Optimising bone health in Inflammatory Bowel Disease

This dietary resource provides general dietary information on optimising bone health with Inflammatory Bowel Disease (IBD)

- IBD increases the risk of osteopaenia and osteoporosis
- Osteoporosis makes bones weak and more easily broken
- Eating enough calcium, Vitamin D and doing exercise can protect bones

Why is bone health important in IBD?

Bones have many important functions in the human body including forming our skeleton, creating red and white blood cells and acting as a storage bank for minerals. Individuals with IBD are at increased risk of low bone mass; termed osteopaenia or osteoporosis.

What is osteopaenia/osteoporosis?

Osteoporosis refers to a loss in bone mineral density which causes weaker, more fragile bones that have an increased risk of breaking.

Osteopenia is a reduction in bone mass that is less severe than osteoporosis but is considered a risk factor to developing osteoporosis.

Half of IBD patients have osteopenia or osteoporosis. Post-menopausal women with IBD also have a higher risk of developing osteoporosis. Osteoporosis can lead to:

- Increased risk of fractures
- Back pain
- Stooped posture and loss of height
- Reduced ability to carry out daily activities if mobility is affected

What can increase the risk of osteoporosis in IBD?

- **Decreased absorption of calcium** and **vitamin D** caused by inflammation in the **small bowel**.
- **Not eating enough calcium**. Calcium helps keep our bones strong and they require a regular supply. If we do not consume enough calcium, the body removes calcium from our bones, making them more fragile and prone to breaking.
- **Having a low Vitamin D level**. Vitamin D is essential for maximising absorption of calcium from the foods we eat and helps our body to build bone mass with calcium.
- **Reduced ability** for **bone formation** during periods of inflammation
- **Low body weight and not** eating enough protein due to poor appetite and reduced food intake caused by symptoms of IBD
- **Long term use** of **steroid medications** which interfere with bone formation processes and interrupt calcium absorption
- **Low physical activity levels** - specifically weight bearing activity, as this exercise is great for maintaining bone health and muscle strength.

How is osteoporosis screened for and detected?

Bone mineral density is assessed by a specific X-ray called Dual-energy X-ray absorptiometry or “DEXA” that examines the density of the bones at the hip and spine.

How can I prevent or manage osteoporosis?

1. **Eat a healthy, balanced diet** with enough calcium and protein rich foods.
2. **Get enough vitamin D from sunlight.**
   Usually, most people can meet vitamin D recommendations with adequate sunlight exposure. On sunny days, spending 10-15minutes of walking in the sun in the middle of the day, helps you to get enough vitamin D. For more information on sun exposure and vitamin D, refer to the Cancer Council website: https://www.cancer.org.au/media-releases/2016/how-much-sun-is-enough
3. **Weight-bearing exercise**
   Being active every day is important. Aiming for 150-300 minutes per week of moderate intensity exercise is recommended for general physical health. To optimise bone health, weight-bearing exercise is recommended. This includes hill-walking, jogging, dancing and/or resistance training using free weights and resistance bands.

How much Calcium, Vitamin D and protein do I need?

Calcium

Age group(s)	**Calcium requirements**
Men	per day
19 - 70 years old	1000 mg
51 – 70 years old	
>70 years old	1300 mg
Women	
19 – 50 years old	1000 mg
51 – 70 years old	1300 mg
> 70 years old	

Calcium is mineral found mainly in dairy foods such as milk, yoghurt and cheese. It can also be found in bones of fish, soy foods and fortified products (e.g. tofu, cereals, nut or oat milk). If you are at risk of osteoporosis or have osteoporosis, include more calcium rich foods into your diet.

Other tips to boost calcium in your meals:

- Calcium from animal based foods is better absorbed than calcium from plant based sources.
- If using dairy alternatives ensure products are fortified with calcium at least 100mg/100ml .
- Grate cheese over salads, soups or pasta.
- Eat cheese/sardines/tinned fish containing bone on toast.
- Add 1-2 tablespoon skim milk powder to creamy soup.
- Add almonds to yoghurts, salads, snacks.
- Add tofu and Bok-choy to stir-fries, noodle and rice dishes.
- Add Greek yoghurt to curries .
- Have pita bread/ crackers with tzatziki/ cheese

Calcium rich foods	Serving size	Calcium
Animal-based sources		
Canned sardines with bones	90g	342mg
Yoghurt	200g	330mg
Skim milk powder	25g	312mg
Low fat milk	250mL	340mg
Canned salmon with bones	95g	211mg
Parmesan cheese	20g	194mg
Swiss cheese	20g / 1 slice	177mg
Cheddar cheese	20g / 1 slice	113mg
Plant-based sources		
Firm tofu	100g	320mg
Soybean milk, fortified	250mL	296mg
Breakfast cereal, fortified	30g	~80-200mg
Milo cereal	30g	200mg
Almonds	30g	75mg
Bok-choy, cooked	0.5 cup	65mg

Vitamin D

Age group(s)	Vitamin D
Men	per day
19 - 70 years old	5.0 µg
51 – 70 years old	10.0 µg
>70 years old	15.0 µg
Women	per day
19 – 50 years old	5.0 µg
51 – 70 years old	10.0 µg
> 70 years old	15.0 µg

You can also include foods high in vitamin D to boost your vitamin D intake. Some sources of vitamin D are fatty fish (salmon, tuna, and mackerel), eggs, fortified spreads and some margarines. Some research also shows that leaving mushrooms in the sun for 10-20 minutes can boost their vitamin D content to 100% of your daily needs (in ~8 mushrooms).

If your vitamin D levels are low, your doctor or dietitian can provide advice on whether vitamin D supplementation is required. Speak to your GP on how to best manage your vitamin D levels.

Protein

Not eating enough protein can impair bone growth. Most Australians eat more protein than they need, however during flares of IBD protein intake can decrease and lead to weight loss and in some people long term low body weight.

Good sources of protein include lean meat, fish, dairy, legumes, tofu, eggs and nuts. For further information refer to **Eating well with Crohn's disease and ulcerative colitis videos on the DECCAN website**.

Find an IBD dietitian to speak with if you are concerned about your protein intake, are restricting your diet or have lost weight without trying.

FIND AN IBD DIETITIAN
For individualised nutrition advice ask your IBD team about seeing an IBD dietitian or find one here:
https://deccanibd.org/find

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