	3.5	4.0	1.87
It is rich in vitamins	4.9	5.0	1.40
It is rich in minerals	4.7	5.0	1.44
It is low in energy	3.5	3.0	1.58

APPENDIX IV

NEW HEALTHY SNACK BARS: FULL COUNTS & PERCENTAGES

HEDONIC: FULL COUNTS & PERCENTAGES

	Coarse Milk Enr.		Smooth Dark Enr.		Smoot	h Milk
Overall Acceptability	Count	Count %		%	Count	%
Like extremely	14	9.7	7	4.9	12	8.3
Like very much	29	20.1	22	15.3	14	9.7
Like moderately	31	21.5	29	20.1	23	16.0
Like slightly	35	24.3	39	27.1	48	33.3
Neither like or dislike	14	9.7	15	10.4	18	12.5
Dislike slightly	14	9.7	15	10.4	14	9.7
Dislike moderately	4	2.8	7	4.9	7	4.9
Dislike very much	2	1.4	7	4.9	4	2.8
Dislike extremely	1	0.7	3	2.1	4	2.8
Total	144	100	144	100	144	100

	Coarse N	Milk Enr.	Smooth Dark Enr.		Smoot	h Milk
Appearance	Count	%	Count %		Count	%
Like extremely	8	5.6	8	5.6	9	6.2
Like very much	29	20.1	18	12.5	21	14.6
Like moderately	36	25.0	32	22.2	45	31.2
Like slightly	39	27.1	35	24.3	32	22.2
Neither like or dislike	23	16.0	27	18.8	27	18.8
Dislike slightly	6	4.2	19	13.2	8	5.6
Dislike moderately	3	2.1	3	2.1	1	0.7
Dislike very much	0	0.0	2	1.4	1	0.7
Dislike extremely						
Total	144	100	144	100	144	100

	Coarse Milk Enr.		Smooth I	Oark Enr.	Smooth Milk	
Aroma	Count	%	Count %		Count	%
Like extremely	6	4.2	8	5.6	3	2.1
Like very much	26	18.1	17	11.8	13	9.0
Like moderately	31	21.5	29	20.1	30	20.8
Like slightly	36	25.0	37	25.7	41	28.5
Neither like or dislike	28	19.4	31	21.5	35	24.3
Dislike slightly	12	8.3	15	10.4	18	12.5
Dislike moderately	2	1.4	3	2.1	4	2.8
Dislike very much	2	1.4	3	2.1	0	0.0
Dislike extremely	1	0.7	1	0.7	0	0.0
Total	144	100	144	100	144	100

HEDONIC: FULL COUNTS & PERCENTAGES

	Coarse N	Coarse Milk Enr.		Smooth Dark Enr.		h Milk
Flavour	Count	%	Count %		Count	%
Like extremely	16	11.1	8	5.6	11	7.6
Like very much	24	16.7	24	16.7	25	17.4
Like moderately	38	26.4	28	19.4	24	16.7
Like slightly	29	20.1	38	26.4	36	25.0
Neither like or dislike	11	7.6	9	6.2	11	7.6
Dislike slightly	15	10.4	16	11.1	15	10.4
Dislike moderately	5	3.5	9	6.2	12	8.3
Dislike very much	4	2.8	9	6.2	5	3.5
Dislike extremely	2	1.4	3	2.1	5	3.5
Total	144	100	144	100	144	100

	Coarse N	Milk Enr.	k Enr. Smooth Dark Enr.		Smoot	th Milk	
Texture/Mouthfeel	Count	%	Count %		Count	%	
Like extremely	11	7.6	9	6.2	8	5.6	
Like very much	24	16.7	14	9.7	24	16.7	
Like moderately	35	24.3	33	22.9	25	17.4	
Like slightly	30	20.8	29	20.1	28	19.4	
Neither like or dislike	16	11.1	17	11.8	18	12.5	
Dislike slightly	20	13.9	26	18.1	28	19.4	
Dislike moderately	3	2.1	8	5.6	6	4.2	
Dislike very much	4	2.8	7	4.9	4	2.8	
Dislike extremely	1	0.7	1	0.7	3	2.1	
Total	144	100	144	100	144	100	

PURCHASE INTENT: FULL COUNTS & PERCENTAGES

	Coarse Milk Enr.		Smooth I	Oark Enr.	Smooth Milk	
Purchase Intent	Count %		Count %		Count	%
Definitely would buy	18	12.5	12	8.3	10	6.9
Probably would buy	62	43.1	50	34.7	54	37.5
Might/might not	36	25.0	43	29.9	35	24.3
Probably would not buy	22	15.3	27	18.8	30	20.8
Definitely would not buy	6	4.2	12	8.3	15	10.4
Total	144	100	144	100	144	100

AFTER TASTING ALL 3 SNACK BARS

If this snack bar was available enriched with iron would you choose it instead of one that was not enriched?

Enriched with Iron	Count	%
Yes	50	34.7
No	27	18.8
Don't know	67	46.5
Total	144	100

APPENDIX V

NEW HEALTHY SNACK BAR & DRINK ASSESSMENT FULL COUNTS & PERCENTAGES

AFTER TASTING ALL 3 PRODUCTS

What do you think about the size of the product?

	Drink	bottle	Snack Bar		
Size	Count	%	Count	%	
Too large	14	9.8	12	8.3	
Just about right	124	86.7	126	87.5	
Too small	5	3.5	6	4.2	
Total	143	100	144	100	

Do you consider the product to be healthy?

	Dr	ink	Snack Bar		
Healthy	Count %		Count	%	
Yes	92	63.9	25	17.4	
No	2	1.4	66	45.8	
Don't know	50	34.7	53	36.8	
Total	144	100	144	100	

What would the major reasons be for choosing this product?

	Dr	ink	Snack Bar			Hamb	urger
Choice reason	Count	%	Count	%	% Choice reason		%
Health reasons	94	65.3	46	31.9	It is healthy	61	42.4
Pleasure	37	25.7	53	36.8	Tastes nice	68	47.2
Social reasons	14	9.7	19	13.2	Social reasons	24	16.7
Convenience	19	13.2	40	27.8	Convenience	20	13.9
Hunger	14	9.7	102	70.8	Hunger	75	52.1
Thirst	74	51.4					
Sports performance	39	27.1	29	20.1			
Other	5	3.5	10	6.9	Other	6	4.2

In what situation do you think you would choose this product?

	Dr	ink	Snac	k Bar
	Count	%	Count	%
After training	30	20.8	31	21.5
Before training	38	26.4	23	16.0
In between meals	38	26.4	47	32.6
At home	50	34.7	62	43.1
On way to school	33	22.9	38	26.4
In school	35	24.3	55	38.2
On the go	40	27.8	49	34.0
At breakfast	73	50.7	23	16.0
When I am hungry	15	10.4	87	60.4
When I am thirsty	55	38.2	N/A	N/A
As a meal replacement	12	8.3	6	4.2
To get energy	34	23.6	38	26.4
Other	4	2.8	3	2.1

APPENDIXVI

HEDONIC ACCEPTABILITY CROSS TABULATION

Hedonic Acceptability V Child Gender & Test Location

			Child Gender				Test Location			
Hedonic		M	ale	Female		Manchester		Nottingham		
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
	Fibre 0%	5.7	6.0	5.8	6.0	5.7	6.0	5.9	6.5	
Overall	Fibre 2% Beef	5.7	6.0	5.1	6.0	5.2	6.0	5.6	6.0	
	Fibre 3% Grill	5.5	6.0	5.0	5.0	5.3	5.5	5.2	6.0	
	Fibre 0%	4.8	5.0	4.7	5.0	4.6	4.0	4.9	5.0	
Appearance	Fibre 2% Beef	4.9	5.0	4.4	5.0	4.7	5.0	4.6	5.0	
	Fibre 3% Grill	4.9	5.0	4.4	5.0	4.8	5.0	4.5	4.0	
	Fibre 0%	5.7	6.0	5.4	6.0	5.6	6.0	5.5	6.0	
Aroma	Fibre 2% Beef	5.3	5.5	5.0	5.0	5.1	5.0	5.2	5.0	
	Fibre 3% Grill	5.2	5.0	4.9	5.0	5.2	5.0	4.9	5.0	
	Fibre 0%	5.8	6.0	5.9	6.0	5.8	6.0	5.9	6.0	
Flavour	Fibre 2% Beef	5.5	6.0	4.8	5.5	4.9	5.0	5.4	6.0	
	Fibre 3% Grill	5.5	6.0	4.9	5.5	5.2	6.0	5.2	6.0	
	Fibre 0%	5.5	6.0	5.6	6.0	5.4	6.0	5.7	6.0	
Texture	Fibre 2% Beef	5.3	5.5	5.3	6.0	5.2	5.0	5.5	6.0	
	Fibre 3% Grill	5.3	5.0	5.2	6.0	5.3	5.0	5.2	5.0	
	Count	6	58	7	' 6	7	′2	7	′2	

		Child Gender				Test Location				
Hedonic		Male		Fer	nale	Manc	hester	Nottingham		
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
	Apple Cranberry	4.5	4.0	3.5	3.0	4.0	4.0	4.0	4.0	
Overall	Banana	4.7	5.0	4.0	4.0	4.5	4.5	4.2	4.0	
	Pineapple Banana	5.6	6.0	4.8	5.0	5.2	5.5	5.1	5.5	
	Apple Cranberry	4.1	4.0	4.0	4.0	4.2	4.0	3.8	4.0	
Appearance	Banana	3.9	4.0	3.9	4.0	4.1	4.0	3.7	4.0	
	Pineapple Banana	5.3	5.0	4.9	5.0	5.3	5.0	4.9	5.0	
	Apple Cranberry	4.8	5.0	4.2	4.0	4.4	4.0	4.6	5.0	
Aroma	Banana	4.7	5.0	4.4	5.0	4.8	5.0	4.3	4.5	
	Pineapple Banana	5.6	6.0	5.6	6.0	5.5	6.0	5.7	6.0	
	Apple Cranberry	4.5	4.0	3.1	3.0	3.7	3.0	3.8	4.0	
Flavour	Banana	4.8	5.0	4.0	4.0	4.5	4.0	4.3	4.0	
	Pineapple Banana	5.5	6.0	4.9	5.0	5.2	5.0	5.2	6.0	
	Apple Cranberry	4.5	5.0	3.9	4.0	4.3	5.0	4.0	4.0	
Texture	Banana	4.6	5.0	3.9	4.0	4.4	5.0	4.2	4.0	
	Pineapple Banana	5.3	6.0	4.6	5.0	5.1	5.0	4.8	5.0	
_	Count	6	58	7	6	72		72		

Hedonic Acceptability V Child Gender & Test Location

			Child (Gender			Test Lo	ocation	
Hedonic		M	ale	Fer	nale	Manc	hester	Nottingham	
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	Coarse Milk Enr	6.6	6.0	6.3	7.0	6.4	6.0	6.5	7.0
Overall	Smooth Dark Enr	6.2	6.0	5.6	6.0	5.8	6.0	6.0	6.0
	Smooth Milk	6.0	6.0	5.8	6.0	5.9	6.0	5.9	6.0
	Coarse Milk Enr	6.5	7.0	6.5	6.0	6.4	7.0	6.6	6.5
Appearance	Smooth Dark Enr	6.3	6.0	5.9	6.0	6.1	6.0	6.1	6.0
	Smooth Milk	6.5	7.0	6.4	6.0	6.4	7.0	6.5	6.0
	Coarse Milk Enr	6.3	6.0	6.1	6.0	6.2	6.0	6.2	6.0
Aroma	Smooth Dark Enr	6.2	6.0	5.9	6.0	6.0	6.0	6.0	6.0
	Smooth Milk	6.0	6.0	5.8	6.0	5.8	6.0	6.0	6.0
	Coarse Milk Enr	6.5	7.0	6.2	7.0	6.4	7.0	6.3	6.5
Flavour	Smooth Dark Enr	6.2	6.0	5.6	6.0	5.8	6.0	5.9	6.0
	Smooth Milk	6.0	6.0	5.8	6.0	5.9	6.0	5.9	6.0
	Coarse Milk Enr	6.3	6.5	6.1	6.0	6.2	6.5	6.3	6.0
Texture	Smooth Dark Enr	6.0	6.0	5.5	6.0	5.7	6.0	5.8	6.0
	Smooth Milk	5.9	6.0	5.7	6.0	5.7	6.0	5.9	6.0
	Count	6	58	7	' 6	72		7	2

Hedonic Acceptability V Child Age

Hedonic		13 y	ears	14 y	ears	15 y	ears/	16 years	
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	Fibre 0%	5.9	6.0	5.8	6.0	6.2	6.0	5.1	6.0
Overall	Fibre 2% Beef	5.8	6.0	5.4	6.0	5.6	6.0	4.6	4.5
	Fibre 3% Grill	5.3	6.0	5.3	5.0	5.6	6.0	4.5	4.0
	Fibre 0%	4.7	5.0	4.7	4.0	5.2	5.0	4.3	4.0
Appearance	Fibre 2% Beef	4.9	5.0	4.7	5.0	4.9	5.0	4.0	4.0
	Fibre 3% Grill	5.2	5.0	4.4	4.0	4.8	5.0	4.2	4.0
	Fibre 0%	5.6	6.0	5.6	6.0	5.8	6.0	4.9	5.0
Aroma	Fibre 2% Beef	5.4	6.0	5.3	5.0	5.2	5.0	4.6	4.5
	Fibre 3% Grill	5.3	5.5	5.3	5.0	5.2	6.0	4.2	4.5
	Fibre 0%	5.7	6.0	6.0	7.0	6.1	6.0	5.4	6.0
Flavour	Fibre 2% Beef	5.4	6.0	5.2	6.0	5.3	6.0	4.5	4.0
	Fibre 3% Grill	4.9	5.0	5.4	6.0	5.7	6.0	4.4	4.0
	Fibre 0%	5.5	6.0	5.5	6.0	5.9	6.0	5.3	6.0
Texture	Fibre 2% Beef	5.4	5.5	5.2	6.0	5.6	6.0	5.0	5.0
	Fibre 3% Grill	5.5	5.0	5.2	5.0	5.5	6.0	4.8	5.0
	Count	3	34		43		57	30	

Hedonic		13 y	ears/	14 y	ears	15 y	ears	16 y	ears
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	Apple Cranberry	4.0	4.0	4.1	4.0	3.9	4.0	3.9	4.0
Overall	Banana	4.4	3.5	4.3	5.0	4.4	4.0	4.4	4.5
	Pineapple Banana	5.7	6.0	4.9	6.0	5.4	6.0	4.7	5.0
	Apple Cranberry	4.4	4.0	3.7	4.0	4.1	4.0	3.9	4.0
Appearance	Banana	4.0	4.0	3.7	4.0	4.0	4.0	4.0	4.0
	Pineapple Banana	5.4	5.5	4.9	5.0	5.2	5.0	4.9	5.0
	Apple Cranberry	4.1	4.0	4.9	5.0	4.2	4.0	4.6	5.0
Aroma	Banana	4.9	5.0	4.2	5.0	4.7	5.0	4.5	4.5
	Pineapple Banana	5.9	6.0	5.3	6.0	5.8	6.0	5.3	6.0
	Apple Cranberry	3.7	3.5	4.0	3.0	3.9	4.0	3.5	3.0
Flavour	Banana	4.5	4.0	4.2	4.0	4.6	5.0	4.3	4.0
	Pineapple Banana	5.6	6.0	5.0	6.0	5.6	6.0	4.6	4.5
	Apple Cranberry	4.4	4.5	4.0	4.0	4.2	4.0	4.2	4.0
Texture	Banana	4.6	5.0	3.9	4.0	4.1	4.0	4.7	5.0
	Pineapple Banana	5.2	5.0	4.3	5.0	5.2	5.0	5.1	5.5
	Count	3	4	43		3	7	30	

Hedonic Acceptability V Child Age

Hedonic		13 y	ears	14 y	ears	15 y	ears	16 years	
Acceptability	Sample	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	Coarse Milk Enr	6.8	7.5	6.5	7.0	6.2	6.0	6.1	6.5
Overall	Smooth Dark Enr	6.0	6.5	6.0	6.0	6.1	7.0	5.4	6.0
	Smooth Milk	5.6	6.0	5.9	6.0	6.2	6.0	5.8	6.0
	Coarse Milk Enr	6.8	7.0	6.4	6.0	6.6	7.0	6.2	6.0
Appearance	Smooth Dark Enr	6.2	6.0	6.1	6.0	6.2	6.0	5.7	6.0
	Smooth Milk	6.2	6.0	6.5	7.0	6.6	7.0	6.4	6.0
	Coarse Milk Enr	6.4	7.0	6.2	6.0	6.5	6.0	5.7	6.0
Aroma	Smooth Dark Enr	6.1	6.0	6.1	6.0	6.1	6.0	5.6	5.5
	Smooth Milk	5.8	6.0	5.9	6.0	6.1	6.0	5.8	6.0
	Coarse Milk Enr	6.6	7.0	6.5	7.0	6.2	6.0	6.1	7.0
Flavour	Smooth Dark Enr	5.8	6.0	5.9	6.0	6.2	7.0	5.5	6.0
	Smooth Milk	5.7	6.0	5.8	6.0	6.5	7.0	5.5	6.0
	Coarse Milk Enr	6.2	7.0	6.3	6.0	6.4	6.0	5.8	6.0
Texture	Smooth Dark Enr	5.5	5.5	5.6	6.0	6.2	7.0	5.6	6.0
	Smooth Milk	5.9	6.0	5.7	6.0	6.4	7.0	5.3	6.0
	Count	34		43		3	57	30	

APPENDIX VII

FOOD CHOICES AND PREFERENCES TABULATIONS

Food Choices and Preferences Questionnaire

Section 1 – Your opinions about food choices, preferences, diet and health

Q1.1 Using the scale provided, please rate your level of agreement for each of the following statements. It is important that you read each statement carefully.

Full Counts & %		Strongly disagree	Moderatel y disagree	Slightly disagree	Neither	Strongly agree	Moderatel y agree	Strongly agree
I think that my diet is	Count	3	2	20	24	33	52	9
healthy	%	2.1	1.4	14.0	16.8	23.1	36.4	6.3
The taste of a food is	Count		1	2	8	23	44	66
very important to me	%		0.7	1.4	5.6	16.0	30.6	45.8
Snacking is a necessary	Count	6	15	18	51	30	18	5
part of a healthy diet	%	4.2	10.5	12.6	35.7	21.0	12.6	3.5
I enjoy eating fruit and	Count	1	2	10	9	47	35	39
vegetables	%	0.7	1.4	7.0	6.3	32.9	24.5	27.3
I tend to eat whatever my	Count	21	28	30	35	17	9	4
friends are eating	%	14.6	19.4	20.8	24.3	11.8	6.3	2.8
Food I eat at home is	Count		3	18	28	30	44	19
healthy	%		2.1	12.7	19.7	21.1	31.0	13.4
I ah aasa maa ahaa	Count	1	1	3	17	34	43	45
I choose my own snacks	%	0.7	0.7	2.1	11.8	23.6	29.9	31.3
I like the food I eat when	Count	1	2	4	25	34	42	35
I am out with my friends	%	0.7	1.4	2.8	17.5	23.8	29.4	24.5
The taste of food is more	Count	2	7	18	34	35	30	18
important to me than the healthiness of the food	%	1.4	4.9	12.5	23.6	24.3	20.8	12.5
I often try foods that I	Count	6	14	32	37	35	14	4
see advertised in the media	%	4.2	9.9	22.5	26.1	24.6	9.9	2.8
A high fat food tastes	Count	8	12	19	60	28	5	11
better than the lower fat version	%	5.6	8.4	13.3	42.0	19.6	3.5	7.7
Food I eat at school (in	Count	6	13	18	35	35	24	13
the canteen) is healthy	%	4.2	9.0	12.5	24.3	24.3	16.7	9.0
I often alsin bessel-foot	Count	39	21	9	12	18	18	26
I often skip breakfast	%	27.3	14.7	6.3	8.4	12.6	12.6	18.2
Healthy foods don't fill	Count	15	24	25	38	24	13	4
me up	%	10.5	16.8	17.5	26.6	16.8	9.1	2.8

Q1.1 Using the scale provided, please rate your level of agreement for each of the following statements. It is important that you <u>read each statement carefully</u>.

Full Counts & % - Cont.		Strongly disagree	Moderatel y disagree	Slightly disagree	Neither	Strongly agree	Moderatel y agree	Strongly agree
Most snack foods that I	Count	3	22	30	51	19	9	6
eat are healthy	%	2.1	15.7	21.4	36.4	13.6	6.4	4.3
I feel well informed	Count	1	7	9	24	39	42	22
about what are healthy foods	%	0.7	4.9	6.3	16.7	27.1	29.2	15.3
Most healthy foods don't	Count	23	25	27	35	23	8	2
taste very nice	%	16.1	17.5	18.9	24.5	16.1	5.6	1.4
I have little choice over	Count	43	38	20	21	14	5	3
what I eat at home	%	29.9	26.4	13.9	14.6	9.7	3.5	2.1
I worry about what I eat	Count	29	21	14	34	21	13	12
because I don't want to gain weight	%	20.1	14.6	9.7	23.6	14.6	9.0	8.3
Sugar-reduced products taste better than the	Count	14	12	34	61	15	7	1
'regular' version	%	9.7	8.3	23.6	42.4	10.4	4.9	0.7
I like the food my	Count		3	3	16	28	56	37
parents prepare at home	%		2.1	2.1	11.2	19.6	39.2	25.9
If there is the option to choose a low fat version	Count	7	7	18	47	34	24	7
of a food, I will choose it	%	4.9	4.9	12.5	32.6	23.6	16.7	4.9
What I eat now will have	Count	2	3	3	23	45	33	35
a big impact on my future health	%	1.4	2.1	2.1	16.0	31.3	22.9	24.3
Food I eat when I am out	Count	9	20	27	48	23	15	2
with my friends is healthy	%	6.3	13.9	18.8	33.3	16.0	10.4	1.4
I like the food prepared	Count	25	23	22	31	21	18	4
at the school canteen	%	17.4	16.0	15.3	21.5	14.6	12.5	2.8
If option to choose a	Count	8	11	33	58	21	11	2
whole grain version of a food, I will choose it	%	5.6	7.6	22.9	40.3	14.6	7.6	1.4
Information regarding	Count	6	10	21	64	28	10	5
healthy eating is difficult to put into practice	%	4.2	6.9	14.6	44.4	19.4	6.9	3.5

Q1.1 Using the scale provided, please rate your level of agreement for each of the following statements. It is important that you <u>read each statement carefully</u>.

	Disa	gree	Nei	ther	Ag	ree
Summarised Counts & %	Count	%	Count	%	Count	%
I think that my diet is healthy	25	17.5	24	16.8	94	65.7
The taste of a food is very important to me	3	2.1	8	5.6	133	92.4
Snacking is a necessary part of a healthy diet	39	27.3	51	35.7	53	37.1
I enjoy eating fruit and vegetables	13	9.1	9	6.3	121	84.6
I tend to eat whatever my friends are eating	79	54.9	35	24.3	30	20.8
Food I eat at home is healthy	21	14.8	28	19.7	93	65.5
I choose my own snacks	5	3.5	17	11.8	122	84.7
I like the food I eat when I am out with my friends	7	4.9	25	17.5	111	77.6
The taste of food is more important to me than the healthiness of the food	27	18.8	34	23.6	83	57.6
I often try foods that I see advertised in the media (TV, magazines etc.)	52	36.6	37	26.1	53	37.3
A high fat food tastes better than the lower fat version	39	27.3	60	42.0	44	30.8
Food I eat at school (in the canteen) is healthy	37	25.7	35	24.3	72	50.0
I often skip breakfast	69	48.3	12	8.4	62	43.4
Healthy foods don't fill me up	64	44.8	38	26.6	41	28.7
Most snack foods that I eat are healthy	55	39.3	51	36.4	34	24.3
I feel well informed about what are healthy foods	17	11.8	24	16.7	103	71.5
Most healthy foods don't taste very nice	75	52.4	35	24.5	33	23.1
I have little choice over what I eat at home	101	70.1	21	14.6	22	15.3
I worry about what I eat because I don't want to gain weight	64	44.4	34	23.6	46	31.9
Sugar-reduced products taste better than the 'regular' version	60	41.7	61	42.4	23	16.0
I like the food my parents prepare at home	6	4.2	16	11.2	121	84.6
If there is the option to choose a low fat version of a food, I will choose it	32	22.2	47	32.6	65	45.1
What I eat now will have a big impact on my future health	8	5.6	23	16.0	113	78.5
Food I eat when I am out with my friends is healthy	56	38.9	48	33.3	40	27.8
I like the food prepared at the school canteen	70	48.6	31	21.5	43	29.9
If there is the option to choose a whole grain version of a food, I will choose it	52	36.1	58	40.3	34	23.6
Information regarding healthy eating is difficult to put into practice	37	25.7	64	44.4	43	29.9

Q1.1 Using the scale provided, please rate your level of agreement for each of the following statements. It is important that you <u>read each statement carefully</u>.

Summary Statistics

	Mean	Median	Std Deviation
I think that my diet is healthy	4.9	5.0	1.35
The taste of a food is very important to me	6.1	6.0	1.03
Snacking is a necessary part of a healthy diet	4.1	4.0	1.40
I enjoy eating fruit and vegetables	5.5	6.0	1.29
I tend to eat whatever my friends are eating	3.3	3.0	1.56
Food I eat at home is healthy	5.1	5.0	1.32
I choose my own snacks	5.7	6.0	1.19
I like the food I eat when I am out with my friends	5.5	6.0	1.26
The taste of food is more important to me than the healthiness of the food	4.8	5.0	1.44
I often try foods that I see advertised in the media (TV, magazines etc.)	4.0	4.0	1.38
A high fat food tastes better than the lower fat version	4.0	4.0	1.42
Food I eat at school (in the canteen) is healthy	4.4	4.5	1.56
I often skip breakfast	3.7	4.0	2.31
Healthy foods don't fill me up	3.6	4.0	1.56
Most snack foods that I eat are healthy	3.8	4.0	1.34
I feel well informed about what are healthy foods	5.1	5.0	1.37
Most healthy foods don't taste very nice	3.3	3.0	1.54
I have little choice over what I eat at home	2.7	2.0	1.60
I worry about what I eat because I don't want to gain weight	3.6	4.0	1.90
Sugar-reduced products taste better than the 'regular' version	3.5	4.0	1.26
I like the food my parents prepare at home	5.7	6.0	1.16
If there is the option to choose a low fat version of a food, I will choose it	4.3	4.0	1.41
What I eat now will have a big impact on my future health	5.4	5.0	1.31
Food I eat when I am out with my friends is healthy	3.8	4.0	1.40
I like the food prepared at the school canteen	3.5	4.0	1.73
If there is the option to choose a whole grain version of a food, I will choose it	3.8	4.0	1.26
Information regarding healthy eating is difficult to put into practice	4.0	4.0	1.26

Q1.2. On a regular school day, when do you usually snack (select all that apply)

	Count	%
I snack in the morning	50	34.7
I snack in the afternoon	35	24.3
I snack when I get home after school	101	70.1
I snack in the evening (after dinner)	40	27.8
I snack regularly throughout the day	32	22.2
I don't snack	6	4.2

Q1.3 At the weekend, when do you usually snack (select all that apply)

	Count	%
I snack in the morning	23	16.0
I snack in the afternoon	69	47.9
I snack in the evening (after dinner)	37	25.7
I snack regularly throughout the day	58	40.3
I don't snack	16	11.1

Q1.4 What are your reasons for snacking? (select all that apply)

	Count	%
I feel bored	62	43.1
I feel stressed	10	6.9
I feel happy	3	2.1
I feel alone	10	6.9
I feel sad	8	5.6
I feel hungry	126	87.5
I feel tired	9	6.3
I need some energy	60	41.7
I'm craving something salty/savoury e.g. crisps	44	30.6
I'm craving something sweet e.g. cookies or choc	64	44.4
I snack out of habit	22	15.3
I snack for a treat	20	13.9
I snack because I missed a meal	19	13.2
I'm socialising with my friends	30	20.8
I don't snack	2	1.4

Q1.5 What would you say is your main reason for snacking? (please select one)

	Count	%	% from 130
I feel bored	23	16.0	17.7
I feel stressed	1	0.7	0.8
I feel happy	0	-	-
I feel alone	0	-	-
I feel sad	1	0.7	0.8
I feel hungry	69	47.9	53.1
I feel tired	1	0.7	0.8
I need some energy	7	4.9	5.4
I'm craving something salty/savoury e.g. crisps	7	4.9	5.4
I'm craving something sweet e.g. cookies or choc	5	3.5	3.8
I snack out of habit	5	3.5	3.8
I snack for a treat	4	2.8	3.1
I snack because I missed a meal	3	2.1	2.3
I'm socialising with my friends	3	2.1	2.3
None of the above	0	-	-
I don't snack	1	0.7	0.8
Total	130	90.3	100
Missing	14	9.7	
Total	144	100	

Q1.6 During the week, where do you <u>usually</u> receive or purchase your lunch (please select <u>one</u>)

	Count	%	% from 141
I get my lunch at the school restaurant/canteen	65	45.1	46.1
I bring my lunch from home	55	38.2	39.0
I go home for lunch	5	3.5	3.5
I go and buy my lunch from the local shop	11	7.6	7.8
I go and buy my lunch from a fast food shop or restaurant	1	0.7	0.7
I don't eat lunch	4	2.8	2.8
Total	141	97.9	100
Missing	3	2.1	
Total	144	100	

Q1.7 During a typical school day, how often do you eat 'outside' of school, e.g. at a fast food restaurant, food from the local shop, etc. (please select <u>one</u>)

	Count	%	% from 143
Every day	7	4.9	4.9
2-4 times a week	17	11.8	11.9
Once a week	35	24.3	24.5
1-3 times per month	33	22.9	23.1
Less than once a month	22	15.3	15.4
Never	29	20.1	20.3
Total	143	99.3	100
Missing	1	0.7	
Total	144	100	

Q1.8 The following shows various sources of information regarding healthy eating and lifestyle. Select the sources of information that you feel are <u>trustworthy</u> (select all that apply).

	Count	%
Adverts (TV/Radio)	33	22.9
Adverts (Press/Magazines)	29	20.1
My parents/guardian	98	68.1
Internet	23	16.0
School/my teachers	53	36.8
My coach/trainer	53	36.8
My friends	37	25.7
My doctor	83	57.6
None of the above	6	4.2

Section 2 – Choices and preferences of SNACK foods and drinks

Q2.1 Snacks are defined as any foods that are eaten between meals. The following shows a list of foods that adolescents in different countries have mentioned are popular to SNACK on.

For each snack food item listed, please identify:

- a. <u>how much you like</u> the food item (from dislike strongly to like strongly)
- b. how often you eat this as a snack (either 'never', 'sometimes' or 'often')

a. how much you like the food item (from dislike strongly to like strongly)

Full Counts & %	Dis	like ngly	Dis	like htly		Neither		Like slightly		rongly
Food Item	Count	%	Count	%	Count	%	Count	%	Count	%
Fresh fruit	0	-	7	4.9	8	5.6	48	33.6	80	55.9
Vegetables (e.g. celery, carrots, tomatoes etc.)	3	2.1	11	7.7	25	17.5	70	49.0	34	23.8
Dried fruits (eg. raisins)	34	23.6	24	16.7	28	19.4	37	25.7	21	14.6
Nuts, peanuts, seeds (e.g. sunflower, pumpkin)	34	23.6	22	15.3	32	22.2	34	23.6	22	15.3
Yoghurt / yoghurt products	4	2.8	6	4.2	11	7.6	61	42.4	62	43.1
Cheese products (e.g. cheddar, brie, cheese strings)	9	6.3	12	8.3	21	14.6	51	35.4	51	35.4
Sweets / candy	2	1.4	3	2.1	6	4.2	45	31.3	88	61.1
Chocolate / chocolate bars / turó rudi	2	1.4	1	0.7	8	5.6	40	27.8	93	64.6
Biscuits / cookies	2	1.4	4	2.8	7	4.9	48	33.6	82	57.3
Cakes / muffins / pastries	2	1.4	2	1.4	15	10.4	57	39.6	68	47.2
Crisps / tortilla chips	2	1.4			14	9.7	60	41.7	68	47.2
Crackers / rice cakes / salty sticks	7	4.9	21	14.6	42	29.2	46	31.9	28	19.4
Popcorn	13	9.0	13	9.0	22	15.3	45	31.3	51	35.4
Meat based snacks (e.g. meat sticks)	26	18.1	23	16.0	45	31.3	28	19.4	22	15.3
Bread / toast	2	1.4	3	2.1	7	4.9	70	48.6	62	43.1
Bowl of cereal	2	1.4	2	1.4	13	9.0	57	39.6	70	48.6
Oatmeal / porridge	22	15.3	24	16.7	29	20.1	47	32.6	22	15.3
Cereal bars	4	2.8	9	6.3	24	16.7	60	41.7	47	32.6
Sandwiches / toasties / pannini	2	1.4	2	1.4	8	5.6	55	38.2	77	53.5
Pizza	3	2.1	2	1.4	7	4.9	42	29.2	90	62.5
Hamburgers	4	2.8	6	4.2	18	12.5	66	45.8	50	34.7
Hot Dogs / sausage rolls	5	3.5	7	4.9	16	11.1	62	43.1	54	37.5
French fries	1	0.7	4	2.8	11	7.6	50	34.7	78	54.2
Pasta dishes	3	2.1	3	2.1	14	9.7	37	25.7	87	60.4
Pasta snack products e.g. Pot Noodles	16	11.1	14	9.7	31	21.5	38	26.4	45	31.3

Q2.1 Snacks are defined as any foods that are eaten between meals. The following shows a list of foods that adolescents in different countries have mentioned are popular to SNACK on.

For each snack food item listed, please identify:

- a. how much you like the food item (from dislike strongly to like strongly)
- b. how often you eat this as a snack (either 'never', 'sometimes' or 'often')

Summarised Counts & %	a. h	ow mu	ch you	like the	e food i	tem	b. h	ow oft	en you	eat this	as a sn	ack
	Dis	like	Nei	ther	Li	ke	Ne	ver	Some	times	Of	ten
Food Item	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Fresh fruit	7	4.9	8	5.6	128	89.5	1	0.7	64	44.8	78	54.5
Vegetables (e.g. celery, carrots etc.)	14	9.8	25	17.5	104	72.7	8	5.6	73	51.4	61	43.0
Dried fruits (eg. raisins)	58	40.3	28	19.4	58	40.3	58	40.6	69	48.3	16	11.2
Nuts, peanuts, seeds (e.g. sunflower)	56	38.9	32	22.2	56	38.9	60	42.0	71	49.7	12	8.4
Yoghurt / yoghurt products	10	6.9	11	7.6	123	85.4	11	7.7	72	50.3	60	42.0
Cheese products (e.g. cheddar)	21	14.6	21	14.6	102	70.8	19	13.3	66	46.2	58	40.6
	_	2.5	-	4.2	122	02.4		4.2	70	55.2	70	10.6
Sweets / candy	5	3.5	6	4.2	133	92.4	6	4.2	79	55.2	58	40.6
Chocolate/chocolate bars/turó rudi	3	2.1	8	5.6	133	92.4	4	2.8	68	47.6	71	49.7
Biscuits / cookies	6	4.2	7	4.9	130	90.9	7	4.9	84	58.7	52	36.4
Cakes / muffins / pastries	4	2.8	15	10.4	125	86.8	16	11.2	93	65.0	34	23.8
Crisps / tortilla chips	2	1.4	14	9.7	128	88.9	10	7.0	82	57.3	51	35.7
Crackers / rice cakes / salty sticks	28	19.4	42	29.2	74	51.4	50	35.0	72	50.3	21	14.7
Popcorn	26	18.1	22	15.3	96	66.7	40	28.0	86	60.1	17	11.9
Meat based snacks (e.g. meat sticks)	49	34.0	45	31.3	50	34.7	85	59.4	49	34.3	9	6.3
, ,												
Bread / toast	5	3.5	7	4.9	132	91.7	8	5.6	68	47.6	67	46.9
Bowl of cereal	4	2.8	13	9.0	127	88.2	10	7.0	60	42.0	73	51.0
Oatmeal / porridge	46	31.9	29	20.1	69	47.9	58	40.6	76	53.1	9	6.3
Cereal bars	13	9.0	24	16.7	107	74.3	30	21.0	79	55.2	34	23.8
Sandwiches / toasties / pannini	4	2.8	8	5.6	132	91.7	10	7.0	57	39.9	76	53.1
Pizza	5	3.5	7	4.9	132	91.7	14	9.8	83	58.0	46	32.2
Hamburgers	10	6.9	18	12.5	116	80.6	21	14.7	104	72.7	18	12.6
Hot Dogs / sausage rolls	12	8.3	16	11.1	116	80.6	27	18.9	96	67.1	20	14.0
French fries	5	3.5	11	7.6	128	88.9	13	9.1	96	67.1	34	23.8
Pasta dishes	6	4.2	14	9.7	124	86.1	15	10.5	55	38.5	73	51.0
Pasta snack products e.g. Pot Noodles	30	20.8	31	21.5	83	57.6	48	33.8	71	50	23	16.2

Q2.2 Please answer both questions (as you did before in Q2.1) for this list of popular drink items.

For drink item listed, please identify:

- a. how much you like the food item (from dislike strongly to like strongly)
- b. how often you eat this as a snack (either 'never', 'sometimes' or 'often')

a. how much you like the drink (from dislike strongly to like strongly)

Full Counts & %	Dislike strongly		Dislike slightly		Neither		Like slightly		Like st	rongly
Drink	Count	%	Count	%	Count	%	Count	%	Count	%
Coffee	66	45.8	24	16.7	3	2.1	25	17.4	26	18.1
Tea	18	12.5	11	7.6	13	9.0	38	26.4	64	44.4
Milk	10	7.1	10	7.1	18	12.8	34	24.1	69	48.9
Cocoa drink (e.g. chocolate milk or hot choc)	4	2.8	4	2.8	19	13.2	47	32.6	70	48.6
Fizzy drinks / soft drinks (e.g. coke, sprite)	2	1.4	5	3.5	12	8.3	45	31.3	80	55.6
Fruit juice / fruit smoothies	1	0.7	4	2.8	12	8.3	47	32.6	80	55.6
Water	1	0.7	5	3.5	19	13.2	44	30.6	75	52.1

	a. how much you like the drink							b. how often you drink						
Summarised Counts & %	Dis	Dislike Neither		Like		Never		Sometimes		Often				
Drink	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
Coffee	90	62.5	3	2.1	51	35.4	93	65.0	29	20.3	21	14.7		
Tea	29	20.1	13	9.0	102	70.8	32	22.4	48	33.6	63	44.1		
Milk	20	14.2	18	12.8	103	73.0	24	17.3	45	32.4	70	50.4		
Cocoa drink (e.g. chocolate milk)	8	5.6	19	13.2	117	81.3	23	16.1	79	55.2	41	28.7		
Fizzy drinks / soft drinks (e.g. coke)	7	4.9	12	8.3	125	86.8	10	7.0	74	51.7	59	41.3		
Fruit juice / fruit smoothies	5	3.5	12	8.3	127	88.2	8	5.6	55	38.7	79	55.6		
Water	6	4.2	19	13.2	119	82.6	2	1.4	43	30.1	98	68.5		

Q2.3 For the same list of food and drink items, please identify how healthy you perceive each food/drink item to be.

Full counts & %		ery althy		Slightly unhealthy		Neither		Slightly healthy		ealthy
Food Item	Count	%	Count	%	Count	%	Count	%	Count	%
Fresh fruit	1	0.7	1	0.7	1	0.7	8	5.6	133	92.4
Vegetables (e.g. celery, carrots, tomatoes etc.)	2	1.4			1	0.7	13	9.0	128	88.9
Dried fruits (eg. raisins)	2	1.4	4	2.8	12	8.3	74	51.4	52	36.1
Nuts, peanuts, seeds (e.g. sunflower, pumpkin)	2	1.4	13	9.0	31	21.5	67	46.5	31	21.5
Yoghurt / yoghurt products	2	1.4	5	3.5	22	15.3	90	62.5	25	17.4
Cheese products (e.g. cheddar, cheese strings)	6	4.2	30	20.8	40	27.8	57	39.6	11	7.6
Sweets / candy	106	73.6	37	25.7					1	0.7
Chocolate / chocolate bars / turó rudi	92	63.9	47	32.6	3	2.1	1	0.7	1	0.7
Biscuits / cookies	67	46.9	61	42.7	12	8.4	1	0.7	2	1.4
Cakes / muffins / pastries	81	56.3	52	36.1	7	4.9	3	2.1	1	0.7
Crisps / tortilla chips	72	50.0	60	41.7	10	6.9	2	1.4		
Crackers / rice cakes / salty sticks	18	12.5	55	38.2	39	27.1	30	20.8	2	1.4
Popcorn	48	33.3	66	45.8	24	16.7	4	2.8	2	1.4
Meat based snacks (e.g. meat sticks)	15	10.4	44	30.6	54	37.5	28	19.4	3	2.1
Bread / toast			24	16.7	53	36.8	56	38.9	11	7.6
Bowl of cereal			8	5.6	21	14.6	92	63.9	23	16.0
Oatmeal / porridge	2	1.4	4	2.8	8	5.6	72	50.0	58	40.3
Cereal bars			11	7.6	33	22.9	84	58.3	16	11.1
Sandwiches / toasties / pannini	1	0.7	20	13.9	56	38.9	56	38.9	11	7.6
Pizza	40	28.0	72	50.3	23	16.1	7	4.9	1	0.7
Hamburgers	53	37.1	62	43.4	16	11.2	11	7.7	1	0.7
Hot Dogs / sausage rolls	48	33.3	64	44.4	25	17.4	6	4.2	1	0.7
French fries	71	49.7	58	40.6	11	7.7	2	1.4	1	0.7
Pasta	4	2.8	8	5.6	31	21.5	76	52.8	25	17.4
Pasta snack products e.g. Pot Noodles	38	26.4	53	36.8	26	18.1	22	15.3	5	3.5

Full counts & %	Very unhealthy		_	Slightly unhealthy		Neither		Slightly healthy		nealthy
Drink Item	Count	%	Count	%	Count	%	Count	%	Count	%
Coffee	14	9.7	64	44.4	46	31.9	20	13.9		
Tea	7	4.9	54	37.8	53	37.1	27	18.9	2	1.4
Milk	3	2.1	8	5.6	15	10.4	67	46.5	51	35.4
Cocoa drink (e.g. chocolate milk or hot choc)	14	9.7	63	43.8	50	34.7	16	11.1	1	0.7
Fizzy drinks / soft drinks (e.g. coke, sprite)	78	54.5	54	37.8	9	6.3	2	1.4		
Fruit juice / fruit smoothies			4	2.8	10	7.0	54	37.8	75	52.4
Water	1	0.7			3	2.1	13	9.0	127	88.2

Q2.3 For the same list of food and drink items, please identify how healthy you perceive each food/drink item to be.

Summarised counts & %	Unhe	althy	Nei	ther	Hea	lthy
Food Item	Count	%	Count	%	Count	%
Fresh fruit	2	1.4	1	0.7	141	98
Vegetables (e.g. celery, carrots, tomatoes etc.)	2	1.4	1	0.7	141	97.9
Dried fruits (eg. raisins)	6	4.2	12	8.3	126	87.5
Nuts, peanuts, seeds (e.g. sunflower, pumpkin)	15	10.4	31	21.5	98	68
Yoghurt / yoghurt products	7	4.9	22	15.3	115	79.9
Cheese products (e.g. cheddar, cheese strings)	36	25	40	27.8	68	47.2
Consider / consider	1.42	00.2			1	0.7
Sweets / candy	143	99.3	2	2.1	1	0.7
Chocolate / chocolate bars / turó rudi	139	96.5	3	2.1	2	1.4
Biscuits / cookies	128	89.6	12	8.4	3	2.1
Cakes / muffins / pastries	133	92.4	7	4.9	4	2.8
Crisps / tortilla chips	132	91.7	10	6.9	2	1.4
Crackers / rice cakes / salty sticks	73	50.7	39	27.1	32	22.2
Popcorn	114	79.1	24	16.7	6	4.2
Meat based snacks (e.g. meat sticks)	59	41	54	37.5	31	21.5
Bread / toast	24	16.7	53	36.8	67	46.5
Bowl of cereal	8	5.6	21	14.6	115	79.9
Oatmeal / porridge	6	4.2	8	5.6	130	90.3
Cereal bars	11	7.6	33	22.9	100	69.4
Sandwiches / toasties / pannini	21	14.6	56	38.9	67	46.5
Pizza	112	78.3	23	16.1	8	5.6
Hamburgers	115	80.5	16	11.2	12	8.4
Hot Dogs / sausage rolls	112	77.7	25	17.4	7	4.9
French fries	129	90.3	11	7.7	3	2.1
Pasta	12	8.4	31	21.5	101	70.2
Pasta snack products e.g. Pot Noodles	91	63.2	26	18.1	27	18.8

Summarised counts & %	Unhe	althy	Nei	ther	Hea	lthy
Drink Item	Count	%	Count	%	Count	%
Coffee	78	54.1	46	31.9	20	13.9
Tea	61	42.7	53	37.1	29	20.3
Milk	11	7.7	15	10.4	118	81.9
Cocoa drink (e.g. chocolate milk or hot choc)	77	53.5	50	34.7	17	11.8
Fizzy drinks / soft drinks (e.g. coke, sprite)	132	92.3	9	6.3	2	1.4
Fruit juice / fruit smoothies	4	2.8	10	7	129	90.2
Water	1	0.7	3	2.1	140	97.2

Section 3 – Important influences on food choices and preferences

The following shows a list of things that may have an influence on what you eat for breakfast, lunch, dinner and snacks. Please rate the importance of each influence, separate for each meal occasion.

Q3.1 How strong of an influence do the following factors have on your choice of foods at BREAKFAST?

(e.g. how much influence do 'your friends' have on your choice of foods for BREAKFAST etc.)

Full counts & %	No inf	luence	Sli influ	ght ence	Mod influ		Stro influ	_	Very s	strong ence
	Count	%	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	18	12.5	27	18.8	42	29.2	43	29.9	14	9.7
School environment	46	31.9	29	20.1	41	28.5	21	14.6	7	4.9
The taste of the food	2	1.4	10	6.9	25	17.4	61	42.4	46	31.9
Concern for your health	10	6.9	30	20.8	35	24.3	53	36.8	16	11.1
Your friends	46	31.9	39	27.1	38	26.4	17	11.8	4	2.8
The food is readily available	14	9.7	26	18.1	56	38.9	29	20.1	19	13.2
The food is easy to prepare	7	4.9	29	20.1	37	25.7	46	31.9	25	17.4
How hungry you are	4	2.8	11	7.6	30	20.8	55	38.2	44	30.6
Price of the food	26	18.1	41	28.5	36	25.0	24	16.7	17	11.8
Your habits or daily routine	16	11.1	34	23.6	43	29.9	39	27.1	12	8.3
Other, e.g. medical reasons	101	82.8	8	6.6	7	5.7	3	2.5	3	2.5

Summarised counts & %	No influence		Slight/Mod influence		Strong/Very influence		Total	
	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	18	12.5	69	47.9	57	39.6	144	100
School environment	46	31.9	70	48.6	28	19.4	144	100
The taste of the food	2	1.4	35	24.3	107	74.3	144	100
Concern for your health	10	6.9	65	45.1	69	47.9	144	100
Your friends	46	31.9	77	53.5	21	14.6	144	100
The food is readily available	14	9.7	82	56.9	48	33.3	144	100
The food is easy to prepare	7	4.9	66	45.8	71	49.3	144	100
How hungry you are	4	2.8	41	28.5	99	68.8	144	100
Price of the food	26	18.1	77	53.5	41	28.5	144	100
Your habits or daily routine	16	11.1	77	53.5	51	35.4	144	100
Other, e.g. medical reasons	101	82.8	15	12.3	6	4.9	122	100

Q3.2 Thinking about a typical weekday, other than breakfast, which is your MAIN MEAL of the day? (please select \underline{ONE})

	Count	%
Lunch (mid-day meal)	21	14.6
Dinner (evening meal)	120	83.3
Other	3	2.1
Total	144	100

Q3.3 Where do you <u>usually</u> eat this MAIN MEAL? (please select <u>ONE</u>)

	Count	%
At home	122	84.7
At school	21	14.6
Other	1	0.7
Total	144	100

Q3.4 $\underline{\text{Thinking about your MAIN MEAL}}$, how strong of an influence do the following factors have on your choice of foods for this main meal?

(e.g. how much influence do 'your friends' have on your choice of foods for your main meal etc.)

Full counts & %	No inf	No influence		ght ence	Moderate influence		Strong influence		Very strong influence	
	Count	%	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	10	6.9	14	9.7	31	21.5	47	32.6	42	29.2
School environment	65	45.1	31	21.5	37	25.7	8	5.6	3	2.1
The taste of the food	3	2.1	9	6.3	30	20.8	59	41.0	43	29.9
Concern for your health	8	5.6	32	22.2	46	31.9	42	29.2	16	11.1
Your friends	59	41.0	35	24.3	33	22.9	13	9.0	4	2.8
The food is readily available	13	9.0	30	20.8	45	31.3	32	22.2	24	16.7
The food is easy to prepare	22	15.3	34	23.6	36	25.0	32	22.2	20	13.9
How hungry you are	2	1.4	10	6.9	38	26.4	50	34.7	44	30.6
Price of the food	26	18.3	30	21.1	38	26.8	27	19.0	21	14.8
Your habits or daily routine	15	10.4	40	27.8	48	33.3	29	20.1	12	8.3
Other, e.g. medical reasons	103	85.1	5	4.1	7	5.8	4	3.3	2	1.7

Summarised counts & %	No influence		Slight/Mod influence		Strong/Very influence		Total	
	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	10	6.9	45	31.3	89	61.8	144	100
School environment	65	45.1	68	47.2	11	7.6	144	100
The taste of the food	3	2.1	39	27.1	102	70.8	144	100
Concern for your health	8	5.6	78	54.2	58	40.3	144	100
Your friends	59	41.0	68	47.2	17	11.8	144	100
The food is readily available	13	9.0	75	52.1	56	38.9	144	100
The food is easy to prepare	22	15.3	70	48.6	52	36.1	144	100
How hungry you are	2	1.4	48	33.3	94	65.3	144	100
Price of the food	26	18.3	68	47.9	48	33.8	142	100
Your habits or daily routine	15	10.4	88	61.1	41	28.5	144	100
Other, e.g. medical reasons	103	85.1	12	9.9	6	5.0	121	100

Q3.5 Snacks are defined as any foods you would eat between meals (some examples were seen in Section 2). How strong of an influence do the following factors have on your choice of SNACK FOODS?

(e.g. how much influence do 'your friends' have on your choice of foods for SNACKS etc.)

Full counts & %	No inf	luence	Sli influ	ght ence	Mod influ		Stro influ	ong ence	-	strong ence
	Count	%	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	28	19.4	36	25.0	43	29.9	21	14.6	16	11.1
School environment	45	31.3	42	29.2	33	22.9	18	12.5	6	4.2
The taste of the food	5	3.5	12	8.3	24	16.7	66	45.8	37	25.7
Concern for your health	14	9.8	38	26.6	42	29.4	38	26.6	11	7.7
Your friends	41	28.5	42	29.2	31	21.5	24	16.7	6	4.2
The food is readily available	6	4.2	26	18.1	43	29.9	45	31.3	24	16.7
The food is easy to prepare	12	8.3	23	16.0	38	26.4	43	29.9	28	19.4
How hungry you are	2	1.4	9	6.3	36	25.0	54	37.5	43	29.9
Price of the food	18	12.6	28	19.6	41	28.7	33	23.1	23	16.1
Your habits or daily routine	20	13.9	33	22.9	45	31.3	32	22.2	14	9.7
Other, e.g. medical reasons	105	86.8	2	1.7	7	5.8	5	4.1	2	1.7

Summarised counts & %	No inf	No influence		Slight/Mod influence		Strong/Very influence		tal
	Count	%	Count	%	Count	%	Count	%
Your parents or guardian	28	19.4	79	54.9	37	25.7	144	100
School environment	45	31.3	75	52.1	24	16.7	144	100
The taste of the food	5	3.5	36	25.0	103	71.5	144	100
Concern for your health	14	9.8	80	55.9	49	34.3	143	100
Your friends	41	28.5	73	50.7	30	20.8	144	100
The food is readily available	6	4.2	69	47.9	69	47.9	144	100
The food is easy to prepare	12	8.3	61	42.4	71	49.3	144	100
How hungry you are	2	1.4	45	31.3	97	67.4	144	100
Price of the food	18	12.6	69	48.3	56	39.2	143	100
Your habits or daily routine	20	13.9	78	54.2	46	31.9	144	100
Other, e.g. medical reasons	105	86.8	9	7.4	7	5.8	121	100

Selected crosstabs

I often skip breakfast by Age

Crosstab

				Ag	ge		Total
		-	13 yrs	14 yrs	15 yrs	16 yrs	2
Q1_1_3_R	Disagree	Count	5	11	10	13	39
		% within Q1_1_3_R	12.8%	28.2%	25.6%	33.3%	100.0%
		% within Age	15.2%	25.6%	27.0%	43.3%	27.3%
	Neither	Count	16	15	14	6	51
		% within Q1_1_3_R	31.4%	29.4%	27.5%	11.8%	100.0%
		% within Age	48.5%	34.9%	37.8%	20.0%	35.7%
	Agree	Count	12	17	13	11	53
		% within Q1_1_3_R	22.6%	32.1%	24.5%	20.8%	100.0%
		% within Age	36.4%	39.5%	35.1%	36.7%	37.1%
Total		Count	33	43	37	30	143
		% within Q1_1_3_R	23.1%	30.1%	25.9%	21.0%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.209

I often skip breakfast by Gender

Crosstab

		-	Gen	der	Total
			Male	Female	1
Q1_1_3_R	Disagree	Count	17	22	39
		% within Q1_1_3_R	43.6%	56.4%	100.0%
		% within Gender	25.4%	28.9%	27.3%
	Neither	Count	24	27	51
		% within Q1_1_3_R	47.1%	52.9%	100.0%
		% within Gender	35.8%	35.5%	35.7%
	Agree	Count	26	27	53
		% within Q1_1_3_R	49.1%	50.9%	100.0%
		% within Gender	38.8%	35.5%	37.1%
Total		Count	67	76	143
		% within Q1_1_3_R	46.9%	53.1%	100.0%
		% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.873

I often try foods I see advertised in the media by Age

Crosstab

		-		Aş	ge		Total
			13 yrs	14 yrs	15 yrs	16 yrs	2
Q1_1_10_R	Disagree	Count	9	19	7	17	52
		% within Q1_1_10_R	17.3%	36.5%	13.5%	32.7%	100.0%
		% within Age	28.1%	44.2%	18.9%	56.7%	36.6%
	Neither	Count	12	8	9	8	37
		% within Q1_1_10_R	32.4%	21.6%	24.3%	21.6%	100.0%
		% within Age	37.5%	18.6%	24.3%	26.7%	26.1%
	Agree	Count	11	16	21	5	53
		% within Q1_1_10_R	20.8%	30.2%	39.6%	9.4%	100.0%
		% within Age	34.4%	37.2%	56.8%	16.7%	37.3%
Total		Count	32	43	37	30	142
		% within Q1_1_10_R	22.5%	30.3%	26.1%	21.1%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.007

I often try foods I see advertised in the media by Gender

Crosstab

			Ger	nder	Total
			Male	Female	1
Q1_1_10_R	Disagree	Count	25	27	52
		% within Q1_1_10_R	48.1%	51.9%	100.0%
		% within Gender	37.9%	35.5%	36.6%
	Neither	Count	14	23	37
		% within Q1_1_10_R	37.8%	62.2%	100.0%
		% within Gender	21.2%	30.3%	26.1%
	Agree	Count	27	26	53
		% within Q1_1_10_R	50.9%	49.1%	100.0%
		% within Gender	40.9%	34.2%	37.3%
Total		Count	66	76	142
		% within Q1_1_10_R	46.5%	53.5%	100.0%
		% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.452

Snacking is a necessary part of a healthy diet by Age

Crosstab

		_		Age			
			13 yrs	14 yrs	15 yrs	16 yrs	2
Q1_1_13_R	Disagree	Count	19	21	15	14	69
		% within Q1_1_13_R	27.5%	30.4%	21.7%	20.3%	100.0%
		% within Age	55.9%	50.0%	40.5%	46.7%	48.3%
	Neither	Count	6	3	1	2	12
		% within Q1_1_13_R	50.0%	25.0%	8.3%	16.7%	100.0%
		% within Age	17.6%	7.1%	2.7%	6.7%	8.4%
	Agree	Count	9	18	21	14	62
		% within Q1_1_13_R	14.5%	29.0%	33.9%	22.6%	100.0%
		% within Age	26.5%	42.9%	56.8%	46.7%	43.4%
Total		Count	34	42	37	30	143
		% within Q1_1_13_R	23.8%	29.4%	25.9%	21.0%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.132

Snacking is a necessary part of a healthy diet by Gender

Crosstab

			Ger	Total	
		_	Male	Female	1
Q1_1_13_R	Disagree	Count	39	30	69
		% within Q1_1_13_R	56.5%	43.5%	100.0%
		% within Gender	57.4%	40.0%	48.3%
	Neither	Count	5	7	12
		% within Q1_1_13_R	41.7%	58.3%	100.0%
		% within Gender	7.4%	9.3%	8.4%
	Agree	Count	24	38	62
		% within Q1_1_13_R	38.7%	61.3%	100.0%
		% within Gender	35.3%	50.7%	43.4%
Total		Count	68	75	143
		% within Q1_1_13_R	47.6%	52.4%	100.0%
		% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.114

I worry about what I eat because I don't want to gain weight by Age

Crosstab

		-		Age			
			13 yrs	14 yrs	15 yrs	16 yrs	2
Q1_1_19_R	Disagree	Count	14	14	20	16	64
		% within Q1_1_19_R	21.9%	21.9%	31.3%	25.0%	100.0%
		% within Age	41.2%	32.6%	54.1%	53.3%	44.4%
	Neither	Count	13	9	7	5	34
		% within Q1_1_19_R	38.2%	26.5%	20.6%	14.7%	100.0%
		% within Age	38.2%	20.9%	18.9%	16.7%	23.6%
	Agree	Count	7	20	10	9	46
		% within Q1_1_19_R	15.2%	43.5%	21.7%	19.6%	100.0%
		% within Age	20.6%	46.5%	27.0%	30.0%	31.9%
Total		Count	34	43	37	30	144
		% within Q1_1_19_R	23.6%	29.9%	25.7%	20.8%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p=0.075

I worry about what I eat because I don't want to gain weight by Gender

Crosstab

			Gen	der	Total
		•	Male	Female	1
Q1_1_19_R	Disagree	Count	42	22	64
		% within Q1_1_19_R	65.6%	34.4%	100.0%
		% within Gender	61.8%	28.9%	44.4%
	Neither	Count	14	20	34
		% within Q1_1_19_R	41.2%	58.8%	100.0%
		% within Gender	20.6%	26.3%	23.6%
	Agree	Count	12	34	46
		% within Q1_1_19_R	26.1%	73.9%	100.0%
		% within Gender	17.6%	44.7%	31.9%
Total		Count	68	76	144
		% within Q1_1_19_R	47.2%	52.8%	100.0%
		% within Gender	100.0%	100.0%	100.0%

Pearson Chi-Square: p≤0.001

"How well did this product meet your expectations for a hamburger" by consumer segments for burgers

Crosstab

			Q7Expect					
			1	2	3	4	5	Total
BU_Cl4	1	Count	1	11	13	9	3	37
		% within BU_Cl4	2.7%	29.7%	35.1%	24.3%	8.1%	100.0%
		% within Q7Expect	8.3%	33.3%	38.2%	21.4%	13.0%	25.7%
	2	Count	1	5	10	25	17	58
		% within BU_Cl4	1.7%	8.6%	17.2%	43.1%	29.3%	100.0%
		% within Q7Expect	8.3%	15.2%	29.4%	59.5%	73.9%	40.3%
	3	Count	5	14	8	7	3	37
		% within BU_Cl4	13.5%	37.8%	21.6%	18.9%	8.1%	100.0%
		% within Q7Expect	41.7%	42.4%	23.5%	16.7%	13.0%	25.7%
	4	Count	5	3	3	1	0	12
		% within BU_Cl4	41.7%	25.0%	25.0%	8.3%	.0%	100.0%
		% within Q7Expect	41.7%	9.1%	8.8%	2.4%	.0%	8.3%
	Total	Count	12	33	34	42	23	144
		% within BU_Cl4	8.3%	22.9%	23.6%	29.2%	16.0%	100.0%
		% within Q7Expect	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p≤0.001

Respondents purchase intention (median across 3 products) by consumer segments for burgers

Crosstab

			Median_Pu	rchInt				
<u> </u>			1	2	3	4	5	Total
BU_Cl4	1	Count	1	14	16	6	0	37
		% within BU_Cl4	2.7%	37.8%	43.2%	16.2%	.0%	100.0%
		% within Median_PurchInt	5.9%	37.8%	43.2%	12.2%	.0%	25.7%
	2	Count	1	5	9	39	4	58
		% within BU_Cl4	1.7%	8.6%	15.5%	67.2%	6.9%	100.0%
		% within Median_PurchInt	5.9%	13.5%	24.3%	79.6%	100.0%	40.3%
	3	Count	4	17	12	4	0	37
		% within BU_Cl4	10.8%	45.9%	32.4%	10.8%	.0%	100.0%
		% within Median_PurchInt	23.5%	45.9%	32.4%	8.2%	.0%	25.7%
	4	Count	11	1	0	0	0	12
		% within BU_Cl4	91.7%	8.3%	.0%	.0%	.0%	100.0%
		% within Median_PurchInt	64.7%	2.7%	.0%	.0%	.0%	8.3%
	Total	Count	17	37	37	49	4	144
		% within BU_Cl4	11.8%	25.7%	25.7%	34.0%	2.8%	100.0%
		% within Median_PurchInt	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Pearson Chi-Square: p≤0.001

APPENDIX VIII

QUESTIONNAIRES



Acceptance Test New Healthy Hamburger

with less calories

Respondent ID:

How old are you?	
13-years-old	
14-years-old	
15-years-old	
16-years-old	
Other (please write)	
Gender	
Female	
Male	

Take the plate marked **726** and eat a piece of this Hamburger

What is your overall impression of this Hamburger?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the ap	pearance	of this Ha	ımburger	?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the ar	roma of th	nis Hambu	rger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the fl	avour of	this Hambı	arger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the te	xture of t	his Hambu	ırger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you or your parents/guardian buy this Hamburger for you to eat?								
Definitely Not	Probably Not	Might or Might Not	Probably Yes	Definitely Yes				
П	П	П	П	П				

Take the plate marked **480** and eat a piece of this Hamburger

What is your overall impression of this Hamburger?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the ap	pearance	of this Ha	mburger	?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the ar	roma of th	nis Hambu	rger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the fl	avour of	this Hambu	urger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thin	nk of the te	xture of t	his Hambu	ırger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you or your parents/guardian buy this Hamburger for you to eat?								
Definitely Not	Probably Not	Might or Might Not	Probably Yes	Definitely Yes				

Take the plate marked 938 and eat a piece of this Hamburger

What is your overall impression of this Hamburger?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the ap	pearance	e of this Ha	ımburger	?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the ar	oma of tl	nis Hambu	rger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the fl	avour of	this Hambı	urger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do	you thir	nk of the te	xture of t	this Hambu	ırger?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would y	ou or yo	our parents/	guardian	buy this H	lamburge	er for you	to eat?	
Definitely Not	Probably Not	Might or Might Not	Probably Yes	Definitely Yes				

Product Specific Questions

How well did this product meet your expectations for a hamburger?

Much worse than expected	Slightly worse than expected	About the same as expected	Slightly better than expected	Much better than expected				
What would be the major reason for you to choose and eat this Hamburger? Mark all that apply								
It is healthy (It's low in fat content and it's low in calories) \Box								
It tastes nice								
Hunger								
Social reas	sons (e.g. wit	th family or	friends)					
Convenience								
Other, plea	ase state							



Acceptance Test New Healthy Drink

with whole grain cereals, fruit and milk

Respondent ID:

How old are you?	
13-years-old	
14-years-old	
15 –years-old	
16 –years-old	
Gender	
Female	
Male	

Take the bottle marked **553** and shake it. Unscrew the cap and drink a mouthful of the drink. What is your overall impression of this new healthy drink?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
	Look into the bottle: What do you think of the appearance of this new healthy drink?							
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Smell into What do y		e: of the aroma	a of this r	new healt	:hy drink?)		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Take another sip of the drink: What do you think of the flavour of this new healthy drink?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the textur	e/mouthf	eel of this	s new he	althy drink?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you	u or your	parents/gua	rdian bu	y this Drii	nk for you	?ړ		
Definitely	Probably	Might or l	Probably	Definitely				
not	not		yes	not				

Take the bottle marked **691** and shake it. Unscrew the cap and drink a mouthful of the drink. What is your overall impression of this new healthy drink?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
	Look into the bottle: What do you think of the appearance of this new healthy drink?							
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Smell into What do y		e: of the aroma	a of this r	new healt	:hy drink?)		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Take another sip of the drink: What do you think of the flavour of this new healthy drink?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the textur	e/mouthf	eel of this	s new he	althy drink?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you	u or your	parents/gua	rdian bu	y this Drii	nk for you	?ړ		
Definitely	Probably	Might or l	Probably	Definitely				
not	not		yes	not				

Take the bottle marked **382** and shake it. Unscrew the cap and drink a mouthful of the drink. What is your overall impression of this new healthy drink?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Look into What do y		e: of the appea	arance of	this new	healthy	drink?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Smell into What do y		e: of the aroma	a of this r	new healt	hy drink?	>		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Take another sip of the drink: What do you think of the flavour of this new healthy drink?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the textur	e/mouthf	eel of this	s new he	althy drink?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you	Would you or your parents/guardian buy this Drink for you?							
Definitely	Probably	Might or I might not	Probably	Definitely				
not	not	<i></i>	yes	not				

size of the bottle?	
Too large	
The bottle size is just right	
Too small	
Do you consider these drinks to be hea	lthy?
Yes	
No	
I don't know	

Now that you have tasted all three drinks, what do you think about the

Using the scale below, rate your level of agreement/disagreement for each of the following statements.

When I choose a drink it is most important that...

	Strongly Disagree	Moderately disagree	Slightly disagree	Neither agree, nor disagree	Slightly agree	Moderately agree	Strongly agree	Don't know what the word means
It contains fruit juice								
It contains dietary fibre								
It is low in sugar								
It is high in protein								
It contains whole-grain								
It is lactose free								
It tastes nice								
It is healthy								
It is up-to- date ("cool")								
It is rich in vitamins								
It is rich in minerals								
It is low in energy								

Mark all that apply.	you to choose this drink!
Health reasons	
Pleasure	
Social reasons (e.g. with family or friends)	
Convenience	
Hunger	
Thirst	
Sports performance	
Other, please state	

In what situation(s) do you think you would choose this drink? Mark all that apply.					
After training					
Before training					
In between meals					
At home					
On my way to school					
In school					
On the go					
At breakfast					
When I am hungry					
When I am thirsty					
As a meal replacement					
To get energy					
Other, please state					

Thanks for your help!



Acceptance Test New Healthy Snack Bar

with fibre, milk protein, calcium and vitamin D

Respondent ID:

How old are you?	
13-years-old	
14-years-old	
15 –years-old	
16 –years-old	
Gender	
Female	
Male	

Eat a piece of the Snack Bar marked **465**

What is your overall impression of this Snack Bar?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely	
What do y	What do you think of the appearance of this Snack Bar?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely	
What do you think of the aroma of this Snack Bar?									
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely	
What do y	ou think	of the flavo	ur of this	Snack Ba	ar?				
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderaetly	Like very much	Like extremely	
What do y	ou think	of the textu	re/mouth	feel of thi	s Snack	Bar?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely	
Would you	u or your	parents/gu	ardian bu	y this Sn	ack bar f	or you to ea	t?		
Definitely	Probably	Might or might not	Probably	Definitely	/				
not	not	mignt not	yes	not					

Eat a piece of the Snack Bar marked 132

What is your overall impression of this Snack Bar?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the appe	arance o	f this Sna	ick Bar?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do you think of the aroma of this Snack Bar?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the flavo	ur of this	Snack Ba	ar?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderaetly	Like very much	Like extremely
What do y	ou think	of the textu	re/mouth	feel of thi	s Snack	Bar?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you	u or your	parents/gu	ardian bu	y this Sn	ack bar f	or you to ea	t?	
Definitely	Probably	Might or might not	Probably	Definitely	7			
not	not	impiit not	yes	not				

Eat a piece of the Snack Bar marked 798

What is your overall impression of this Snack Bar?

Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the appe	arance o	f this Sna	ick Bar?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do you think of the aroma of this Snack Bar?								
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
What do y	ou think	of the flavo	ur of this	Snack Ba	ar?			
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderaetly	Like very much	Like extremely
What do y	ou think	of the textu	re/mouth	feel of thi	s Snack	Bar?		
Dislike extremely	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
Would you	u or your	parents/gu	ardian bu	y this Sn	ack bar f	or you to ea	t?	
Definitely	Probably	Might or might not	Probably	Definitely	7			
not	not	impiit not	yes	not				

about the size?	Snack Bars, what do you think
Too large	
This size is just right	
Too small	
Do you consider these Snack Bars	to be healthy?
Yes	
No	
I don't know	
If this Snack Bar was available enri that one instead of the one that is r	•
Yes	
No	
I don't know	

What would be the major reason(s)	for you to choose this Snack
Bar?	
Mark all that apply.	
Health reasons	
Pleasure	
Social reasons (e.g. with family or friend	s) 🗆
Sports performance	
Hunger	
Convenience	
Other, please state	
_	

Mark all that apply.	i would choose this shack bar?
After training	
Before training	
On the way to school	
At home	
In school	
On the go	
In between meals	
At breakfast	
When I am hungry	
As a meal replacement	
To get energy	
Other, please state	

Thanks for your help!

Food Choices and Preferences Questionnaire

In this questionnaire we would like to know about your food choices and preferences. **Your opinions** are very important to us! This questionnaire gives you an opportunity to tell us what you think about issues surrounding food choice and the factors that influence these choices.

There are 3 sections within the questionnaire. In total, it should only take about 15 minutes to complete the questionnaire. Please take your time and read all questions carefully. You may answer the questions using the scales or categories provided.

Section 1 – Your opinions about food choices, preferences, diet and health

Q1.1 Using the scale provided, please rate your level of agreement for each of the following statements. It is important that you read each statement carefully.

I think that my of Strongly disagree	diet is healthy Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree
The taste of a f Strongly disagree	ood is very impo Moderately disagree	ortant to me Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree
Snacking is a n Strongly disagree	ecessary part of Moderately disagree	f a healthy diet Slightly disagree □	Neither agree nor disagree □	Slightly agree	Moderately agree	Strongly agree
I enjoy eating for Strongly disagree	ruit and vegetable Moderately disagree	es Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I tend to eat wh Strongly disagree	natever my friend Moderately disagree	Is are eating Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree
Food I eat at ho Strongly disagree	ome is healthy Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree
I choose my ow Strongly disagree	vn snacks Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I like the food I Strongly disagree	eat when I am of Moderately disagree	out with my frienc Slightly disagree	ds Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

The taste of for Strongly disagree	od is more impored Moderately disagree	rtant to me than Slightly disagree	the healthiness of Neither agree nor disagree	of the food Slightly agree	Moderately agree □	Strongly agree
I often try foods Strongly disagree	s that I see adve Moderately disagree	rtised in the med Slightly disagree	dia (TV, magazin Neither agree nor disagree	nes etc.) Slightly agree	Moderately agree □	Strongly agree
A high fat food Strongly disagree	tastes better that Moderately disagree	an the lower fat v Slightly disagree	version Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
Food I eat at so Strongly disagree	chool (in the can Moderately disagree	teen) is healthy Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I often skip bre Strongly disagree	akfast Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
Healthy foods of Strongly disagree	don't fill me up Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
Most snack for Strongly disagree	ods that I eat are Moderately disagree	healthy Slightly disagree	Neither agree nor disagree □	Slightly agree	Moderately agree □	Strongly agree
I feel well information Strongly disagree	med about what Moderately disagree	are healthy food Slightly disagree □	ds Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
Most healthy for Strongly disagree	oods don't taste v Moderately disagree	very nice Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I have little cho Strongly disagree	ice over what I e Moderately disagree	eat at home Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I worry about w Strongly disagree	/hat I eat becaus Moderately disagree	se I don't want to Slightly disagree	gain weight Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
Sugar-reduced Strongly disagree	products taste the Moderately disagree	petter than the 'r Slightly disagree	egular' version Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I like the food r Strongly disagree	ny parents prepa Moderately disagree	are at home Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree

Strongly disagree	Moderately disagree	Slightly disagree	on of a food, I will Neither agree nor disagree	Slightly agree	Moderately agree	Strongly
		Ц		Ц		
What I eat now Strongly disagree	will have a big Moderately disagree	j impact on my Slightly disagree □	future health Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree
Food Lost whor	. Lam out with	my friands is h	oolthy			
Food I eat wher Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
I like the food prescription Strongly disagree	repared at the Moderately disagree	school canteer Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree □	Strongly agree
_	_	_	_	_		_
If there is the op Strongly disagree	otion to choose Moderately disagree	e a whole grain Slightly disagree	version of a food, Neither agree nor disagree	I will choose it Slightly agree	Moderately agree □	Strongly agree
Information rega Strongly disagree	arding healthy Moderately disagree	eating is difficu Slightly disagree	ult to put into practi Neither agree nor disagree	ice Slightly agree	Moderately agree □	Strongly agree
□ I snad □ I snad □ I snad □ I snad	ck in the morn ck in the afterr ck when I get ck in the even ck regularly th	ing	r)	SHACK (SCIECE	. ан ттас арргу	')
□ I snad □ I snad □ I snad	ck in the morn ck in the afterr ck in the even ck regularly th	ing	,	elect all that a	ipply)	
☐ I feel☐ I feel	bored stressed happy alone sad	ons for snac	king? (select al	I that apply)		

<u>Section 2 – Choices and preferences of SNACK foods and drinks</u>

Q2.1 Snacks are defined as any foods that are eaten between meals. The following shows a list of foods that adolescents in different countries have mentioned are popular to **SNACK** on.

For each snack food item listed, please identify:

- c. <u>how much you like</u> the food item (from dislike strongly to like strongly)
- d. how often you eat this <u>as a snack</u> (either 'never', 'sometimes' or 'often')

Food Item	How muc	h do you l	Do you eat this <u>as a snack?</u>			
Fresh fruit	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Vegetables (e.g. celery, carrots, tomatoes etc.)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Dried fruits (eg. raisins)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Nuts, peanuts, seeds (e.g. sunflower, pumpkin)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Yoghurt / yoghurt products	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Cheese products (e.g. cheddar, brie, cheese strings)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Sweets / candy	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Chocolate / chocolate bars / turó rudi	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Biscuits / cookies	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Cakes / muffins / pastries	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Crisps / tortilla chips	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Crackers / rice cakes / salty sticks	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Popcorn	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □
Meat based snacks (e.g. meat sticks)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □ Sometimes □ Often □

Food Item	How much do you like this food item?						Do you eat this as a snack?		
Bread / toast	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Bowl of cereal	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Oatmeal / porridge	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Cereal bars	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes	Often	
Sandwiches / toasties / pannini	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Pizza	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes	Often	
Hamburgers	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Hot Dogs / sausage rolls	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
French fries	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Pasta dishes	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes	Often	
Pasta snack products e.g. Pot Noodles	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes	Often	

Q2.2 Please answer both questions (as you did before in Q2.1) for this list of popular drink items.

Drink Item	How much do you like this drink item?						Do you drink this?		
Coffee	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Tea	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Milk	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Cocoa drink (e.g. chocolate milk or hot chocolate)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Fizzy drinks / soft drinks (e.g. coke, sprite)	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Fruit juice / fruit smoothies	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never □	Sometimes Often		
Water	Dislike strongly	Dislike slightly	Neither like nor dislike	Like slightly	Like strongly	Never	Sometimes Often		

Q2.3 For the same list of food and drink items, please identify how healthy you perceive each food/drink item to be.

Unbeathty Unbe	Food Item	What do you think about the healthiness of the food?								
Very Sightly Neither healthy Sightly Neither healthy Dealthy D	Fresh fruit		Slightly		Slightly	Very				
tec.) unbealthy unbealthy nor unbealthy healthy healthy healthy healthy very slightly unbealthy unbealthy unbealthy nor unbealthy healthy		unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Dried firtitis (eg. raisins)	Vegetables (e.g. celery, carrots, tomatoes			Neither healthy	Slightly	Very				
Nuts, peanuts, seeds (e.g. sunflower, Very Slightly unhealthy unhealthy nor unhealthy healthy health	etc.)	unhealthy	unhealthy \square	nor unhealthy	healthy 🗆	healthy \square				
Nus. peanuts, seeds (e.g. sunflower, pumpskin) Urry unhealthy	Dried fruits (eg. raisins)	Very	Slightly	Neither healthy	Slightly	Very				
Pampkin		unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Pampkin	Nuts, peanuts, seeds (e.g. sunflower,	Very	Slightly	Neither healthy	Slightly	Very				
Unhealthy Unhealthy Unhealthy Neither healthy Neither he	pumpkin)	unhealthy				healthy 🗆				
Unhealthy Unhealthy Unhealthy Neither healthy Neither he			•		·	·				
Unhealthy Unhealthy Unhealthy Neither healthy Neither he	Yoghurt / yoghurt products	Verv	Slightly	Neither healthy	Slightly	Verv				
Cheese products (e.g. cheddar, brie, cheese strings) Sweets / candy Very unhealthy wheelthy Neither healthy Slightly Neither healthy healthy healthy healthy healthy healthy healthy healthy healthy Neither healthy Slightly Very Neither healthy Slightly Very Neither healthy Slightly Very Neither healthy	Tognart yognart products									
Sweets / candy	Cheese products (e.g. cheddar brie cheese									
Sweets / candy										
unhealthy unhealthy nor unhealthy healthy heal	strings)	unificatiny =	unificating =	nor unicating	neartify =	neartify =				
unhealthy unhealthy nor unhealthy healthy heal		***	C1: 1 :1	27.14 1 14	G1: 1 d	* 7				
Chocolate / chocolate bars / turó rudi Very unhealthy unhealthy unhealthy unhealthy healthy	Sweets / candy		Slightly							
unhealthy unhealthy nor unhealthy healthy healthy healthy healthy unhealthy unhealthy nor unhealthy healthy heal										
Biscuits / cookies	Chocolate / chocolate bars / turó rudi									
unhealthy unhealthy nor unhealthy healthy Very unhealthy unhealthy unhealthy Neither healthy Neither h										
Cakes / muffins / pastries	Biscuits / cookies					-				
Unhealthy Unhealthy Dealthy										
Crisps / tortilla chips	Cakes / muffins / pastries									
Unhealthy Unhealthy Neither healthy Slightly Very Unhealthy Unhe		unhealthy	unhealthy 🗆	nor unhealthy 🗆	healthy □	healthy \square				
Unhealthy Unhealthy Neither healthy Slightly Very Unhealthy Unhe										
Crackers / rice cakes / salty sticks Very Slightly Neither healthy nor unhealthy healthy hea	Crisps / tortilla chips	Very	Slightly	Neither healthy	Slightly	Very				
Crackers / rice cakes / salty sticks Very Slightly Neither healthy nor unhealthy healthy hea		unhealthy			healthy \square	healthy \square				
unhealthy unhealthy nor unhealthy healthy healthy healthy healthy unhealthy unhealthy nor unhealthy healthy heal	Crackers / rice cakes / salty sticks									
Very Slightly Neither healthy										
Meat based snacks (e.g. meat sticks)	Popcorn									
Meat based snacks (e.g. meat sticks) Very Unhealthy Neither healthy Neithe	Tr.									
Bread / toast	Meat based snacks (e.g. meat sticks)									
Bread / toast										
unhealthy unhealthy nor unhealthy healthy healthy			·		·	·				
unhealthy unhealthy nor unhealthy healthy healthy	Bread / toast	Verv	Slightly	Neither healthy	Slightly	Verv				
Neither healthy Neither he	Bread / toust									
Unhealthy Unhealthy Nor unhealthy healthy healthy healthy	Rowl of cereal									
Oatmeal / porridge	Bowl of cereal									
unhealthy unhealthy nor unhealthy healthy healthy Cereal bars	Oatmeal / parridge									
Very unhealthy Neither healthy Slightly Neither healthy Healthy Neither healthy Slightly Neither healthy Hea	Oatmear / porriage					-				
unhealthy unhealthy nor unhealthy healthy healthy	Caraal bars									
Sandwiches / toasties / pannini	Cerear bars	unhealthy			Siigiitiy healthy □	very healthy □				
Unhealthy Unhealthy Neither healthy Healthy Healthy		unificatiny [unnearing \Box	nor unificating	ileartify [ileartify [
Unhealthy Unhealthy Neither healthy Healthy Healthy			~4.4.4		~					
Pizza	Sandwiches / toasties / pannini									
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ Hamburgers Very Slightly Neither healthy Slightly □ Very Hot Dogs / sausage rolls Very Slightly □ Neither healthy □ Slightly □ Neither healthy □ Slightly □ Very French fries Very Slightly □ Neither healthy □ Slightly □ Very Pasta Very Slightly □ Neither healthy □ Slightly □ Neither healthy □ Pasta snack products e.g. Pot Noodles Very Slightly □ Neither healthy □ Slightly □ Neither healthy □										
Hamburgers Very unhealthy □ unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ healthy □ Very healthy □ nor unhealthy □ healthy □ healt	Pizza									
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ Hot Dogs / sausage rolls Very Slightly Neither healthy Slightly Very French fries Very Slightly Neither healthy Slightly Very Pasta Very Slightly Neither healthy Slightly Neither healthy Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Neither healthy		•	•							
Hot Dogs / sausage rolls Very unhealthy □ unhealthy □ unhealthy □ nor unhealthy □ healthy □ he	Hamburgers									
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ French fries Very unhealthy □ Slightly Neither healthy □ Slightly Neither healthy □ healthy □ healthy □ healthy □ Pasta Very Slightly Neither healthy □ Neither healthy □ Slightly Very unhealthy □ nor unhealthy □ healthy □ healthy □ healthy □ Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very										
French fries Very unhealthy □ Slightly unhealthy □ Neither healthy □ Slightly healthy □ Very healthy □ Pasta Very Slightly Neither healthy □ Neither healthy □ Slightly Very unhealthy □ Neither healthy □ Healthy □ healthy □ Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very	Hot Dogs / sausage rolls			_						
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ Pasta Very Slightly Neither healthy Slightly Very Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Neither healthy					•					
Pasta Very unhealthy □ Slightly unhealthy □ Neither healthy nor unhealthy □ Slightly healthy □ Very healthy □ Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very	French fries				~ .	•				
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very		unhealthy \square	unhealthy \square			healthy \Box				
unhealthy □ unhealthy □ nor unhealthy □ healthy □ healthy □ Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very	Pasta			Neither healthy	Slightly					
Pasta snack products e.g. Pot Noodles Very Slightly Neither healthy Slightly Very		unhealthy	unhealthy \square	nor unhealthy		healthy \square				
	Pasta snack products e.g. Pot Noodles									
		unhealthy	unhealthy □	nor unhealthy	healthy	healthy \square				

Drink Item	What do you think about the healthiness of the drink?								
Coffee	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Tea	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Milk	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Cocoa drink (e.g. chocolate milk or hot	Very	Slightly	Neither healthy	Slightly	Very				
chocolate)	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Fizzy drinks / soft drinks (e.g. coke, sprite)	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Fruit juice / fruit smoothies	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy \square	nor unhealthy \Box	healthy \square	healthy \square				
Water	Very	Slightly	Neither healthy	Slightly	Very				
	unhealthy	unhealthy	nor unhealthy \Box	healthv □	healthy [

Section 3 – Important influences on food choices and preferences

The following shows a list of things that may have an influence on what you eat for breakfast, lunch, dinner and snacks. Please rate the importance of each influence, separate for each meal occasion.

Q3.1 How strong of an influence do the following factors have on your choice of foods at **BREAKFAST?**

(e.g. how much influence do 'your friends' have on your choice of foods for BREAKFAST etc.)

Your parents or guardian	No influence □	Slight influence □	Moderate influence	Strong influence	Very strong influence
School environment	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
The taste of the food	No influence	Slight influence □	Moderate influence □	Strong influence	Very strong influence □
Concern for your health	No influence	Slight influence □	Moderate influence □	Strong influence	Very strong influence □
Your friends	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
The food is readily available	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence
The food is easy to prepare	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence
How hungry you are	No influence	Slight influence	Moderate influence	Strong influence	Very strong influence
Price of the food	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence
Your habits or daily routine	No influence	Slight influence	Moderate influence	Strong influence	Very strong influence
Other, e.g. medical reasons (please specify):	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □

day? (please select ONE) Lunch (mid-day meal) Dinner (evening meal) Other (please state) Q3.3 Where do you <u>usually</u> eat this **MAIN MEAL**? (please select <u>ONE</u>) At home At school Other (please state)_ Q3.4 Thinking about your MAIN MEAL, how strong of an influence do the following factors have on your choice of foods for this main meal? (e.g. how much influence do 'your friends' have on your choice of foods for your main meal etc.) Your parents or guardian No Slight Moderate Very strong Strong influence influence influence influence influence Moderate Very strong School environment No Slight Strong influence influence influence influence influence Very strong The taste of the food No Slight Moderate Strong influence influence influence influence influence Very strong Concern for your health Slight Moderate Strong No influence influence influence influence influence Your friends No Slight Moderate Strong Very strong influence influence influence influence influence The food is readily available No Slight Moderate Strong Very strong influence influence influence influence influence Very strong The food is easy to prepare No Slight Moderate Strong influence influence influence influence influence How hungry you are No Slight Moderate Strong Very strong influence influence influence influence influence Price of the food No Slight Moderate Strong Very strong influence influence influence influence influence Your habits or daily routine No Slight Moderate Strong Very strong influence influence influence influence influence Other, e.g. medical reasons No Slight Moderate Strong Very strong (please specify): influence influence influence influence influence

Q3.2 Thinking about a typical weekday, other than breakfast, which is your MAIN MEAL of the

Q3.5 Snacks are defined as any foods you would eat between meals (some examples were seen in Section 2). How strong of an influence do the following factors have on your choice of **SNACK FOODS?**

(e.g. how much influence do 'your friends' have on your choice of foods for SNACKS etc.)

Your parents or guardian	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence
School environment	No influence □	Slight influence	Moderate influence □	Strong influence	Very strong influence □
The taste of the food	No influence □	Slight influence	Moderate influence	Strong influence	Very strong influence □
Concern for your health	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
Your friends	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
The food is readily available	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
The food is easy to prepare	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
How hungry you are	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
Price of the food	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
Your habits or daily routine	No influence	Slight influence	Moderate influence □	Strong influence	Very strong influence □
Other, e.g. medical reasons (please specify):	No influence	Slight influence	Moderate influence	Strong influence	Very strong influence

THANK YOU for your participation