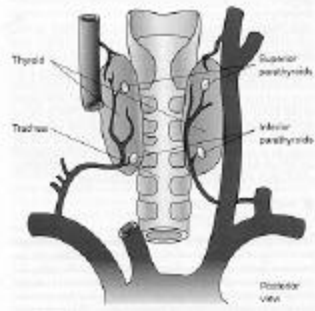


Parathyroid Gland





Calcium-Phosphate Homeostasis

- **Homeostasis--avr. daily intake 1000mg/day (calcium)**
- **Negative feedback loop--syllabus**
 - no nervous system involvement

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Target Organs--What normally occurs when Ca^{++} levels are low?

BONE	KIDNEY	GI TRACT
<ul style="list-style-type: none"> ▸ Primary Reservoir ▸ stimulates secretion of PTH (remove Ca^{++} from bone) ▸ inhibits bone formation ▸ increase in bone breakdown 	<p>Vitamin D must be present-- PTH causes reabsorption of $Ca@Phos.$ is excreted</p>	<p>Activated vitamin D causes Ca to be reabsorbed</p>
<p>All release Calcium into the Blood Stream--Yea!</p>		

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HyperParathyroid--oversecretion of PTH

Causes

(1^o) Adenoma--benign

- > Calcium ↑ (>10) PTH ↑
- > MRI, Needle Biopsy, UTZ
- > Women > 40--no link to menopause
- > Demineralization of Bone

(2^o) PTH tries to compensate for low Ca⁺⁺ levels by over-production of PTH

- > Calcium ↓ PTH ↑
- > CRF/vita D deficiency

Pseudo Hyper-PTH from Cancer

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Signs & Symptoms of elevated CALCIUM (norm: 8.5-10.5 mg/dL)

BONE	KIDNEY	GI TRACT
<ul style="list-style-type: none"> ➔ Pathologic Fx ➔ Bone Cysts ➔ Porous Bones ➔ Osteoporosis ➔ Deep Bone Pain 	<ul style="list-style-type: none"> ➔ Renal Calculi (calcium phosphate) 	<ul style="list-style-type: none"> ➔ Anorexia ➔ Nausea ➔ Vomiting ➔ Constipation ➔ Hypergastinemia

Other Symptoms: Mental Confusion if Ca⁺⁺ >12; HTN, Arrhythmias


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Treatment--HyperParathyroid

Surgical--Parathyroidectomy

- > not all gland is removed
- > care is similar to thyroidectomy
- > initial hypocalcemia (refer to s/s of hypocalcemia)
- > life-long Vita. D & Calcium if all gland removed


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 Interventions--HyperParathyroid (Hypercalcemia)

Non-Surgical

- > ↑ fluids/strain urine
- > enc. fluids PO or IV
- > assess bone pain or low back pain
- > ambulation
- > I&O
- > foods to combat constipation
- > limit food high in Ca⁺⁺
- > if severe---cardiac monitoring

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 Interventions--HyperParathyroid (Hypercalcemia)

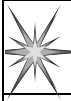
Non-Surgical

- > Drug therapy
 - *Aredia; Mithramycin (Mithracin); Phosphate; Calcitonin
 - *loop diuretics


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HypoParathyroid

- > ↑ phosphorous ↓ calcium
- > ↓ resorption of calcium from bone
 - > X-rays show ↑ bone density
- > **Causes**
 - > Para or Thyroidectomy
 - > Atrophy
 - > lack of PTH or problems w/ the target organs, hypomagnesium, alcoholics
- > **END RESULT--HYPOCALCEMIA**



Signs/Symptoms--HypoParathyroid

- > Tetany ($Ca^{++} < 7$)
 - > Chvostek's Sign 
 - > Trousseau's Sign
- > Cramps in Extremities
- > Hypotension
- > Circumoral paresthesia
- > Numbness & tingling of fingers



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Interventions--HypoParathyroid (Hypocalcemia)

- > Calcium Gluconate IV/PO
- > PTH IV--rare
 - > Cardiac Monitoring
- > Foods \uparrow calcium and \downarrow phosphorous
- > Aluminum Carbonate \downarrow
- > Medic Alert Bracelet
- > TEACHING--life long problem!
 - > Calcium/Vitamin D/ Magnesium Supplement
 - > Recheck Calcium levels

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