



# ANDREW ONG

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General Surgery

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## What do the parathyroid glands do? How does it relate to calcium in my body?

### What are the parathyroid glands?

The parathyroid glands are tiny little structures the size of a grain of rice located behind the thyroid gland at the bottom of the neck (SEE PICTURE RIGHT).

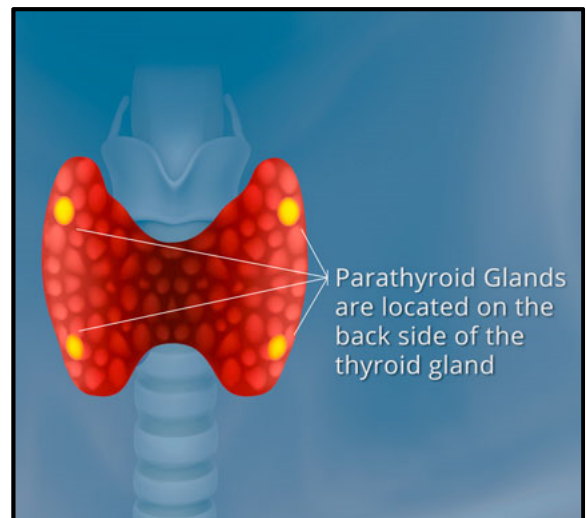
We have 4 parathyroid glands.

### What is the function of the parathyroid gland?

The parathyroid glands produce parathyroid hormone (PTH). PTH regulates the level of calcium in the blood.

### What does calcium in the blood do?

Calcium in the blood is tightly controlled. Calcium is responsible for regulating many functions in our body including brain function, bone health, gut and heart function.



### My GP/endocrinologist detected high calcium in my blood. What problems can that cause?

High calcium in the blood can cause problems ranging from none to very subtle changes in brain function to severe problems with the bones. A common way to think about it is “bones, stones, groans and psychic moans”.

- “Bones” - high calcium can be from leeching of calcium from the bones resulting in thinning of the bones (termed osteopenia) to the point where bones fracture easily (osteoporosis).
- “Stones” - high calcium in the blood can lead to recurrent kidney stones and gallbladder stones.
- “Groans” - high calcium can occasionally be a cause of chronic abdominal discomfort or pain or subtle alterations in bowel functions (constipation, regular cramps etc.)
- “Psychic moans” - perhaps the most underappreciated and subtle effect of high calcium are neuropsychiatric changes including depression, chronic fatigue, and in severe cases, psychiatric illnesses.
- Another problem with high calcium in the blood are effects on heart function including rhythm abnormalities (arrhythmias).

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## What is causing this high calcium?

There can be several causes of high calcium in the blood but a major reason is due to progressive abnormal enlargement of the parathyroid glands. This results in overproduction of parathyroid hormone (PTH) which in turn causes blood calcium to rise - the condition is called **HYPER-PARATHYROIDISM**. Less common causes include vitamin D deficiency, kidney problems, and uncommonly consumption of too much calcium tablets.

## How is this investigated?

Investigations for high calcium can be quite involved, ranging from blood tests, urine tests, bone density measurements (DEXA), special CT scans (4D-CT), ultrasound scans, nuclear medicine tests (sestamibi) and sometimes even more invasive tests that require interventional radiology.

## What is done to correct it?

The cure for high calcium from abnormally enlarged parathyroid gland(s) is a parathyroidectomy.

## What is a parathyroidectomy?

This is a surgical procedure which involves making a small incision in the neck and removing the enlarged parathyroid gland(s). This can range from removing 1 gland to sometimes 3½ glands.

## Is this a simple operation?

Parathyroidectomy operations can be straightforward, taking 30-60 minutes and a day-only procedure to a complicated exploration of the entire neck taking 2-3 hours and may even (uncommonly) result in removal of half or all of the thyroid gland.

Surgical investigation of high calcium levels is a highly specialised field and parathyroidectomy should ideally be carried out by high-volume endocrine surgeons.

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AUSTRALIAN & NEW ZEALAND  
ENDOCRINE SURGEONS



LET'S OPERATE WITH RESPECT

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