

# Seniors Eating Well Snippets (SEWS)

## Background nutrition information



## Introduction

These background nutrition notes are designed to provide you with all the information you need to teach the four 'snippet' modules of the Seniors Eating Well course and will ensure you are well informed about nutrition for older adults. The notes provide back-up to the information included in the session plan for each of the sessions. *You should also spend time reading the leaflets provided for each session.* These are an additional source of information for you and your group. As a facilitator you are the best judge of how much information your group will need so *only cover the points you think they need to know.*

The four modules are designed to cover key nutrition issues for older people. You are not expected to advise on specialist dietary issues. **If you have any participants that require specific dietary advice you should suggest they contact a local dietitian or their doctor.** Information is also available on [www.healthinfo.org.nz](http://www.healthinfo.org.nz). Please give them this local website.

The background notes are divided into sections according to the modules. You might want to use these in some of the following ways:

- In preparation for your teaching
- Filling any gaps in your own nutrition background or jogging your memory
- Using facts and figures ready in group discussions when teaching
- To supplement the information in the module teaching resource.
- To help answer questions from your groups.

## **An ageing population**

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In general a person is classified as an 'older adult' when they reach 65 years of age. By 2021 the older adult population in Canterbury will have increased to around 18%, with people aged 65 and over outnumbering children.

The process of ageing is often associated with some decline in functional capacity. As the proportion of older people in the population increases, the health system is faced with the challenge of responding to the increased demand for health care and disability services for this group.

Most older people in Canterbury aged 65 years and over are fit and healthy and live independently in the community. However, the challenge is to keep these people well, living independently and with a good quality of life.

A study conducted in 2009, amongst older community-living Cantabrians showed that 31% were at high risk of poor nutrition and a further 23% were at risk. Poor nutrition is associated with more GP visits, more hospital admissions, increased length of stay in hospital and higher likelihood of transferring to a rest home.

As professionals working with older adults we play an important role in helping help them meet their nutritional requirements to stay healthy and independent for longer.

## **Age-related changes in the body**

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Ageing happens to us all, but we do not all age the same. There are many factors that influence the way we age, including environmental influences such as lifestyle and nutrition. There are also many factors that influence food intake in old age:

- Decreased taste and smell sensitivity
- Decreased thirst sensation – leads to decreased fluid intake and dry mouth which can affect appetite and taste
- Decreased saliva – affects chewing and swallowing
- Vision, hearing, swallowing, teeth, dexterity
- Dementia
- Depression

Other important factors include:

- Poverty
- Social isolation
- Disability
- Acute medical conditions
- Chronic disease – arthritis, heart disease, osteoporosis, diabetes
- Polypharmacy – multiple medications

## Nutrition and ageing

Compared to younger people, most older people need less energy (kilojoules or calories) and more protein. The requirements for some vitamins and minerals change too. Older adults have decreased energy requirements because of decreased basal metabolic rate and decreased physical activity. Older adults need more protein (meat, fish, chicken, eggs, milk and milk products, nuts) to minimise loss of muscle mass and other functional proteins. Many may need extra protein as requirements increase with illness, stress, infection and surgery.

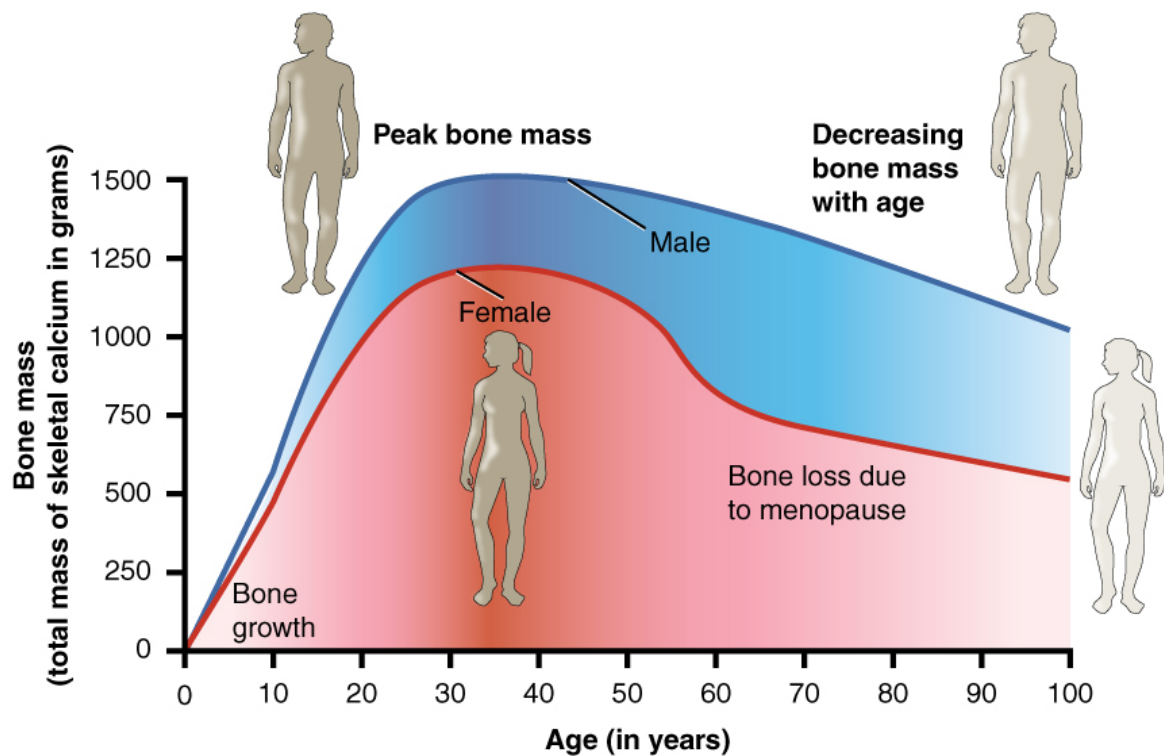
For many older adults getting adequate nutrients from their diet can be challenging, given their reduced need for energy. This means older people need to maximise their intake of key nutrients by carefully selecting the foods that make up their relatively low intake.

**Key message: older people need small nutrient dense meals!**

| AGE-RELATED CHANGES THAT INFLUENCE NUTRIENT REQUIREMENTS |  |
|--|--|
| Age-related changes                                      | Impact on nutrient requirements                                    |
| Decrease in muscle mass                                  | Decreased need for energy, increased need for protein              |
| Decrease in bone density                                 | Increased need for calcium and vitamin D                           |
| Decrease in immune function                              | Increased need for vitamin B6, vitamin E, zinc and protein         |
| Decrease in stomach acid                                 | Increased need for vitamin B12, folic acid, calcium, iron and zinc |
| Decrease in skin capacity for vitamin D synthesis        | Increased need for calcium and vitamin D                           |
| Decrease in uptake of vitamin A by the liver             | Decreased need for vitamin A                                       |

## Module 1 – Bone Health

The peak bone mass we achieve in our twenties is a major determinant of bone health later in life. As bone mineral density declines with age, the risk of osteoporosis and fracture increases. The risk further increases in postmenopausal women and with lack of exercise and poor diet.



Amongst New Zealanders over 65, more than half of women, and nearly a third of men have osteoporosis (weak and brittle bones more susceptible to fracture).

Osteoporosis is known as the Silent Disease because more than 75% of cases go undiagnosed and untreated until a serious fracture is sustained, resulting in significant loss of quality of life.

Over 3000 New Zealanders break a hip each year. 10-20% of those will die within the year following the fracture and only 50% will fully recover. This is why prevention is so important.

**Key message: exercise, spend time outside and follow a bone healthy diet to help prevent falls and fracture**

## Vitamin D

- Vitamin D is important for maintaining strong bones. Vitamin D aids the absorption of calcium into the bones.
- Vitamin D is also important for balance and for preventing muscle weakness.
- Older people with low levels of vitamin D are more likely to fall and to fracture bones as the result of a fall.
- It is difficult to get adequate vitamin D from food alone. The best source of vitamin D is sunshine on our skin. However, older adults tend to spend less time outside. They also have reduced capacity to absorb vitamin D precursors through the skin and to convert Vitamin D to its active form in the kidneys.
- Note that vitamin D is not produced in the skin from sun shining through glass or when wearing sunblock.
- Older adults should let the sun shine on their skin (face, chest and arms if possible) for about 20-30 minutes most days. In the summer this should be before 11am and after 4pm to avoid sunburn. In winter, midday is best.
- In regions south of Nelson vitamin D deficiency can be common by the end of Winter.
- Food sources of vitamin D are eggs, seafood (salmon, sardines) and some vitamin D enriched milks, yoghurts and margarines.
- Older people who have little or no exposure to direct sunlight or have dark skin may need a vitamin D supplement. This should be discussed with their GP who can advise on appropriate tests and supplementation.

| RECOMMENDED DAILY INTAKE OF VITAMIN D |             |                |
|---------------------------------------|-------------|----------------|
|                                       | Age         | Vitamin D (µg) |
| Women                                 | 51-70 years | 10             |
| Women                                 | 71+ years   | 15             |
| Men                                   | 51-70 years | 10             |
| Men                                   | 71+ years   | 15             |

Source: Nutrient Reference Values (NRV's) for Australia and New Zealand 2006

| SOURCES OF VITAMIN D               |                        |                |
|------------------------------------|------------------------|----------------|
| Food                               | Serving                | Vitamin D (µg) |
| Calcium enriched milk (yellow top) | 1 glass (200ml)        | 1              |
| Calcium enriched juice             | 1 glass (200ml)        | 2              |
| Salmon, canned                     | 1 small can (85 grams) | 3.5            |
| Sardines, canned                   | 4 sardines             | 5.3            |
| Mussels                            | Smoked (85 grams)      | 2              |
| Vitamin D enriched margarine       | 2 teaspoons (10 grams) | 1              |
| Egg                                | 1                      | 0.9            |

Source: The Concise NZ Food Composition Tables 8th Edition, 2009

## Calcium

Calcium gives bones their strength. When the bones start losing calcium as a natural part of ageing, it becomes even more important to ensure the body gets enough calcium from food. The body cannot make calcium, so dietary calcium supplies calcium to the bones. A high dietary calcium intake slows the rate of bone loss.

| RECOMMENDED DAILY INTAKE OF CALCIUM |             |              |
|-------------------------------------|-------------|--------------|
|                                     | Age         | Calcium (mg) |
| Women                               | 51-70 years | 1300         |
| Women                               | 71+ years   | 1300         |
| Men                                 | 51-70 years | 1000         |
| Men                                 | 71+ years   | 1300         |

Source: Nutrient Reference Values (NRV's) for Australia and New Zealand 2006

## Why are older people at increased risk of calcium and vitamin D deficiency?

- Decreased dietary calcium
- Decreased absorption of calcium
- Decreased efficiency of kidneys to retain calcium
- Less frequent exposure to sunlight
- Decreased capacity of skin to synthesise vitamin D
- Decreased capacity of kidneys to convert vitamin D to most active form
- Post-menopausal women require more calcium as they produce less oestrogen – a hormone which has a positive effect on bone formation.

## Latest calcium research

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At the end of 2015 a systematic review was carried out. It looked at the relationship between calcium intakes and bone mineral density (BMD) and/or fractures.

- The review concluded that the difference between average calcium intakes (equivalent to adult RDI of 1000mg) and high intakes (equivalent to older adult RDI of 1300mg) resulted in small but **significant increases in BMD** but made no difference to fracture outcomes.
- High calcium intakes (whether from food or supplementation) **in conjunction with vitamin D supplementation**, were associated with **reduced** fracture risk.
- Low calcium intakes were associated with **increased** fracture risk.

## Milk and milk products

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Milk and milk products such as cheese, yoghurt and custard are excellent sources of calcium. The calcium concentration in milk products is much greater per serve than many other calcium-containing foods (see table below). Importantly, for the average New Zealand adult, the convenience and affordability of milk products makes them an excellent way to meet calcium requirements. They are also important sources of B12 and protein – key nutrients for older-adult health.

## The guidelines for adults over 65 - Calcium

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To help older adults meet the RDI for calcium, protein and B12, the Ministry of Health recommends:

**At least 3 servings of milk and milk products each day.** One serving is –

- 1 cup of milk (250ml)
- 1 pottle of yoghurt (150 grams)
- 2 slices of cheese (40 grams)
- 2 scoops of ice cream (140 grams)

## Common arguments against milk products – Answering tricky questions

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### “Calcium is not absorbed from milk”

- Calcium availability of different foods can differ substantially, depending on
  - whether it is bound to other nutrients,
  - whether the food contains absorption inhibitors
  - the type of calcium added (to calcium enriched foods such as soy milk or breakfast cereal).



- Calcium in milk is bound to proteins that must first be broken down before the calcium is available to the body.
- Phytates in seeds/nuts and oxalates in green vegetables reduce calcium absorption.
- In enriched foods, calcium carbonate is absorbed better than tri-calcium phosphate.
- It is true that the calcium in broccoli, bok choy and kale (but not other vegetable sources) is more readily available than it is in milk. However, because the calcium concentration in these vegetables is much lower than milk, the number of servings required to obtain the equivalent amount of calcium from milk is still higher, and may not be practical for most people.
- For example to meet the RDI for older adults you would need 2.6 cups of yellow-top milk, 3.5 cups of trim milk, 4 cups of soy milk, 4.5 cups of bok choy, 8.5 cups of broccoli and 30 cups of spinach.
- Non-milk, calcium-rich foods are a valuable part of the diet. They help increase overall calcium intake and are rich in other important nutrients. However, relying on these as the main contributors of dietary calcium is likely to result in insufficient calcium (and protein) intakes.

**“Countries with the highest milk intake also have the highest rates of osteoporosis/hip fracture”**

- This finding comes from observational studies, which are intended to show correlations and cannot prove causation.
- Inhabitants of developed countries that consume more milk products are also more likely to consume western diets high in sugar and saturated fat, spend less time outside and to get less physical activity (which is one of the key determinants of bone health).

| SOURCES OF CALCIUM                 |                 |              |
|------------------------------------|-----------------|--------------|
| Food                               | Serving         | Calcium (mg) |
| Calcium enriched milk (yellow top) | 1 glass (200ml) | 400          |
| Dark blue top: whole milk          | 1 glass (200ml) | 232          |
| Light blue top: reduced fat milk   | 1 glass (200ml) | 280          |
| Green top: trim milk               | 1 glass (200ml) | 290          |
| Soy milk, calcium enriched         | 1 glass (200ml) | 248          |
| Calcium enriched juice             | 1 glass (200ml) | 70           |
| Skim milk powder                   | 2 tablespoons   | 186          |
| Cheese                             | 2 slices (40g)  | 260          |
| Cottage cheese                     | ½ cup           | 73           |
| Yoghurt/dairy food                 | 1 pottle (150g) | 210          |
| Ice-cream                          | 2 scoops        | 130          |



|                                   |                     |           |
|-----------------------------------|---------------------|-----------|
| Rice pudding, canned              | 1 cup (200g)        | Up to 200 |
| Salmon, canned                    | 1 small can (85g)   | 80        |
| Sardines, canned                  | 4 sardines          | 264       |
| Tofu, calcium set                 | ½ cup               | 140       |
| Almonds                           | Small handful (30g) | 80        |
| Brazil nuts                       | Small handful (30g) | 54        |
| Walnuts                           | Small handful (30g) | 39        |
| Sesame seeds (raw)                | 1 Tablespoon        | 84        |
| Baked beans in tomato sauce       | ½ can (210g)        | 83        |
| Bok choy, boiled                  | ½ cup               | 115       |
| Broccoli, boiled                  | ½ cup               | 60        |
| Spinach, boiled                   | ½ cup               | 30        |
| Calcium enriched breakfast cereal | 1 bowl (45g)        | 200       |
| Bread, wholegrain                 | 2 medium slices     | 66        |
| Dried figs                        | 2                   | 64        |
| Prunes                            | 5                   | 22        |

### Should older people take calcium supplements?

There is increasing evidence that calcium supplements may contribute to a higher risk of cardiovascular disease (CVD). For this reason calcium supplements are generally not recommended for older people. Older people should be encouraged to obtain their daily calcium requirements from food. The easiest way to achieve this is to have at least 3 servings daily from the milk and milk product group. There is little evidence that dietary calcium intake is associated with cardiovascular risk.

### Other important dietary/lifestyle factors that influence bone health

- Vitamin C – helps absorb calcium when consumed in the same meal
- Phosphoric acid in cola increases excretion of calcium
- Smoking – more than doubles the risk of fracture
- Alcohol (>2 drinks/day) – toxic to bone-building cells, reduces calcium absorption, increases risk of falls, more than doubles the risk of fracture
- Low weight is associated with lower bone density
- Low physical activity levels is associated with lower bone density

## Module 2 – Fluids and fibre for healthy bowels

The length of the bowel is surrounded by muscle that contracts in an on-off manner to push food from the stomach towards the rectum. This is referred to as gut motility

and is stimulated by nerves in response to signals from the gut (depending on the type and volume of food present). As we age, gut motility tends to decrease. Many older adults therefore experience constipation, which can be exacerbated by reduced physical activity, illness and various medications.

Short term consequences of constipation include:

- Bloating
- Pain
- Nausea
- Loss of appetite

Ongoing constipation increases the risk of

- Hernia and haemorrhoids
- Diverticular disease
- Bowel cancer

**Key message: Adequate dietary fibre and fluid is essential to maintain regular bowel motions and reduce risk of chronic diseases.**

## About fibre

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- Fibre is the undigested component of plant foods that is fermented in the lower bowel (colon)
- It's needed to prevent and relieve constipation and to maintain a healthy digestive system.
- Fibre increases satiety (it helps us feel full).
- Fibre acts as a prebiotic to feed the healthy bacteria in the gut. A healthy bacterial environment in the gut means a stronger immune system, an intact gut lining to protect against infection, better absorption of nutrients, protection against cancer.

## Two types of fibre - Soluble and insoluble

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### Soluble fibre

- Is found in fruits, vegetables, oats and barley
- Softens faecal matter by acting as a sponge to absorb excess water
- Gathers up cholesterol. It therefore has a cholesterol lowering effect and is good for heart health.
- Is readily fermented (is a prebiotic for healthy bacteria)
- Slows gastric emptying and delays transit through small intestine (to allow retention of nutrients)

### Insoluble fibre

- Is found in wholegrain/wholemeal products, skins of fruit and vegetables, nuts and seeds.

- Bulks faecal matter to help increase transit time through the lower bowel (reduces risk of infection and helps prevent constipation)
- Brushes the bowel wall clean to reduce risk of infection

### Which foods provide fibre?

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- Legumes (dried beans, peas and lentils)
- Vegetables and fruit
- Wholegrain breads and cereals (not much in white bread)
- Nuts and seeds

### How to include fibre in your diet

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- Start the day with a high fibre breakfast cereal – try Weet-Bix, bran based cereals, porridge or homemade muesli.
- Choose wholegrain, wholemeal breads.
- Have wholegrain crackers or wholemeal bread instead of biscuits.
- Check food labels for fibre content on the packet of bread, cereals and crackers. Read the nutrition information panel on food packets and choose foods with at least 5 grams of fibre per 100 grams of food.
- Use wholemeal flour and/or rolled oats in baking and cooking.
- Add extra vegetables to soups and casseroles.
- Add fruit to biscuits, scones, cakes and muffins.
- Add lentils or split peas to soups and casseroles.
- Try baked beans or a salad made from canned mixed beans.
- Try fruit and vegetables with their skins on. Wash them well first!
- Choose high fibre snacks. Have fruit (raw, stewed or dried). Kiwifruit and prunes are particularly helpful.

### The guidelines for adults over 65 - Fibre

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- **At least 6 servings of breads and cereals per day – choose wholegrain or wholemeal**
- Examples of a serve = ½ cup cooked rice or pasta, 1 slice bread, ½ cup breakfast cereal, 2 crackers
- **At least 3 servings of vegetables and 2 servings of fruit per day**
- Examples of a serve = ½ cup cooked fruit or veges, small handful of fruit, 1 piece fruit (eg apple, small banana), 1 bowl vegetables soup
- When increasing fibre intake it is important to ensure adequate fluid intake.
- The use of unprocessed bran is not recommended as a way to increase fibre intake as it can interfere with calcium absorption.

## The guidelines for adults over 65 - Fluid

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- **At least 8 servings a day**
- Examples of a serving = 1 cup water, cordial, fruit juice or milk, 1 cup tea or coffee, 1 bowl of jelly, 1 bowl of soup.

## Module 3 – Protein for power

### About proteins

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- Provides 17kJ (kilojoule) of energy per gram of protein.
- Major building block for the body required throughout life to generate, maintain and renew our cells.
- As well as making up skeletal muscle, protein is important for maintaining heart muscle, the muscle that surrounds the bowel and the diaphragm.
- Protein also makes up immunoglobulins (antibodies required for good immune function) and enzymes (to speed up essential reactions in the body and help break down food)
- Protein is a core structural component of skin and bone.

Every year between the ages of 30-60, the average adult gains 500 grams of fat and loses approximately 250 grams of muscle. By age 65 many people have lost 30-40% of their muscle mass.

New research shows that older people need a lot more protein than most younger people and that protein intake should be evenly distributed over the three meals of the day to ensure necessary regeneration of new muscle cells. Most older people typically include protein foods such as a serving of meat, chicken or fish at their main meal. However, many do not include protein foods at breakfast or their lunch meal. Therefore, encourage participants to include protein foods such as milk, yoghurt, nuts/seeds added to cereals, eggs or baked beans at breakfast. Protein foods to encourage at the lunch or tea meal include cheese, eggs, legumes, fish, chicken or meat.

### Which foods provide protein?

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Good sources include:

- Meat
- Fish
- Chicken
- Milk and milk products
- Eggs

- Nuts
- Legumes – lentils, dried beans and peas and baked beans
- Seeds
- Soya products e.g. soya milk, tofu, tempeh

### Handy tips for older people to achieve a good protein intake

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- Include protein foods at all meals
- Include protein foods at snack times: cheese and crackers, small handful nuts, milky drink, pottle of yoghurt, peanut butter on toast etc
- Make porridge with milk instead of water
- Add a yoghurt to breakfast or lunch
- Sprinkle nuts or seeds over breakfast cereal, salads or stir-fries
- Added grated cheese to vege soups, baked beans and egg dishes
- Add boiled eggs, cheese, seed, nuts or cold meat to salads
- Add legumes (dried beans, lentils, chickpeas) to soups and casseroles
- Fortify milk, sauces, soups, mash potatoes and baking with milk powder

### The MOH guidelines for adults over 65 - Protein

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- **Milk and Milk Products: At least 3 servings/day**
- **Legumes, nuts, seeds, fish and other seafood, eggs, or poultry (e.g. chicken), or red meat with the fat removed: A least 2 servings/day of non-meat protein sources OR at least 1/serving day of meat protein.**  
Remember that older adults need to spread this out evenly across the day
- The NZ Cancer Society recommends no more than 500gm (or 3-4 servings) of red meat per week.
- Processed meats are high in saturated fat and salt and are therefore considered occasional foods.

## Module 4 – Smart snacking

For many older adults snacks are an important part of the diet. Remember older adults need fewer calories but more of many nutrients. Therefore, snack time is an important opportunity to maximise intake of fibre, protein, fluid and various vitamins and minerals.

For those recovering from illness or trying to gain weight, snacking between meals is also a good way to increase energy intake, especially for someone with a poor appetite.

## Snacking goals

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- Aim to include protein in each snack
- Drink nutritious drinks, especially if appetite is small and weight gain is needed. A great opportunity to get one serving of milk/milk products
- Choose healthy, nutrient dense foods (high in fibre, vitamins and minerals) instead of nutrient-poor, energy-dense foods, such as chips and biscuits, which are high in saturated fat, sugar and salt.

## Ideas for smart snacking

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- Processed meats are high in saturated fat and salt and are therefore considered occasional foods.
- Cheese or hummus with wholegrain crackers or pita crisps
- Small handful of nuts
- Canned fish on toast or crackers
- Small sandwich with a protein filling (egg, cheese, lean meat or peanut butter)
- Fresh, stewed or canned fruit with low-fat yoghurt
- Glass of trim milk with milo or a milky coffee
- Make a fruit smoothie with milk and/or yoghurt
- Small bowl of cereal and trim milk
- Bowl of soup with a small wholegrain bread roll
- Veggie sticks with hummus or a yoghurt dip