

Processed dried fruit snacks for young children

A review of processed dried fruit snacks
marketed for young children in the UK



Key points

Processed dried fruit snacks aimed at young children are made from fruit juices and purées and the sugar in them is classified as free sugar. A diet high in free sugars is linked to poor oral health and overweight in children.



Products are marketed as fruit-equivalent snacks in the diet of a small child, but they may have a free sugars content similar to confectionery.



The name of the product does not always reflect the ingredients used, with a high proportion of the ingredients being apples and pears.



Processed dried fruit snacks are an extremely expensive way of giving children fruit, and create considerable packaging waste as they are packed in very small portions.



We believe that the marketing of these products as one of a child's 'five a day' and as a 'healthy choice' is misleading to families.



An urgent review of statements allowed on food packaging for processed dried fruit snacks aimed at children is needed.



Clear, traffic-light labelling on the front of pack, showing the free sugars content in relation to a young child's recommended daily amount, should be mandatory.



These products should have a warning label stating they are high in sugar and should not be given as a snack between meals.



Introduction

Processed dried fruit snacks are sold by a number of companies that market food for babies and young children in the UK.

These products are made from fruit juice, fruit purée or fruit paste which has been reconstituted into a shape, bar or stick. Processed dried fruit snacks contain free sugars, as defined by Public Health England. (See below.)

Definition of 'free sugars'

Free sugars include:

- all added sugar (including honey, syrups and nectars) whether that is added during manufacturing or after
- lactose and galactose added to food and drinks
- all sugars in juice (excluding dairy-based drinks)
- all sugars naturally present in fruit and vegetable juices, concentrates, smoothies, purées, pastes, powders and extruded fruit and vegetable products.
(Swan et al, 2018)

What is the difference between dried fruit and processed dried fruit snacks?

Fruit that has been simply dried – such as raisins, prunes, apricots, dates, apples or pears – retains the structure of the plant and cell walls. Once the water is removed, dried fruits have a high proportion of sugar but the sugars in dried fruit are not considered free sugars.

Some dried fruits do have sugar added – for example, sugar-infused dried fruits such as cranberries, or candied fruits such as mango, papaya or pineapple – but most dried fruit is not typically marketed to infants and young children. The exception to this is raisins, where small boxes are produced specifically for the baby food market, but we do not consider these in this review.

Why do we want to limit the intake of free sugars?

The Scientific Advisory Committee on Nutrition (SACN) reviewed the role of carbohydrates in human health in 2015 (SACN, 2015). They concluded that intake of free sugars in the UK should not be greater than 5% of total energy intakes, because of their link to both tooth decay and an overall higher intake of calories which can lead to weight gain. Some evidence also shows a link between consumption of free sugars and an increased risk of type 2 diabetes mellitus. Whilst there is no specific recommendation on free sugars intake for 1-2 year olds, it would seem prudent that the free sugars intakes of 1-4 year olds did not exceed 5% of total energy. Currently in England a quarter of children entering school at Reception (4-5 years) are overweight or obese (NHS Digital, 2018), and a quarter of children under 5 years have experienced tooth decay, having on average three or four teeth affected (Public

Health England, 2017). In 2015 there were 7,926 episodes of under-5s going to hospital to have tooth extractions. Poor dental health impacts on the individual’s health and wellbeing and that of their family. Children who have toothache or who need dental treatment may have pain, infections and difficulties with eating, sleeping and socialising. Reducing free sugars in the diet can help reduce the risk of obesity and improve oral health.

It is currently recommended that dried fruit is not given between meals, although there remains limited evidence relating consumption of dried fruit snacks to oral health (Moynihan et al, 2018). There are currently no direct recommendations related to processed dried fruit snacks but both these and dried fruits can be very sticky and get stuck in between teeth. The NHS website says “Dried fruit is high in sugar and can be

bad for teeth, so only ever give it to children with meals – for instance, as a dessert – and never as a snack between meals.” (NHS, 2018).

In the latest National Diet and Nutrition Survey (Public Health England and Food Standards Agency, 2018), children aged 1½ -3½ years were reported to have an average of 11.3% of energy from free sugars, with only 13% of that age group achieving recommended free sugars intakes of 5% of energy or less (SACN, 2015). The average intake of free sugars in this group was 32.6g per day which can be compared to a recommended average intake of 13.9g* per day among children aged 1-4 years in the UK.

The free sugars intake of young children is therefore currently higher than recommendations, and reducing intakes of free sugars from all foods and drinks is seen as a priority.

Products reviewed in this report

We have reviewed processed dried fruit snacks, marketed to young children, which were on the UK market in June and July 2018. Products were found on supermarket shopping websites, and by visiting a range of stores and interrogating baby food company websites. Products were included if they were sold in the baby food aisle or if they had graphics or messages suggesting (in our opinion) their suitability for young children. We selected 48 products currently available in the UK, from seven different manufacturers. See below. The full list of named products is shown on pages 7-9.

Processed dried fruit snacks included in this review

Manufacturer	Number of products reviewed
Bear	17
Fruit Bowl	7
Fruit Heroes	4
Humdinger	4
Kiddylicious	6
Organix	5
Whitworths Frootz	5
Total	48

* Based on calculations of sugar as 5% energy from an average intake of 1,041kcal/day for children aged 1-4 years.

Ingredients

Fruit juice and fruit purée

All but one of the seven manufacturers of the products reviewed state in the ingredients that the fruit in their products comes from concentrated juices or fruit purée, clearly indicating that the sugars in those products are free sugars.

Bear brand snacks do not state that the fruit is puréed; they simply state that their snacks are made from dried fruit. We contacted the company to ask exactly how they process the fruit and vegetables they use in their snacks to make the shapes and fruit leather type products they market. Their response was:

*“Our fruit and veg is **blended** and gently baked at around 42 degrees Celsius in order to keep all the nutrients inside. We then cut and roll each Yoyo, or cut the fruit sheets into Paws or Claws shapes.”*

When questioned further regarding exactly how they combine the different ingredients to make the product, they responded:

*“We **purée** the whole, unpeeled fruit and then sieve out the pips and stalks.”*

We therefore believe that the sugars in these products should be defined as free sugars as the products are based on puréed and blended fruits and vegetables.

Amounts of ingredients used

Most companies provide the percentage of ingredients used in the processed dried fruit snacks in the ingredients list. The only products for which we could not locate proportions of fruit used in the product either from the label or via the website were Humdinger products. Bear and Fruit Bowl products do not provide the percentage of ingredients in the ingredients list, but it can be calculated from information elsewhere on the label.

The ingredients for the processed dried fruit snacks covered in this review are shown in the table on the next page.

The table also indicates whether the name of the product reflects the main ingredients used (based on whether the named ingredients constitute at least 50% of the product).



Ingredients used in processed dried fruit snacks

Product	Ingredients	Does the product name reflect the main ingredients?
Bear		
Apple Yoyos	Apple 70%, pear 30%, and a little spirulina	✓
Blackcurrant Yoyos	Apple 57%, pear 29%, blackcurrants 14%	✗
Mango Yoyos	Apple 41%, pear 41%, mango 18%	✗
Pineapple Yoyos	Apple 45%, pear 45%, pineapple 10%	✗
Raspberry Yoyos	Apple 58%, pear 32%, raspberries 10%, and a little black carrot	✗
Strawberry Yoyos	Apple 58%, pear 32%, strawberry 10%, and a little black carrot	✗
Apple, Pear and Pumpkin Claws	Pumpkin 34%, apple 33%, pear 33%, and a little spirulina	✓
Blackcurrant and Beetroot Claws	Apple 29%, pear 29%, carrot 21%, beetroot 12%, blackcurrant 9%, and a little black carrot	✗
Mango and Carrot Claws	Carrots 34%, apple 25%, pears 25%, mango 16%	✓
Strawberry and Butternut Claws	Butternut 33%, apple 30%, pear 30%, strawberry 7%, and a little black carrot	✗
Apple and Blackcurrant Paws	Apple 63%, pears 29%, blackcurrant 8%, and a little spirulina	✓
Mango and Strawberry Paws	Apple 49%, pear 36%, mango 10%, strawberry 5%, and a little black carrot	✗
Raspberry and Blueberry Paws	Apple 59%, pear 31%, raspberry 5%, blueberry 5%, and a little black carrot	✗
Strawberry and Apple Paws	Apple 64%, pear 31%, strawberry 5%, and a little black carrot	✓
Blackcurrant and Apple Yoyos Sours	Apple 32%, pear 32%, lemons 16%, butternut 8%, blackcurrant 6%, carrot 3%, beetroot 3%, and a little spirulina	✗
Mango and Apple Yoyos Sours	Apple 31%, pear 31%, lemons 15%, mango 10%, butternut 7%, carrots 6%, and a little spirulina	✗
Strawberry and Apple Yoyos Sours	Apple 33%, pear 33%, lemon 17%, pumpkin 16%, strawberry 1%, and a little black carrot and a little spirulina	✗

Continued on next page.



Fruit Bowl		
Blackcurrant Flakes	Apple 95% (concentrated apple purée, concentrated apple juice), blackcurrant purée 3%, gluten-free wheat fibre, concentrated elderberry juice 2%, gelling agent (pectin), natural flavouring	✘
Mango Flakes	Apple 95% (concentrated apple purée, concentrated apple juice), concentrated mango purée 5%, gluten-free wheat fibre, gelling agent (pectin), natural flavouring	✘
Raspberry Flakes	Apple 93% (concentrated apple purée, concentrated apple juice), raspberry purée 6%, gluten-free wheat fibre, concentrated elderberry juice 1%, gelling agent (pectin), natural flavouring	✘
Strawberry Flakes	Apple 93% (concentrated apple purée, concentrated apple juice), strawberry purée 6%, gluten-free wheat fibre, gelling agent (pectin), concentrated elderberry juice 1%, natural flavouring	✘
Blackcurrant Peelers	Apple 94% (concentrated apple purée, concentrated apple juice), blackcurrant purée 4%, concentrated elderberry juice 2%, citrus fibre, gelling agent (pectin), blackcurrant flavouring	✘
Raspberry Peelers	Apple 94% (concentrated apple purée, concentrated apple juice), raspberry purée 6%, citrus fibre, gelling agent (pectin), concentrates (chokeberry, elderberry), raspberry flavouring	✘
Strawberry Peelers	Apple 94% (concentrated apple purée, concentrated apple juice), strawberry purée 6%, citrus fibre, gelling agent (pectin), concentrates (chokeberry, elderberry), strawberry flavouring	✘
Fruit Heroes		
Apple and Raspberry	Dates 88%, apple 4%, raspberry (raspberry 1.3%, apple juice 0.7%, vegetable oil), sunflower oil 2.5%, water, lemon juice, natural flavours	✘
Banana	Dates 79%, banana 18%, sunflower oil 2%, water, natural banana flavour	✘
Blackcurrant	Dates 91%, blackcurrants 1.5%, sunflower oil 3%, water, lemon juice, natural blackcurrant flavour	✘
Strawberry	Dates 82%, apple 10%, strawberry purée 2%, dried strawberry 0.8%, sunflower oil 3%, water, lemon juice, natural strawberry flavour	✘
Humdinger		
Strawberry Fruit Hearts	Fruit juice, sugar, glucose syrup, gelling agents (pectin, modified starch), natural colour (anthocyanin), acidity regulator (citric acid), natural flavouring, palm oil, glazing agents (carnauba wax, beeswax)	Ingredient proportions not given
Strawberry, Apple, Orange Fruit Stars	Fruit juice, sugar, glucose syrup, pectin, modified starch, natural colours, citric acid, natural flavour, palm oil, glazing agents (beeswax, carnauba wax)	Ingredient proportions not given
Strawberry, Apple, Orange Fruit Strings	Fruit juice (strawberry juice, apple juice, orange juice), glucose syrup, sugar, fructose syrup, gelatine, agar, citric acid, natural fruit flavouring with other natural flavouring, natural colours, coconut oil, carnauba wax	Ingredient proportions not given
Strawberry Fruit Strings	Fruit juice (strawberry juice), glucose syrup, sugar, fructose syrup, gelatine, agar, citric acid, natural strawberry flavouring with other natural flavouring, natural colour coconut oil, carnauba wax	Ingredient proportions not given

Kiddylicious		
Apple Fruit Wriggles	Concentrated apple juice and purée 98%, citrus fibre, pectin gelling agent	✓
Strawberry Fruit Wriggles	Concentrated apple juice and purée 91%, strawberry purée 6%, citrus fibre, pectin gelling agent, concentrated elderberry juice	✗
Banana, Mango and Passion Fruit Smoothie Melts	Banana purée 62%, mango purée 35%, passion fruit purée 3%	✓
Blackcurrant and Apple Smoothie Melts	Apple purée and concentrated apple juice 68%, banana purée 17%, blackcurrant purée 15%	✓
Strawberry and Banana Smoothie Melts	Banana purée 70% and strawberry purée 30%	✓
Raspberry Crispie Tiddlers	Concentrated apple juice and purée 87%, puffed rice 8%, raspberry juice concentrate, citrus fibre, pectin, natural colour from purple carrot juice, sunflower oil	✗
Organix		
Apple and Date Chunky Fruit Bars	Date paste 86%, apple powder 13%, rice flour <1%, sunflower oil <1%	✓
Banana and Date Chunky Fruit Bars	Date paste 84%, dried banana 15%, rice flour <1%, sunflower oil <1%	✓
Blackcurrant and Apple Stars	Apple juice concentrate 64%, apple purée concentrate 22%, blackcurrant purée 12%, gelling agent (pectin) <1%, rice flour <1%, sunflower oil <1%	✓
Raspberry and Apple Moos	Apple juice concentrate 64%, apple purée concentrate 19%, raspberry purée 15%, gelling agent (pectin) <1%, rice flour <1%, sunflower oil <1%	✓
Strawberry and Apple Gummies	Apple juice concentrate 66%, apple purée concentrate 22%, strawberry purée 10%, gelling agent <1%, rice flour <1%, sunflower oil <1%	✓
Whitworths Frootz		
Apple Fruit Drops	Concentrated fruit juices (apple juice (89%), lemon juice), concentrated apple purée (4%), banana flakes, gelling agent: pectin; natural flavouring, anticaking agent: citrus fibre	✓
Blackcurrant Fruit Drops	Concentrated fruit juices (apple juice (85%), blackcurrant juice (4%), lemon juice, elderberry juice), concentrated apple purée, banana flakes, gelling agent: pectin; natural flavouring, anticaking agent: citrus fibre	✗
Orange Fruit Drops	Concentrated fruit juices (apple juice (88%), orange juice (4%), lemon juice), banana flakes, gelling agent: pectin; natural flavouring, anticaking agent: citrus fibre	✗
Raspberry Fruit Drops	Concentrated fruit juices (apple juice (85%), raspberry juice (4%), lemon juice, elderberry juice), concentrated apple purée, banana flakes, gelling agent: pectin; natural flavouring, anticaking agent: citrus fibre	✗
Strawberry Fruit Drops	Concentrated fruit juices (apple juice (85%), strawberry juice (4%), lemon juice, elderberry juice), concentrated apple purée, banana flakes, gelling agent: pectin; natural flavouring, anticaking agent: citrus fibre	✗

Use of apple juice or apple and pear purée in processed dried fruit snacks

The name of the processed dried fruit snacks frequently does not match the proportions of ingredients used. Many products have a high percentage of apple or pear purée or apple juice, but apple and pear may not be mentioned in the name. See the examples below.

Processed dried fruit snacks that have a high proportion of apple or pear juice or purée, but do not mention apple or pear in the name

Manufacturer	Ingredients	Percentage
Fruit Bowl Mango Flakes Blackcurrant Flakes	Apple (concentrated apple purée, concentrated apple juice)	95%
Fruit Bowl Blackcurrant Peelers Raspberry Peelers Strawberry Peelers	Apple (concentrated apple purée, concentrated apple juice)	94%
Fruit Bowl Raspberry Flakes Strawberry Flakes	Apple (concentrated apple purée, concentrated apple juice)	93%
Kiddylicious Strawberry Fruit Wriggles	Concentrated apple juice and purée	91%
Bear Raspberry and Blueberry Paws	Apple and pear	90%
Bear Pineapple Yoyos Raspberry Yoyos Strawberry Yoyos	Apple and pear	90%
Whitworths Frootz Orange Fruit Drops	Concentrated apple juice	88%
Kiddylicious Raspberry Crispie Tiddlers	Concentrated apple juice and purée	87%
Bear Blackcurrant Yoyos	Apple and pear	86%
Bear Mango and Strawberry Paws	Apple and pear	85%
Whitworths Frootz Blackcurrant/ Raspberry / Strawberry Fruit Drops	Concentrated apple juice	85%
Bear Mango Yoyos	Apple and pear	82%



Other ingredients in processed dried fruit snacks

Some processed dried fruit snacks have added ingredients which act as flavourings, additional food ingredients, or processing additives. One brand of snacks, Humdinger, adds sugar, glucose or fructose syrup to the products included in this review.

Added ingredients in some processed dried fruit snacks

Flavour <i>(Excluding the flavouring that comes from any of the main ingredients)</i>	Non-fruit ingredient	Process additive
Black carrot Blackcurrant flavouring Chokeberry concentrate Elderberry concentrate Lemon juice Natural flavouring Raspberry flavouring Spirulina Strawberry flavouring	Coconut oil Fructose syrup Glucose syrup Gluten-free wheat fibre Palm oil Puffed rice Rice flour Sugar Sunflower oil Vegetable oil Water	Agar Anticaking agent Beeswax Carnauba wax Citric acid Citrus fibre Gelatine Gelling agent (pectin) Modified starch Natural colours

Products with added sugar, glucose and fructose syrup

Humdinger Strawberry, Apple, Orange Fruit Strings Humdinger Strawberry Fruit Strings	Contain sugar, glucose syrup and fructose syrup
Humdinger Strawberry, Apple, Orange Fruit Stars Humdinger Strawberry Fruit Hearts	Contain sugar and glucose syrup



How much sugar is in these snacks?

We consider that all the sugars in the processed dried fruit snacks featured in this review are free sugars as they are based on sugars from fruit juices or fruit purées. The chart below highlights the total carbohydrate and free sugars content per 100g of the dried fruit snacks, as provided by the manufacturers. The reported free sugars content ranges from 34g to 75.5g per 100g.

Total carbohydrate and free sugars content per 100g of processed dried fruit product

Product	Free sugars per 100g	Carbohydrate per 100g
Humdinger Strawberry, Apple, Orange Fruit Stars	61.8g	89.3g
Humdinger Strawberry Fruit Hearts	61.8g	89.3g
Whitworths Frootz Apple Fruit Drops	66.4g	82.2g
Organix Raspberry and Apple Moos	57.1g	81.2g
Whitworths Frootz Raspberry Fruit Drops	75.5g	81.1g
Organix Blackcurrant and Apple Stars	62.8g	80.5g
Whitworths Frootz Strawberry Fruit Drops	71.5g	79.9g
Kiddylicious Strawberry and Banana Smoothie Melts	67.7g	76.3g
Kiddylicious Banana, Mango and Passion Fruit Smoothie Melts	67.7g	76.3g
Organix Strawberry and Apple Gummies	65g	76g
Humdinger Strawberry, Apple, Orange Fruit Strings	48.2g	74.2g
Kiddylicious Raspberry Crispie Tiddlers	63.4g	73.8g
Whitworths Frootz Orange Fruit Drops	70.8g	73.3g
Kiddylicious Blackcurrant and Apple Smoothie Melts	65.9g	72.9g
Organix Apple and Date Chunky Fruit Bars	62g	72g
Fruit Bowl Peelers – All flavours	58g	70g
Fruit Bowl Flakes – All flavours	58g	70g
Kiddylicious Apple Fruit Wriggles / Strawberry Fruit Wriggles	54.8g	69.1g
Organix Banana and Date Chunky Fruit Bars	59g	69g
Whitworths Frootz Blackcurrant Fruit Drops	60.8g	68.8g
Fruit Heroes Banana	59g	66g
Fruit Heroes Blackcurrant	57g	65g
Fruit Heroes Apple and Raspberry	56g	65g
Fruit Heroes Strawberry	55g	63g
Bear Yoyos / Bear Yoyos Sours – All flavours	42g	63g
Bear Paws – All flavours	37.8g	62.2g
Bear Claws – All flavours	34g	57g

How accurate is the information given on the sugar content of products?

The majority of the carbohydrate in processed dried fruit products is likely to be sugar since the ingredients for the majority of these snacks is fruit purée or fruit juice. There will be small amounts of other sugars such as oligosaccharides or sugar alcohols, and some products include some ingredients that may provide a little starch, but the reason for the often large difference in total carbohydrate and total sugars is not clear. It may be that the analysis used does not account for all the sugars present. In the chart on page 12 we have taken the values for sugar content as they have been given by manufacturers, but we recommend that independent analysis be undertaken to examine further the sugar content of these products.

How much sugar do packets of processed fruit snacks provide to a young child?

Two jelly baby sweets weighing about 14g contain about 10.4g of free sugar, which is about 75% of the recommended daily free sugar allowance for a 1-4 year old (based on 13.9g free sugars representing 5% of the average energy requirement for 1-4 year olds of 1,041kcal/day).



Individual packets of processed dried fruit snacks weigh between 6g and 20g per portion. Most of the processed dried fruit snack portions provide about half or more of the daily recommended free sugars intake for a 1-4 year old, with many providing two-thirds or more. There is little difference in free sugar content between some of these products and confectionery.





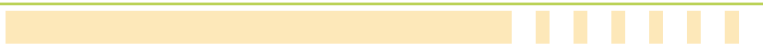

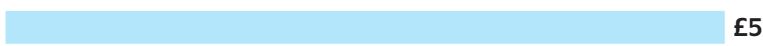

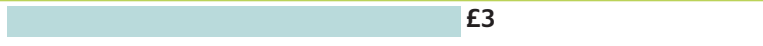
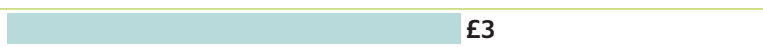






Percentage of the recommended daily amount of free sugars for a 1-4 year old child provided by a serving of some processed dried fruit snacks

Product	Packet size	Free sugars per serving	% of recommended daily amount of free sugars for a child aged 1-4 years
Whitworths Frootz Raspberry Fruit Drops	18g	13.6g	98%
Whitworths Frootz Strawberry Fruit Drops	18g	12.9g	93%
Humdinger Strawberry, Apple, Orange Fruit Stars	20g	12.4g	89%
Fruit Heroes: Apple and Raspberry / Blackcurrant / Strawberry	20g	11g	79%
Organix Apple and Date Chunky Fruit Bars	17g	10.5g	76%
Fruit Bowl Flakes – All flavours	18g	10g	72%
Humdinger Strawberry Fruit Strings	20g	9.6g	69%
Fruit Bowl Peelers – All flavours	16g	9.3g	67%
Bear Yoyos / Bear Yoyos Sours – All flavours	20g	8.4g	60%
Organix Strawberry and Apple Gummies	12g	7.8g	56%
Kiddylicious Raspberry Crispie Tiddlers	12g	7.6g	55%
Bear Paws – All flavours	20g	7.6g	55%
Organix Blackcurrant and Apple Stars	12g	7.5g	54%
Organix Raspberry and Apple Moos	12g	6.9g	50%
Bear Claws – All flavours	18g	6.8g	49%
Kiddylicious: Apple Fruit Wriggles	12g	6.6g	47%

Cost

Below we give costs per 100g of each product and compare these with the costs of 100g of some fresh fruits. The cost of all processed dried fruit snacks is considerably higher than some fresh fruit equivalents.

Cost per 100g of product

Manufacturer and product (or fresh fruit)	Packet size	Cost per packet	Cost per 100g
Eating apple*	-	-	21p  = 1 small apple
Banana*	-	-	10p  = 1 small banana
Fresh strawberries*	-	-	47p  = about 8 strawberries
Fresh raspberries*	-	-	£1.33  = about 20 raspberries
Kiddylicious Smoothie Melts	6g	60p	 £10
Kiddylicious: Fruit Wriggles / Raspberry Crispie Tiddlers	12g	60p	 £5
Organix: Blackcurrant and Apple Stars / Raspberry and Apple Moos / Strawberry and Apple Gummies	12g	60p	 £5
Fruit Bowl Peelers	16g	50p	 £3.12
Bear Yoyos / Yoyos Sours	20g	60p	 £3
Bear Paws	20g	60p	 £3
Bear Claws	18g	50p	 £2.78
Organix: Apple and Date Chunky Fruit Bars / Banana and Date Chunky Fruit Bars	17g	42p	 £2.47
Whitworths Frootz Fruit Drops	18g	36p	 £2
Humdinger: Fruit Strings / Fruit Stars / Fruit Hearts	20g	39p	 £1.95
Fruit Bowl Flakes	18g	33p	 £1.83
Fruit Heroes	20g	32p	 £1.60

* Based on Tesco online food prices for July 2018, calculated as edible portion of the fresh fruit.

Marketing

Processed dried fruit snacks are marketed with statements relating to the healthiness and tastiness of the product, equating the processed dried fruit as an equivalent to fresh fruit. Many products highlight that they make useful snacks.

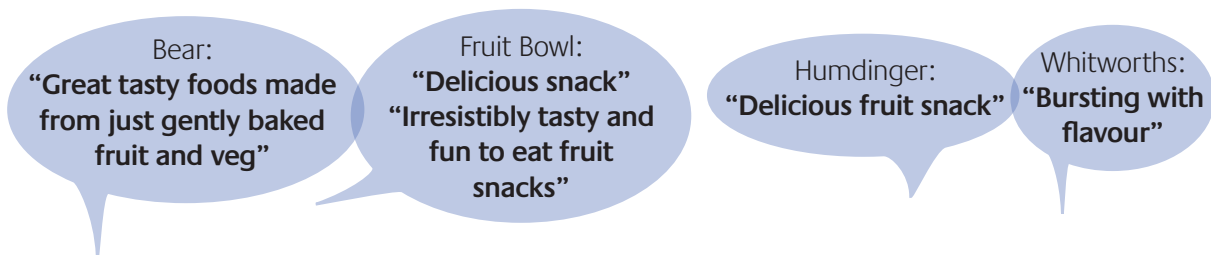
Statements related to healthiness



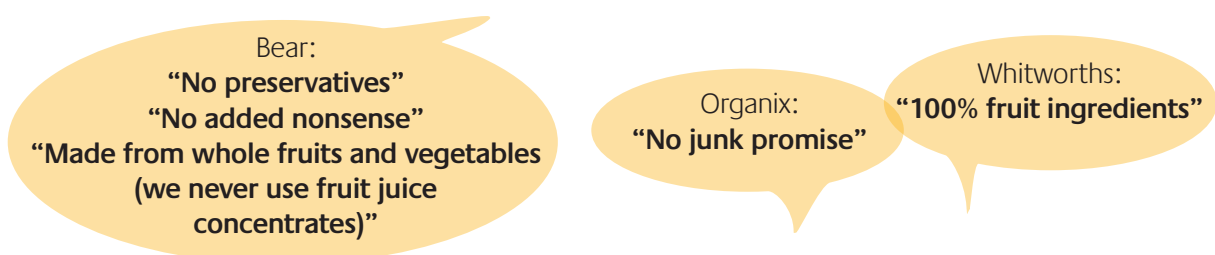
Statements related to lifestyle



Statements related to taste



Statements related to ingredients



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Published by First Steps Nutrition Trust, 2018.

ISBN e-book 978-1-908924-67-4

ISBN hard copy 978-1-908924-66-7

A PDF of this resource is available on the First Steps Nutrition Trust website www.firststepsnutrition.org

Edited by Wordworks.

Design by Sally Geeve.

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