CALCIUM, VITAMIN D & OSTEOPOROSIS

A Guide for Consumers
4th edition, 2010
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CALCIUM & VITAMIN D – A GUIDE FOR CONSUMERS

1. INTRODUCTION

WHAT IS OSTEOPOROSIS?

Osteoporosis is a condition where your bones become fragile and brittle and fracture more easily than normal bone. Even a minor bump or fall can cause a serious fracture. In Australia, half of all women and one third of men over 60 will have a fracture due to osteoporosis. Osteoporosis and fractures are major causes of injury, long term disability and even death in older Australians. One fifth of people who suffer a hip fracture will die within 6-12 months and, of those who don’t die, one half will not be able to walk unaided or remain in their own home and up to one quarter will require full-time nursing care. Osteoporosis is often called a ‘silent disease’ because there are usually no signs or symptoms until a fracture occurs.

Any bone can be affected by osteoporosis but the most common fracture sites are the spine, upper arm, wrist, ribs, forearm, pelvis and, importantly, the hip in older people especially over the age of 75, often with little or no trauma. Osteoporosis can also result in ‘crush’ or ‘wedge’ fractures in the bones of our spine (vertebrae), causing loss of height, increased curvature of the spine (Dowager's hump) and increased pain.

THE CASCADE EFFECT OF FRACTURES

Approximately half of all people with a fracture due to osteoporosis will go on to have another; the so called ‘cascade effect’. The risk of new fractures rises rapidly with each subsequent fracture, for example, women who have suffered a vertebral (spinal) fracture are 4 times more likely to suffer another fracture within 12 months.

CALCIUM AND VITAMIN D

Good calcium nutrition and vitamin D levels are important for the health and strength of our bones, but may also have broader effects on wellbeing in general. Average dietary calcium in Australia needs to be increased, particularly in young women. Vitamin D deficiency is surprisingly common – even in a sunny country like Australia.

This booklet is designed to help you identify your needs for both calcium and vitamin D intake, be it by dietary intake or supplementation.

1 in 2 women & 1 in 3 men over 60 years in Australia will have an osteoporotic fracture.
3. NUTRIENT REFERENCE VALUES

The nutrient reference value (NRV) refers to what was previously known as recommended daily intake (or RDI). There are some general guidelines for the NRV of both calcium and vitamin D in Australia, however these change according to many factors including age, gender, life stage, diet and for those with a specific deficiency.

Calcium

The average Australian adult is recommended to achieve an NRV of 1000mg of calcium per day. 1300mg of calcium per day is recommended for all postmenopausal women and men aged over 70 years.

Vitamin D

The NRV (Nutrient Reference Value, NHMRC 2005) or adequate intake for adults is 200-600 IU (5-15 micrograms) per day depending on age, but is of limited relevance since most vitamin D comes from sunlight.

GOOD CALCIUM NUTRITION

Calcium performs various functions in the body and plays important roles in the muscular, nervous and endocrine (hormone) systems. Getting enough calcium is important to help protect us from developing osteoporosis later in life.

It is also important to maintain adequate levels of vitamin D, as it helps in the absorption of calcium. By age 30, peak bone mass (maximum bone density) is reached and most of this is achieved by puberty when there is the greatest rate of growth. Adequate calcium is especially important during childhood and adolescence, and yet this is often a time of inadequate calcium intake.

Later in life, when the body loses calcium, particularly around the time of menopause for women, there is an increased requirement for calcium. As men also lose calcium throughout the ageing process, it is also important that they consume enough calcium.

CALCIUM FROM FOOD

Most studies show that the required daily intake for postmenopausal women is 1300mg of calcium. Approximately 60% of our calcium intake comes from dairy products, the rest from the small amounts contained in breads, cereals, fruits and vegetables.

In general, 3 serves of dairy products per day (one serve is equal to 250ml milk, 1 tub yoghurt etc), will provide the NRV for most Australians.

Low fat dairy options are usually available and are preferable for some individuals. For those with inadequate calcium intake, it may be necessary to include calcium supplements.

If you cannot tolerate dairy products, especially if you are lactose intolerant or vegan vegetarian (vegan vegetarians do not eat any animal products whatsoever including any dairy), there are now an increasing number of calcium-enriched products, for example orange juice, cereals, soy milks and even some breads.

<table>
<thead>
<tr>
<th>FOOD</th>
<th>STD SERVING SIZE</th>
<th>CALCIUM (MG)</th>
<th>KILOJOULES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rump Steak (lean)</td>
<td>100g</td>
<td>5</td>
<td>883</td>
</tr>
<tr>
<td>Apples</td>
<td>1 medium (156g)</td>
<td>7</td>
<td>323</td>
</tr>
<tr>
<td>Lamb Chop (lean)</td>
<td>100g</td>
<td>8</td>
<td>1000</td>
</tr>
<tr>
<td>Bread - mixed grain</td>
<td>30g (slice)</td>
<td>15</td>
<td>272</td>
</tr>
<tr>
<td>Bread - wholemeal</td>
<td>30g (slice)</td>
<td>16</td>
<td>282</td>
</tr>
<tr>
<td>Chicken - roasted no skin</td>
<td>100g</td>
<td>16</td>
<td>783</td>
</tr>
<tr>
<td>Broccoli</td>
<td>60g</td>
<td>18</td>
<td>61</td>
</tr>
<tr>
<td>Strawberries</td>
<td>1 cup (145g)</td>
<td>19</td>
<td>118</td>
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<tr>
<td>Eggs - boiled</td>
<td>1 large (48g)</td>
<td>21</td>
<td>303</td>
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<tr>
<td>Baked Beans</td>
<td>100g</td>
<td>34</td>
<td>285</td>
</tr>
<tr>
<td>Oranges</td>
<td>1 medium (122g)</td>
<td>35</td>
<td>190</td>
</tr>
<tr>
<td>Apricots - dried</td>
<td>50g</td>
<td>35</td>
<td>410</td>
</tr>
<tr>
<td>Spinach</td>
<td>100g</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Tahini</td>
<td>20g (1 tbsp)</td>
<td>65</td>
<td>520</td>
</tr>
<tr>
<td>Soy beans (boiled)</td>
<td>100g</td>
<td>76</td>
<td>540</td>
</tr>
<tr>
<td>Custard</td>
<td>100g</td>
<td>100</td>
<td>393</td>
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<tr>
<td>Almonds</td>
<td>50g</td>
<td>110</td>
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<td>Ice Cream</td>
<td>100g</td>
<td>133</td>
<td>800</td>
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<tr>
<td>Tofu (calcium set)</td>
<td>100g</td>
<td>150</td>
<td>479</td>
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<tr>
<td>Salmon - tinned, red</td>
<td>100g</td>
<td>220</td>
<td>814</td>
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<td>Sardines - canned</td>
<td>100g</td>
<td>380</td>
<td>951</td>
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<td>Cheese - mild</td>
<td>40g (piece)</td>
<td>300</td>
<td>676</td>
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<td>Cheddar (reduced fat)</td>
<td>40g (2 slices)</td>
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<td>548</td>
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<tr>
<td>Cheddar Cheese</td>
<td>40g (2 slices)</td>
<td>327</td>
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<td>Yogurt - Low fat</td>
<td>200g (std tub)</td>
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<td>738</td>
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<tr>
<td>Yogurt - Plain</td>
<td>200g (std tub)</td>
<td>390</td>
<td>716</td>
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<td>Milk - Regular</td>
<td>250ml (std glass)</td>
<td>285</td>
<td>698</td>
</tr>
<tr>
<td>Milk - Reduced Fat (1%)</td>
<td>250ml (std glass)</td>
<td>352</td>
<td>525</td>
</tr>
<tr>
<td>Milk - Skim</td>
<td>250ml (std glass)</td>
<td>320</td>
<td>377</td>
</tr>
<tr>
<td>Milk - Calcium Fortified</td>
<td>250ml (std glass)</td>
<td>353</td>
<td>523</td>
</tr>
</tbody>
</table>

If you cannot tolerate dairy products, especially if you are lactose intolerant or vegan vegetarian (vegan vegetarians do not eat any animal products whatsoever including any dairy), there are now an increasing number of calcium-enriched products, for example orange juice, cereals, soy milks and even some breads.

TABLE 1  THE CALCIUM CONTENT OF MANY COMMON FOODS
The body tries to maintain a balance of calcium throughout life. To ensure adequate balance, you need to consume enough calcium in your diet and avoid excessive amounts of salt, caffeine, animal protein and alcohol. This is important throughout life and particularly during periods of maximum bone growth such as our childhood and teenage years, during pregnancy and breastfeeding. For women, it is also important to ensure adequate calcium intake around the time leading up to and after the menopause.

**WHO NEEDS TO EAT WHAT?**

- Children aged 4 to 8 years should aim for 2 to 3 serves of calcium-rich foods each day to reach a total intake of 700 mg/day.
- Children and adolescents aged 9 to 18 years should aim for 3 serves of calcium-rich foods a day to reach a total intake of 1000 - 1300mg/day.
- Women and men need at least 1000 mg of calcium per day; women aged over 50 and men aged over 70 require at least 1300mg of calcium per day.

**PRACTICAL TIPS**

- 3 serves of dairy food will generally give you your recommended daily calcium intake.
- Add skim milk powder to soups, puddings, smoothies, milkshakes and sauces.
- For a healthy heart, choose low fat dairy foods (for example, low fat milks and yoghurts). They have as much calcium as regular dairy foods.
- Eat more broccoli, beans, almonds, tinned salmon and sardines in your regular diet.
- Hard cheeses (eg cheddar) have more calcium than soft cheeses (eg cottage cheese). Choose fat reduced varieties where available.
- Look for breads and juices that are calcium fortified.
- If you use soy drinks, choose the ones specifically labelled as fortified with calcium and similarly choose tofu that has high calcium content.
- Look for new products in your supermarket chilled sections, such as dairy desserts and creamed rice, to add more calcium to your diet.
- Get advice from a dietician or nutritionist if you need help with increasing the calcium in your diet or for general advice on healthy eating.

**CALCIUM FROM SUPPLEMENTS**

If your dietary intake of calcium is low and you are unable to increase it to the recommended levels, your doctor may suggest that you take calcium supplements. Calcium supplements are a very useful way of helping people who are unable to consume sufficient calcium from the food they eat. An extra 500 - 700 mg of calcium per day is sufficient for most people to achieve their appropriate daily calcium intake. The easiest way to do this is with a single calcium tablet containing 600 mg of calcium. Many companies now provide calcium tablets which also contain vitamin D. Vitamin D aids the absorption of calcium from the intestines.

**WHEN AND HOW TO TAKE THEM**

- Generally, it is not important whether calcium tablets are taken with or without food. There is some evidence that taking calcium supplements in the evening may be of benefit, to prevent bone breakdown.
- Calcium carbonate requires gastric acidity for the best absorption, so it should be taken with meals. Calcium citrate is not dependant on gastric acidity so can be taken at any time.
- If you are taking an oral bisphosphonate for your osteoporosis (for example, Actonel or Fosamax), it is very important that you take the calcium supplement and your osteoporosis medication at least two hours apart, otherwise the absorption of one medicine interferes with the other.

**FACTORS THAT CAN AFFECT THE ABSORPTION OF CALCIUM SUPPLEMENTS**

Certain things can interfere with calcium being absorbed. These include:

1. **Certain foods** – Phytates (found in cereals, bran, soy beans, seeds) and oxalates (found in spinach, rhubarb, walnuts). Therefore, some vegetarian diets may decrease the amount of calcium absorbed from the diet.
2. **Inadequate vitamin D** – Less calcium is absorbed in the intestines of people with inadequate vitamin D levels. People who are at high risk of vitamin D deficiency include those who are housebound, the elderly, people in residential care and dark-skinned people (especially if veiled).
3. **Long term treatments with steroids** (eg. prednisolone & prednisone)
4. **Kidney disease**
5. **Proton pump inhibitors** (medications used to reduce gastric acid) may reduce calcium absorption from calcium carbonate supplements.

If you have any concerns regarding the effectiveness of your calcium supplements, please discuss this with your doctor.
SIDE EFFECTS OF SUPPLEMENTS

Calcium supplements are usually well tolerated. Side effects, although uncommon, can include constipation, bloating and flatulence. However, calcium supplements are associated with an increased risk of kidney stones in people with a pre-existing high dietary calcium intake (≥1200mg/per day). Always check with your doctor before starting a calcium supplement.

Generally, calcium supplementation is recommended when there is not enough dietary intake of calcium. For most people, adding 600mg of elemental calcium is sufficient to boost your calcium intake into an adequate range.

COMMONLY ASKED QUESTIONS

1. Does calcium cause bone spurs?
   There is no evidence that shows bone spurs are related to calcium supplements.

2. Does calcium cause kidney stones?
   It is wise to avoid calcium intakes over 2000mg a day. An intake of between 800mg - 1500mg a day is unlikely to lead to kidney stones. If you have had kidney stones in the past, you should check with your doctor before starting a calcium supplement. Some metabolic disorders may cause kidney stones.
   Always drink plenty of fluids throughout the day when you take calcium supplements.

3. Does calcium cause constipation?
   Calcium supplements can cause constipation in some people, but the problem can generally be avoided by consuming enough fluids and fibre.

4. What about calcium and men?
   Much less research has been carried out with calcium and osteoporosis in men. As men are now living longer, many more are at risk of developing osteoporosis (1 in 3 men over 60 years).
   It is therefore important that they also follow the same recommendations as women regarding calcium intake and exercise to reduce their risk of osteoporosis.

There is no significant difference in the absorption of calcium from supplements compared with different dietary sources.

5. VITAMIN D

VITAMIN D$_2$ AND D$_3$ EXPLAINED

There are 2 forms of vitamin D:
1. D$_3$ (cholecalciferol) which is formed in the skin by the action of ultraviolet (UV) light
2. D$_2$ (ergocalciferol) which is produced by UV light irradiating a plant compound (ergostrol)

There is some evidence that vitamin D$_3$/cholecalciferol may raise the levels of vitamin D in the blood more effectively but overall differences are probably not large.

ABOUT VITAMIN D

Vitamin D$_3$ is made in the skin from the absorption of UV light.

Sun exposure, as recommended in the box above, would therefore be enough for most people to maintain adequate vitamin D levels.

Longer exposures would be needed in darker skinned individuals. The ability to produce vitamin D is often reduced in older people.

There is little vitamin D in most Australian diets.

The vitamin D in most supplements is vitamin D$_3$.

WHAT DOES VITAMIN D DO?

Vitamin D has several actions. It:

- helps increase the absorption of calcium and phosphorous from the small intestine
- helps regulate the amount of calcium in the blood
- helps strengthen the skeleton
5. VITAMIN D

6. SOURCES OF VITAMIN D

EXPOSURE TO SUNLIGHT

For Australians, the main source of vitamin D is from exposure to sunlight. Most people reach adequate vitamin D levels during typical day-to-day outdoor activities.

Exposure of the face, hands and arms or of the legs to modest amounts of sunlight to reach one-third of a minimal erythemal dose (MED) most days as part of daily living is likely to provide most people with optimal vitamin D for good health.

Older people need exposure to sunlight 5-6 times a week, while people with dark skin need longer exposure times, around 3-6 times greater.

Exposure to sunlight between 10 am and 2 pm in the summer months (11am - 3pm in daylight saving) is not advised or recommended, due to the cancerous effects of sunlight at that time. This outweighs any possible benefits from vitamin D production.

Levels of vitamin D in our bodies are lower in winter than in summer. In winter, it would take longer to get this dose of sunlight, depending on where you live – not much longer in Cairns, but around 5 times longer in Melbourne (see Table 2 on page 14).

In most cases, reductions in vitamin D during winter are mostly made up in the summer when sunlight is more intense.

Osteoporosis Australia, together with the Cancer Council, Australian and New Zealand Bone and Mineral Society (ANZBMS) and the Australasian College of Dermatologists have developed a brochure called “How much sun is enough?”. It is available for consumers, explaining how to get enough sunlight for your vitamin D requirements whilst protecting your skin from skin cancer.

VITAMIN D DEFICIENCY

Vitamin D deficiency in infants and children can cause rickets, which causes bone and muscle weakness and bone deformities. Adults with low vitamin D are at risk of bone and joint pain, muscle and bone weakness, osteoporotic fractures and falls.

Vitamin D deficiency, especially in the elderly, increases the risk of developing major illnesses, especially osteoporosis, falls and fractures.

It is also associated with other conditions, including autoimmune diseases (rheumatoid arthritis, multiple sclerosis and type 1 diabetes), cardiovascular disease and some cancers.

Adequate levels of vitamin D are especially important for women who are pregnant or breastfeeding, because deficiency in the mother can cause long term effects on the baby.

MAJOR RISK FACTORS FOR VITAMIN D DEFICIENCY ARE:

- Limited sun exposure – including: elderly age and/or being institutionalised, house-bound or non-ambulatory; individuals who are at high risk of skin cancer (due to sun avoidance); people who wear modest dress
- Cognitive impairment
- Gastrointestinal disease (e.g. coeliac disease), especially with malabsorption
- Certain medications (e.g. some antiepileptic agents)
- People with dark skin
7. VITAMIN D INTAKE AND RECOMMENDATIONS

DIET AND VITAMIN D

Vitamin D is found in small quantities in a few foods, such as:
- fatty fish (salmon, herring and mackerel)
- liver
- eggs
- fortified foods such as margarine and some low-fat milks, although in very small amounts.

For most Australians, adequate vitamin D is unlikely to be achieved through diet alone.

GROUPS AT RISK OF VITAMIN D DEFICIENCY ARE:
- the elderly;
- people who are house-bound or in residential care;
- naturally dark-skinned people
- those who cover their skin for cultural or religious reasons; and
- babies of vitamin D deficient mothers.

PRACTICAL TIPS FOR INCREASING VITAMIN D INTAKE
- Follow the advice set out in Table 2 for limited sunlight exposure.
- If you are vitamin D deficient or at high risk of being deficient, then a vitamin D supplement is recommended (speak to your doctor).
- The main food sources of vitamin D are fortified margarines, fortified milks, fatty fish, liver and eggs. Look out for other fortified foods as they come on the market.

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TABLE 2  SUN EXPOSURE TO ACHIEVE SUFFICIENT VITAMIN D FOR PEOPLE WITH MODERATELY FAIR SKIN*

<table>
<thead>
<tr>
<th>Region</th>
<th>DECEMBER - JANUARY</th>
<th>JULY - AUGUST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At 10am or 2pm†</td>
<td>At 10am or 2pm</td>
</tr>
<tr>
<td>NORTHERN AUSTRALIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cairns</td>
<td>6 to 7 minutes</td>
<td>9 to 12 minutes</td>
</tr>
<tr>
<td>Townsville</td>
<td>5 to 7 minutes</td>
<td>9 to 13 minutes</td>
</tr>
<tr>
<td>CENTRAL AUSTRALIA</td>
<td></td>
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</tr>
<tr>
<td>Brisbane</td>
<td>6 to 7 minutes</td>
<td>15 to 19 minutes</td>
</tr>
<tr>
<td>Perth</td>
<td>5 to 6 minutes</td>
<td>20 to 28 minutes</td>
</tr>
<tr>
<td>SOUTHERN AUSTRALIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sydney</td>
<td>6 to 8 minutes</td>
<td>26 to 28 minutes</td>
</tr>
<tr>
<td>Adelaide</td>
<td>5 to 7 minutes</td>
<td>25 to 38 minutes</td>
</tr>
<tr>
<td>Melbourne</td>
<td>6 to 8 minutes</td>
<td>32 to 52 minutes</td>
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<tr>
<td>Hobart</td>
<td>7 to 9 minutes</td>
<td>40 to 47 minutes</td>
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<tr>
<td>NEW ZEALAND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auckland</td>
<td>6 to 8 minutes</td>
<td>30 to 47 minutes</td>
</tr>
<tr>
<td>Christchurch</td>
<td>6 to 9 minutes</td>
<td>49 to 97 minutes</td>
</tr>
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</table>

* Sun exposure times resulting in 1/3 minimal erythemal dose. Exposure times for people with highly pigmented skin would be three to four times greater.
† 11am or 3pm daylight saving time, respectively.

VITAMIN D SUPPLEMENTATION

The NRV (Nutrient Reference Value, NHMRC 2005) or adequate intake for adults is 200 - 600IU (5 - 15 micrograms) per day depending on age but is of limited relevance since most vitamin D comes from sunlight. However, for people who do not get adequate sun exposure for a variety of reasons, based on recent published evidence Osteoporosis Australia recommends a supplement of at least 800IU (20 micrograms) per day. In people with vitamin D deficiency, or at risk of deficiency, vitamin D supplementation of up to 1000 - 2000IU per day, is safe and beneficial.

Some calcium supplements and multivitamin preparations contain vitamin D but their levels may be too low to treat vitamin D deficiency.

Cod liver oil contains a good dose of vitamin D but also contains vitamin A which in large amounts can cause toxicity and may even increase the risk of fracture.

Single pure vitamin D preparations in Australia exist.

Always discuss medications or supplements with your doctor before taking them.

TOXICITY

Vitamin D toxicity cannot be caused by prolonged sun exposure but it can happen if you have too much vitamin D by taking supplements.

The symptoms of vitamin D toxicity include loss of appetite, nausea, weakness, frequent urination, muscles aches and spasms. In severe cases, vitamin D toxicity can lead to irreversible kidney and heart failure or coma and even death. Vitamin D toxicity is, however, very rare.

WHAT IS MY LEVEL OF VITAMIN D?

The only way to check your level of vitamin D is to have your GP do a blood test.

People who feel they are at risk, or anyone who is concerned about their vitamin D level, should discuss this with their doctor.

COMMONLY ASKED QUESTIONS

1. I have pale skin and am worried about getting sunburnt or skin cancer if I go into the sun too much to try and get enough vitamin D – what do you suggest?

 Obviously protecting your skin from sunburn and skin cancer is extremely important and is the reason why we would never suggest you go out into the sunshine in the middle of the day in summer months to absorb vitamin D.

 You can easily get enough vitamin D from the sun, before 10am and after 3pm in summer.

 See the table on page 14 about recommended sun exposure times for different times of the year.

2. Can you get enough vitamin D from foods?

 No. Vitamin D is only found in small quantities in a few foods in the Australian diet, making it extremely difficult to get your recommended daily intake of vitamin D from food alone.

 That is why limited sun exposure is recommended for the general population and vitamin D supplementation is recommended for people who are at risk of vitamin D deficiency (older people who live in residential care, people with dark skin and women who wear veils and coverings).

3. Can you absorb vitamin D if you are wearing sunscreen?

 No, sunscreen blocks the sun’s rays that form vitamin D in the skin. If you want to absorb vitamin D from the sun you should not use sunscreen, but only do this for a limited time, during the times of the day when it is safer (see table on page 14). Do not go into the sun unprotected between 10am and 3pm, especially during summer months.

 It is of vital importance that you continue to protect your skin from sunburn and skin cancer any time that there is a risk of damage to your skin. Remember to protect yourself in five ways from skin cancer: wear a broad-brimmed hat, sun-protective clothing that covers as much of your body as possible, wrap-around sunglasses, apply SPF30+ broad spectrum water-resistant sunscreen, and seek shade.
8. RESOURCES

CONSUMER GUIDES

9. WHO WE ARE

OSTEOPOROSIS AUSTRALIA

Osteoporosis Australia is an independent, not-for-profit organisation, managed by a CEO, Board of Directors and a Medical and Scientific Advisory Committee.

Our goal is to reduce the incidence of osteoporosis and osteoporotic fractures in the Australian Community.

Our services include:

- a toll-free information line for consumers (1800 242 141)
- educational materials for consumers and health professionals
- Osteoblast magazine for consumers and medical professionals
- Osteoporosis Prevention and Self-Management Program for consumers
- regular community education seminars and national education programs for health professionals, primary school students and residents of retirement villages and residential aged care centres.

Our activities include:

- Joint Position papers with ANZBMS (Australia & New Zealand Bone & Mineral Society)
- Clinical update days for Medical Professionals
- National Healthy Bones Week – first week in August
- World Osteoporosis Day (October 20)
- Supporting medical research in osteoporosis-related areas, through the OA research fund (established 2003)
- Health Professionals Program: GP and Pharmacy Guides, Vitamin D & Calcium Program, Fracture Prevention Awareness Program and Falls Prevention Project.

For further information, contact OA in your State 1800 242 141 or visit our website www.osteoporosis.org.au. For more information on sun safety: www.cancer.org.au.

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<thead>
<tr>
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<th>Osteoporosis Western Australia</th>
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<tr>
<td>Tel: 02 9857 3300</td>
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<tr>
<td>Osteoporosis Victoria</td>
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<td>Tel: 03 8531 8000</td>
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