



Women's & Children's Hospital

Nutrition for children and teenagers with Cystic Fibrosis

5–18 years of age



**Government
of South Australia**

SA Health



**Women's
& Children's
Hospital**

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Nutrition needs in Cystic Fibrosis (CF)

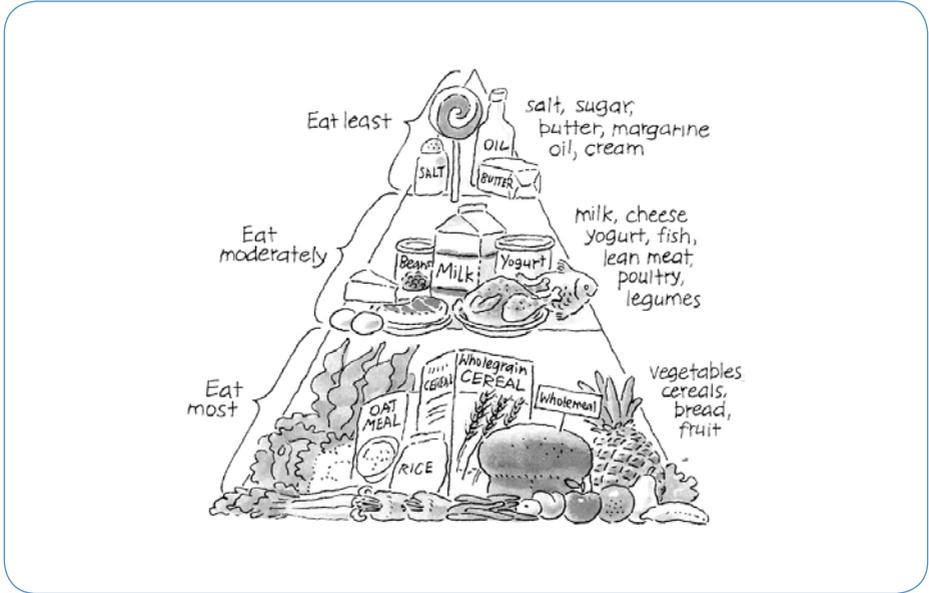
People with CF often need around 20–50% more calories each day than people who do not have CF. Higher body weights are linked to better lung function so making sure people with CF eat enough to maintain a healthy weight is important for their health.

Since people with CF will tend to eat the same amount as those who do not have CF, more calories should be added to their diet to meet their higher needs. A balanced diet is still important for people with CF. This includes breads and cereals, fruits and vegetables, dairy products and protein foods like meat, chicken, fish, legumes, nuts and eggs. For the healthy population we talk about eating a 'healthy food pyramid', but for people with CF, we like to talk about a 'healthy food cube' instead because people with CF need to eat lots of everything!

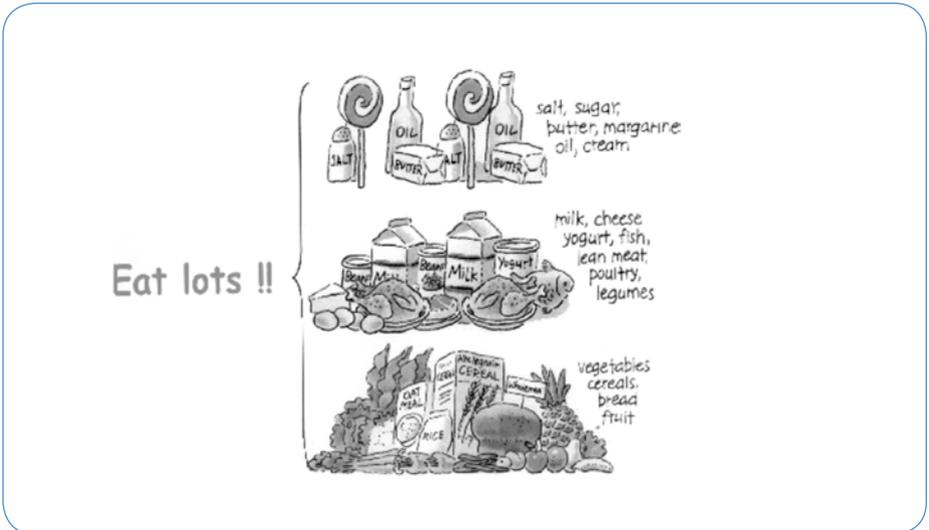
In order to achieve a high calorie (energy) intake, people with CF should have a high fat intake. For the healthy population, too much fat in the diet is not advised due to its effects on cholesterol, heart health and weight. Research has found that people with CF have lower cholesterol levels despite their high fat intakes. They also have a lower rate of other risk factors for heart disease such as obesity. For these reasons, they are not likely to be at an increased risk of heart disease by having lots of fat in their diet.

Keep in mind that eating habits, behaviours and preferences, as well as nutrition needs and goals of people with CF will change over time. The CF dietitian is always at clinic if you need to chat about any food or nutrition issues. They can also answer questions about eating, weight, or nutrition goals. You can ask to speak with the CF dietitian at any clinic visit – you do not have to wait for your doctor to suggest a dietitian review!

Healthy food pyramid for healthy population



Healthy food cube for CF



High energy tips for children and teenagers with CF

Have full cream milk to drink with meals and snacks and use full cream dairy products (like cheese, yoghurt, and custard). Aim for high calorie snacks and drinks between meals and add extra calories (see page 6) to every meal.

- > Kids aged 5–10 years – Aim for 200–300 calories per snack, three snacks per day.
- > Children and teenagers aged over ten years – Aim for 300–500 calories per snack, three snacks per day.
- > Aim to add extra calories to meals with high fat additions.

See the tables on the next pages for high energy snack and drink ideas as well as tips for adding extra calories to your meals. Don't forget to have enzymes before having any foods or drinks containing fat.

Use the following guide to work out how many Creon capsules to have:

- > Creon 10,000: 1 per 8g fat
- > Creon Forte: 1 per 20g fat

The tables on the next pages also list the fat content of the foods and drinks to help you work out how many enzymes to take.

Note: The energy content of a food may be measured in either kilojoules (kJ) or calories. One calorie is equal to 4.2 kilojoules.

200–500 calorie snack ideas (840–2100 kJ)

200–500 calorie snacks	Calories	Fat content (g)
Custard		
> Yogo Mix, 150g	250	9
> Nestle Milo, 150g	200	7
> Pauls chocolate, 1 cup	290	7
Creamed Rice (Heinz), Chocolate	260	6

200–500 calorie snacks	Calories	Fat content (g)
Yoghurt		
> Dairy Farmers Thick and Creamy, Yoplait original, 170g	190	6
> Bulla Greek Style	280	7
> Tamar Valley Greek Style	300	9
Ice Cream		
> Regular, 2 scoops	200	11
> Heaven/Magnum	300	20
> Drumstick/Cornetto	240	14
> Golden Gaytime	240	15
Bars		
> Be Natural nut bar	250	15
> Cadbury Brunch bar	230	10
> Europe: Honey Log or Summer Roll	200	11
Jatz biscuits (6)		
> with 20g cheese (1 thin slice)	200	13
> with dip (2 Tbs)	200	15
> with Kraft cheese spread (2 Tbs)	250	17
Celery sticks (4) filled with 2tbs peanut butter	250	20
4 crackers (Vita Weat, Premium, Sao) and 1 medium piece of fruit (apple/pear/banana)	280	4
Fruit salad, canned in syrup, 1 cup	200	0
Dried fruit and nuts (1 large handful, 50g)	230	14
Sultanas (½ cup)	230	0
Nuts, roasted		
> Cashews (30 nuts, 45g)	270	22
> Peanuts (½ cup, 70g)	410	35
> Mixed nuts (30 nuts)	285	26

200–500 calorie snacks	Calories	Fat content (g)
Crumpets (2) with 2 tsp margarine and 1 tbs honey on each	460	16
English muffin (1) with 1 tsp margarine on each half	215	10
Hot cross bun with 2 tsp margarine on each half	290	22
Pikelets (4) with 1tsp margarine on each	260	24
Raisin toast (2) with 2 tsp margarine on each piece	340	16
Toast (2)		
> with 1 tsp margarine and 2 tsp avocado on each piece	240	13
> with 2 tsp peanut butter on each piece	240	12
> with 2 tsp Nutella on each piece	240	8
> with 1 thick slice cheese on each piece	380	22
2 minute noodles, Maggi	280	5
Chocolate		
> Cadbury, 2 rows (12 squares)	260	14
> Mars bar	280	10
> Picnic bar	270	17
> Snickers bar/Twix bar	290	14
> Tim tam (2)	200	10
Chips, 50g packet	260	16
1 large sweet muffin	280	13
Donut		
> Balfours (iced)	500	31
> Cinnamon x2	500	28
Custard tart	290	12
Lamington fingers (3)	210	6
French fries, medium	370	20
Croissant, plain	250	16

High calorie drinks to use as snacks or with meals

Drinks	Calories	Fat Content (g)
250mL (1 cup) full cream milk	160	9
250mL (1 cup) fortified milk (Full cream milk + 2 heaped tablespoons skim milk powder)	250	9
375ml flavoured milk	270	8
600ml flavoured milk	430–500	10–20 (check label)
Milkshake recipe (see below)	410	27
500ml fruit juice (unsweetened)	200	2
600ml soft drink	260	0

Note: milk drinks and fruit juice provide more nutrients and are therefore better choices than cordial or soft drinks.

High calorie milkshake recipe

- > 200ml full cream cows milk
- > 2 tablespoons cream
- > 1 scoop ice cream
- > Flavour of your choice



Add extra calories (kJ) to meals

Food	Quantity to provide 100–200 calories	Fat Content (g)
Olive/canola oil	1 tablespoon	20
Butter/margarine	3 teaspoons	12
Mayonnaise (original)	1 tablespoon	15
Peanut butter	1 tablespoon	10
Cheese	30g (size of a small matchbox)	10
Cream (thickened), Sour Cream	2 tablespoons	14
Cream (double)	1 tablespoon	10
Cream cheese	2 tablespoons	13
Avocado	3 tablespoons	9

Ideas for adding extra calories:

- > Add cheese, margarine/butter or oil to vegetables, scrambled eggs or pasta.
- > Add olive oil or an oil based dressing to salads.
- > Spread butter or margarine plus mayonnaise, avocado, peanut butter or cheese spread on sandwiches, crackers, muffins or crumpets.
- > Add cream, sour cream or margarine/butter to soups, casseroles, pasta sauces, scrambled eggs or potatoes.
- > Cook meats in plenty of oil or margarine/butter.
- > Add cream to cereal, milk drinks, yoghurt or custard. Try whipped cream as a topping on hot chocolate.
- > Dip fruit pieces or crackers in cream cheese, cheese spread, peanut butter or full fat dips.
- > Use full cream milk plus cream, ice cream or full cream yoghurt to make shakes or smoothies.
- > Add powdered milk to milk and milk drinks or use in casseroles, soups and pasta sauces.

Fat targets

Children with CF should aim to include 100g of fat or more into their diet each day. Teenagers should aim to include up to 200g fat each day! Use the lists on page 4–7, as well as food labels and fat counter books to work out the fat content of foods and drinks.

Reading labels

On the Nutrition Information Panel, look at Total Fat in the per serve column. Don't forget to ensure you check if the amount you are having is equal to the amount the manufacturer calls a serve.



NUTRITION INFORMATION		
Farmers Union Iced Coffee		
Servings Per Pack: 1	Serving Size: 600mL	
	Per Serve	Per 100mL
Energy	1716 KJ	286 KJ
Protein	19.2 g	3.2 g
Fat, Total	10.2 g	1.7 g
> Saturated	6.6 g	1.1 g
Carbohydrate	59.4 g	9.9 g
> Sugars	57.6 g	9.6 g
Sodium	282 mg	47 mg
Calcium	720 mg	120 mg
	(90 % RDI*)	

E.g. If drinking a whole 600ml carton of Farmers Union Iced Coffee, you would be having 10.2g fat. If you only drank half of the carton however, you would only be having half a serve, so would need to halve the amount of fat (ie. 5.1g fat).

Fat counter books

We suggest using 'Allan Borushek's Calorie, Fat and Carbohydrate Counter', available at newsagencies and bookstores. Most foods and drinks have calorie, kilojoule and fat contents listed. There is also a website linked to this book, which contains many more foods if you are unable to find them in the book: www.calorieking.com.au.

Sample meal plan to meet fat target

Breakfast	2 x slices of toast + 1 tsp of butter on each slice + vegemite <u>and</u> 300ml full cream milk + 2 spoons of milo	FAT: 20g
Recess	Mars bar <u>and</u> Apple	FAT: 10g
Lunch	Roll (buttered both sides) with chicken, lettuce, cheese, tomato and mayonnaise (1 tbsp) <u>and</u> 375ml Nippy's flavoured UHT milk	FAT: 45g
Afternoon tea	High energy milkshake (using recipe from page 6) <u>and</u> Handful of dried fruit and nuts	FAT: 35g
Dinner	Meat (150g) and vegies – fry meat in 1 tbsp oil, melt 3 teaspoons butter over vegies	FAT: 43g
Dessert	Yoplait original yoghurt + 1 tbspn of double cream added	FAT: 11g
Supper	6 Jatz biscuits with thin slice cheese	FAT: 13g

TOTAL FAT INTAKE: 177g!

Try recording the food and drink you have over a day and add up the grams of fat.

Are you on target?

	Food/Drink	Grams of fat
Breakfast		
Recess		
Lunch		
Afternoon tea		
Dinner and Dessert		
Supper		
Total grams of fat for the day:		

Tube feeding

Some people with CF still struggle to gain weight or grow normally even if they follow all of the advice in this booklet. Because of the link between higher body weight and better lung function, the CF dietitian and doctors may suggest tube feeding to help with weight gain. Tube feeding helps to provide the extra calories needed for weight gain and normal growth. Tube feeds are often done at night during sleep, but can also be given during the day. They do not to replace eating but are used in addition to food intake.

My child's/my goals

My child's/my current weight:

_____ kg = _____ percentile

My child's/my goal weight:

_____ kg = _____ percentile

My child's/my specific nutrition goals:

1. _____

2. _____

3. _____

The original nutritional and educational content of this booklet has been reviewed by specialist Dietitians at the Children, Youth and Women's Health Service (CYWHS), SA Health.

Food product information contained in this booklet was up to date at the time of revision. If you are not sure about a food, check with the manufacturer.

Produced by

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