# R\&D REPORT NO. 273 

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

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## Campden BRI

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CC Gilbert and EM Allchurch

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- Campden BRI (United Kingdom)
- Campden \& Chorleywood Food Development Institute (Hungary)
- Cárnicas Serrano SL (Spain)
- Cederroth International AB (Sweden)
- Lantmännen Food R\&D AB (Sweden)
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- SIK - The Swedish Institute for Food and Biotechnology (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.

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 vitaminenriched. 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 cerealbased 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 100 g , 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 $(\mathrm{g} / 100 \mathrm{~g})$ | 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 $(\mathrm{mg} / \mathrm{kg})$ | 86 | 76 | 81 |
| Protein $(\mathrm{g} / 100 \mathrm{~g})$ | 16.0 | 15.9 | 14.90 |
| Total dietetic fibre $(\mathrm{g} / 100 \mathrm{~g})$ | 3.2 | 4.6 | 4.8 |
| Carbohydrate $(\mathrm{g} / 100 \mathrm{~g})$ | 1.9 | 0.8 | 1.4 |
| Energy $(\mathrm{kcal} / 100 \mathrm{~g})$ | 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 <br> (Sample code 382) | Banana <br> (Sample code 553) | Pineapple-banana <br> (Sample code 691) |
| :--- | :--- | :--- |
| Milk, water, whole grain flakes <br> $5 \%$ (oat, rye, wheat, barley), <br> fruit juice 3.3\%, (apple, <br> cranberry), inulin, salt, <br> flavourings, citric acid. | Milk, water, banana 5\%, whole <br> grain flakes 5\% (oat, rye, | Milk, water, fruit juice 13\% <br> (pineapple, banana), whole grain <br> wheat, barley), inulin, fructose,, |
| sucrose, salt. | flakes 5\% (oat, rye, wheat, <br> barley), inulin, salt, modified <br> starch, flavourings, colour (beta <br> 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 $\mathbf{1 0 0} \mathbf{~ m l ~ o f ~ d r i n k ~}$ |
| :--- | :---: |
| 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 characteristic | Flavour version |  |  |
| :---: | :---: | :---: | :---: |
|  | Apple-cranberry (382) | Banana (553) | Pineapple-banana (691) |
| Appearance | Greyish and somewhat reddish colour; Moderate with particles on bottle neck and surface | Greyish colour; Moderate with particles on bottle neck and surface | Yellow colour; Moderate with particles on bottle neck, somewhat less on surface |
| Aroma | Moderate overall aroma intensity; <br> Strong vanilla odour together with weak cranberry/lingonberry cinnamon/apple and sweetish odours | Moderate overall aroma intensity; <br> Strong banana odour together with moderate grain/cereal and weak sweetish odours | Strong overall aroma intensity; <br> Moderate banana and weak pineapple odours together with just recognizable grain/cereal and sweetish odours |


| Sensory <br> characteristic | Flavour version |  |  |
| :--- | :--- | :--- | :--- |
|  | Apple-cranberry (382) | Banana (553) | Pineapple-banana (691) |
| Flavour | Moderate overall flavour <br> intensity; <br> Strong vanilla and <br> grain/cereal flavours <br> together with weak <br> cinnamon/apple flavour <br> and just recognizable <br> cranberry/lingonberry and <br> milk flavours | Moderate overall flavour <br> intensity; <br> Moderate grain/cereal and <br> milk flavours together <br> with weak banana and <br> sweet flavours | Weak overall flavour <br> intensity; |
| Weak banana, grain/cereal <br> and milk flavours together <br> with a just recognizable <br> pineapple flavour |  |  |  |
| Mouth feel | Quite thick and moderate <br> particle perception | Medium thick and <br> moderate particle <br> perception | Quite thin and low particle <br> 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 healthrelated 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 <br> texture, enriched (Sample code <br> 465) | Milk protein, glucose syrup, chocolate coating (sugar, hardened <br> vegetable fat, low fat cocoa powder (1\%), emulsifier (soya <br> lecithin), flavour), fructose syrup, sorbitol, oat fibre, cichory root <br> fibre (inulin), rape seed oil, chocolate (5\%) (cocoa mass, sugar, <br> cocoa butter, emulsifier (soya lecihin)), coconut, softening agent <br> (glycerol), flavour |
| Milk chocolate coated, smooth <br> texture, not enriched (Sample <br> code 798) | Milk protein, glucose syrup, chocolate coating (sugar, hardened <br> vegetable fat, low fat cocoa powder (1\%), skim milk powder, <br> emulsifier (soya lecithin), flavour), fructose syrup, sorbitol, oat <br> fibre, cichory root fibre (inulin), rape seed oil, chocolate (5\%) <br> (cocoa mass, sugar, cocoa butter, emulsifier (soya lecithin)), <br> coconut, softening agent (glycerol), flavour. |
| Milk chocolate coated, <br> Coarse texture, enriched <br> (Sample code 132) | Glucose syrup, soya crisps (17\%), milk protein, chocolate coating <br> (sugar, hardened vegetable fat, low fat cocoa powder (1\%), skim <br> milk powder, emulsifier (soya lecithin), flavour), sorbitol, oat fibre, <br> cichory root fibre (inulin), fructose syrup, chocolate (5\%) (cocoa <br> mass, sugar, cocoa butter, emulsifier (soya lecithin)), rape seed oil, <br> softening agent (glycerol), flavour. |

The bars weighed 40 g . 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

|  | Dark chocolate / smooth texture (465) |  | Milk chocolate / smooth texture (798) |  | 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 unsaturated (g) | 0.6 | 0.2 | 0.6 | 0.2 | 0.9 | 0.4 |
| of which polyunsaturated (g) | 0.2 | 0.1 | 0.2 | 0.1 | 0.4 | 0.2 |
| 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 ( $\mu \mathrm{g}$ ) | 3.8 | $\begin{gathered} \hline 1.5 \\ (30 \% \mathrm{RDI}) \\ \hline \end{gathered}$ | 3.8 | $\begin{gathered} \hline 1.5 \\ (30 \% \mathrm{RDI}) \\ \hline \end{gathered}$ | 3.8 | $\begin{gathered} \hline 1.5 \\ (30 \% \mathrm{RDI}) \\ \hline \end{gathered}$ |

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 <br> 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 <br> Date |
| :---: | :---: | :---: | :---: |
| 553 | Drink with whole grain cereals (whole grain <br> smoothie), banana and milk | Banana | $23 / 10 / 2007$ |
| 691 | Drink with whole grain cereals (whole grain <br> smoothie), pineapple/banana and milk | Pineapple banana | $23 / 10 / 2007$ |
| 382 | Drink with whole grain cereals (whole grain <br> 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 <br> Date |
| :---: | :---: | :---: | :---: |
| 132 | Coarse structure with milk chocolate coating and <br> enriched with Vitamin D and Ca | Coarse Milk Enr. | $01 / 03 / 2008$ |
| 465 | Smooth texture with dark chocolate coating and <br> enriched with Vitamin D and Ca | Smooth Dark Enr. | $01 / 03 / 2008$ |
| 798 | Smooth texture with milk chocolate coating <br> 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 $\mathrm{A} / \mathrm{B} / \mathrm{C} 1$ 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: $21^{\text {st }}$ April 2007 (Day 1) and $28^{\text {th }}$ 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 | $1^{\text {st }}$ |
| UK | Snack bars | 1 | $2^{\text {nd }}$ |
| UK | Hamburgers | 2 | $1^{\text {st }}$ |
| UK | FCP | 2 | $2^{\text {nd }}$ |

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 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 $3\left(\mathrm{H}_{0}: \mu=3, \mathrm{H}_{1}: \mu \neq 3\right)$.

## 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 <br> Deviation | P P. Value | NK <br> groups |  |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall | Fibre 0\% | 144 | 5.8 | 6.0 | 2.04 |  | A |  |
|  | Fibre 2\% Beef | 144 | 5.4 | 6.0 | 1.96 | 0.002 |  | B |
|  | Fibre 3\% Grill | 144 | 5.2 | 6.0 | 1.98 |  |  | B |
| Appearance | Fibre 0\% | 144 | 4.7 | 5.0 | 1.90 |  |  |  |
|  | Fibre 3\% Grill | 144 | 4.7 | 5.0 | 1.77 | 0.850 |  |  |
|  | Fibre 2\% Beef | 144 | 4.7 | 5.0 | 1.74 |  |  |  |
| Aroma | Fibre 0\% | 144 | 5.5 | 6.0 | 1.77 |  | A |  |
|  | Fibre 2\% Beef | 144 | 5.1 | 5.0 | 1.84 | 0.010 |  | B |
|  | Fibre 3\% Grill | 144 | 5.1 | 5.0 | 1.86 |  |  | B |
| Flavour | Fibre 0\% | 144 | 5.8 | 6.0 | 2.14 |  | A |  |
|  | Fibre 3\% Grill | 144 | 5.2 | 6.0 | 2.18 | $<0.001$ |  | B |
|  | Fibre 2\% Beef | 144 | 5.1 | 6.0 | 2.13 |  |  | B |
| Texture/ | Fibre 0\% | 144 | 5.6 | 6.0 | 1.80 |  |  |  |
|  | Fibre 2\% Beef | 144 | 5.3 | 6.0 | 1.79 | 0.079 |  |  |
|  | Fibre 3\% Grill | 144 | 5.2 | 5.0 | 1.83 |  |  |  |

p-value $\leq 0.05$ 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 <br> Impression | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | Like | Neither | Dislike |
|  | 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 |


| Appearance | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Aroma | Count |  |  | Mean | $\%$ |  |  |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | 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 | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | 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 <br> Mouthfeel | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | Like | Neither | Dislike |
|  | 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 <br> 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 |

$\mathrm{H}_{0}$ : sample mean $=3(\mathrm{might} /$ might not $), \mathrm{H}_{1}$ : sample mean $\neq 3$.
$\mathrm{NS}=$ not significant, p -value $\leq 0.05$ 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 <br> Deviation | P. Value |  | NK groups |  |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall | Pineapple Banana | 144 | 5.2 | 5.5 | 1.93 |  | A |  |  |
|  | Banana | 144 | 4.3 | 4.0 | 2.16 | $<0.001$ |  | B |  |
|  | Apple Cranberry | 144 | 4.0 | 4.0 | 1.99 |  |  |  | C |
| Appearance | Pineapple Banana | 144 | 5.1 | 5.0 | 1.71 |  | A |  |  |
|  | Apple Cranberry | 143 | 4.0 | 4.0 | 1.60 | $<0.001$ |  | B |  |
|  | Banana | 144 | 3.9 | 4.0 | 1.61 |  |  | B |  |
|  | Pineapple Banana | 143 | 5.6 | 6.0 | 1.76 |  | A |  |  |
|  | Banana | 144 | 4.6 | 5.0 | 1.95 | $<0.001$ |  | B |  |
|  | Apple Cranberry | 144 | 4.5 | 5.0 | 2.03 |  |  | B |  |
| Flavour | Pineapple Banana | 144 | 5.2 | 5.5 | 1.95 |  | A |  |  |
|  | Banana | 144 | 4.4 | 4.0 | 2.18 | $<0.001$ |  | B |  |
|  | Apple Cranberry | 144 | 3.8 | 3.0 | 1.92 |  |  |  | C |
| Texture | Pineapple Banana | 144 | 4.9 | 5.0 | 2.02 |  | A |  |  |
|  | Banana | 144 | 4.3 | 4.0 | 2.04 | $<0.001$ |  | B |  |
|  | Apple Cranberry | 144 | 4.2 | 4.0 | 1.84 |  |  | B |  |

p -value $\leq 0.05$ 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 <br> Impression | Count |  |  | Mean | \% |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | Like | Neither | Dislike |  |
|  | 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 |  | 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 |  | 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 |  |  | Neither | Dislike |  |
| Apple Cranberry | 36 | 10 | 98 | 3.8 c |  | 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/ <br> Mouthfeel | Count |  |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  |  | 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 <br> 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 | $5 \%$ |

$\mathrm{H}_{0}$ : sample mean $=3$ (might/might not), $\mathrm{H}_{1}$ : sample mean $\neq 3$.
$\mathrm{NS}=$ not significant, p -value $\leq 0.05$ 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 <br> Deviation | P . Value | NK <br> groups |  |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Overall | Coarse Milk Enr | 144 | 6.4 | 7.0 | 1.69 |  | A |  |
|  | Smooth Dark Enr | 144 | 5.9 | 6.0 | 1.88 | $<0.001$ |  | B |
|  | Smooth Milk | 144 | 5.9 | 6.0 | 1.84 |  |  | B |
| Appearance | Coarse Milk Enr | 144 | 6.5 | 7.0 | 1.35 |  | A |  |
|  | Smooth Milk | 144 | 6.4 | 7.0 | 1.36 | $<0.001$ | A |  |
|  | Smooth Dark Enr | 144 | 6.1 | 6.0 | 1.54 |  |  |  |
| Aroma | Coarse Milk Enr | 144 | 6.2 | 6.0 | 1.53 |  | A |  |
|  | Smooth Dark Enr | 144 | 6.0 | 6.0 | 1.59 | 0.030 | A | B |
|  | Smooth Milk | 144 | 5.9 | 6.0 | 1.32 |  |  | B |
| Flavour | Coarse Milk Enr | 144 | 6.4 | 7.0 | 1.85 |  | A |  |
|  | Smooth Milk | 144 | 5.9 | 6.0 | 2.06 | 0.005 |  | B |
|  | Smooth Dark Enr | 144 | 5.9 | 6.0 | 1.99 |  |  | B |
| Texture | Coarse Milk Enr | 144 | 6.2 | 6.0 | 1.75 |  | A |  |
|  | Smooth Milk | 144 | 5.8 | 6.0 | 1.89 | 0.004 |  | B |
|  | Smooth Dark Enr | 144 | 5.7 | 6.0 | 1.85 |  |  | B |

p-value $\leq 0.05$ 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 <br> Impression | Count |  |  | Mean | $\%$ |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | 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 |  |


| Appearance | Count |  |  | Mean | \% |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | 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 |


| Aroma | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | Like | Neither | Dislike |
| Coarse Milk Enr. | 99 | 28 | 17 |  | 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 |


| Flavour | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | Like | Neither | Dislike |
| Coarse Milk Enr. | 107 | 11 | 26 |  | 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 / <br> Mouthfeel | Count |  |  | Mean | $\%$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Like | Neither | Dislike |  | 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 <br> 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 |

$\mathrm{H}_{0}$ : sample mean $=3(\mathrm{might} / \mathrm{might}$ not $), \mathrm{H}_{1}$ : sample mean $\neq 3$.
$\mathrm{NS}=$ not significant, p -value $\leq 0.05$ is considered to be statistically significant.

Figure 6. Purchase intent for snack bars: summarised percentages


### 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 ( $p \leq 0.001$ ) 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 ( $p \leq 0.001$ ), 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.

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


Figure 16. Frequency of consumption for 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 19. Factors influencing food choices at the main meal occasion


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 ate 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 ate 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

# A P P E N D I X I <br> DEMOGRAPHIC TABULATIONS 

## DEMOGRAPHIC INFORMATION

Child's Gender V Age : Count \& \%

|  | 13 years |  | 14 years |  | 15 years |  | 16 years |  | Total |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 <br> 143 | \% from <br> 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 |


| Appearance | Fibre 0\% |  | Fibre 2\% Beef |  | Fibre 3\% Grill |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Aroma | Fibre 0\% |  | Fibre 2\% Beef |  | Fibre 3\% Grill |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Flavour | Fibre 0\% |  | Fibre 2\% Beef |  | Fibre 3\% Grill |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Texture/Mouthfeel | Fibre 0\% |  | Fibre 2\% Beef |  | Fibre 3\% Grill |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Purchase Intent | Fibre 0\% |  | Fibre 2\% Beef |  | Fibre 3\% Grill |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 <br> expected | 23 | 16.0 |  | 65 |$⿻ 4.45 .1$

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 |


| Appearance | Apple Cranberry |  | Banana |  | Pineapple Banana |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Aroma | Apple Cranberry |  | Banana |  | Pineapple Banana |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Flavour | Apple Cranberry |  | Banana |  | Pineapple Banana |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Texture/Mouthfeel | Apple Cranberry |  | Banana |  | Pineapple Banana |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Purchase Intent | Apple Cranberry |  | Banana |  | Pineapple Banana |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 <br> disagree | Moderat <br> ely <br> disagree | Slightly <br> disagree | Neither | Slightly <br> agree | Moderat <br> ely agree | Strongly <br> agree | Don't <br> know <br> 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 <br> disagree | Moderat <br> ely <br> disagree | Slightly <br> disagree | Neither | Slightly <br> agree | Moderat <br> ely agree | Strongly <br> agree | Don't <br> know <br> 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:

| Summarised Counts \& \% | Disagree |  | Neither |  | Agree |  | Don't know word |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 <br> 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. |  | Smooth 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 |


| Appearance | Coarse Milk Enr. |  | Smooth Dark Enr. |  | Smooth Milk |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Aroma | Coarse Milk Enr. |  | Smooth Dark Enr. |  | Smooth Milk |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Flavour | Coarse Milk Enr. |  | Smooth Dark Enr. |  | Smooth Milk |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 |


| Texture/Mouthfeel | Coarse Milk Enr. |  | Smooth Dark Enr. |  | Smooth Milk |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

| Purchase Intent | Coarse Milk Enr. |  | Smooth Dark Enr. |  | Smooth Milk |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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?

|  | Drink |  | 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?

|  | Drink |  | Snack Bar |  |  | Hamburger |  |
| :--- | :---: | :---: | :---: | :---: | :--- | :---: | :---: |
| Choice reason | Count | $\%$ | Count | $\%$ | Choice reason | Count | $\%$ |
| 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?

|  | Drink |  | Snack 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 |

## A P P E N D I X VI

## HEDONIC ACCEPTABILITY CROSS TABULATION

Hedonic Acceptability V Child Gender \& Test Location

| Hedonic Acceptability | Sample | Child Gender |  |  |  | Test Location |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Male |  | Female |  | Manchester |  | Nottingham |  |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Fibre 0\% | 5.7 | 6.0 | 5.8 | 6.0 | 5.7 | 6.0 | 5.9 | 6.5 |
|  | 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 |
| Appearance | Fibre 0\% | 4.8 | 5.0 | 4.7 | 5.0 | 4.6 | 4.0 | 4.9 | 5.0 |
|  | 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 |
| Aroma | Fibre 0\% | 5.7 | 6.0 | 5.4 | 6.0 | 5.6 | 6.0 | 5.5 | 6.0 |
|  | 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 |
| Flavour | Fibre 0\% | 5.8 | 6.0 | 5.9 | 6.0 | 5.8 | 6.0 | 5.9 | 6.0 |
|  | 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 |
| Texture | Fibre 0\% | 5.5 | 6.0 | 5.6 | 6.0 | 5.4 | 6.0 | 5.7 | 6.0 |
|  | 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 | 68 |  | 76 |  | 72 |  | 72 |  |


| Hedonic Acceptability | Sample | Child Gender |  |  |  | Test Location |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Male |  | Female |  | Manchester |  | Nottingham |  |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Apple Cranberry | 4.5 | 4.0 | 3.5 | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 |
|  | 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 |
| Appearance | Apple Cranberry | 4.1 | 4.0 | 4.0 | 4.0 | 4.2 | 4.0 | 3.8 | 4.0 |
|  | 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 |
| Aroma | Apple Cranberry | 4.8 | 5.0 | 4.2 | 4.0 | 4.4 | 4.0 | 4.6 | 5.0 |
|  | 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 |
| Flavour | Apple Cranberry | 4.5 | 4.0 | 3.1 | 3.0 | 3.7 | 3.0 | 3.8 | 4.0 |
|  | 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 |
| Texture | Apple Cranberry | 4.5 | 5.0 | 3.9 | 4.0 | 4.3 | 5.0 | 4.0 | 4.0 |
|  | 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 | 68 |  | 76 |  | 72 |  | 72 |  |

## Hedonic Acceptability V Child Gender \& Test Location

| Hedonic Acceptability | Sample | Child Gender |  |  |  | Test Location |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Male |  | Female |  | Manchester |  | Nottingham |  |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Coarse Milk Enr | 6.6 | 6.0 | 6.3 | 7.0 | 6.4 | 6.0 | 6.5 | 7.0 |
|  | 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 |
| Appearance | Coarse Milk Enr | 6.5 | 7.0 | 6.5 | 6.0 | 6.4 | 7.0 | 6.6 | 6.5 |
|  | 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 |
| Aroma | Coarse Milk Enr | 6.3 | 6.0 | 6.1 | 6.0 | 6.2 | 6.0 | 6.2 | 6.0 |
|  | 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 |
| Flavour | Coarse Milk Enr | 6.5 | 7.0 | 6.2 | 7.0 | 6.4 | 7.0 | 6.3 | 6.5 |
|  | 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 |
| Texture | Coarse Milk Enr | 6.3 | 6.5 | 6.1 | 6.0 | 6.2 | 6.5 | 6.3 | 6.0 |
|  | 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 | 68 |  | 76 |  | 72 |  | 72 |  |

## Hedonic Acceptability V Child Age

| Hedonic Acceptability | Sample | 13 years |  | 14 years |  | 15 years |  | 16 years |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Fibre 0\% | 5.9 | 6.0 | 5.8 | 6.0 | 6.2 | 6.0 | 5.1 | 6.0 |
|  | 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 |
| Appearance | Fibre 0\% | 4.7 | 5.0 | 4.7 | 4.0 | 5.2 | 5.0 | 4.3 | 4.0 |
|  | 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 |
| Aroma | Fibre 0\% | 5.6 | 6.0 | 5.6 | 6.0 | 5.8 | 6.0 | 4.9 | 5.0 |
|  | 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 |
| Flavour | Fibre 0\% | 5.7 | 6.0 | 6.0 | 7.0 | 6.1 | 6.0 | 5.4 | 6.0 |
|  | 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 |
| Texture | Fibre 0\% | 5.5 | 6.0 | 5.5 | 6.0 | 5.9 | 6.0 | 5.3 | 6.0 |
|  | 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 | 34 |  | 43 |  | 37 |  | 30 |  |


| Hedonic Acceptability | Sample | 13 years |  | 14 years |  | 15 years |  | 16 years |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Apple Cranberry | 4.0 | 4.0 | 4.1 | 4.0 | 3.9 | 4.0 | 3.9 | 4.0 |
|  | 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 |
| Appearance | Apple Cranberry | 4.4 | 4.0 | 3.7 | 4.0 | 4.1 | 4.0 | 3.9 | 4.0 |
|  | 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 |
| Aroma | Apple Cranberry | 4.1 | 4.0 | 4.9 | 5.0 | 4.2 | 4.0 | 4.6 | 5.0 |
|  | 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 |
| Flavour | Apple Cranberry | 3.7 | 3.5 | 4.0 | 3.0 | 3.9 | 4.0 | 3.5 | 3.0 |
|  | 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 |
| Texture | Apple Cranberry | 4.4 | 4.5 | 4.0 | 4.0 | 4.2 | 4.0 | 4.2 | 4.0 |
|  | 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 | 34 |  | 43 |  | 37 |  | 30 |  |

## Hedonic Acceptability V Child Age

| Hedonic Acceptability | Sample | 13 years |  | 14 years |  | 15 years |  | 16 years |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| Overall | Coarse Milk Enr | 6.8 | 7.5 | 6.5 | 7.0 | 6.2 | 6.0 | 6.1 | 6.5 |
|  | 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 |
| Appearance | Coarse Milk Enr | 6.8 | 7.0 | 6.4 | 6.0 | 6.6 | 7.0 | 6.2 | 6.0 |
|  | 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 |
| Aroma | Coarse Milk Enr | 6.4 | 7.0 | 6.2 | 6.0 | 6.5 | 6.0 | 5.7 | 6.0 |
|  | 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 |
| Flavour | Coarse Milk Enr | 6.6 | 7.0 | 6.5 | 7.0 | 6.2 | 6.0 | 6.1 | 7.0 |
|  | 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 |
| Texture | Coarse Milk Enr | 6.2 | 7.0 | 6.3 | 6.0 | 6.4 | 6.0 | 5.8 | 6.0 |
|  | 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 |  | 37 |  | 30 |  |

## APPENDIXVII

## 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 healthy | Count | 3 | 2 | 20 | 24 | 33 | 52 | 9 |
|  | \% | 2.1 | 1.4 | 14.0 | 16.8 | 23.1 | 36.4 | 6.3 |
| The taste of a food is very important to me | Count |  | 1 | 2 | 8 | 23 | 44 | 66 |
|  | \% |  | 0.7 | 1.4 | 5.6 | 16.0 | 30.6 | 45.8 |
| Snacking is a necessary part of a healthy diet | Count | 6 | 15 | 18 | 51 | 30 | 18 | 5 |
|  | \% | 4.2 | 10.5 | 12.6 | 35.7 | 21.0 | 12.6 | 3.5 |
| I enjoy eating fruit and vegetables | Count | 1 | 2 | 10 | 9 | 47 | 35 | 39 |
|  | \% | 0.7 | 1.4 | 7.0 | 6.3 | 32.9 | 24.5 | 27.3 |
| I tend to eat whatever my friends are eating | Count | 21 | 28 | 30 | 35 | 17 | 9 | 4 |
|  | \% | 14.6 | 19.4 | 20.8 | 24.3 | 11.8 | 6.3 | 2.8 |
| Food I eat at home is healthy | Count |  | 3 | 18 | 28 | 30 | 44 | 19 |
|  | \% |  | 2.1 | 12.7 | 19.7 | 21.1 | 31.0 | 13.4 |
| I choose my own snacks | Count | 1 | 1 | 3 | 17 | 34 | 43 | 45 |
|  | \% | 0.7 | 0.7 | 2.1 | 11.8 | 23.6 | 29.9 | 31.3 |
| I like the food I eat when I am out with my friends | Count | 1 | 2 | 4 | 25 | 34 | 42 | 35 |
|  | \% | 0.7 | 1.4 | 2.8 | 17.5 | 23.8 | 29.4 | 24.5 |
| The taste of food is more important to me than the healthiness of the food | Count | 2 | 7 | 18 | 34 | 35 | 30 | 18 |
|  | \% | 1.4 | 4.9 | 12.5 | 23.6 | 24.3 | 20.8 | 12.5 |
| I often try foods that I see advertised in the media | Count | 6 | 14 | 32 | 37 | 35 | 14 | 4 |
|  | \% | 4.2 | 9.9 | 22.5 | 26.1 | 24.6 | 9.9 | 2.8 |
| A high fat food tastes better than the lower fat version | Count | 8 | 12 | 19 | 60 | 28 | 5 | 11 |
|  | \% | 5.6 | 8.4 | 13.3 | 42.0 | 19.6 | 3.5 | 7.7 |
| Food I eat at school (in the canteen) is healthy | Count | 6 | 13 | 18 | 35 | 35 | 24 | 13 |
|  | \% | 4.2 | 9.0 | 12.5 | 24.3 | 24.3 | 16.7 | 9.0 |
| I often skip breakfast | Count | 39 | 21 | 9 | 12 | 18 | 18 | 26 |
|  | \% | 27.3 | 14.7 | 6.3 | 8.4 | 12.6 | 12.6 | 18.2 |
| Healthy foods don't fill me up | Count | 15 | 24 | 25 | 38 | 24 | 13 | 4 |
|  | \% | 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 read each statement carefully.

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

| Summarised Counts \& \% | Disagree |  | Neither |  | Agree |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 read each statement carefully.

## 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 <br> of the food | 4.8 | 5.0 | 1.44 |
| I often try foods that I see advertised in the media (TV, <br> 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 <br> 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 <br> food, I will choose it | 3.8 | 1.26 |  |
| Information regarding healthy eating is difficult to put into <br> practice | 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 <br> 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 usually receive or purchase your lunch (please select one)

|  | Count | $\%$ | $\%$ from <br> 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 <br> 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 one)

|  | Count | $\%$ | $\%$ from <br> 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 trustworthy (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. 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 food item (from dislike strongly to like strongly)

| Full Counts \& \% | Dislike strongly |  | Dislike slightly |  | Neither |  | Like slightly |  | Like strongly |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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. how much you like the food item |  |  |  |  |  | b. how often you eat this as a snack |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Dislike |  | Neither |  | Like |  | Never |  | Sometimes |  | Often |  |
| 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 |
| 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 <br> strongly |  | Dislike <br> slightly |  | Neither |  | Like slightly |  | Like strongly |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 |


| Summarised Counts \& \% | a. how much you like the drink |  |  |  |  | b. how often you drink |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 \& \% | $\begin{gathered} \text { Very } \\ \text { unhealthy } \end{gathered}$ |  | Slightly unhealthy |  | Neither |  | Slightly healthy |  | Very healthy |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 <br> unhealthy |  | Slightly <br> unhealthy |  | Neither |  | Slightly <br> healthy |  | Very healthy |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 \& \% | Unhealthy |  | Neither |  | Healthy |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 |
|  |  |  |  |  |  |  |
| Sweets / candy | 143 | 99.3 |  |  | 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 |
|  | 21 | 14.6 | 56 | 38.9 | 67 | 46.5 |
| Sandwiches / toasties / pannini | 112 | 78.3 | 23 | 16.1 | 8 | 5.6 |
| Pizza | 115 | 80.5 | 16 | 11.2 | 12 | 8.4 |
| Hamburgers | 112 | 77.7 | 25 | 17.4 | 7 | 4.9 |
| Hot Dogs / sausage rolls | 129 | 90.3 | 11 | 7.7 | 3 | 2.1 |
| French fries | 12 | 8.4 | 31 | 21.5 | 101 | 70.2 |
| Pasta | 91 | 63.2 | 26 | 18.1 | 27 | 18.8 |
| Pasta snack products e.g. Pot Noodles |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |


| Summarised counts \& \% | Unhealthy |  | Neither |  | Healthy |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 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 influence |  | Slight <br> influence |  | Moderate <br> influence |  | Strong <br> influence |  | Very strong <br> influence |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 <br> influence |  | Strong/Very <br> 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 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 usually eat this MAIN MEAL? (please select ONE)

|  | Count | \% |
| :--- | :---: | :---: |
| At home | 122 | 84.7 |
| At school | 21 | 14.6 |
| Other | 1 | 0.7 |
| Total | 144 | 100 |

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.)

| Full counts \& \% | No influence |  | Slight <br> influence |  | Moderate <br> influence |  | Strong <br> influence |  | Very strong <br> 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 <br> influence |  | Strong/Very <br> 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 influence |  | Slight <br> influence |  | Moderate <br> influence |  | Strong <br> influence |  | Very strong <br> influence |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 influence |  | Slight/Mod <br> influence |  | Strong/Very <br> influence |  | Total |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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

|  |  |  | Age |  |  |  | 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: $\mathrm{p}=0.209$

I often skip breakfast by Gender

## Crosstab

|  |  |  | Gender |  | 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: $\mathrm{p}=0.873$

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

## Crosstab

|  |  | Age |  |  |  | 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: $\mathrm{p}=0.007$

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

## Crosstab

|  |  |  | Gender |  | 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: $\mathrm{p}=0.452$

Snacking is a necessary part of a healthy diet by Age

## Crosstab

|  |  |  | Age |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 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: $\mathrm{p}=0.132$

Snacking is a necessary part of a healthy diet by Gender

## Crosstab

|  |  |  | Gender |  | 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: $\mathrm{p}=0.114$

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

## Crosstab

|  |  |  | Age |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 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: $\mathrm{p}=0.075$

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

## Crosstab

|  |  |  | Gender |  | 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: $\mathrm{p} \leq 0.001$

## "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 <br> \% within BU_C14 <br> \% within Q7Expect | $\begin{aligned} & 1 \\ & 2.7 \% \\ & 8.3 \% \end{aligned}$ | $\begin{aligned} & 11 \\ & 29.7 \% \\ & 33.3 \% \end{aligned}$ | $\begin{aligned} & 13 \\ & 35.1 \% \\ & 38.2 \% \end{aligned}$ | $\begin{aligned} & 9 \\ & 24.3 \% \\ & 21.4 \% \end{aligned}$ | $\begin{array}{\|l\|} \hline 3 \\ 8.1 \% \\ 13.0 \% \end{array}$ | $\begin{aligned} & 37 \\ & 100.0 \% \\ & 25.7 \% \end{aligned}$ |
|  | 2 | Count <br> \% within BU_Cl4 <br> \% within Q7Expect | $\begin{aligned} & 1 \\ & 1.7 \% \\ & 8.3 \% \end{aligned}$ | $\begin{aligned} & \hline 5 \\ & 8.6 \% \\ & 15.2 \% \end{aligned}$ | $\left\lvert\, \begin{aligned} & 10 \\ & 17.2 \% \\ & 29.4 \% \end{aligned}\right.$ | $\begin{aligned} & 25 \\ & 43.1 \% \\ & 59.5 \% \end{aligned}$ | $\left\lvert\, \begin{aligned} & 17 \\ & 29.3 \% \\ & 73.9 \% \end{aligned}\right.$ | $\begin{aligned} & 58 \\ & 100.0 \% \\ & 40.3 \% \end{aligned}$ |
|  | 3 | Count <br> \% within BU_Cl4 <br> \% within Q7Expect | $\begin{array}{\|l} \hline 5 \\ 13.5 \% \\ 41.7 \% \\ \hline \end{array}$ | $\begin{aligned} & \hline 14 \\ & 37.8 \% \\ & 42.4 \% \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline 8 \\ 21.6 \% \\ 23.5 \% \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 7 \\ 18.9 \% \\ 16.7 \% \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 3 \\ 8.1 \% \\ 13.0 \% \\ \hline \end{array}$ | $\begin{array}{\|l} 37 \\ 100.0 \% \\ 25.7 \% \\ \hline \end{array}$ |
|  | 4 | Count <br> \% within BU_Cl4 <br> \% within Q7Expect | $\begin{aligned} & 5 \\ & 41.7 \% \\ & 41.7 \% \end{aligned}$ | $\left\lvert\, \begin{aligned} & 3 \\ & 25.0 \% \\ & 9.1 \% \end{aligned}\right.$ | 3 <br> 25.0\% <br> 8.8\% | $\begin{aligned} & \hline 1 \\ & 8.3 \% \\ & 2.4 \% \end{aligned}$ | $\begin{array}{\|l\|} \hline 0 \\ .0 \% \\ .0 \% \\ \hline \end{array}$ | $\begin{array}{\|l} 12 \\ 100.0 \% \\ 8.3 \% \\ \hline \end{array}$ |
|  | Total | Count <br> \% within BU_Cl4 <br> $\%$ within Q7Expect | $\begin{array}{\|l\|} \hline 12 \\ 8.3 \% \\ 100.0 \% \\ \hline \end{array}$ | $\begin{aligned} & \hline 33 \\ & 22.9 \% \\ & 100.0 \% \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 34 \\ & 23.6 \% \\ & 100.0 \% \\ & \hline \end{aligned}$ | $\begin{aligned} & 42 \\ & 29.2 \% \\ & 100.0 \% \end{aligned}$ | $\begin{aligned} & \hline 23 \\ & 16.0 \% \\ & 100.0 \% \end{aligned}$ | $\begin{array}{\|l} \hline 144 \\ 100.0 \% \\ 100.0 \% \end{array}$ |

Pearson Chi-Square: $\mathrm{p} \leq 0.001$

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

## Crosstab

|  |  |  | Median_PurchInt |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1 | 2 | 3 | 4 | 5 | Total |
| BU_Cl4 | 1 | Count <br> \% within BU_Cl4 <br> \% within Median PurchInt | $\begin{aligned} & 1 \\ & 2.7 \% \\ & 5.9 \% \end{aligned}$ | $\begin{aligned} & 14 \\ & 37.8 \% \\ & 37.8 \% \end{aligned}$ | $\begin{aligned} & 16 \\ & 43.2 \% \\ & 43.2 \% \end{aligned}$ | $\begin{array}{\|l} \hline 6 \\ 16.2 \% \\ 12.2 \% \end{array}$ | $\begin{aligned} & \hline 0 \\ & .0 \% \\ & .0 \% \end{aligned}$ | $\begin{aligned} & 37 \\ & 100.0 \% \\ & 25.7 \% \end{aligned}$ |
|  | 2 | Count <br> \% within BU_Cl4 <br> $\%$ within Median_PurchInt | $\begin{aligned} & 1 \\ & 1.7 \% \\ & 5.9 \% \end{aligned}$ | $\begin{array}{\|l} \hline 5 \\ 8.6 \% \\ 13.5 \% \end{array}$ | $\begin{aligned} & 9 \\ & 15.5 \% \\ & 24.3 \% \end{aligned}$ | $\begin{aligned} & 39 \\ & 67.2 \% \\ & 79.6 \% \end{aligned}$ | $\begin{array}{\|l} \hline 4 \\ 6.9 \% \\ 100.0 \% \end{array}$ | $\begin{aligned} & 58 \\ & 100.0 \% \\ & 40.3 \% \end{aligned}$ |
|  | 3 | Count <br> \% within BU_C14 <br> \% within Median_PurchInt | $\begin{aligned} & 4 \\ & 10.8 \% \\ & 23.5 \% \end{aligned}$ | $\begin{aligned} & 17 \\ & 45.9 \% \\ & 45.9 \% \end{aligned}$ | $\begin{aligned} & 12 \\ & 32.4 \% \\ & 32.4 \% \end{aligned}$ | $\left\lvert\, \begin{aligned} & 4 \\ & 10.8 \% \\ & 8.2 \% \end{aligned}\right.$ | $\begin{aligned} & 0 \\ & .0 \% \\ & .0 \% \end{aligned}$ | $\begin{aligned} & 37 \\ & 100.0 \% \\ & 25.7 \% \end{aligned}$ |
|  | 4 | Count <br> \% within BU_Cl4 <br> \% within Median_PurchInt | $\begin{aligned} & 11 \\ & 91.7 \% \\ & 64.7 \% \end{aligned}$ | $\begin{aligned} & \hline 1 \\ & 8.3 \% \\ & 2.7 \% \end{aligned}$ | $\begin{aligned} & 0 \\ & .0 \% \\ & .0 \% \end{aligned}$ | $\left\lvert\, \begin{aligned} & 0 \\ & .0 \% \\ & .0 \% \end{aligned}\right.$ | $\left\lvert\, \begin{aligned} & 0 \\ & .0 \% \\ & .0 \% \end{aligned}\right.$ | $\begin{aligned} & 12 \\ & 100.0 \% \\ & 8.3 \% \end{aligned}$ |
|  | Total | Count <br> \% within BU_C14 <br> $\%$ within Median_PurchInt | $\begin{aligned} & 17 \\ & 11.8 \% \\ & 100.0 \% \end{aligned}$ | $\begin{aligned} & 37 \\ & 25.7 \% \\ & 100.0 \% \end{aligned}$ | $\begin{aligned} & 37 \\ & 25.7 \% \\ & 100.0 \% \end{aligned}$ | $\begin{aligned} & 49 \\ & 34.0 \% \\ & 100.0 \% \end{aligned}$ | $\begin{array}{\|l} \hline 4 \\ 2.8 \% \\ 100.0 \% \end{array}$ | $\begin{aligned} & 144 \\ & 100.0 \% \\ & 100.0 \% \end{aligned}$ |

Pearson Chi-Square: $p \leq 0.001$

# APPENDIXVIII 

## 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 | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately | slightly | like nor <br> dislike | slightly |  |  |  | moderately |
|  |  |  | much | extremely |  |  |  |  |

What do you think of the appearance of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the aroma of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the flavour of this Hamburger?
Dislike

extremely \begin{tabular}{cccccc}
Dislike <br>
very <br>
much

$\quad$

Dislike <br>
moderately

$\quad$

Dislike <br>
slightly

$\quad$

Neither <br>
like nor <br>
dislike

$\quad$

Like <br>
slightly

$\quad$

Like <br>
moderately

 

Like very <br>
much

$\quad$

Like <br>
extremely
\end{tabular}

What do you think of the texture of this Hamburger?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | much | extremely |

Would you or your parents/guardian buy this Hamburger for you to eat?

| Definitely <br> Not | Probably <br> Not | Might or <br> Might Not | Probably <br> Yes | Definitely <br> Yes |
| :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

Take the plate marked 480 and eat a piece of this Hamburger
What is your overall impression of this Hamburger?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately | slightly | like nor <br> dislike | slightly |  |  |  | moderately |
|  |  |  | much | extremely |  |  |  |  |

What do you think of the appearance of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the aroma of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the flavour of this Hamburger?
Dislike

extremely \begin{tabular}{cccccc}
Dislike <br>
very <br>
much

$\quad$

Dislike <br>
moderately

$\quad$

Dislike <br>
slightly

$\quad$

Neither <br>
like nor <br>
dislike

$\quad$

Like <br>
slightly

$\quad$

Like <br>
moderately

 

Like very <br>
much

$\quad$

Like <br>
extremely
\end{tabular}

What do you think of the texture of this Hamburger?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | much | extremely |

Would you or your parents/guardian buy this Hamburger for you to eat?

| Definitely <br> Not | Probably <br> Not | Might or <br> Might Not | Probably <br> Yes | Definitely <br> Yes |
| :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

Take the plate marked 938 and eat a piece of this Hamburger
What is your overall impression of this Hamburger?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately | slightly | like nor <br> dislike | slightly |  |  |  | moderately |
|  |  |  | much | extremely |  |  |  |  |

What do you think of the appearance of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the aroma of this Hamburger?

| Dislike <br> extremely | Dislike <br> very <br> much | Dislike <br> moderately | Dislike <br> slightly | Neither <br> like nor <br> dislike | Like <br> slightly | Like <br> moderately | Like very <br> much | Like <br> extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

What do you think of the flavour of this Hamburger?
Dislike

extremely \begin{tabular}{cccccc}
Dislike <br>
very <br>
much

$\quad$

Dislike <br>
moderately

$\quad$

Dislike <br>
slightly

$\quad$

Neither <br>
like nor <br>
dislike

$\quad$

Like <br>
slightly

$\quad$

Like <br>
moderately

 

Like very <br>
much

$\quad$

Like <br>
extremely
\end{tabular}

What do you think of the texture of this Hamburger?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like very | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | much | extremely |

Would you or your parents/guardian buy this Hamburger for you to eat?

| Definitely <br> Not | Probably <br> Not | Might or <br> Might Not | Probably <br> Yes | Definitely <br> Yes |
| :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

## Product Specific Questions

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

| Much <br> worse than <br> expected | Slightly <br> worse than <br> expected | About the <br> same as <br> expected | Slightly <br> better than <br> 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)
It tastes nice
Hunger
Social reasons (e.g. with family or friends)
Convenience
Other, please 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 | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately |  |  | slightly | like nor <br> dislike |  | slightly |  |
| moderately | very <br> much |  |  |  |  |  |  |  |
| extremely |  |  |  |  |  |  |  |  |

## Look into the bottle:

What do you think of the appearance of this new healthy drink?

| Dislike | Dislike | islike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very | extremely |

Smell into the bottle:
What do you think of the aroma of this new healthy drink?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> much |  |  | Liserately <br> slightly <br> like nor <br> dislike |  |  |  | slightly |
| moderately | very | extremely |  |  |  |  |  |  |

Take another sip of the drink: What do you think of the flavour of this new healthy drink?
$\left.\begin{array}{ccccccccc}\text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Neither } & \text { Like } & \text { Like } & \text { Like } & \text { Like } \\ \text { extremely } & \begin{array}{c}\text { very } \\ \text { much }\end{array} & & \text { moderately }\end{array} \begin{array}{c}\text { slightly }\end{array} \begin{array}{c}\text { like nor } \\ \text { dislike }\end{array}\right)$

What do you think of the texture/mouthfeel of this new healthy drink?


## Would you or your parents/guardian buy this Drink for you?

| Definitely | Probably | Might or <br> might not | 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 | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately |  |  | slightly | like nor <br> dislike |  | slightly |  |
| moderately | very <br> much |  |  |  |  |  |  |  |
| extremely |  |  |  |  |  |  |  |  |

## Look into the bottle:

What do you think of the appearance of this new healthy drink?

| Dislike | Dislike | islike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very | extremely |

Smell into the bottle:
What do you think of the aroma of this new healthy drink?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> much |  |  | Liserately <br> slightly <br> like nor <br> dislike |  |  |  | slightly |
| moderately | very | extremely |  |  |  |  |  |  |

Take another sip of the drink: What do you think of the flavour of this new healthy drink?
$\left.\begin{array}{ccccccccc}\text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Neither } & \text { Like } & \text { Like } & \text { Like } & \text { Like } \\ \text { extremely } & \begin{array}{c}\text { very } \\ \text { much }\end{array} & & \text { moderately }\end{array} \begin{array}{c}\text { slightly }\end{array} \begin{array}{c}\text { like nor } \\ \text { dislike }\end{array}\right)$

What do you think of the texture/mouthfeel of this new healthy drink?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> much |  |  |  | moderately |  |  |  |
| slightly |  |  |  |  |  |  |  |  |
| like nor |  |  |  |  |  |  |  |  |
| dislike |  |  |  |  |  |  |  |  | slightly | moderately |  |
| :---: | :--- |
| very | extremely |
|  |  |

## Would you or your parents/guardian buy this Drink for you?

| Definitely | Probably | Might or <br> might not | 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 | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very |  |  |  |  |  |  |  |
| much | moderately |  |  | slightly | like nor <br> dislike |  | slightly |  |
| moderately | very <br> much |  |  |  |  |  |  |  |
| extremely |  |  |  |  |  |  |  |  |

## Look into the bottle:

What do you think of the appearance of this new healthy drink?

| Dislike | Dislike | islike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very | extremely |

Smell into the bottle:
What do you think of the aroma of this new healthy drink?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> much |  |  | Liserately <br> slightly <br> like nor <br> dislike |  |  |  | slightly |
| moderately | very | extremely |  |  |  |  |  |  |

Take another sip of the drink: What do you think of the flavour of this new healthy drink?
$\left.\begin{array}{ccccccccc}\text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Dislike } & \text { Neither } & \text { Like } & \text { Like } & \text { Like } & \text { Like } \\ \text { extremely } & \begin{array}{c}\text { very } \\ \text { much }\end{array} & & \text { moderately }\end{array} \begin{array}{c}\text { slightly }\end{array} \begin{array}{c}\text { like nor } \\ \text { dislike }\end{array}\right)$

What do you think of the texture/mouthfeel of this new healthy drink?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> much |  |  |  | moderately |  |  |  |
| slightly |  |  |  |  |  |  |  |  |
| like nor |  |  |  |  |  |  |  |  |
| dislike |  |  |  |  |  |  |  |  | slightly | moderately |  |
| :---: | :--- |
| very | extremely |
|  |  |

## Would you or your parents/guardian buy this Drink for you?

| Definitely | Probably | Might or <br> might not | Probably | Definitely |
| :---: | :---: | :---: | :---: | :---: |
| not | not |  | yes | not |

Now that you have tasted all three drinks, what do you think about the size of the bottle?

Too large
The bottle size is just right
Too small

Do you consider these drinks to be healthy?
Yes

No

I don't know

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

What would be the major reason(s) for you to choose this drink? Mark all that apply.

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 | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor <br> dislike |  | slightly | moderately | very | extremely

What do you think of the appearance of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very |
|  | much |  |  | dislike |  |  | much |

Like extremely

Like extremely

| Dislike extremely | Dislike very much | Dislike moderately | Dislike slightly | Neither like nor dislike | Like slightly | Like moderately | Like very much | Like extremely |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |
| What do you think of the flavour of this Snack Bar? |  |  |  |  |  |  |  |  |
| Dislike extremely | Dislike very much | Dislike moderately | Dislike slightly | Neither like nor dislike | Like slightly | Like moderaetly | Like very much | Like extremely |

What do you think of the texture/mouthfeel of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor <br> dislike | slightly | moderately | very | extremely |

Would you or your parents/guardian buy this Snack bar for you to eat?
$\begin{array}{ccccc}\text { Definitely } & \text { Probably } & \begin{array}{c}\text { Might or } \\ \text { might not }\end{array} & \text { Probably } & \text { Definitely } \\ \text { not } & \text { not } & & \text { yes } & \text { not }\end{array}$

## Eat a piece of the Snack Bar marked 132

What is your overall impression of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> voderately | modightly <br> much |  |  | like nor <br> dislike |  |  |  |
| slightly |  |  | moderately | very | extremely |  |  |  |

## What do you think of the appearance of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> moderately <br> much |  |  | slightly <br> like nor <br> dislike |  |  |  |
| slightly |  |  | moderately | very |  |  |  |
|  |  |  |  |  |  |  |  |

What do you think of the aroma of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very |
|  | much |  |  | dislike |  |  | much |

What do you think of the flavour of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor <br> dislike | slightly | moderaetly | very | extremely |

What do you think of the texture/mouthfeel of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither <br> extremely <br> very <br> moderately | Like <br> slightly | Like <br> like nor <br> dislike | slightly | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| moderately | Like |  |  |  |  |  |  |  |
| very | extremely |  |  |  |  |  |  |  |

Would you or your parents/guardian buy this Snack bar for you to eat?

| Definitely | Probably | Might or <br> might not | Probably | Definitely |
| :---: | :---: | :---: | :---: | :---: |
| not | not |  | yes | not |

## Eat a piece of the Snack Bar marked 798

What is your overall impression of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very <br> voderately | modightly <br> much |  |  | like nor <br> dislike |  |  |  |
| slightly |  |  | moderately | very | extremely |  |  |  |

What do you think of the appearance of this Snack Bar?


What do you think of the aroma of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor | slightly | moderately | very |
|  | much |  |  | dislike |  |  | much |

What do you think of the flavour of this Snack Bar?

| Dislike | Dislike | Dislike | Dislike | Neither | Like | Like | Like | Like |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely | very | moderately | slightly | like nor <br> dislike | slightly | moderaetly | very | extremely |

What do you think of the texture/mouthfeel of this Snack Bar?

| Dislike | Dislike | Dislike |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| extremely |  |  |
| very |  |  |
| much |  |  |$\quad$| Dislike |
| :---: |
| moderately | | Neither |
| :---: |
| slightly | | Like |
| :---: |
| like nor |
| dislike |$\quad$| Like |
| :---: |
| slightly | | Like |
| :---: |
| moderately |
| very |
| much |$\quad$| Like |
| :---: |
| extremely |

Would you or your parents/guardian buy this Snack bar for you to eat?

| Definitely | Probably | Might or <br> might not | Probably | Definitely |
| :---: | :---: | :---: | :---: | :---: |
| not | not |  | yes | not |

Now that you have tasted all three Snack Bars, what do you think about the size?

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 enriched with iron, would you choose that one instead of the one that is not enriched?

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 friends)
Sports performance
Hunger
Convenience

Other, please state
$\qquad$
$\qquad$

In what situation(s) do you think you would choose this Snack Bar?
Mark all that apply.
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 diet is healthy |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Strongly disagree $\square$ | Moderately disagree $\square$ | Slightly disagree $\qquad$ | Neither agree nor disagree $\qquad$ | Slightly agree | Moderately agree $\square$ | Strongly agree |
| The taste of a food is very important to me |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree $\square$ | Slightly disagree $\qquad$ | Neither agree nor disagree $\square$ | Slightly agree | Moderately agree $\qquad$ | Strongly agree |
| Snacking is a necessary part of a healthy diet |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree $\square$ | Slightly disagree $\square$ | Neither agree nor disagree $\qquad$ | Slightly agree $\square$ | Moderately agree $\qquad$ | Strongly agree |
| I enjoy eating fruit and vegetables |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree | Slightly disagree $\qquad$ | Neither agree nor disagree $\square$ | Slightly agree | Moderately agree | Strongly agree |
| I tend to eat whatever my friends are eating |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree $\square$ | Slightly disagree $\square$ | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |
| Food I eat at home is healthy |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree $\square$ | Slightly disagree $\square$ | Neither agree nor disagree | Slightly agree | Moderately agree $\qquad$ | Strongly agree |
| I choose my own snacks |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree $\square$ | Slightly disagree $\qquad$ | Neither agree nor disagree $\square$ | Slightly agree | Moderately agree | Strongly agree |
| I like the food I eat when I am out with my friends |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |

The taste of food is more important to me than the healthiness of the food

| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |


| I often try foods that I see advertised in the media (TV, magazines etc.) |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Strongly disagree $\square$ | Moderately disagree $\qquad$ | Slightly disagree $\square$ | Neither agree nor disagree $\qquad$ | Slightly agree | Moderately agree $\square$ | Strongly agree |
| A high fat food tastes better than the lower fat version |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |
| Food I eat at school (in the canteen) is healthy |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |
| I often skip breakfast |  |  |  |  |  |  |
| Strongly disagree $\square$ | Moderately disagree | Slightly disagree $\square$ | Neither agree nor disagree $\square$ | Slightly agree | Moderately agree | Strongly agree |
| Healthy foods don't fill me up |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree $\qquad$ | Slightly agree | Moderately agree | Strongly agree |


| Most snack foods that I eat are healthy |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Strongly Moderately Slightly  Neither agree | Slightly | Moderately | Strongly |  |  |  |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |


| I feel well informed about what are healthy foods |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
|  | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |  |


| Most healthy foods don't taste very nice |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
| $\square$ | $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ |


| I have little choice over what I eat at home |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
|  | $\square$ | $\square$ |  |  |  |  |


| I worry about what I eat because I don't want to gain weight |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |
| Sugar-reduced products taste better than the 'regular' version |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree | Slightly agree | Moderately agree | Strongly agree |
| I like the food my parents prepare at home |  |  |  |  |  |  |
| Strongly disagree | Moderately disagree | Slightly disagree | Neither agree nor disagree $\square$ | Slightly agree | Moderately agree | Strongly agree |

If there is the option to choose a low fat version of a food, I will choose it

| Strongly | Moderately | Slightly | Neither agree | Slightly |
| :--- | :--- | :--- | :--- | :--- |
| disagree | disagree | disagree | nor disagree | agree |


| Moderately | Strongly |
| :--- | :--- |
| agree | agree |

What I eat now will have a big impact on my future health

| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |
|  |  |  |  |  |  |  |
| Food I eat when I am out with | my friends is healthy |  |  |  |  |  |
| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

I like the food prepared at the school canteen

| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |


| If there is the option to choose a whole grain version of a food, I will choose it |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Strongly | Moderately | Slightly | Neither agree | Slightly | Moderately | Strongly |
| disagree | disagree | disagree | nor disagree | agree | agree | agree |
| $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |

Information regarding healthy eating is difficult to put into practice

| Strongly | Moderately |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| disagree | disagree | Slightly | disagree | Neither agree | Slightly | nor disagree | | agree |
| :--- |
| $\square$ |

Q1.2. On a regular school day, when do you usually snack (select all that apply)
I snack in the morning
$\square I$ snack in the afternoon
$\square$ I snack when I get home after school
$\square$ I snack in the evening (after dinner)
$\square$ I snack regularly throughout the day
$\square$ I don't snack
Q1.3 At the weekend, when do you usually snack (select all that apply)
I snack in the morning
I snack in the afternoon
I snack in the evening (after dinner)
I snack regularly throughout the day
$\square$ I don't snack
Q1.4 What are your reasons for snacking? (select all that apply)
I feel bored
$\square$ I feel stressed
$\square$ I feel happy
I feel alone
$\square$ I feel sad
I feel hungry
I feel tired
I need some energy
$\square$ I'm craving something salty/savoury e.g. crisps
$\square$ I'm craving something sweet e.g. cookies or chocolate
$\square$ I snack out of habit
$\square$ I snack for a treat
$\square$ I snack because I missed a meal
$\square$ I'm socialising with my friends
$\square$ I don't snack

Q1.5 What would you say is your main reason for snacking? (please select one)
I feel bored
$\square$ I feel stressed
$\square I$ feel happy
$\square$ Ifeel alone
I feel sad
$\square$ I feel hungry
I feel tired
$\square$ I need some energy
I'm craving something salty/savoury e.g. crisps
$\square$ I'm craving something sweet e.g. cookies or chocolate
I snack out of habit
I snack for a treat
I snack because I missed a meal
$\square$ I'm socialising with my friends
$\square$ None of the above
$\square$ I don't snack
Q1.6 During the week, where do you usually receive or purchase your lunch (please select one)

I get my lunch at the school restaurant/canteen
I bring my lunch from home
I go home for lunch
I go and buy my lunch from the local shop
I go and buy my lunch from a fast food shop or restaurant
I don't eat lunch
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 one)
$\square$ Every day
2-4 times a week
Once a week
1-3 times per month
Less than once a month
Never
Q1.8 The following shows various sources of information regarding healthy eating and lifestyle. Select the sources of information that you feel are trustworthy (select all that apply).

Adverts (TV/Radio)<br>Adverts (Press/Magazines)<br>My parents/guardian Internet<br>School/my teachers<br>My coach/trainer<br>My friends<br>My doctor<br>None of the above

## 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:
c. how much you like the food item (from dislike strongly to like strongly)
d. how often you eat this as a snack (either 'never', 'sometimes' or '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 $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Bowl of cereal | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Oatmeal / porridge | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Cereal bars | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly $\square$ | Never $\square$ Sometimes $\square$ Often $\square$ |
| Sandwiches / toasties / pannini | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Pizza | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Hamburgers | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Hot Dogs / sausage rolls | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| French fries | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Pasta dishes | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |
| Pasta snack products e.g. Pot Noodles | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly | Never $\square$ Sometimes $\square$ Often $\square$ |

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 $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Tea | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Milk | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly $\square$ | Like strongly $\square$ | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Cocoa drink (e.g. chocolate milk or hot chocolate) | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Fizzy drinks / soft drinks (e.g. coke, sprite) | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Fruit juice / fruit smoothies | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |
| Water | Dislike strongly | Dislike slightly | Neither like nor dislike $\square$ | Like slightly | Like strongly | Never $\square$ | Sometimes $\square$ | Often $\square$ |

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

| Food Item | What do you think about the healthiness of the food? |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Fresh fruit | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Vegetables (e.g. celery, carrots, tomatoes etc.) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Dried fruits (eg. raisins) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Nuts, peanuts, seeds (e.g. sunflower, pumpkin) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Yoghurt / yoghurt products | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Cheese products (e.g. cheddar, brie, cheese strings) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Sweets / candy | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Chocolate / chocolate bars / turó rudi | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Biscuits / cookies | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Cakes / muffins / pastries | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Crisps / tortilla chips | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Crackers / rice cakes / salty sticks | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Popcorn | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Meat based snacks (e.g. meat sticks) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Bread / toast | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Bowl of cereal | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Oatmeal / porridge | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Cereal bars | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Sandwiches / toasties / pannini | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Pizza | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Hamburgers | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Hot Dogs / sausage rolls | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| French fries | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Pasta | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Pasta snack products e.g. Pot Noodles | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |


| Drink Item | What do you think about the healthiness of the drink? |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Coffee | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Tea | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Milk | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Cocoa drink (e.g. chocolate milk or hot chocolate) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Fizzy drinks / soft drinks (e.g. coke, sprite) | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Fruit juice / fruit smoothies | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very healthy |
| Water | Very unhealthy | Slightly unhealthy | Neither healthy nor unhealthy | Slightly healthy | Very 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 <br> influence | Slight <br> influence | Moderate <br> influence | Strong <br> influence | Very strong <br> influence |
| :--- | :--- | :--- | :--- | :--- | :--- |
| School environment |  |  |  |  |  |
|  | $\square$ | $\square$ | $\square$ | $\square$ |  |

Q3.2 Thinking about a typical weekday, other than breakfast, which is your MAIN MEAL of the day? (please select ONE)
$\begin{array}{ll}\square & \text { Lunch (mid-day meal) } \\ \square & \text { Dinner (evening meal) }\end{array}$ Other (please state) $\qquad$
Q3.3 Where do you usually eat this MAIN MEAL? (please select ONE)

| $\square$ | At home |
| :--- | :--- |
| $\square$ | At school |

Other (please state) $\qquad$
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 influence | Slight influence | Moderate influence $\square$ | Strong influence | Very strong influence $\qquad$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| School environment | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\qquad$ | Very strong influence $\qquad$ |
| The taste of the food | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\square$ |
| Concern for your health | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\qquad$ | Very strong influence $\qquad$ |
| Your friends | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| The food is readily available | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| The food is easy to prepare | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| How hungry you are | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| Price of the food | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| Your habits or daily routine | No influence | Slight influence | Moderate influence $\square$ | Strong influence $\square$ | Very strong influence $\qquad$ |
| Other, e.g. medical reasons (please specify): | No influence | Slight <br> influence | Moderate influence $\square$ | Strong influence | Very strong influence |

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 <br> influence | Slight <br> influence | Moderate <br> influence | Strong <br> influence | Very strong <br> influence |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | $\square$ | $\square$ | $\square$ | $\square$ |  |

## THANK YOU for your participation

