

## THE ABCs OF OSTEOPOROSIS PREVENTION

The development of prostate cancer is sufficiently frightening without also worrying about a broken bone. Those men whose prostate tumours grow in response to male hormones (like testosterone [T]) are usually treated with “androgen depletion/ablation” meaning a medicine that lowers testosterone and/or decrease its actions.

**Why is this an osteoporosis risk?** Because testosterone both normally slows bone loss and increases bone growth. Taking away testosterone causes rapid bone density and strength loss and may also cause hot flushes, sleep trouble and aches and pains. Don’t despair—there are many things you can do to keep your bones healthy. Plus there are specific ways you can decrease bone loss and risks for breaking a bone (fracture) while on androgen depletion therapy. **Bone health is influenced by how we live our lives and is simple as ABC.**

### “A” IS FOR “ACTIVE”

Bones gain strength through forces from muscle work or gravity. Men build stronger muscles and bigger bones than women but still need regular exercise/activity. While sitting watching TV or on the computer, get up, stretch and do calisthenics or climb stairs for 2 or more minutes every 20 minutes or at every commercial. *Make a commitment to doing moderate exercise (walking, hiking, stair climbing, cycling etc.) 30 minutes each day.* Adult exercise doesn’t increase bone density, but does increase *bone strength*. Exercise is good for whole body, heart and mind. **Commit to at least a daily walk!**

### “B” IS FOR “BRAWNY”

Weight gain is common and especially during androgen ablation therapy that causes increased fat and decreased muscle. Eat less and exercise more *to avoid becoming obese*. Those who are thinner lose bone more rapidly but being heavy means *weaker* bones. Muscle weight, in particular, is good for bone strength and helps prevent falls. **Aim for normal weight and avoid weight gain.**

### “C” IS FOR “CALCIUM”

Calcium is not only a building block for bone but also may decrease bone loss. Men on androgen ablation therapy need at least 1200 mg of elemental calcium each day. There is 300 mg of calcium in each high-calcium food: a cup [250 ml] of milk or calcium-supplemented beverage, ¾ cup yogurt or a hunk of cheese. Because calcium is not well stored, **have a high calcium food with each meal and at bedtime.** If needing calcium pills, take 500 mg at bedtime. Up to 2,000 mg each day of calcium is safe.

### “D” IS FOR “VITAMIN D”

Vitamin D is needed to absorb calcium, for muscle action and for general health. Above 49° N latitude, our sun screen-less skin can only make Vitamin D from sun from April to October. **Sun and food don’t give us enough Vitamin D.** Everyone needs at least 600 IU a day. Up to 4,000 IU of Vitamin D a day is safe. Usual multivitamins give 400 IU. Add 1-3 1000-IU Vitamin D pills to that. Be sure to take Vitamin D *all year*.

### “E” IS FOR “EASY GOING “

Does feeling relaxed and good about yourself improve bone health? Yes! High stress hormones, such as cortisol, cause bone loss. Cancer is stressful—androgen ablation gives even more stress. Anything we can do to decrease stresses, such as a walk, yoga, relaxation, talking with a trusted friend or a good night’s sleep will help bones!

### “F” IS FOR “BONE FORMATION”

Bone balance requires new bone formation by osteoblast cells; lower testosterone levels with androgen depletion means less bone formation. No approved osteoporosis medication except daily PTH injections increases bone formation. Medroxyprogesterone (MPA, 20 mg) effectively treats men’s hot flushes and **also increases bone formation**. Several trials in women say that MPA adds to bone gain when taken with anti-resorptive treatments (like estrogen or bisphosphonates).

### “G” AND “H” ARE FOR “GOOD HABITS”

That means regular meals and sleep and drinking no more than two caffeine-containing drinks a day (which cause urine calcium loss). Avoid smoking because cigarettes, in addition to being addicting and associated with more night sweats, can cause bone loss. If choosing to drink alcohol, have no more than two drinks a day—more alcohol increases risks for falls and breaking bones.

### “I” MEANS “INHIBIT BONE LOSS”

Because bone loss begins rapidly with androgen ablation, ask for a bone density and assess your 10-y fracture risk (<http://www.osteoporosis.ca/multimedia/pdf/CAROC.pdf>). If your risk is moderate (10-20%) then you should consider taking a strong osteoporosis medicine such as a bisphosphonate or denosumab to substantially decrease fracture risks.

**Jerilynn C. Prior MD, March 2016.** Reviewed by Drs. Martin Gleave (Canada) and CD Driscoll (USA), oncologists