A GUIDE TO BONE AND JOINT CARE

Australian Pituitary Foundation

BONE AND JOINT CARE

The pituitary gland plays a crucial role in regulating bone health. However, if the pituitary gland doesn't work properly this can have significant impacts on bone health. Pituitary conditions often lead to:

- decreased bone mineral density (BMD)
- increased fracture risk
- joint pain and stiffness
- arthropathy (joint disease).

The severity and impact on bone health depends upon the specific pituitary disorder.

IMPACTS OF SPECIFIC PITUITARY CONDITIONS

Acromegaly

Acromegaly is when the pituitary gland produces too much growth hormone. This can lead to:

- excessive bone formation and remodelling
- enlarged bones, especially in hands, feet, and face
- increase risk of vertebral fractures despite normal or high BMD
- severe joint disease in up to 70% of patients.

Cushing's disease

Cushing's disease is when your body is exposed to high levels of cortisol. The effects on bone involve:

- deterioration of bone quality
- significant increase of fracture risk, despite normal bone mineral density
- increased risk of avascular necrosis (death of bone tissue due to lack of blood supply).

Hypopituitarism

- When the pituitary doesn't make enough of one of more pituitary glands, it can lead to:
- reduced bone mineral density due to deficiencies in growth hormones and sex hormones
- increased fracture risk and osteoporosis.

Prolactinoma

Prolactinoma causes the pituitary gland to produce too much of the hormone, prolactin. This can affect bones by:[3]

- reducing bone mineral density
- increasing risk of fractures, particularly vertebral fractures.

MANAGING BONE AND JOINT HEALTH

People with pituitary conditions require individualised care plans that address both hormonal imbalances and skeletal health.

It's important to work with your doctor and specialist closely to look after your bones and joints. Your treatment plan will depend upon the type of pituitary condition you have and how it affects your bones, and your daily life.

You may also need to see other specialists who can help manage your condition. Treatment may involve:

- medication, including hormone replacement therapy, to improve bone mineral density and reduce the risk of fracture
- vitamin D and calcium supplementation
- pain relief (e.g. medication, joint injections, physical therapy).

Medications for your pituitary condition can also impact bone health so regular ongoing monitoring of bone mineral density and fracture risk is important. Your doctor will be able to provide further information on what this means for you.

TIPS FOR BONE AND JOINT HEALTH

There are many things you can do to protect and maintain your bone and joint health.

Regular physical activity and exercise

There are three types of exercise that help maintain or build bone strength and reduce bone loss.

Weight bearing exercise.

This is exercise done on your feet so you bear your own weight which jolts bones rapidly and firmly. It can include jumping, jogging, skipping, stair-climbing, dancing or playing sports such as netball, basketball, or tennis.

Resistance training

Resistance or strength training is exercise that causes muscles to contract against external resistance. This type of training strengthens muscles around bones that are more at risk of fracture. Examples include resistance bands, other gym equipment or using your own body weight by doing push-ups or squats.

Balance exercises and fall prevention.

These types of exercises are particularly important for people who have a higher risk of fracture. Balance exercises can reduce the risk of falls which could lead to fractures. Examples include standing on one leg while doing other movements, or tai chi.

If you do have compromised bone health, it's important to speak to your doctor first, before starting any exercise program. Your exercise program should be tailored to your bone density, fracture risk, and overall health status. If you have osteoporosis, some exercises may not be appropriate.

It can also be helpful to work with an accredited exercise physiologist who can ensure you're doing exercises that will be helpful and safe for your specific condition.

A HEALTHY DIET

Eating a healthy diet that includes calcium and vitamin D is important for good bone health.

Calcium

Calcium combines with other minerals to give bones strength and structure. Around 99% of the body's calcium is found in the bones. As your body can't make calcium, you need to get it from your food. The amount of calcium you need each day will depend upon your condition. Calcium is found in:

- dairy foods, including milk, cheese, and yoghurt
- seafood, especially canned sardines, or salmon with bones
- green vegetables such as kale, silver beet, broccoli, cucumber, Chinese cabbage, rocket, watercress, Bok choy and leeks
- nuts and seeds such as almonds, Brazil nuts, hazelnuts, walnuts, sesame seeds, and nut pastes
- fruits like oranges, strawberries, figs, kiwi fruit and dates
- meat, including pork and chicken
- other foods like eggs, canned chickpeas, or soybeans.

It may also be appropriate to take calcium supplements. Your specialist will be able to advise you.

Vitamin D

Vitamin D is important for bone health as it helps your body absorb and retain calcium. Vitamin D is also known as the 'sunshine' vitamin because your body produces vitamin D when it's exposed to sunlight. However, you need to take care how much time you spend in the sun to reduce your risk of skin cancer.

Vitamin D is also found in some foods such as fatty fish, eggs, mushrooms, and foods fortified with vitamin D including milk or margarine.

Eat a wide variety of foods

Eating a wide variety of foods will help you obtain other nutrients that are important for bone health. For example:

- **Protein** — research shows that higher bone mass density is found in people with higher intakes of animal protein.
- **Omega 3 fatty acids** — help maintain bone density and overall bone health
- **Vitamin K** — reduces calcium loss and helps minerals bind to bones
- **Magnesium and zinc** — magnesium helps activate vitamin D so it can promote calcium absorption and zinc promotes bone growth and helps prevent bones from breaking down.

Avoid smoking and alcohol

Smoking can cause a significant reduction in bone density and increase the risk for fracture. People who have one to two drinks daily have a 34% higher risk of developing osteoporosis.

Treatment of pituitary conditions often improves bone and joint health by normalising hormone levels. However, managing pituitary conditions and bone health is complex and requires individualised treatment and ongoing monitoring.

MORE INFORMATION

The Australian Pituitary Foundation provides social support for patients and carers, and has published a range of patient resources on pituitary conditions and treatments.

For more information, please visit our website: www.pituitary.asn.au

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