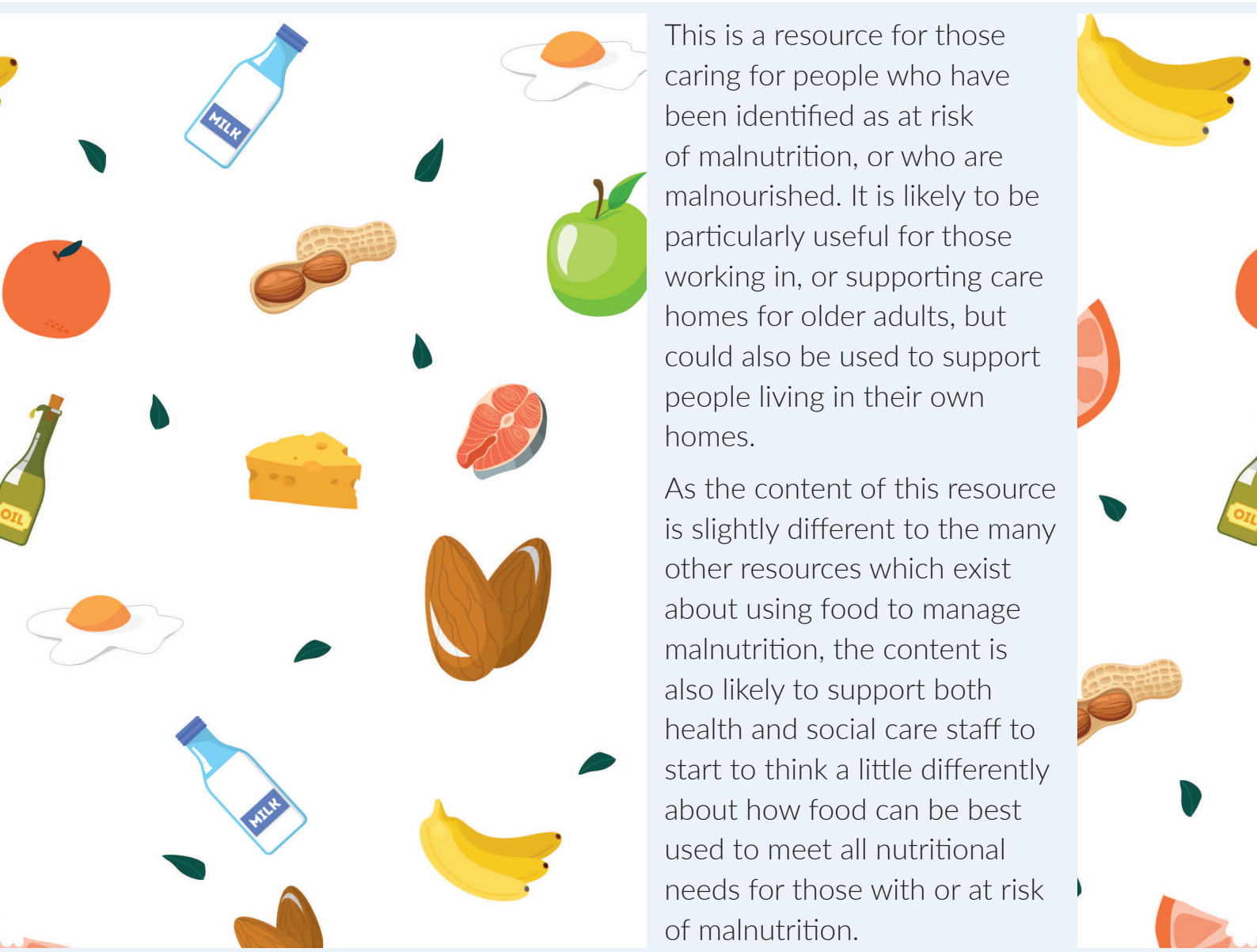


Creating a fortified diet recipe book

HOW TO OPTIMISE NUTRITION USING FOOD

A decorative background featuring various food items scattered across the page. The items include a blue milk carton labeled 'MILK', a green apple, a slice of salmon, a wedge of yellow cheese, a whole nut, a banana, a fried egg, a whole orange, a slice of orange, a bottle of oil labeled 'OIL', and a peanut. The background is light blue with small green leaves scattered throughout.

This is a resource for those caring for people who have been identified as at risk of malnutrition, or who are malnourished. It is likely to be particularly useful for those working in, or supporting care homes for older adults, but could also be used to support people living in their own homes.

As the content of this resource is slightly different to the many other resources which exist about using food to manage malnutrition, the content is also likely to support both health and social care staff to start to think a little differently about how food can be best used to meet all nutritional needs for those with or at risk of malnutrition.

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Introduction

Providing a nutrient dense diet for those with identified malnutrition is essential treatment for malnutrition, and is clearly advised by the following national, evidence based guidance.

NICE Clinical Guideline 32 Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition (2006; updated 2017) states:

“ Healthcare professionals should ensure that the overall nutrient intake of oral nutrition support offered contains a balanced mixture of protein, energy, fibre, electrolytes, vitamins and minerals

Care should be taken when using food fortification which tends to supplement energy and/or protein without adequate micronutrients and minerals.”

NICE Quality Standard 24 Nutrition support in adults (2012) states:

“ People who are malnourished or at risk of malnutrition have a management care plan that aims to meet their complete nutritional requirements.

It is important that nutrition support goes beyond just providing sufficient calories and looks to provide all the relevant nutrients that should be contained in a nutritionally complete diet.

A nutritionally complete diet can improve speed of recovery and contribute to reducing admissions to hospital and length of hospital stays.”

People who have malnutrition or are at risk of malnutrition are not getting enough calories and nutrients such as protein and vitamins to meet the body’s needs. Any management care plan they receive should, in combination with any food they are able to eat, aim to provide all the nutrients their body needs.

Health and Social Care Act 2008 (Regulated Activities) Regulations 2014: Regulation 14 Meeting nutritional and hydration needs also makes it clear that the nutritional and hydration needs of service users must be met where care or treatment involves:

Provision of accommodation by the service provider, or

“ An overnight stay for the service user on premises used by the service for the purposes of carrying on a regulated activity, or

Meeting of the nutritional or hydration needs of service users is part of the arrangements made for the provision of care or treatment by the service provider.”

Regulation 14 also states that:

“ A variety of nutritious, appetising food should be available to meet people’s needs.”

Evidence in support of a food based approach to managing malnutrition

There is a variety of evidence indicating a benefit to using prescribed oral nutritional supplements for managing malnutrition. However, it is important to be aware that at the most basic level this is because they provide a full range of nutrients as advised by the NICE evidence base above.

It is also useful to note that neither NICE nor the Health and Social Care Act specify that prescribed oral nutritional supplements are required to achieve the goals which they set out.

The Cochrane review "Dietary advice with or without oral nutritional supplements for disease-related malnutrition in adults (Review)" (2012) is clear that "it is reasonable to presume that the benefits derived from nutritional supplements result from their ability to increase nutrient intake (or balance of nutrients). It then follows that if a similar increase in nutrient intake can be achieved by dietary means rather than using supplements, similar clinical benefits would be expected to occur."

Therefore, any food based approaches to managing malnutrition must provide a range of nutrients and not just (or mainly) additional energy (calories).

Similarly, homemade supplement recipes should be nutritionally almost identical to the full nutritional content of a similar prescribed product in order to also adhere to the suggestion of the above Cochrane review, NICE Clinical Guideline 32 and NICE Quality Standard 24.

This resource provides a collection of ideas and recipes for food-based approaches to nutrition support, which all look beyond simply providing extra energy (calories) and instead aim to align with the guidance set out by the national documents detailed above.

By using a food based, nutrient dense approach, the guidance presented here can be easily demonstrated to be evidence based.

A nutrient dense diet - Definition

Food based nutrition support should focus on providing a 'nutrient dense' diet. Nutrient dense foods contain a wide range of nutrients including energy, protein, vitamins and minerals and may also contain fibre.

It is important that people who have or are at risk of malnutrition are still encouraged and enabled to eat a variety of different food groups every day including:

- ~ Starchy carbohydrates such as bread, pasta, rice, cereals or potatoes
- ~ Protein such as meat, fish, eggs, nuts, beans/lentils, Quorn®, soya
- ~ Milk and milk containing foods such as yogurt, fromage frais or cheese
- ~ Fruit and vegetables
- ~ Fluid.

However, people who need nutrition support can often have a small appetite and can find it more difficult to eat enough to meet all their vitamin and mineral needs. Vitamin and mineral intake can be supplemented by provision of a purchased one-a-day multivitamin and mineral supplement, but this should not be thought of as an alternative to a nutrient dense diet.

A food-based approach to managing malnutrition

One of the most important things to remember is that a food-based approach to managing malnutrition does not mean trying to shoe-horn every calorie you can find into every food offered.

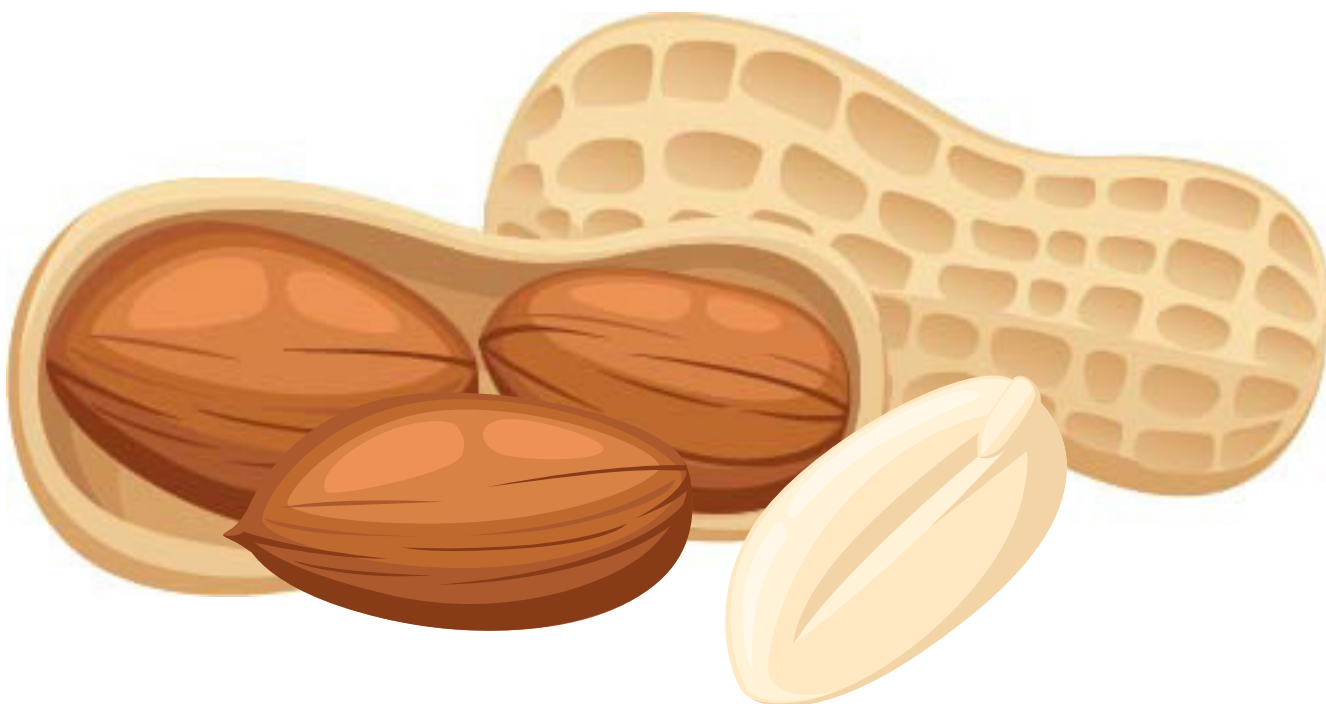
If we are to demonstrate the effectiveness of a food based approach to managing malnutrition we need to be able to measure what we are doing and to also measure the outcomes achieved by this. If we have no clear idea of how much additional nutrition someone is taking, it stands to reason that we can't be clear that any outcomes are attributable to our intervention. For this reason, the aim of a food based approach is to provide about an additional 500 calories per day using food fortifiers and snacks which are naturally nutrient dense (so they provide more than just calories).

In addition, food and drinks need to be attractive to look at and palatable to eat and drink so presentation and carefully considering how, and how much foods and drinks are manipulated to increase their nutritional content is key.

Eating and drinking are ultimately important for more than just the nutrient content of the food and drinks provided.

RESEARCH SUGGESTS THAT:

- ~ Eating together is a core human activity and is important for building social groups.
- ~ Mealtimes reflect identity and enable us to make and maintain connections with others.
- ~ Eating with others can also help increase appetite and food intake.
- ~ Food is often an important aspect of living with purpose for older adults, including those living within care settings.



Prevention and management

Prevention is the first stage of managing malnutrition and is outside the scope of this guidance. In 2022 this will be addressed by a new resource targeted at older adults and produced by the Older People Specialist Group of the British Dietetic Association.

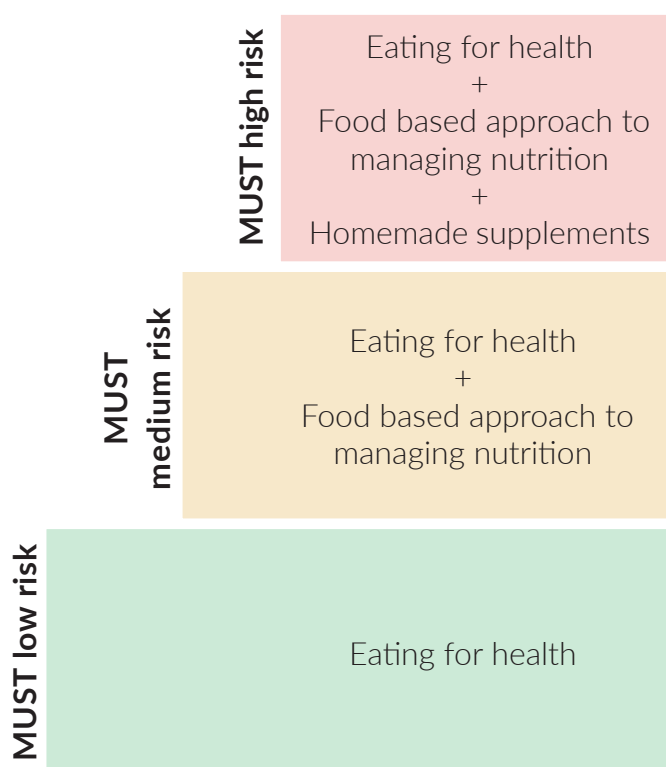
The following diagram demonstrates how a food based approach to managing malnutrition is simply part of the eating and drinking continuum for older adults that starts with prevention, by focussing on how to eat for health in older age.

How to practically apply a food-based approach to managing malnutrition

For those at medium or high risk, aim to increase nutritional intake by an additional 500 kilocalories (kcal) a day using nutrient dense foods, and fortifiers.

This does not mean that everything offered to the person has to be fortified or to be nutrient dense, and usually the additional nutritional requirement can be comfortably provided by making only three to four changes per day.

For those at high risk, aim to provide two homemade supplements per day in addition to the above.



Food fortification

Food fortification should adhere to the above evidence base too, and should largely avoid the typical suggestions of fortifying food using ingredients which only or mainly contain calories (e.g. butter, cream, sugar).

All food fortifiers suggested in table 1 are nutrient dense rather than primarily providing energy (calories). At this point it is helpful to remember that many healthcare professionals and care staff will need support to re-learn food fortification so that they understand that it does not simply mean adding additional calories.

The easiest way to tell if an ingredient is 'nutrient dense' is to consider whether it is something designed by nature to support a new life e.g. egg (which could potentially

'grow' a baby bird), whole seeds or nuts (from which a new plant could potentially grow) or milk (which would potentially 'grow' a baby animal). If the answer is yes, then this is likely to be a useful fortification ingredient. In addition, ingredients that are plant based, such as seeds and nuts, are likely to also contain fibre as an aspect of their nutrient density.

However, because food fortification also means adding additional nutrients to food without significantly increasing portion size or affecting taste or texture, careful thought is needed to ensure that fortifiers will not detrimentally affect food or drink flavour or texture.

Table 1: Practical, nutrient dense food fortifiers (which can be used within recipes as well as being added to finished dishes)

Nutrient dense food fortifier	Quantity that could be added to 1 portion of food	Protein content (g)	Energy content (kcal)	Could be added to a portion of:
Almond butter	1 tablespoon (15g)	3.4	98	Porridge, soups
Cashew butter	1 tablespoon (14g)	2.8	94	Porridge, soups
Cheese, grated	1 tablespoon (10g)	2.5	40	Potatoes, vegetables
Egg	1 egg	6	75	Custard, milk puddings, mashed potato
Dried, skimmed milk powder	1 tablespoon (15g)	5.5	55	Custard, milk puddings, 'cream of' soups, porridge, mashed potato
Greek yogurt	1 tablespoon (45g)	2	61	Porridge
Ground almonds	1 tablespoon (15g)	3	92	Vegetable soups, stews, casseroles, porridge
Peanut butter	1 tablespoon (15g)	4	94	Porridge
Pea protein powder	1 tablespoon (17g)	11	60	Vegetable soups, stews, casseroles
Soy protein powder	1 tablespoon (14g)	14	50	Vegetable soups, stews, casseroles

Fortified milk

Fortified milk means whole (full fat) milk that has been fortified with skimmed milk powder in the ratio 1 pint (568ml) whole milk: 4 rounded tablespoons (60g) skimmed milk powder.

Fortified milk can be used in any of the following:

- ~ **Added to tea and coffee (usually 12.5kcal and 0.7g protein or 25kcal and 1.5g protein)**
Using fortified milk instead of whole milk adds an additional 4kcal & 0.7g protein per cup and 20kcal/1.7g protein per mug)
- ~ **To make hot chocolate (usually 180kcal and 7g protein when made with whole milk)**
Using fortified milk instead of whole milk adds an additional 74kcal & 6g protein per 200ml mug)
- ~ **To drink on its own (usually 140kcal and 7g protein)**
Using fortified milk instead of whole milk adds an additional 74kcal & 6g protein per 200ml glass)
- ~ **With breakfast cereal (usually 63kcal and 3.4g protein)**
Using fortified milk instead of whole milk adds an additional 37kcal & 3g protein per bowl of cereal.

Nutrient dense snacks

All the nutrient dense recipes that follow can be provided either as a snack or as part of a meal, however there are also some 'readymade' snacks which are already nutrient dense.

Table 2: Nutrient dense snacks

'Readymade' nutrient dense snack	Portion size	Protein content (g)	Energy content (kcal)
Cheese & cracker	1 cracker + 1 small chunk cheese	5.5	112
Cheese scone	1	5.8	161
Custard	150g tub	3.6	144
Falafel	1	3.8	111
Greek yoghurt	150g tub	9.2	198
Hard boiled egg	1	7.2	75
Mixed nuts	Small handful (40g)	8.6	246
Rice pudding	150g tub	4.7	141

How to increase intake by 500kcal (plus all other nutrients) per day using nutrient dense foods (examples)

For the person who likes milk	507kcal + 27.7g protein
Hot chocolate made with fortified milk	254kcal
1 tub of greek yoghurt	198kcal
1 tablespoon of skimmed milk powder added to custard	55kcal

For the person who can't take milk or who likes savoury flavours	511kcal + 26.8g protein
1 small handful of mixed nuts	246kcal
1 falafel	111kcal
1 tablespoon pea protein powder added to vegetable soup	60kcal
1 tablespoon nut butter on toast or crackers	94kcal

For the person who likes sweet flavours	516kcal + 18.6g protein
1 bread and butter pudding finger (see recipe - page 24)	118kcal
Hot chocolate made with fortified milk	254kcal
1 tub of custard	144kcal



Drinks

Drinking enough fluid each day is important to prevent dehydration. There are currently no validated screening tools for dehydration and no validated tests (except plasma osmolality) which will identify potential dehydration in older adults. Therefore the best approach is to assume risk of dehydration for all dependent older adults.



The minimum fluid intake to aim for older adults is 1,600ml fluid per day for women and 2,000ml per day for men. It is not unusual to find that an older person does not drink this much each day and it may not always be possible to enable them to actually meet this requirement. However, any increase in their fluid intake remains a positive improvement, even if their overall intake never reaches 1,600/2,000ml per day.

Care should be taken when translating this guidance into number of cups/mugs/glasses of fluid needed unless the volume of the cups/mugs/glasses which the person uses is known. Care homes and people themselves can be encouraged to measure their own drinking vessels so that they can take responsibility for managing their own fluid intake.

Oral health

Managing oral health is important not least as poor oral health is linked with many commonly occurring diseases and disorders seen in older adults including diabetes, dementia and dysphagia leading to chest infections.

Oral healthcare guidance advises regular tooth brushing and reducing intake of sweet foods and drinks, especially between meals. Helpfully, nutrient dense foods also tend to be tooth friendly too, so recommending their use is in line with oral care guidance.

The sweet recipes given do contain some sugar however, there is always a need for balance between advice to manage mouthcare and advice to manage malnutrition. It is not envisaged that these will be the only, or main nutrient dense foods used, and good mouthcare relating to intake of these foods remains essential.

Homemade supplement recipes

These must contain a broad range of vitamins and minerals as well as calories and protein in order to adhere to the NICE and Cochrane Review evidence base (see page 1). In a milkshake/hot milk drink this can only be cost effectively achieved by using a vitamin fortified milkshake mix (Aldi Cowbelle, Asda Milkshake Mix, Lidl Goody Cao or Nesquik®) or by using 'Ovaltine® Original Add Milk' or 'Horlicks® Original Malted Drink'.

A full nutritional analysis of the ‘Homemade fortified milkshake’ recipe provided (see appendix 1) demonstrates that there is only a small nutritional difference between it and either a prescribed:

- ~ Standard, adult, ready to drink milkshake style oral nutritional supplement or
- ~ A reconstituted, powder, milkshake style oral nutritional supplement.

This difference is in the content of a small number of micronutrients, all of which can be obtained in adequate amounts from small portions of ordinary foods (see appendix 1).

The ‘Homemade fortified milkshake’ should be encouraged for the majority of patients for whom a homemade supplement is considered because it has the closest nutritional content to prescribed products and therefore its use fits the NICE and Cochrane Review evidence base.

FORTIFIED MILKSHAKE

Makes 1 portion | 1 portion = 220ml | Serve 2 portions per day

INGREDIENTS

⅓ pint/180ml whole milk

2 generous tablespoons/30g skimmed milk powder

4 heaped teaspoons/20g vitamin fortified milkshake powder (Aldi Cowbelle, Asda Milkshake Mix, Lidl Goody Cao or Nesquik®)

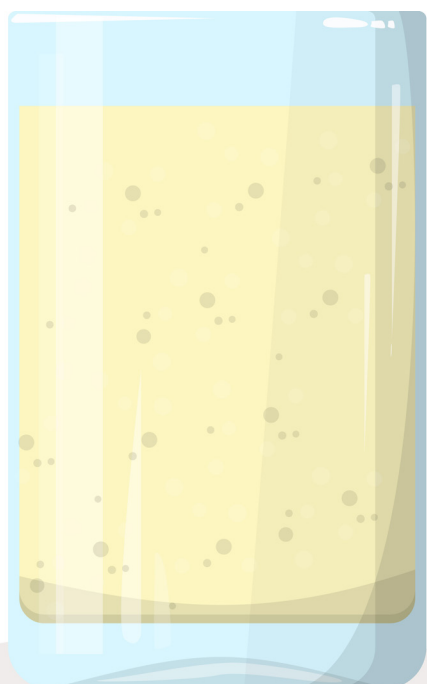
OR 5 heaped teaspoons (25g) ‘Ovaltine® Original Add Milk’ powder

OR 5 heaped teaspoons (25g) ‘Horlicks® Original Malted Drink

DIRECTIONS

Mix milk powder and milkshake powder/Ovaltine powder/Horlicks powder together in a glass or mug

Gradually mix in hot or cold milk and stir well



Product comparison, per portion	Calories	Protein	Carbohydrate	Fat	Cost
Fortified milkshake or fortified hot chocolate (made with chocolate milkshake powder)	295-310kcal	17g	39.4-44.2g	6.9g	£0.45
Homemade fortified Horlicks®	319kcal	19.3g	43.8g	8.6g	£0.53
Homemade fortified Ovaltine®	319kcal	18.4g	44.3g	7.9g	£0.65
Purchased Complian® + full fat milk*	310kcal	12.5g	44g	8.1g	£1.15
Purchased Meritene® + full fat milk*	247kcal	16.6g	26g	8.3g	£1.32

*Included for comparison purposes

FORTIFIED FRUIT JUICE

Makes 1 portion | 1 portion = 220ml | Serve 2 portions per day

Prescribed juice style oral nutritional supplements are not nutritionally complete. Therefore, the fortified fruit juice recipe given here is also not nutritionally varied, however the closest micronutrient content can be achieved by using a vitamin fortified fruit juice.



INGREDIENTS

180ml pure fruit juice (If possible use fruit juice with added vitamins such as Kubus 100% Multivitamin Juice (Tesco), Naturis Multivitamin Juice (Lidl) or Tropicana Multivitamin Boost)

40ml undiluted premium cordial (not sugar free/diet/no added sugar) e.g. Belvoir, Bottlegreen, Ribena, Rocks Organic

10g (2 x 5g sachets) egg white powder (this can be found in the home-baking section of most supermarkets or larger, better value packs can be purchased online)

DIRECTIONS

Put egg white powder in a glass. Gradually stir in undiluted cordial or squash (do not whisk)

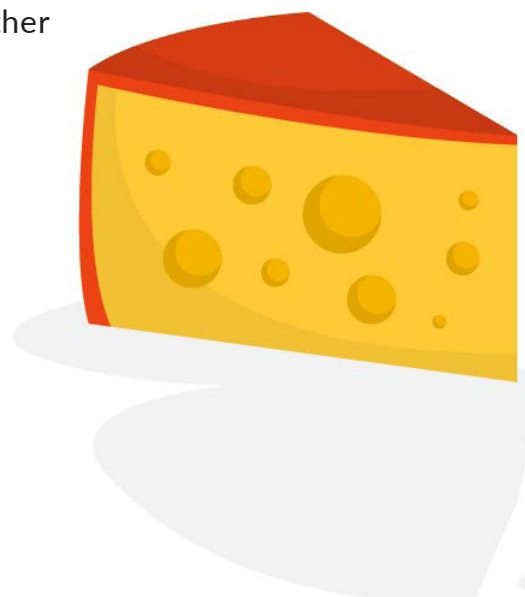
When mixed, gradually mix in fruit juice

Product comparison, per portion	Calories	Protein	Carbohydrate	Fat	Cost
Fortified Fruit juice	178-250kcal	8.4-9.4g	38-52g	0-0.2g	£0.84-£1.00
Fortified Fruit juice using Kubus 100% Multivitamin Juice/Naturis Multivitamin Juice/Tropicana Multivitamin Boost	191-246kcal	8.4-9.4g	38-52g	0-0.2g	£1.06-£1.45

Nutrient dense recipe ideas - Savoury

These should include fruit/vegetables if possible, together with a large proportion of nutrient dense ingredients such as:

- ~ Nuts or nut butter
- ~ Milk
- ~ Milk powder
- ~ Yoghurt
- ~ Cheese
- ~ Gram (chickpea) flour
- ~ Eggs



Examples of savoury recipes based on gram flour or chickpea

SOCKA (OLIVE MAGAZINE)

Serves 2 | Contains 349kcal and 14.6g protein

INGREDIENTS

- 120g gram flour
 - 240ml water
 - 2 teaspoons lemon juice
 - 2 tablespoons olive oil
 - ¼ teasp bicarbonate of soda
 - Salt and pepper
 - 30g cooked frozen peas
-

DIRECTIONS

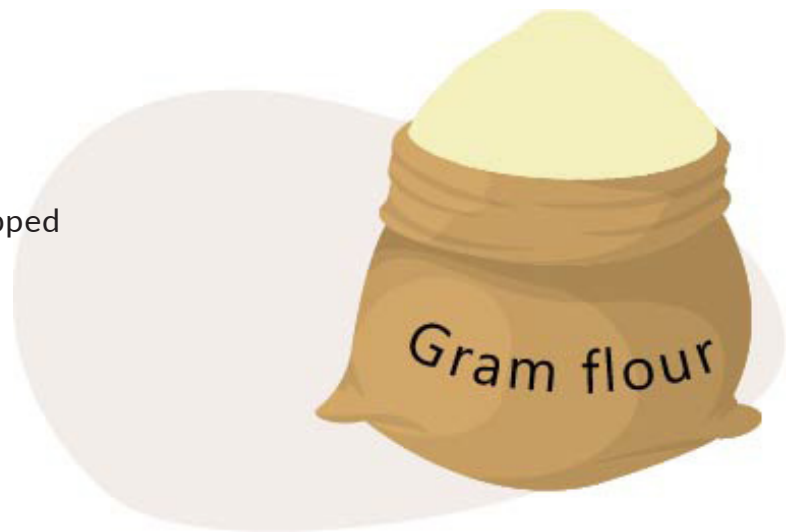
- Slowly mix water into gram flour
- Add lemon juice
- Cover and rest mixture overnight
- Add 1 tablespoon of oil to an ovenproof frying pan and put in oven heated to 230°C (210°C fan assisted)
- Mix remaining oil and bicarbonate of soda into batter
- Remove pan from oven and pour in batter
- Scatter peas over the top and add seasoning
- Bake for 20 mins

CHICKPEA GNOCCHI (DELICIOUS MAGAZINE)

Serves 6 | 240kcal and 19.2g protein per portion

INGREDIENTS

750g Greek yogurt
210g gram flour
375ml water
1 tablespoon fresh ginger, finely chopped
½ teaspoon ground turmeric
½ teaspoon nigella seeds
½ teaspoon fennel seeds
½ teaspoon sugar
Salt and pepper
1 tablespoon oil



DIRECTIONS

Mix all ingredients except oil together in a pan
Cook for 12-15 mins until thickened and shiny
Pour into a 18 x 28cm baking tin lined with baking paper
Cool
When set turn out onto a board and cut into 24 squares
Heat oil in frying pan. In batches fry gnocchi on each side for 2-3 mins

GRAM FLOUR PANCAKE (BBC GOOD FOOD)

Makes 1 pancake | Contains 333kcal and 19.4g protein per pancake

INGREDIENTS

70g gram flour
1 tablespoon (12g) nutritional yeast
¼ teaspoon chilli flakes
¼ teaspoon baking powder
120ml water
½ tablespoon rapeseed oil

DIRECTIONS

Mix together all dry ingredients then mix in water
Heat oil and fry as 1 large pancake for 4-5 mins per side

Examples of savoury recipes based on eggs, cheese and milk

CHEESE AND BACON PUFFS (GOOD HOUSEKEEPING)

Makes 24 | Contains 172kcal and 5.9g protein per 3 puffs

INGREDIENTS

75g streaky bacon, finely chopped

75g unsalted butter

75ml whole milk (fortified milk could be used here to increase nutritional content)

75ml water

½ teaspoon mustard powder

½ teaspoon paprika

Ground black pepper

75g plain flour

2 eggs, beaten

25g parmesan, finely grated

Handful parsley, finely chopped

DIRECTIONS

Fry bacon until crisp

Mix milk, water, butter, mustard powder, paprika and pepper together in a pan and heat up

When the mixture boils take off heat and mix in flour

Continue to mix until mixture comes away from sides of pan

Cool

Mix eggs into flour mixture to give dropping consistency

Mix bacon, parmesan and parsley into mixture

Put teaspoonfuls onto greased baking sheets

Cook at 200°C (180°C fan assisted) for 10-12 mins until puffed up and golden



SMOKED SALMON CODDLED EGGS (BBC GOOD FOOD)

Serves 1 | Contains 405kcal and 25.7g protein (not including toast)

INGREDIENTS

5g butter, melted
1 egg
1 tablespoon double cream
25g hot smoked salmon, flaked
15g gruyere, grated
Ground, black pepper

DIRECTIONS

Brush a ramekin with butter
Crack an egg into it
Add cream then salmon and cheese
Season with pepper
Bake at 200°C (180°C fan assisted) for 10 min
Serve with toast soldiers



BANITSA (SAINSBURY'S MAGAZINE)

Serves 6 | Contains 281kcal and 13g protein per portion

INGREDIENTS

3 eggs
125g yogurt
2 tablespoon oil
8 small sheets filo pastry
200g feta, crumbled
30g butter

DIRECTIONS

Whisk together eggs, yoghurt and oil
Drizzle some of the mixture over 1 sheet of filo pastry then sprinkle with feta
Roll up from a short side then place in a greased, round 20cm baking tin
Repeat with the remaining filo sheets and make a spiral in the tin
Add any remaining egg and feta to any gaps in the tin
Dot with the butter
Cook at 200°C (180°C fan assisted) for 45 mins until risen and golden brown
Serve cut into wedges while warm

Examples of savoury recipes based on nuts

SAVOURY GRANOLA (OLIVE)

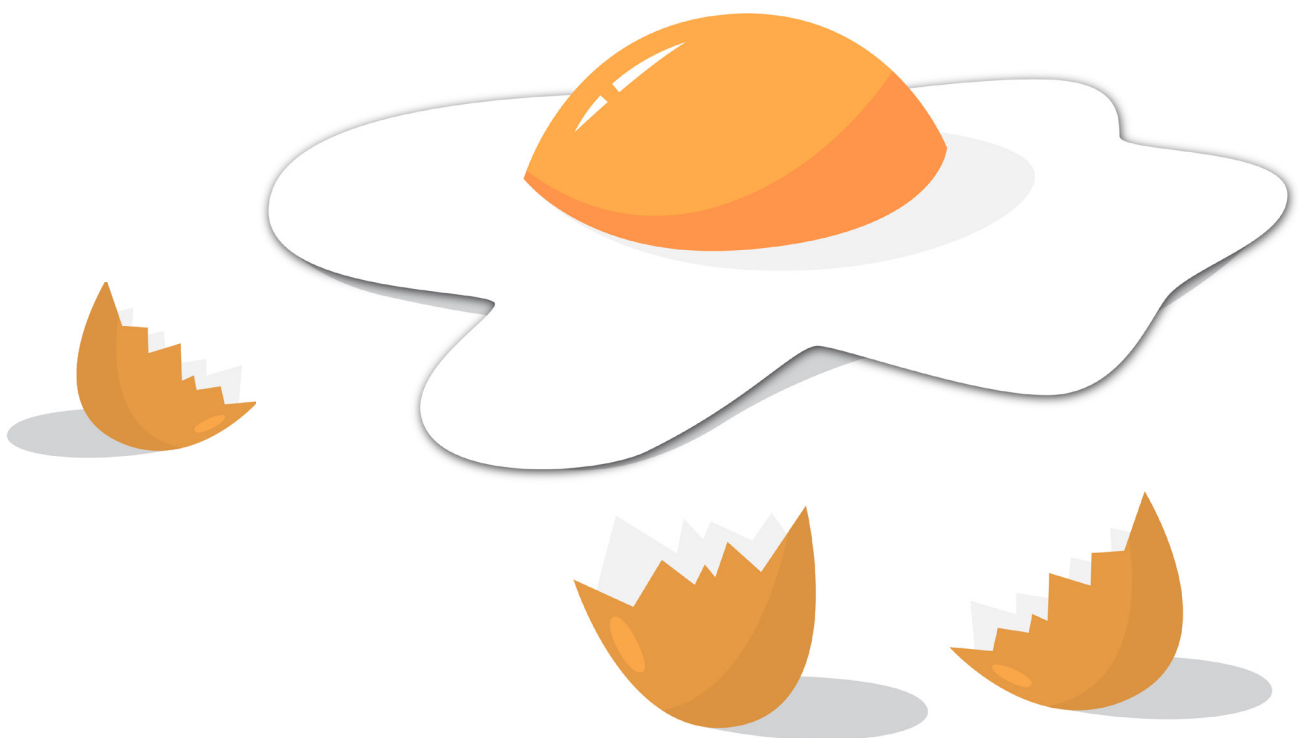
Serves 6 | Contains 253kcal and 7.8g protein per portion

INGREDIENTS

- 50g oats
 - 50g hazelnuts
 - 50g sunflower seeds
 - 50g pumpkin seeds
 - 2 tablespoon sesame seeds
 - 1 tablespoon smoked paprika
 - 1 tablespoon cumin seeds
 - 1 egg white
-

DIRECTIONS

- Mix all ingredients together with a pinch of salt
- Spread out on a baking tray and roast at 180°C (160°C fan assisted) for 10 mins
- Remove from oven and mix well then bake for a further 10 mins until golden
- Allow to cool then serve sprinkled over vegetables, hummus or Greek yoghurt
- Can also be blended to a powder before using



SAVOURY NUT BISCUITS (GREAT BRITISH CHEFS)

Makes 16 biscuits | Contains 94kcal and 3.4g protein per biscuit

INGREDIENTS

100g ground walnuts
30g chopped walnuts
60g gram flour
30g polenta
50g Stilton, or other strong cheese, roughly grated
Freshly ground black pepper
1 teaspoon dried thyme
1 egg

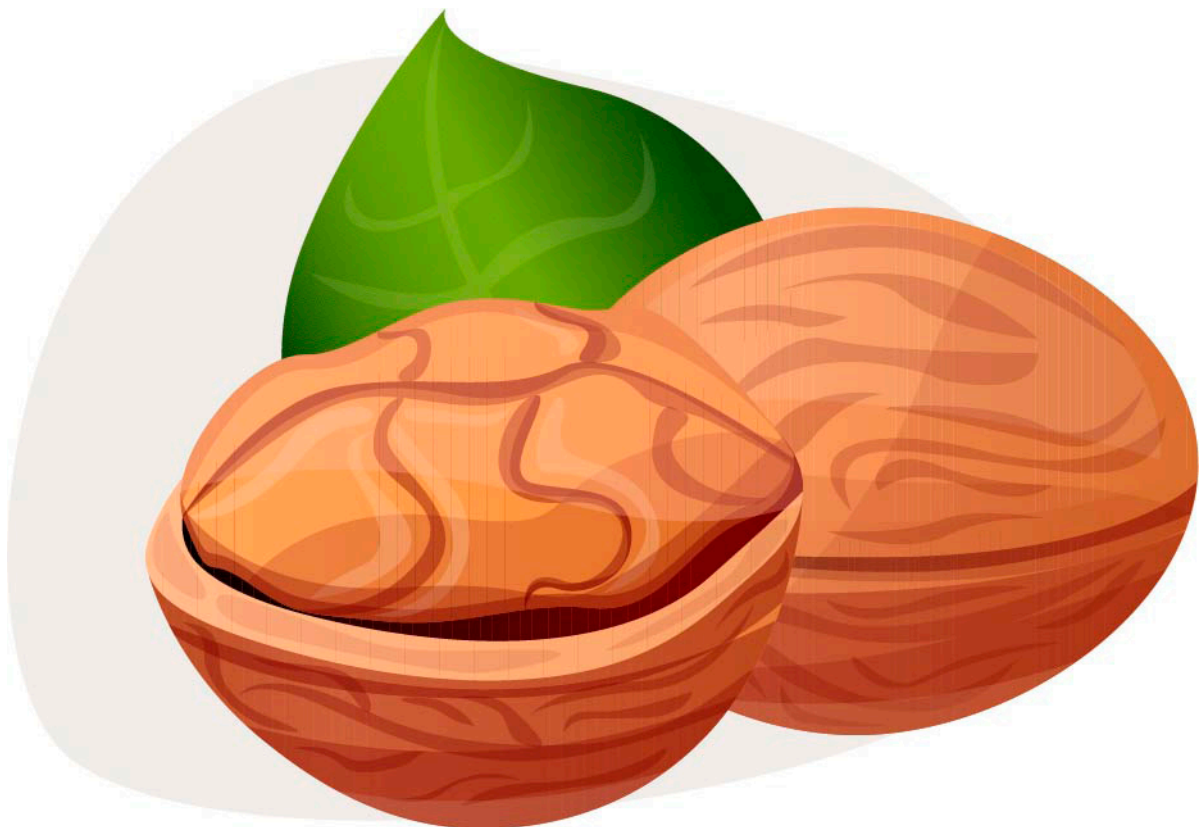
DIRECTIONS

Mix together ground and chopped walnuts, gram flour, polenta, grated cheese, pepper and thyme in a large mixing bowl and then mix in the egg

Form the mixture into a ball, wrap the dough in cling film and rest in the fridge for 30 minutes

Roll the dough out to a thickness of 4mm then using a 6cm round cutter, cut out 16 biscuits

Bake at 200°C (180°C fan assisted) for 15 mins



PISTACHIO DIP (ADAPTED FROM THE DOMESTIC DIETITIAN)

Serves 6 | Contains 314kcal and 12.1g protein per portion

INGREDIENTS

200g pistachios
1 clove garlic minced
1 teaspoon lemon zest
1 teaspoon fresh lemon juice
4 tablespoon olive oil
Salt and pepper to taste
250g Greek yogurt
1 tablespoon parsley chopped

DIRECTIONS

Process the pistachios, garlic, lemon zest and lemon juice in a food processor or blender until you achieve a very fine consistency and smooth texture

With the motor running, slowly drizzle in the olive oil and combine until a paste forms

Taste and season with salt and pepper as needed. In a bowl mix the pistachio paste into the yogurt and parsley

Serve with raw or cooked vegetable sticks



Nutrient dense recipe ideas - Sweet

These should include fruit/vegetables if possible, together with a large proportion of nutrient dense ingredients such as:

- ~ Nuts or nut butter
- ~ Milk
- ~ Milk powder
- ~ Yoghurt
- ~ Eggs

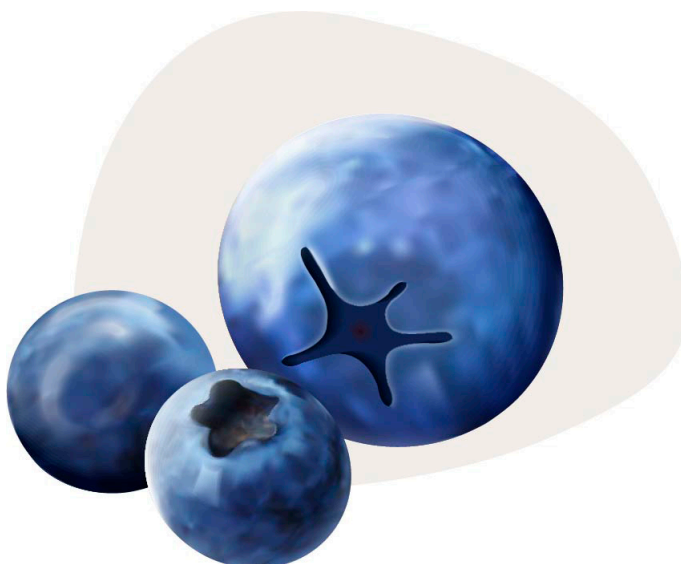
Examples of sweet recipes based on nuts

BLUEBERRY BOSTOCK (BBC GOOD FOOD)

Serves 6 | Contains 637kcal and 12g per portion

INGREDIENTS

- 3 tablespoons + 100g caster sugar
- 1 strip of lemon zest
- 6 slices day old brioche
- 100g blueberries
- 50g flaked almonds
- 100g butter
- 75g ground almonds
- 1 tablespoon plain flour
- 1 egg
- ¼ teaspoon almond extract (optional)



DIRECTIONS

Put 3 tablespoons of sugar, 3 tablespoons of water and lemon zest in a pan to make a sugar syrup

Bring to a simmer and bubble just until the sugar has dissolved

Beat together butter and 100g sugar

Add ground almonds, flour, almond extract (if using) and egg then beat until combined

Lay brioche on a parchment lined baking tray then brush sugar syrup over each slice

Divide the almond mixture between the brioche slices and spread to the edges

Add a handful of blueberries to the centre of each slice and press flaked almonds onto the almond mixture round the edges

Bake at 180°C (160°C fan assisted) for 25-30 mins until golden brown

Cool for at least 10 minutes before serving

ALMOND FLORENTINES (BBC EASY COOK)

Makes 18 florentines | Contains 165kcal and 4.5g protein per florentine

INGREDIENTS

2 tablespoon melted butter

2 egg whites

100g icing sugar

2 tablespoon plain flour

300g flaked almonds

DIRECTIONS

Mix butter, egg whites, sugar and flour until smooth

Mix in the almonds

Put 16 spoonfuls of the mixture onto parchment lined baking trays and flatten them

Bake at 160°C (140°C fan assisted) for 15-18 mins until golden

CHOCOLATE & RASPBERRY POTS (WOMAN & HOME MAGAZINE)

Serves 4 | Contains 350kcal and 11g protein per portion

INGREDIENTS

100g raspberries

3 eggs, separated

100g dark chocolate (70%), melted

3 tablespoons honey

2 teaspoons vanilla extract

50g ground almonds

DIRECTIONS

Divide raspberries between four ramekins

Whisk egg yolks with chocolate, honey, a pinch of salt, vanilla and ground almonds

In a separate bowl whisk the egg whites to stiff peaks

Gradually fold the egg whites into the chocolate mixture

Divide between the ramekins

Put ramekins in a roasting tin and pour boiling water into the roasting tray to come $\frac{3}{4}$ of the way up the ramekin sides

Bake at 180°C (160°C fan assisted) for 12 mins

Examples of sweet recipes based on nut butter

PEANUT BUTTER CRUMBLE (BBC GOOD FOOD)

Serves 6 | Contains 375kcal and 8g protein per portion

INGREDIENTS

800g frozen berries
1 tablespoon cornflour
2 tablespoon golden caster sugar
100g plain flour
50g porridge oats
50g golden caster sugar
85g crunchy peanut butter
50g unsalted butter, melted

DIRECTIONS

Put the fruit, cornflour and sugar in a pan and heat for 5 mins until the berries have defrosted and are starting to simmer and thicken

Tip into a baking dish measuring about 20 x 25cm

Mix the flour, oats, sugar and a pinch of salt in a large bowl

Rub in the peanut butter using your fingers until the mixtur looks like fine crumbs

Pour the melted butter over, and work everything to a lumpy mix with your fingers, ensuring there are no dry crumbs left

Scatter crumble over the fruit, then bake at 180°C (160°C fan assisted) for 25-30 mins until golden and crisp and the fruit is bubbling at the edges

Leave for 5 mins before serving



APPLE 'DOUGHNUTS' (BBC EASY COOK)

Makes 15 'doughnuts' | Contains 46kcal and 1.6g protein per 'doughnut'

INGREDIENTS

150g soft cheese
2 teaspoon honey
3 eating apples
4 tablespoon smooth almond or peanut butter
Coloured sprinkles

DIRECTIONS

Mix soft cheese with honey
Peel the apples and slice each, through the core, into 5 rings
Use an apple corer to remove the core from each slice
Pat the slices dry using kitchen paper
Spread nut butter over each slice then top with the cream cheese mixture
Add a few sprinkles to each slice

PEANUT BUTTER COOKIES (GOOD HOUSEKEEPING)

Makes 18 cookies | Contains 135kcal and 4g protein per cookie

INGREDIENTS

250g peanut butter
200g soft brown sugar
1 egg

DIRECTIONS

Beat all of the ingredients together
Scoop out spoonfuls of the mixture and roll into balls
Arrange on parchment lined baking sheets, spaced apart
Press down on each with a fork to flatten slightly
Bake at 180°C (160°C fan assisted) for 12 mins



Examples of sweet recipes based on milk and eggs

BREAD AND BUTTER PUDDING FINGERS (BBC GOOD FOOD)

Makes 24 fingers | Contains 118kcal and 2g protein per finger

INGREDIENTS

400g brioche loaf

3 eggs

120g whole milk

75ml Irish cream liqueur

100g unsalted butter

100g golden caster sugar

DIRECTIONS

Use a bread knife to remove the crusts and square up the brioche loaf

Cut the loaf into 3cm slices, then cut each slice into three rectangular fingers

Whisk together eggs, milk and Irish cream liqueur in a shallow dish

Put the brioche fingers in the egg mixture and leave for about 5 seconds on each side until they are soaked but still holding their shape

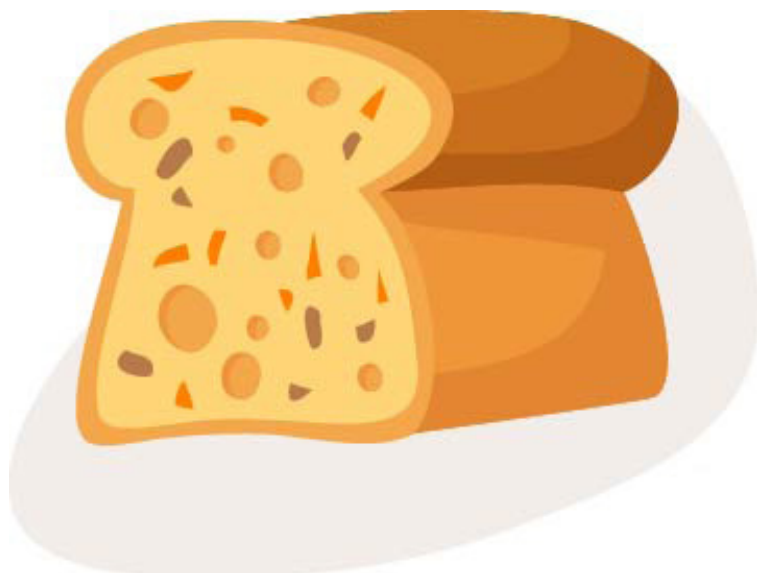
Put a large frying pan on a medium heat, add the butter and heat until sizzling

Add the brioche fingers to the pan and slowly cook on a medium-high heat, turning so all sides are an even, golden brown

Remove the toast from the pan and toss in the sugar, then transfer them to a baking tray or rack

Use a blowtorch to caramelize the sugar on all sides or, if you don't have a blowtorch, grill on each side for 1 min, or until the sugar has melted

Leave the brioche to cool and the sugar crust to harden



WHITE CHOCOLATE CRUMBLE (BBC GOOD FOOD)

Serves 6 | Contains 221kcal and 5g protein per portion

INGREDIENTS

60g skimmed milk powder
50g cornflour
10g light brown soft sugar
50g butter, melted
100g white chocolate, melted

DIRECTIONS

Mix the milk powder, cornflour and the sugar together, then pour over the melted butter and white chocolate

Mix until it forms a crumb, then scatter over a baking sheet and bake at 160°C (140°C fan assisted) for 10 mins until golden

Remove from the oven and leave to cool

Sprinkle over cooked fruit

CLAFOUTIS (BBC GOOD FOOD)

Serves 3 | Contains 380kcal and 15g protein per portion

INGREDIENTS

450g cherries, pitted
2 tablespoons cherry, plum or apricot jam
Finely grated zest and juice of 1 lemon
50g plain flour
3 large eggs
450ml whole milk
½ teaspoon ground cinnamon
3 tablespoons golden caster sugar



DIRECTIONS

Gently heat the cherries and jam in a large saucepan, stirring all the time until the jam melts over the cherries

Tip into a greased, shallow 1.3 litre baking dish

Sprinkle over the lemon zest and juice

Whizz the flour, eggs, milk, cinnamon and sugar in a food processor for 30 seconds until smooth

Pour over the cherries, then put the dish on a baking tray and bake at 190°C (170°C fan assisted) for 25-30 minutes or until the custard is set and the jam is beginning to bubble through

Appendix 1: Comparison between prescribed ONS products and homemade milkshake type supplements

Micronutrients that are lower in a homemade milkshake type supplement (made to the recipes in this booklet) compared with prescribed products are highlighted and easy to access food sources are identified for each micronutrient.

Nutrient content	Recommended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Energy (kcal)	N/A	600	776	590 - 620	637	638		
Protein (kcal)	N/A	25	31.2	34.2	36.8	38.6		
Carbohydrate (g)	N/A	80.8	88.6	78.9 - 88.4	88.5	87.5		
Sugar (g)	N/A	26	58.2	74.5 - 83.1	73.1	875.2		
Fat (g)	N/A	19.68	32.8	13.8	15.8	17.22		
Sat fat (g)	N/A	1.8	18.4	8.8	9.2	8.5		
Vitamin A (mcg retinol equivalent)	600/700	468	760	398.6 - 536.4	809.7	729.7		
Vitamin C (mg)	40	48	76	46.66 - 99.20	55.2	39.2		

Nutrient content	Recommended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Vitamin D (mcg)	10	8	10.2	1.26 - 8.38	1.26	3.3	Older adults require supplementation (SACN/PHE & CQC advice*) and this should be purchased	
Vitamin E (mg)	3 - 4mg adequate	8.6	10.4	0.24 - 7.12	6.3	0.31	No LRNI Dietary sources: vegetable oils	10g polyunsaturated margarine provides 3mg; 10ml rapeseed oil provides 2mg
Thiamin (mg)	0.8/0.9	0.8	1.72	0.34 - 1.24	0.89	0.89		
Riboflavin (Vitamin B2) mg	1.1/1.3	1.08	2.8	1.84 - 3.04	2.54	2.48		
Niacin (mg)	12/16	10.4	18.2	1.34 - 13.96	9.34	8.54		

*SACN = Scientific Advisory Committee on Nutrition

PHE = Public Health England

CQC = Care Quality Commission

LRNI = Lower Reference Nutrient Intake

Nutrient content	Recomm- ended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Vitamin B6 (mg)	1.2/1.4	1.08	2.4	0.58 - 1.84	1.28	0.58	LRNI = 0.011mg/g protein/d Dietary sources: meat, fish, potatoes	1 small chicken breast contains 0.5mg; 50g tinned tuna contains 0.16mg; 1 small portion mashed potato contains 0.06mg
Folic acid (mcg)	200	160	260	60.20 - 212.14	160	140		
Vitamin B12 mcg	1.5	2.2	6	4.90 - 7.18	6.16	5.3		
Biotin (mcg)	No RNI	24	46	21.34 - 36.10	46.34	21.3		
Pantothenic acid (mg)	No RNI	4.4	8.6	4.12 - 8.74	7.12	4.1		
Calcium (mg)	700	480	1160	1206.0	1606	1526		
Phosphorus (mg)	550	400	920	927.2	927.2	1077.2		

Nutrient content	Recommended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Iron (mg)	8.7	8.4	8	0.28	7.27	5.9	LRNI = 4.7mg/d Dietary sources: red meat, fortified breakfast cereals. NB. <u>SACN Iron and Health 2010 states:</u> “The high proportions of the UK population with intakes below the LRNI and the relatively low prevalence of iron deficiency anaemia suggest that the Dietary Reference Values (DRV) for iron may be too high”	1 small portion branflakes contains 6.1mg; 1 slice liver contains 3.9mg; 1 small portion cooked beef mince contains 2.7mg; 1 small portion cornflakes contains 1.6mg
Magnesium (mg)	270 women 300 men	120	140	118.8	306.3	138.4		

Nutrient content	Recommended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Zinc (mg)	7/9.5	7.2	7.2	3.88	8.88	4.18	LRNI = 4mg/d Dietary sources: meat, cereals, milk, fish, eggs	200ml full fat milk contains 1mg; 1 small portion branflakes contains 1mg; 1 small chicken breast contains 0.8mg; 1 egg contains 0.8mg; 15g skimmed milk powder contains 0.6mg; 50g tinned tuna contains 0.5mg
Iodine (mcg)	140	88	240	205	205	205		
Selenium (mcg)	60/75	34	32	10.32	10.32	10.32	LRNI = 40mcg/d Dietary sources: bread, meat, fish, milk, nuts, eggs	50g tinned tuna contains 45mcg; 1 egg contains 6.3mcg; 1 slice white bread contains 2.2mcg

Nutrient content	Recomm- ended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Copper (mg)	1.2	0.72	0.6	0.04	0	0.05	No LRNI Dietary sources: organ meats, shellfish, beans, nuts, wholegrains	1 slice liver contains 1.2mg; 1 small portion rice pudding contains 0.13mg; 1 small portion branflakes contains 0.09mg; spreading of peanut butter (e.g. on a slice of bread) contains 0.08mg
Manganese (mg)	Safe intake >1.4mg for adults	2	0.7	0.08	0	0	No LRNI Dietary sources: cereals, bread, tea, fruit, veg, nuts	1 small portion porridge contains 0.6mg; 1 ring tinned pineapple contains 0.36mg; 1 cup of tea contains 0.23mg; spreading of peanut butter (e.g. on a slice of bread) contains 0.2mg; 1 slice white bread contains 0.18mg
Chromium (mcg)	No RNI	30	8	Not reported	Not reported	Not reported		
Vitamin K (mcg)	No RNI	48	60	2.22	Not reported	Not reported		

Nutrient content	Recommended nutritional intake for >50 yrs	Standard, prescribed, adult, ready to drink 1.5kcal/ml milkshake type ONS twice daily	Standard, prescribed, adult, powder milkshake prepared with whole milk twice daily	Homemade fortified milkshake twice daily	Fortified Ovaltine® twice daily	Fortified Horlicks® twice daily	Potential for improving over/ under provision from fortified milkshake	Dietary sources
Potassium (mg)	3500	640	1480	1529.2	1607.2	1872.2		
Molybdenum (mcg)	No RNI	64	18	Not stated	Not reported	Not reported		
Sodium (mg)	1600	368	480	489.6	541.2	734.6		



Creating a fortified diet: recipe book

HOW TO OPTIMISE NUTRITION USING FOOD

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