

## All Wales Adult Cystic Fibrosis Centre Patient Information Sheet



### Did you know?

The adult human body contains more than 1 kilogramme (kg) of calcium and almost all of it (99%) stored in the skeleton and teeth. The 1% or so that is outside the skeleton, is important for normal heart health and blood pressure, muscle contraction and blood clotting.

### Why is calcium important in cystic fibrosis?

Usually our bones grow during childhood and continue to strengthen until early 30's when peak bone mass is achieved. After this time bones gradually become less dense as we get older. In CF sometimes the bones do not become strong enough in the first place (or achieve peak bone mass) and/or the thinning process is accelerated by certain factors, a condition called osteopenia. Without treatment this could lead to thin, brittle bones (low bone mineral density) which fracture more easily - a condition called osteoporosis.

The following factors can put people with CF at an increased risk of thinning bones:

- Low body weight / low body mass index (BMI)
- Poor dietary calcium consumption
- Malabsorption (not digesting and absorbing food adequately)
- Low vitamin levels (especially vitamin D)
- Low physical activity level
- Steroid-based medications eg Prednisolone
- Excessive alcohol consumption and smoking

## How much Calcium do you need?

It is recommended that people with CF have 1300-1500mg calcium per day (CF Trust, 2007).

### Count up your Calcium:

<b>Dairy Foods</b>	
1 pint of whole milk	653mg
Glass of whole milk (200ml)	226mg
Glass of semi-skimmed (200ml)	236mg
150g yogurt	225mg
30g cheese (matchbox size)	220mg
1 cheese triangle	163mg
<b>Vegetables, Pulses &amp; Fruit</b>	
1 small can of baked beans	108mg
Average serving of Spinach	144mg
Serving of Broccoli	34mg
3 dried figs	150mg
<b>Fish</b>	
4 tinned pilchards	660mg
4 tinned sardines	460mg
100g tinned salmon	93mg
80g whitebait	860mg
<b>Cereals</b>	
2 slices of white bread (medium thick)	79mg
2 toasted crumpets	88mg
1 white roll	70mg
1 plain naan	256mg
1 bowl 'Ready Brek'	400mg
1 slice (10 inch) cheese & tomato pizza	195mg
1 slice cheese & egg quiche	364mg
<b>Nuts &amp; Seeds</b>	
1 oz (small handful) almonds	67mg
1 tablespoon sesame seeds	82mg
<b>Desserts &amp; Confectionary</b>	
Small can / pot rice pudding	140mg
4oz milk chocolate	220mg
3 scoops ice cream	234mg
120g Custard	156mg
150g pot soya yoghurt	120mg
<b>Beverages</b>	
Mug of Ovaltine (made with whole milk)	444mg
200ml glass soya milk (calcium fortified)	240mg
<b>Prescribed Oral Nutritional Supplements</b>	
220ml Ensure plus milkshake	264mg
1 serving Enshake (made up with 240 ml whole milk)	456mg
200ml Ensure twocal	300mg
200ml Fortisip	182mg
125ml Fortisip compact	218mg
200ml Fortimel	560mg

## **Tasty tips to improve calcium consumption;**

### **Have breakfast every morning**

Cereal with milk, cereal bar or Biscuit and a glass of milk.

You don't have to have cereal for breakfast, use it as a snack anytime.

### **Have a yoghurt each day after a meal or as a snack**

Choose thick and creamy, Greek style custard style or fruit corner for more calories.

### **Use cheese as a topping or as part of a snack**

On soups, in mashed potatoes, on jacket potatoes, on burgers and pasta dishes, cheese and crackers.



### **Make your drink out of milk**

Milky coffee, hot chocolate, Ovaltine, Horlicks, milkshake.

### **Add milk to meals**

Cheese sauce with macaroni, parsley sauce on fish, lasagne, angle delight, custard, milk jelly, dairy ice cream.

If you have 'fast-food' takeaways, have a milkshake with your meal instead of a sugary drink.

## **Are there any vitamins important in bone health?**

### **Vitamin D**

Vitamin D helps the body to absorb calcium from the food we eat. However vitamin D levels tend to be low in CF therefore it is very important that you take your fat soluble vitamin supplements as prescribed.

Some foods are also rich in vitamin D therefore including these foods can help. These foods include: oily fish (eg mackerel, kippers, sardines, pilchards, tinned salmon & tuna), eggs, fortified breakfast cereals and fortified margarines.

In the warmer months (April-September) vitamin D is also made by our skin in response to sunlight therefore short periods (eg 15 - 20 minutes) can help top up vitamin D levels (*remember to apply sunscreen if you plan to stay out in the sun any longer*).

### **Vitamin K**

Vitamin K is also required for bone health. You may be prescribed vitamin K supplements in which case it is very important you take these as prescribed.

Some foods also provide vitamin K, these include: eg green leafy vegetables, fruit, dairy foods, olive oils, fortified breakfast cereals and meats.

## **Other things you can do to maintain/improve bone health**

### **Stay active!**

It is really important to have an active lifestyle any weight-bearing exercise is good for maintaining bone health density. Weight bearing exercise is any exercise where you are on your feet; examples include aerobics, jogging football, golf etc. Speak to your physiotherapist for an individual exercise programme. If you have thinning of your bones (osteopenia or osteoporosis) it is advised not to practise contact sports (eg. martial arts and rugby) as this can increase your risk of bone fracture.

### **Maintain a Healthy Weight**

Try to ensure your weight is within the healthy range of BMI 20 - 25. You may need to increase your calorie intake, discuss the best way to do this with one of our dietetic team.

### **Avoid smoking and keep alcohol consumption to healthy limits**

Smoking and/or a high alcohol intake is associated with an increased risk of osteoporosis. Avoid smoking and keep your alcohol intake to healthy limits of a maximum of 2 -3 units per day for women and 3-4 units per day for men.

If you need any help with trying to stop smoking or reduce your alcohol intake, please talk to one of the CF MDT team.

### **Are manual percussion techniques and physiotherapy safe for my bones?**

If you are told that you have low bone mineral density and perform percussion or manual techniques as a form of physiotherapy please speak to your physiotherapist for advice on changes to your treatment.

### **What about steroids?**

Continue to take any tablet steroids (eg. Prednisolone) you are prescribed, stopping them abruptly is not advisable if you have been on them for a long time. Steroids taken over a long period of time can increase the risk of osteoporosis; however they are an important and useful treatment and help to reduce inflammation in the lungs. Often the benefit of taking them out-weighs the risk of osteoporosis. Your doctor will review the dose to ensure that you are on the lowest beneficial dose, or to reduce it if needed.

### **How is bone mineral density measured?**

Bone mineral density is measured by a scan called a DXA scan. All patients with CF should have a DXA scan every 1 -3yrs to monitor their bone health.

### **How can low bone mineral density be treated?**

If you develop low bone mineral density, apart from following the lifestyle and nutritional advice in this information sheet on bone health, you may be prescribed medications (eg. bisphosphonates) to reduce thinning of the bones and calcium supplements to help strengthen the bones.

**It is important to remember that if you are prescribed a bisphosphonate, that you regularly have a check-up with your dentist at least once yearly.**



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