Can diet help with side effects of Androgen Deprivation Therapy (ADT or hormone therapy)?

**RECOMMENDATION:** Eat a balanced heart-healthy diet and make sure you get enough exercise, calcium and vitamin D.

**What’s the evidence?**

**For Heart Health?**
ADT can increase the risk of heart disease:
- A research review by the American Heart Association found that men on ADT have increased risk factors for cardiovascular disease and might have a higher risk for heart attacks.¹
  - Causes for this include increased body weight, raised cholesterol and triglycerides and poor blood sugar regulation.
  - Increased risk for heart attacks is highest for men who already have a risk factor for heart disease including high cholesterol, high blood pressure or a family history of heart disease.

**For Diabetes?**
ADT can increase the risk of type 2 diabetes:
- Men on ADT can have poor blood sugar regulation leading to increased risk of developing diabetes.²
- ADT can increase blood levels of insulin and lower insulin sensitivity resulting in too-high blood sugar levels.

**For Bone Health?**
ADT can increase the risk of osteoporosis:
- After a prostate cancer diagnosis men on ADT are more likely to have significant bone mineral loss and more bone fractures compared to patients not receiving ADT.
  - ADT can decrease bone density making them weaker.
  - A recent research review found that men on ADT for prostate cancer had an increased risk for bone fractures of 23%.¹

**ADT slows the growth of prostate cancer cells.**
Prostate cancer cell grow is stimulated by male hormones known as androgens, especially testosterone.
- ADT cannot cure prostate cancer, but works by reducing androgen levels or androgen's actions on cancer cells.
- There are several possible side effects of ADT that depend on the man’s health, the drug taken and dosage and treatment duration.

**Types of ADT**

<table>
<thead>
<tr>
<th>Stops testosterone production in the testicles</th>
<th>Blocks the action of testosterone on prostate cancer cells</th>
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<tbody>
<tr>
<td>Luteinizing hormone–releasing hormone (LHRH) agonists</td>
<td>Anti-androgens</td>
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<tr>
<td>Leuprolide (Lupron, Eligard)</td>
<td>Flutamide (Euflex)</td>
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<tr>
<td>Goserelin (Zoladex)</td>
<td>Bicalutamide (Casodex)</td>
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<td>Buserelin (Suprefact)</td>
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<tr>
<td>LHRH antagonists</td>
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<td>Degarelix (Firmagon)</td>
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<td>Estrogen</td>
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<td>Diethylstilbestrol or DES</td>
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<td>Surgery to remove the testicles</td>
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<td>Castration (orchiectomy)</td>
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Men on hormone therapy have an increased risk of heart disease, diabetes and osteoporosis that might be reduced through diet.
Manage ADT side effects through diet & lifestyle

Possible side effects of ADT

- Decreased mental sharpness
- Fatigue (lack of energy, tiredness)
- Breast tenderness and growth
- Bone thinning or breaks (osteoporosis)
- Low red blood cell counts (anemia)
- Depression
- Sexual problems (impotence, loss of sexual desire)
- High insulin and blood sugar levels (insulin resistance)
- High cholesterol
- Increased body fat
- Loss of muscle
- Hot flashes

Bone health and ADT

Calcium and vitamin D helps keep bones healthy by preventing bone mineral loss.

- Men need a total of 1000-1200 milligrams of calcium per day from food and supplements.
- Men need 600-800 IU vitamin D daily and Canadians over 50 years old should be taking at least 400 IU of supplements everyday - especially in winter.
- Ask your doctor about your bone density and risk of osteoporosis.
- Daily calcium (500mg) and vitamin D (400-800 IU) supplements might help prevent bone loss when combined with exercise.

Heart health and ADT

Eating a heart-healthy diet reduces cholesterol and risk of heart disease - and is also prostate-healthy!

- Watch your cholesterol - talk to your doctor if you have a family history of heart disease.
- Check your blood pressure and fasting blood sugar levels too.

Supplements to consider

Although their effectiveness is not proven, several supplements might have potential benefits.

- Fish oil, omega 3 fatty acids and flax seed, might improve heart health and can reduce hot flashes.
- Black Cohosh (Cimicifuga racemosa) and Garden Sage (Salvia officinalis) have also been used for hot flashes.
- Ginseng (Panax quinquefolius) might reduce fatigue.
- Protein powder might reduce muscle loss and lessen weight gain.

Get regular exercise

To improve heart health, reduce depression, prevent muscle and bone loss and reduce fracture risk.

- Do 30 minutes of moderate aerobic exercise every other day.
  - Raises your heart rate through brisk activities - includes fast walking, swimming, gardening, and slow bicycling.
- Do weight lifting or resistance exercises 2-3 times per week.
  - Builds muscle and bone through slow repeated movements with weights or other pressure on muscles - includes lifting dumbbells, using weight machines or elastic tubing and doing push-ups.

Eat a healthy diet

To improve heart health, blood sugar regulation and body weight.

- Eat less fat - especially saturated fats (like lard) and trans fats (like shortening).
- Eat more high-fibre foods like whole grains, vegetables and fruit.
- Eat more fish and less meat, processed and junk foods.
- Limit salt and sugar.

This information is not meant to replace advice from your doctor or dietitian.