BONE HEALTH AND BREAST CANCER

FACT SHEET

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This fact sheet was produced by Breast Cancer Network Australia

Some breast cancer treatments can affect your bone health, particularly the aromatase inhibitor group of hormone therapy drugs. This fact sheet explains the impact breast cancer treatments can have on bone health and provides some tips to help you maintain or improve your bone health during and after your treatment.

I knew that osteoporosis was a risk factor when I made the decision to take an aromatase inhibitor. I do what I can to minimise the risk, such as walking, watching my weight, eating calcium rich foods and having regular checks for my vitamin D levels. It was the right decision for me.

Bone density

'Bone mineral density' and 'bone density' mean the same thing. They refer to the strength and thickness of your bones. When your bone density is low, your bones are weakened and you are at increased risk of breaking (fracturing) a bone.

For women, getting older and being postmenopausal reduce bone density.

Other factors that may lead to lowered bone density include:

- a family history of osteoporosis or bone fracture
- low body mass index (BMI)
- smoking
- high alcohol consumption
- poor nutrition and a diet low in calcium
- low vitamin D levels
- not exercising enough (particularly weight-bearing exercises)
- treatment with certain drugs, including hormone therapies for breast cancer.

Terms you may hear describing low bone density include:

- osteopenia – when bone density is reduced below normal and you are at increased risk of bone fracture
- osteoporosis – when bone density is reduced to a level where you are at high risk of bone fracture or you have had a ''fragility" (also called a "minimal trauma") fracture.

Osteopenia and osteoporosis are sometimes referred to as 'silent' diseases because people with these conditions often do not have any symptoms and do not realise that there is a problem until they break a bone.

Breast cancer treatments and bone density

Up to 80 per cent of women diagnosed with breast cancer have hormone positive breast cancer. This means that the hormones oestrogen and/or progesterone, which occur naturally in a woman's body, help the cancer to grow.

Women with hormone positive breast cancer are usually prescribed hormone therapy. This is a daily tablet taken for five years or more. Hormone therapy drugs work in one of two ways – by reducing the amount of

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oestrogen produced by the body or by stopping oestrogen from entering cells and being used by the body. These treatments can affect your bone density levels because oestrogen is needed to help strengthen bones.

Hormone therapies commonly used to treat breast cancer include:

- aromatase inhibitors
  - anastrozole (Arimidex)
  - letrozole (Femara)
  - exemestane (Aromasin)
- tamoxifen (Tamoxifen, Genox, Tamoxen, Tamosin, Nolvadex).

Aromatase inhibitors can only be used to treat postmenopausal women. All aromatase inhibitors can cause bone loss.

Tamoxifen can be used to treat both pre and postmenopausal women. Tamoxifen lowers bone density only in premenopausal women. In postmenopausal women it seems to protect the health of bones.

Other breast cancer treatments can also affect bone density. Younger women who experience premature menopause because of chemotherapy treatment or the removal of their ovaries (oophorectomy) have lowered oestrogen levels and may experience bone loss. Some premenopausal women are prescribed aromatase inhibitors in combination with monthly injections of gonadotrophin releasing hormone (GnRH) agonist (eg gosrelin/ Zoladex) to shut down ovarian function and these women experience the greatest amount of bone loss. There is some research to suggest that radiotherapy can also reduce bone density.

Getting your bone density checked

If you are currently on, or about to begin, a breast cancer treatment that is known to reduce bone density, it is a good idea to talk to your doctor about your bone health. It is important to have this discussion when you are first prescribed a treatment that may affect your bone health. You and your doctor can identify whether you have any other risk factors for osteoporosis (www.knowyourbones.org.au).

Your doctor may refer you for a bone mineral density test, sometimes called a DXA test, to measure your bone density. This test uses low-dosage X-rays to measure the bone density at your hip and spine. A bone mineral density test is different from the bone scans that some women have at the time of their diagnosis or as part of a check-up.

Your bone mineral density test will give you a T-score, which is a measure of your bone mineral density compared to a young adult (the age of peak bone mass) and a Z-score, which is a measure of your bone density compared to other women of your age. A DXA tells you whether your bones are at a healthy density level. A normal T score range is 1 to -1 and is associated with a low risk of bone fracture. The lower the T-score, the higher the risk of fracture.

Depending on your test score, your doctor may recommend regular follow-up tests to monitor your bone density. If you are having regular tests, it is important to have them at the same imaging clinic to ensure your testing is consistent.

> *My oncologist recommended that I have a bone mineral density test every two years because of the aromatase inhibitor I was taking. I was happy to have the test done as it gave me peace of mind.*

The cost of a bone mineral density test ranges from around $85 to $160. Unfortunately, there is currently no Medicare rebate available specifically for women who require a bone density test because of their breast cancer treatment.

However, you may be eligible for a Medicare rebate if you:

- are 70 years or older
- have a presumed diagnosis of osteoporosis after experiencing one or more bone fractures after minimal trauma
- have experienced loss of ovarian function or menopause for more than six months before the age of 45
- require diagnosis and monitoring of a variety of health conditions, including rheumatoid arthritis
- require a test 12 months after a significant change in treatment for low bone mineral density.

Some clinics will bulk-bill women who are eligible for a Medicare rebate, which means that you should not have an out-of-pocket cost. You can ask your doctor to refer you to a bulk-billing imaging clinic or to write 'please bulk-bill' on the referral form.

To find out if you are eligible for a Medicare rebate, and what your out-of-pocket cost for the test may be, ask the imaging clinic before you make the appointment to have your test.

Keeping your bones healthy

Some simple lifestyle changes can help keep your bones healthy and strong. These include eating a healthy well-balanced diet and exercising regularly. If your bone density is already low, these lifestyle choices may be needed in combination with bone-strengthening medication. If this is the case, your doctor will recommend the best treatment for you.

My doctor and I developed an action plan and I increased my bone density by being proactive. I took calcium and vitamin D supplements, did weight-bearing exercise, and had regular bone mineral density tests.

Diet

Healthy eating involves plenty of fresh fruit, vegetables, wholegrain breads and cereals, and enjoying the other things you love to eat in moderation.

A healthy well-balanced diet and maintaining a healthy weight range will help you maintain strong healthy bones. Foods high in calcium and vitamin D are especially beneficial, as is limiting the amount of alcohol you drink.

Calcium

Calcium is vital for building and maintaining healthy bones and is best obtained from your diet. The Australian Department of Health and Ageing recommends that adult women have the following amount of calcium daily:

Recommended daily intake of calcium for women		
Age	**Recommended daily intake of calcium**	**Recommended daily serves of calcium-rich food**
19–50	1,000 mg/day	2½
51+	1,300 mg/day	4
Women with low bone density (having a bone mineral density test T-score of –1 or lower)	1,300 mg/day	4

Foods that are high in calcium include:

- dairy foods such as milk, yoghurt and cheese – low fat options are just as rich in calcium as full fat products
- fish with edible bones such as sardines, herring and tinned salmon
- tofu (firm), calcium fortified soy or almond milk
- almonds and Brazil nuts with skin
- unhulled (shell intact) sesame seeds and Tahini
- dark green leafy vegetables such as broccoli, spinach, bok choy, silverbeet and kale
- dried figs and apricots
- kidney beans, green beans and baked beans.

Each example below is one serve of calcium-rich food:

- 1 cup (250ml) fresh, UHT long-life or reconstituted powdered milk or buttermilk
- ½ cup (120ml) evaporated milk
- 2 slices, or 4x3x2cm piece (40g) hard cheese
- ½ cup (120g) ricotta cheese
- ¾ cup (200g tub) yoghurt
- 100g (about ½ cup) almonds with skin

- 45g sardines, canned in water (about 1–2 sardines)
- 75–80g (about 1/3 cup) canned pink or Australian salmon with bones.

Foods and drinks containing phosphoric acid can reduce the amount of calcium in the body, so it is helpful to try to limit your intake of these. Caffeine, salt, red meat and soft drinks all contain phosphoric acid.

Your doctor may recommend that you take a calcium supplement. It is always best to speak with your doctor before beginning any supplement, including calcium, to ensure that it does not interact with any other medication you are taking. If you have metastatic breast cancer in the bone, too much calcium may be harmful to you so it is very important to speak to your doctor before starting any calcium supplements.

Calcium supplements will contain one of two different forms of calcium: calcium carbonate or calcium citrate. If you take medication to reduce the level of acid in your stomach, supplements that contain calcium citrate may be a better option for you. Your GP or pharmacist can provide you with more information.

Vitamin D

Getting enough vitamin D is also important to maintain healthy bones because it helps your body to absorb calcium.

The best source of vitamin D is sunlight. You can get enough vitamin D by exposing your face, arms or legs to sunlight for around five to 10 minutes a day (avoiding the warmest part of the day) all year round in the upper half of Australia and during summer in the lower half of Australia (below Brisbane latitudes). But you need 2-3 hours per week in the winter months in the lower half of Australia which can be difficult to achieve. If your vitamin D levels are low, your doctor may recommend you take a vitamin D supplement.

Food cannot provide enough vitamin D and most people rely on sun exposure to reach recommended levels. A few foods contain small amounts of vitamin D such as oily fish (eg. salmon, tuna, mackerel and herring), liver, egg yolks and fortified margarine and milk.

Alcohol

Alcohol has been shown to lower bone density. The National Health and Medical Research Council (NHMRC) recommends healthy Australian adults drink no more than two standard drinks a day. Cancer Council Australia recommends people avoid drinking alcohol if possible, or follow the NHMRC recommendation. ‘One standard drink’ in Australia contains 10 grams of alcohol. As an example, 100 mL of wine is one standard drink. It is important to note that quite often one serving of alcohol may contain more than one standard drink. For example, if you pour yourself a glass of wine and fill the glass, the glass may contain around 150–200 ml of wine, which is equivalent to 1.5 to 2 standard drinks.

Smoking

Smoking also lowers bone density. Giving up smoking helps improve your bone health, as well as your general health. If you would like to quit smoking, your GP can help you work out a plan that can improve your chances of quitting successfully. Quitline (13 78 48) offers free phone advice, support and information resources to help you quit.

Exercise

Exercising regularly has been shown to be very effective in increasing bone density and reducing your risk of bone fracture. The types of exercises that may be especially helpful include:

- weight-bearing exercises – your body has to bear its own weight, such as walking, jogging, netball, tennis and dancing
- resistance training exercises – involve weights, including free weights and weight machines found in gyms.

The table below outlines the effectiveness of different types of exercises at strengthening bones. In general, higher impact exercises tend to be better at strengthening bones. However, it is important to start with some low intensity exercise, such as yoga or walking, and over time build to a higher intensity exercise.

The effectiveness of different exercises at strengthening your bones			
Very effective	**Somewhat effective**	**A little bit effective**	**Not at all effective**
Netball, basketball	Running, jogging	Walking	Swimming
High impact aerobics	Brisk or hill walking	Lawn bowls	Cycling
Dancing	Stair climbing	Yoga, Pilates, Tai Chi	
Tennis	Weights (free weights or weight machines)		

Source: Osteoporosis Australia

Exercising regularly will give you the most benefit. The Australian Department of Health and Ageing recommends a total of two-and-a-half hours of exercise every week.

BCNA's *Exercise and breast cancer* booklet contains information on the benefits of exercise, practical strategies to stay motivated, and an exercise diary for you to keep track of your achievements. To order a free copy, see the 'More information' section.

Medication

If you are having a breast cancer treatment that reduces your bone density, your doctor may prescribe a type of drug that helps to strengthen bones and reduce your risk of bone fracture.

Common drugs used to treat low bone density include:

- alendronate (Fosamax): tablets that are usually taken once a week
- risedronate (Actonel EC): tablets that are usually taken once a week
- zoledronic acid (Zometa, Aclasta): an intravenous infusion that is given every 6 or 12 months
- denosumab (Prolia): an injection given below the skin (subcutaneously) every six months. It can be given by your GP or general practice nurse.

More information

Breast Cancer Network Australia (BCNA)

BCNA's free My Journey online tool provides up-to-date, evidence-based information for people diagnosed with breast cancer. The information provided by the My Journey online tool is tailored to your individual needs and circumstances at all stages of your breast cancer journey. My Journey can be found at bcna.org.au/myjourney. For more information, call BCNA on 1800 500 258.

BCNA's *Bone health* webpage provides information on keeping your bones healthy during and after breast cancer treatment.

Visit bcna.org.au.

BCNA's *Exercise and breast cancer* booklet contains information on the benefits of exercise, the amount of exercise recommended for women diagnosed with breast cancer, practical strategies to stay motivated, and an exercise diary to keep track of your achievements. The booklet also contains information on diet and weight loss.

For a copy, visit bcna.org.au, or call 1800 500 258.

BCNA's *Hormone therapy and breast cancer* booklet provides information for women who are currently taking a hormone therapy as part of their breast cancer treatment. The booklet explains how these drugs work and why they are so effective at preventing breast cancer recurrence, and provides tips on how to manage some of the side effects.

For a copy, visit bcna.org.au, or call 1800 500 258.

BCNA's online network is a place for women diagnosed with breast cancer to connect and share their experiences with others in a similar situation.

To connect with other women, visit bcna.org.au.

Osteoporosis Australia

Osteoporosis Australia's website contains information on maintaining and improving bone health.

Visit osteoporosis.org.au.

ABC Health & Wellbeing

The *Exercising for your bones* video on the ABC Health & Wellbeing website explains the best types of exercises to improve bone strength. The video runs for four minutes.

abc.net.au.

BreaCan

In BreaCan's *Breast cancer and bones* podcast, endocrinologist Dr Esther Briganti discusses the impact of breast cancer treatments on bone health and ways to improve bone health. The podcast runs for 106 minutes.

Visit breacan.org.au.

breastcancer.org

The *Bone health* section of the US-based breastcancer.org website provides information on bone health, bone health tests, breast cancer treatments that affect bones, and ways to keep your bones strong.

Visit breastcancer.org.

Breast Cancer Care UK

Breast Cancer Care UK's *Osteoporosis and breast cancer treatment* webpage includes information on how breast cancer treatments affect bone health, and keeping your bones healthy.

Visit breastcancercare.org.uk.

This information is also available in a more comprehensive Breast Cancer Care UK fact sheet, *Osteoporosis and breast cancer treatment.*

Visit breastcancercare.org.uk.

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