States of Guernsey
Adult Community Services

OSTEOPOROSIS UNIT &

NUTRITION & DIETETIC SERVICE

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R:Diets\Osteoporosis

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Adult Community Services

Osteoporosis

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Healthy eating plus lifestyle factors to promote bone health

Name ----------

Date ----------

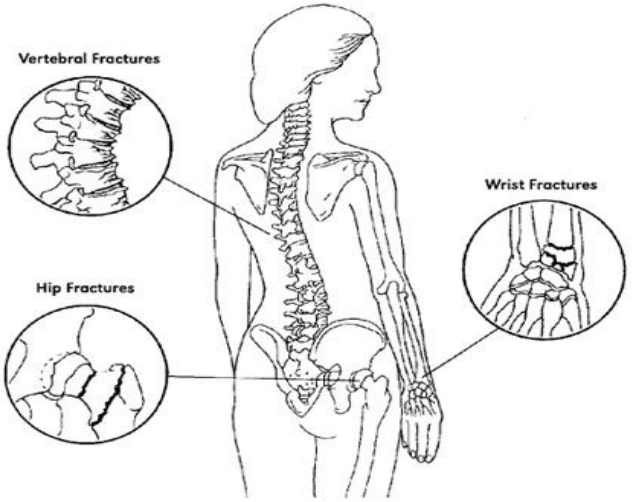
Osteoporosis Unit & Nutrition & Dietetics Department

What is osteoporosis?

Osteoporosis literally means ‘porous bones.’

Our bones contain collage (protein), calcium salts and other minerals. Each bone is made up of a thick outer shell known as cortical bone and a strong inner mesh of trabecular bone which looks like honeycomb.

Osteoporosis occurs when the mesh-like structure within the bone becomes thin. Resulting in weak, fragile bones that break (fracture) easily often following just a simple fall or slip. These fractures are called fragility fractures or low trauma fractures. Although, fractures associated with osteoporosis can occur within any bone of the body, the most common ones affected by osteoporosis are the wrist, the hips and the spine. These broken bones can lead to pain and the spinal fractures can cause loss of height and curvature of the spine.



Osteoporosis is on the increase with it now affecting 1 in 2 women and 1 in 5 men throughout the United Kingdom. This information booklet offers advice on how to ensure that your bones are as healthy as possible.

8 – Useful contact details.

Osteoporosis unit, PEH - telephone 01481 725241, ex 4709

Email jayne.welbourne@gov.gg.

Local Osteoporosis Support Group helpline – 07781 464213 Jayne

- 01481 233088 Linda

National Osteoporosis Society helpline 0808 800 0035

www.nos.org.uk.

Nutrition and Dietetics Department – telephone 707342

Balance Clinic, PEH – telephone 01481 725241, ex 4073.

Local Age Concern helpline and information – telephone 267660

Lifeline enquiries – telephone 725241

Information exchange enquiries – telephone 707470

Health Promotion unit – telephone 707311

6 - Diagnosing Osteoporosis and obtaining your results

Sometimes a special scan called a Bone Density scan (DEXA) is preformed to diagnose osteoporosis. This simple procedure does not involve going into a 'tunnel' and does not usually require you to undress unless you have clothes on which have lots of metal on them i.e. jeans. Although, you're allocated appointment time for this scan is 30 minutes this is for the staff to complete a lifestyle questionnaire, perform the scan and answer any questions that you may have. Once you have had your scan the results are normally sent to your GP or referring Consultant within 7/10 days of your scan being performed. If you have not heard from your doctor within 2 weeks of your scan appointment then we suggest you telephone them to find out whether your results are available.

7 – Medications for Osteoporosis

If you have been diagnosed with osteoporosis you may have been advised to take some medications. As with all medications it is possible that you may experience some side-effects. These are often minor and should soon settle. If any of the side-effects continue, ***do not stop*** the medication without informing your GP or the osteoporosis unit. They may be able to recommend an alternative or offer advice on how to minimise the side-effects. Nowadays there are many medications available some of which can be given by injection form.

1 - Healthy balanced eating

Whatever your age or sex, it is vital to make sure that what you eat today will help to keep your skeleton strong for the future. Although, getting enough calcium is important, a healthy, balanced diet is essential to provide all the vitamins, minerals and other nutrients that your bones need.

Aim to eat meals that incorporate a wide variety of foods. Include fruit and vegetables; carbohydrates like bread, potatoes, pasta and cereals; milk and dairy products; and protein such as meat, fish, eggs, pulses, nuts and seeds. Also aim for a healthy body weight as this will help protect your bones too.

Calcium - Is vital for bone as it is this that gives bone their strength. Our bodies contain about 1kg of this important mineral and 99% of this is found within our bones. Most people should be able to get enough calcium through healthy eating but sometimes a calcium supplement is recommended especially for those diagnosed with osteoporosis. If you do take a calcium supplement, make sure it also contains vitamin D so that your body gets maximum benefit.

How much calcium do I need?

Age	RNI*
0-12 months (non-breast-fed infants only)	525mg
1-3 years	350mg
4-6 years	450mg
7-10 years	550mg
11-18 years boys / girls	1000 / 800mg
19+ years	700mg
Pregnant women	700mg
Breastfeeding women	700 + 550mg**

* RNI – Reference Nutrient Intake

Based on the Department of Health Committee on the Medical Aspects of Food and Nutrition policy 1998

Goal – Aim for between 400 - 600 mg calcium daily from supplements if you need them but the National Osteoporosis Guidelines Group suggests food is the best source.
The supplement called Adcal D3 provides 600mg of calcium.

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5 – Preventing falls – the consequences of 'falls' when someone has osteoporosis is very often additional fractures. Therefore falls prevention is vital for all those who have been diagnosed with any degree of bone thinning. As previously stated both regular exercise and a healthy diet are both very important aspects with regards to balance.

However, if you have a history of falls or have a fear of further falls details regarding the Balance Clinic at the hospital are available from the osteoporosis unit or from your GP or Consultant.

4 - Lifestyle factors which can have a *negative* effect on bone health.

Smoking – has a harmful effect on bone health and therefore should be given up. Details regarding Quitline are available from the osteoporosis unit and your GP.

Excessive alcohol – reduce excessive amounts of alcohol. The current daily recommended upper limit as per the Food Standards Agency is two to three units for a woman and three to four units for a man. A unit equals one small glass of wine or half a pint of beer or cider.

Yoyo dieting –studies show that strict dieting often leads to a loss of bone mass that is not replaced as weight is regained. It is therefore important that if you try to control your weight that you should aim for a gradual weight loss and should include all the required nutrients. Studies have shown that including calcium rich foods while you are dieting actually aids weight loss, so low fat yoghurts and skimmed milk can be helpfully included in any reducing plan.

CALCIUM RICH FOODS - ***1 serving contains 230mg calcium**

The calcium in dairy products is easiest for the body to absorb due to the effects of lactose in the milk. If you are milk or lactose intolerant and use a milk substitute, read the nutritional information on the packet to make sure that it is fortified with calcium or alternatively make sure you are getting sufficient calcium and vitamin D elsewhere in your diet.

FOOD	AMOUNT	SERVINGS
Fresh Milk	200mls 1/3 pt	1
Yoghurt	150g/5oz	1
Hard cheese, e.g. cheddar	30g/1oz	1
Soft cheese e.g. feta	60g/2oz	1
Ice cream	100g/½oz	½
Sardines/pilchards	60g/2oz	1
Whitebait fried	45g/1½oz	1
Tinned mackerel – drained	90g/3oz	1
Tinned salmon – drained	120g/4oz	½
Bread – white	120g/4oz	1
Baked beans	240g/8oz	½
Green leafy veg, e.g. spring greens, spinach	120/4oz	½
Kale	150g/5oz	1
Orange	1 large	¼
Dried apricots	100g/3½oz	¼
Dried figs	90g/3oz	½
Sesame seeds/tahini	30g/1oz (4tsp)	1
Sunflower seeds	100g/3½oz	½
Almonds/Hazelnuts	100g/3½oz	1
Brazil nuts	150g/5oz	1
Pistachios	90g/3oz	½
Walnuts	120g/4oz	½
Peanuts/pecans	150g/5oz	½
Tofu-raw	45g/1½oz	1
Kidney beans – drained	150g/5oz	½
Muesli	120g/4oz	1
Milk Pudding	180g/6oz	1

Other nutrients which are helpful to promote bone health include vitamin C, vitamin K, silicon, zinc, vitamin B complex, manganese, magnesium and potassium, copper and boron. While these factors are not discussed in detail in this setting, it is important to note that having a balanced diet following the eat well plate, seen below, with appropriate protein intake, dairy as discussed, and at least 5 a day fruits and vegetables ensures an adequate intake of many of these micronutrients, any one of which, if lacking, could exacerbate or cause bone problems.

3 - Exercise

Regular weight bearing activity such as walking, running, dancing, racket games and aerobics can help to strengthen your skeleton. All of these exercises ensure that you are supporting your own body weight and this is essential in order to maintain or strengthen your bones. Swimming and other forms of exercise where you do NOT take your own body weight will not improve your bone health but will help to improve your general health and also help to maintain muscle strength, balance and coordination and reduce your risk of falling.

NB if you have been diagnosed with osteoporosis and do not currently participate in any form of regular exercise then speak to a health care professional before commencing any exercise programme. Further advice regarding suitable forms of exercise are available from the osteoporosis unit.

2 - The role of Vitamin D and bone health.

You need vitamin D to help your body absorb calcium. Adequate vitamin D will also keep muscles strong and help prevent falls in older people. For most people vitamin D needs are met by the action of sunlight on the skin, which your body uses during the summer months to manufacture the vital vitamin in your skin. You should try to get ten to twenty minutes of sun exposure to your bare skin, once or twice a day, without sunscreen and taking care not to burn, between April and October so that your body can produce enough vitamin D to help see you through the winter months. Compared with how much you can get from sun, a normal diet contributes relatively little vitamin D (10%).

It is sensible to ask your GP to test your Vitamin D level in the blood so that you know if you supplementation. The cut off is 50ug/l vitamin D

Vitamin D supplements are recommended in some cases

1. All those over 65 including frail, housebound individuals especially the elderly living in care homes.
2. All pregnant women and children under 5
3. Asian women and children, especially if their dress code reduces sun exposure.
4. People who wear total sun block when outdoors
5. Those taking anti-epileptic drugs.
6. Severe kidney or liver disease
7. Malabsorption conditions.

While Vitamin D is helpful, it has been recommended to limit supplementation with vitamin D to not more than 25ui.

SAMPLE MEAL PATTERN

Breakfast	½ grapefruit or fruit juice Cereal e.g. Branflakes, Weetabix, muesli with semi-skimmed or soy milk and/or wholemeal bread/toast & monounsaturated spread or butter and Kippers or egg or grilled bacon or baked beans. Tea/coffee/herbal tea/water.
Mid am	Tea/coffee/herbal tea/water Fruit/nuts/seeds/yoghurt/sesame halva.
Lunch	Wholemeal bread sandwich with:- Monounsaturated spread/butter and filling of fish or meat or egg or cheese or humus or quorn or nut butter and salad, or homemade vegetable soup. Jacket potato with baked beans or tuna and corn or chilli con carne or prawn filling and salad, or Salad with meat/fish/egg/cheese/nuts/beans/tofu and bread, or Cooked meal – see below Fruit or yoghurt – tea/coffee/herbal tea/water.
Mid pm	Tea/coffee/herbal tea/water Fruit, fruit and nuts or mixed seeds.
Dinner	Basmati or brown rice, wholemeal pasta, potatoes or sweet potato and:- 100-120g meat/fish/eggs or bean/lentil/tofu/soy mince dish and 2+ portions of green and root vegetables or mixed salad. Baked fruit and low fat crème fraiche/yoghurt/soy dessert. Tea/coffee/herbal tea/water.

Some factors may affect calcium absorption - Some factors may reduce or increase the amount of calcium the body absorbs or increase calcium lost in the urine. This may increase the risk of osteoporosis and breaking bones although more research is needed to help us understand how significant all these factors are. The following factors may all affect the strength of our bones.

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1. **Caffeine** - a high intake of caffeine may increase the amount of calcium excreted in your urine. Avoidance of an excessive caffeine intake is advised.

2. **Protein** is a vital nutrient needed for the body to perform many functions, including the production of antibodies to resist infection and the formation of new tissue. Too much or too little protein may reduce the strength of bones and increase the risk of fracture.
   Too little protein - Malnutrition, and hence a lack of protein, has been shown to contribute to bone loss, the risk of falling, and the response to injury. There is some evidence that recovery from hip fracture in older people is improved by protein-rich dietary supplements.
   Very high protein - A diet very high in protein (found in some dairy products, meat and fish) may affect the calcium in your bones due to the acidic nature of some of these foods. Simply by ensuring that your diet includes your 5 a day of fruit and vegetables will buffer the effects of this acid.

3. **Salt** - ordinary table salt is sodium chloride. We need sodium in our diets to maintain water balance in the body, for blood pressure and also for muscle and nerve activity. However, too much salt can cause high blood pressure leading to stroke, gallstone problems and heart and kidney disease. It also causes an increase in the amount of calcium lost in the urine. The effect of salt on blood pressure may also be responsible for speeding up the body's loss of calcium. Much of the salt in our diets is hidden in processed foods, in salty snacks, sauces, soups and processed meats, hard cheeses, ready meals, and bread. We should aim for less than 6g salt a day from all our diet combined. Any food with more than 1.5g salt per 100g or 0.6g sodium/100g is a high salt food.

4. **Potassium** – found in fruit and vegetables is required for the absorption of calcium.

5. **Magnesium** – is also essential for maintaining bone health. Good sources of which can be found in green leafy vegetables, beans, whole grains and dairy products.

6 **Fizzy drinks** - Phosphorus is necessary for proper bone information but is needed in balance with calcium and is available ate, in the form of phosphoric acid, is added to many cola-type fizzy drinks although the amount of phosphoric acid is not very high. There has been concern that a high intake of fizzy drinks containing phosphoric acid might reduce the strength of bones although this has not been proven. There is no clear evidence proving a detrimental effect of fizzy drinks on bone health but you may want to moderate your intake and think about including more nutritious drinks or simply water if you are thirsty.