

Building Strong Bones

For patients taking androgen deprivation therapy (hormone therapy) for prostate cancer

This pamphlet explains:

- How androgen deprivation therapy (ADT) affects your bones
- What puts your bones at risk for fracture
- How to strengthen your bones
- What you can do to prevent osteoporosis

Note: All underlined words are explained at the end of the pamphlet.



What is Androgen Deprivation Therapy?

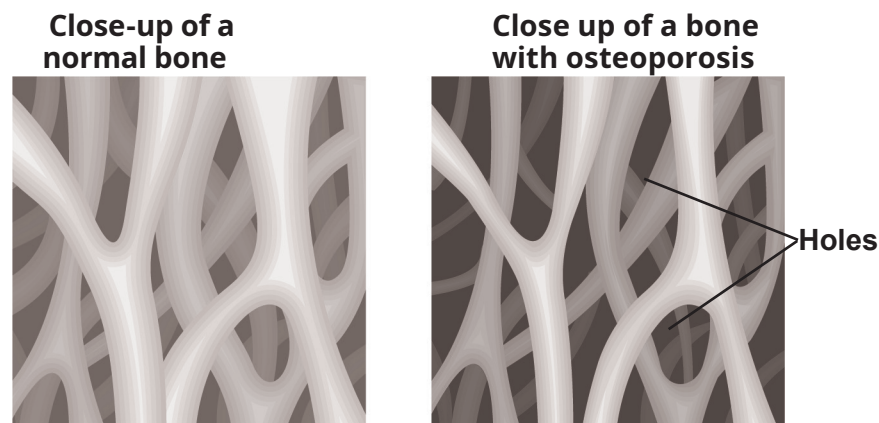
Your doctor has prescribed for you Androgen Deprivation Therapy or ADT. It is a type of hormone therapy. ADT uses a drug or combination of drugs to help lower the chances of your prostate cancer from coming back.

How will ADT affect my bone health?

ADT can make your bones weaker, putting you at risk for:

- Osteoporosis (low bone mass and weak bones), and
- Fractures (broken bones)

Osteoporosis is a disease of low bone mass and weak bones. It means that your bones are getting weaker because of “holes” in your bones. Osteoporosis can cause your bones to be fragile, and as a result, can break easily.



A broken bone is called a fracture. For example, you can fracture your arm, back or even hip. Usually, you will not feel any pain or weakness until a fracture happens. Fractures can be painful and limit what daily activities you can do.

Fractures can result in:

- More time spent in the hospital
- Less time enjoying hobbies and leisure
- Less independence

Did you know?

- ✓ 1 in 8 men over the age of 50 has osteoporosis.
- ✓ Without prevention, 25% of men older than 50 years will have a fracture due to osteoporosis.
- ✓ People with hip fractures from osteoporosis spend more time in the hospital than people with stroke, diabetes, or heart attack.

Once you start on ADT, your doctor will arrange for a **Bone Mineral Density (BMD) test**. This test will help monitor your bone health.

What is a Bone Mineral Density (BMD) test?

A Bone Mineral Density (BMD) test uses x-rays to look at the thickness and strength of your bones. It helps your healthcare team detect any changes to your bone health, like early bone loss. It takes about 15 minutes and is painless.

Did you know?

Without BMD testing, 80% of patients who have had fractures were not treated properly for osteoporosis. BMD testing is important to help your doctor check your bones and recommend the right treatment for you, if required.

While you are on ADT, a BMD test is done every 1 to 2 years to help monitor your bone health.

Talk to your doctor if you have any questions about this.

Your BMD will give you a “T-score.” The lower your score, the weaker your bones are.

Use this table as a guide:

T-Score	What the score means
Higher than -1	<p><u>Normal Result:</u> You have normal bone density.</p> <p>If you just started ADT, be sure to keep your bones strong by taking calcium, vitamin D, and exercising. More information can be found in this pamphlet to help you maintain your healthy bones.</p>
-1 to -2.5	<p>Your bones are starting to get weaker. This is called <u>osteopenia</u> or low bone mass.</p> <p>Be sure to read this pamphlet to know what you can do to lower your risk of fractures.</p> <p>Also, talk to your doctor about your risk of getting osteoporosis.</p>
Lower than -2.5	<p>Your bones are weak and you are at risk of fractures. This is called <u>osteoporosis</u>.</p>

Read this pamphlet for information about strengthening your bones. Also, talk to your doctor at your next appointment. Your doctor may prescribe medication to increase your bone strength.

What puts me at risk of getting a fracture?

The following are things that can increase your risk of getting a fracture — some you can control and some you cannot.

Things you **may not** be able to control:

- Being very thin or having a small frame
- Older age — bones are strongest when you are 15 to 25 years old and get weaker as you age
- Family history of osteoporosis or hip fracture
- Being on Androgen Deprivation Therapy (ADT)
- Having a previous fracture
- Being on oral steroid medication, like prednisone

Things you **may** be able to control:

- Not exercising enough
- Not getting enough calcium or vitamin D
- Smoking
- Drinking too much alcohol or caffeine
- Eating too much salt

These are things you can change to help you increase your BMD score, and reduce your risk of fractures. The next section offers suggestions and tips to help you make those changes.

How will my bones be affected if I am not receiving ADT right now?

Some patients may receive intermittent ADT, which means they have breaks in their injections. It is important to keep your bones healthy during these breaks to lower your chance of getting any new fractures.

The next section has useful ways to help you raise your BMD score, even while you are not currently receiving injections.

How do I reduce my risk of getting a fracture?

Exercise

There are different types of exercises that can help make your bones stronger. They include:

1. Weight-bearing activities
2. Muscle strengthening exercises
3. Balance and posture activities

Doing all 3 types of exercises every week will help you strengthen your bones. You should also avoid contact sports or high-impact activities that can lead to falls.

Important: These exercises can be helpful if they are done safely. Speak to your doctor if you are concerned about your safety while doing any of these exercises or have never exercised before.

1. Weight-bearing exercises: Activities where your legs and feet support the weight of your body. These exercises help your bones get stronger.

Examples of weight-bearing exercises:

- Walking
- Soccer or frisbee
- Baseball or playing “catch”
- Jogging or hiking

Try to do 150 minutes of weight-bearing activities per week (or 20 to 25 minutes per day).

2. Muscle-strengthening exercises: These are activities that focus on keeping your major muscle groups strong. When a muscle contracts, it pulls on the bone and this helps strengthen the bone.

Examples of muscle-strengthening exercises:

- Using weight machines at the gym
- Using free weights or dumbbells at home

Try to do these exercises, 2 to 3 times per week.

The “Challenging Prostate Cancer” book has some muscle-strengthening exercises you can try at the gym and at home. Visit the link below and scroll down to page 63. To get a copy or to read the book online please refer to the “More Resources” section in this pamphlet.

3. Balance and posture exercises: Activities that will help you keep your body and bones in proper alignment, and help strengthen your back.

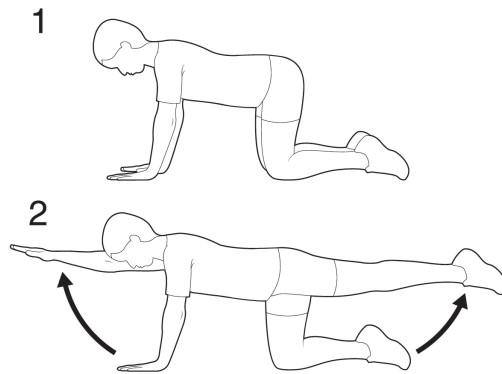
Examples of balance and posture exercises:

- Tai Chi
- Dancing
- Yoga

Try to do 1 or 2 of these exercises, 2 to 3 times per week. Some balance and posture exercises are also provided below. Try repeating each exercise 8 to 10 times.

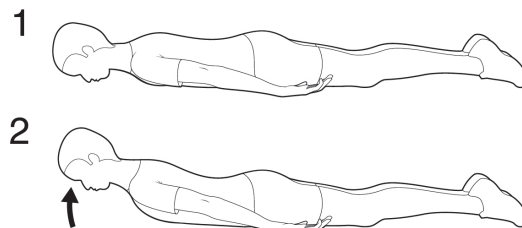
Arm and Leg Extensions (Back Strengthening)

1. Get on your hands and knees with your hands directly below your shoulders and your knees directly below your hips.
2. Keeping your back straight, raise one arm in front of you and the opposite leg behind you.
3. Hold for 3 to 5 seconds and slowly bring your arm and leg back down.
4. Do the same to the other arm and opposite leg.



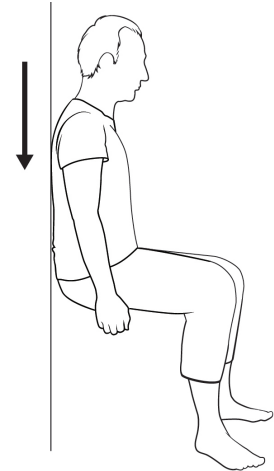
Back extensions (Back Strengthening)

1. Lie facing down on the floor with your legs together and arms by your side.
2. Keeping your neck straight, lift your head off the floor about 2 to 3 inches.
3. Hold for 2 seconds and slowly bring your head back down.



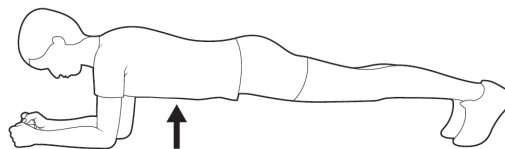
Wall Sits (Back Strengthening)

1. Stand with your back against the wall, and your feet 1 foot away from the wall.
2. Slide your back down the wall until your knees are bent at a 90 degree angle and pretend you are sitting in a chair.
3. Hold this position for 20 to 30 seconds, then slide your back up the wall again.



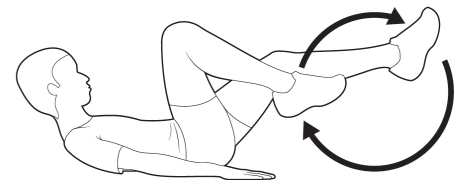
Plank (Stomach Strengthening)

1. Lie face down with your elbows directly below your shoulders, your forearms on the ground, and the bottoms of your toes on the ground.
2. Lift your body up so only your forearms and toes are on the ground, like in the picture.
3. Keep your back, butt and legs in one straight line.
4. Hold for at least 10 seconds and slowly lower yourself to the ground to relax



Bicycle (Stomach Strengthening)

1. Lie flat on your back with your arms by your side and palms facing down.
2. Lift your head off the ground and keep your neck straight.
3. Raise both of your legs and bend them at the knees to form a 90 degree angle.
4. Alternate drawing your knees towards your chest as if you are pedalling a bicycle. Press your hands into the ground to stable yourself.



How to make exercise part of your daily routine?

- Take the stairs instead of the elevator
- Get off the bus early and walk a few blocks
- Walk around the shopping mall (especially in cold winter months)

Get more calcium and vitamin D in your diet

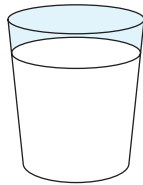
Calcium and vitamin D are the two most important nutrients for building healthy bones. You cannot have one without the other. Calcium builds bones and vitamin D helps take the calcium from the food and bring it into your body. You do not need a prescription for Calcium or vitamin D.

Calcium

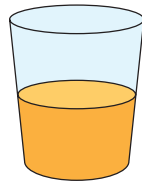
If you are over 50 years old, try to get 1000 to 1200 mg/day of Calcium. Here are some good sources of Calcium:



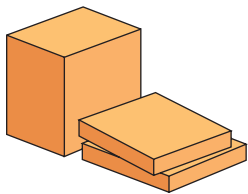
Snack size yogurt
(about 1/2 cup)
= 200 mg calcium



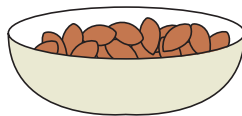
Glass of milk
(8 oz OR 1 cup)
= 300 mg calcium



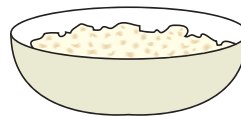
Small glass of calcium-
fortified orange juice
(1.2 cup)
= 150 mg calcium



3 cm cube of cheese
= 200-250 mg calcium



1/2 cup of almonds
= 190 mg calcium



Cottage cheese
(1/2 cup)
= 75 mg calcium

If you find it difficult to get enough calcium from food, take a calcium carbonate or calcium citrate supplement.

Some reliable brand names include:

- Life Brand
- Jamieson
- Rexall
- Oscal-D

Avoid taking more than 1200 mg of calcium in total per day. This can cause stomach upset and kidney stones.

Vitamin D

Vitamin D comes from the sun and some food, like:

- fish (salmon, mackerel, sardines, cod liver oil)
- tuna fish (canned in water)

In Canada, you cannot get enough vitamin D throughout the year without taking vitamin supplements. Try to get 1000 to 2000 International Units (IU) of vitamin D per day. Look for “Vitamin D3” on the bottle label. The bottle should read “1000 IU”.

Avoid taking more than 2000 IU per day unless your doctor asked you to.

Some reliable brand names include:

- Swiss
- Rexall
- Life
- Solaray
- Jamieson

Quit smoking

Smoking blocks your body from being able to use Calcium. This means that even if you eat enough Calcium, your body cannot use it as well. This is why smokers have weaker bones than non-smokers. Your doctor or nurse can give you more information and support if you would like to quit smoking.

Limit or avoid alcohol

Drinking a small amount of alcohol will not affect your bone health. Try to limit the alcohol you drink to 2 servings per day. For example, one serving can be one beer, one glass of wine, or ½ ounce of hard liquor. Drinking more than 2 servings per day can stop your body from being able to build up strong bones.

Limit or avoid salt and caffeine

Too much salt and caffeine (more than 3 cups of coffee or tea in a day) can cause you to lose Calcium. This can lead to weaker bones.

Other treatments for bone health

Your doctor may decide to prescribe you different medicine to keep your bones stronger. Depending on your BMD score and other risk factors, your doctor may suggest for you special bone strengthening medicines called bisphosphonates. Like with all other drugs, there are side effects to bisphosphonates.

Talk to your family doctor or cancer specialist about which kinds of treatments are best for you.

More resources

Challenging Prostate Cancer (Princess Margaret Prostate Centre)

Webpage: www.prostatecentre.ca/images/downloads/challenging_prostate_cancer.pdf

In this guide, you will find information about healthy eating, physical activity with specific recipes and exercises for prostate cancer patients.

You can also pick up a free copy or find other resources at the Patient & Family Library on the main floor of the Princess Margaret Cancer Centre.

For more information, please visit these websites:

OsteoConnections: Exploring Bone Health at UHN

Website: <http://osteconnections.com>

Osteoporosis Canada

Website: www.osteoporosis.ca

Recipes with Calcium, Osteoporosis Canada

Website: <https://osteoporosis.ca/bone-health-osteoporosis/nutrition/recipes/>
(Search for "Recipes")

Calcium Calculator, Osteoporosis Canada

Website: <https://osteoporosis.ca/bone-health-osteoporosis/calcium-calculator/#page-1>

(Click on the "Calculate Your Calcium")

General Guide for Physical Activity in Patients Diagnosed with Cancer,
American Cancer Society

Website: www.cancer.org/Treatment/SurvivorshipDuringandAfterTreatment/StayingActive/physical-activity-and-the-cancer-patient

Glossary

Androgen Deprivation Therapy (ADT): This is a medication that lowers the chances of your prostate cancer from coming back. It is usually given by a needle every few months. ADT can cause bone weakness as a side effect.

Balance & Posture Activities: These kind of activities help keep your body and bones in proper alignment.

Bisphosphonate: A special type of prescription medicine that can help strengthen your bones. These medicines are sometimes used for patients who have osteopenia or osteoporosis.

Bone Mineral Density (BMD): A type of x-ray test that looks at how dense and strong your bones are. Your healthcare team uses the BMD to monitor your bone health.

Fracture: A broken bone.

Muscle-strengthening exercises: These exercises strengthens your major muscle groups, such as your biceps, hamstrings, or oblique muscles.

Osteopenia: A condition where you have a lower than normal Bone Mineral Density (BMD). Your bones are weaker than they should be. If left untreated, it could lead to osteoporosis.

Osteoporosis: A thinning of bone tissue and loss of bone density over time. Your bones are fragile and can break easily. Usually, you would not feel any pain or weakness until a fracture occurs.

T-score: This is the result of your BMD test. A t-score higher than -1 means you have normal bone density. A t-score between -1 and -2.5 is osteopenia, and a t-score lower than -2.5 is osteoporosis.

Weight-bearing activities: Activities where your legs and feet support the weight of your body. These exercises help your bones get stronger.

The development of patient education resources is supported by the Princess Margaret Cancer Foundation.

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