PTH	
Type	Pr
Causes	Hypercalcemia
Regulation	-plasma Ca < 3.5: more PTH -plasma Ca > 5.5: less PTH
Fun MOA	-bone: resorption, causing release of Ca into circulation by activation of clasts & inh of blasts -renal: excretion of phosphate in urine & Ca reabsorption -SI: (indirectly) it converts 25-hydrocholecalciferol to 1,25…ol which is usable form, that stimulate SI Ca reabsorption

Calcitonin	
By	Thyroid parafollicular cells (C cells)
Causes	Hypocalcemia (very rapid action)
Regulation	Hypercalcemia stimulates its secretion
Fun MOA	-bone: oppose resorption, causing Ca deposit into bones by inh of clasts & activation of blasts -renal: dec Ca reabsorption & inc its excretion along phosphate. (phosphate is always in favor of being excreted in the urine)

Path				
	Normal ricket	**Osteomalacia**	**Renal ricket**	**Osteoporosis**
Epedim	Children	Adults	-	Elders
Etiology	Vit D def	Steatorrhea (fat malabs.)	Kidney chronic diseases	-exercise lack -malnutrition -vit C lack -estrogen lack (PostMenopusal) -cushing synd.
Result	-Hypocalcemia -less blood phosphate	-Hypocalcemia -less blood phosphate -vit D def	Failure of kidney to activate 25-hydrocholec…	-active clasts -inh blasts
Symptoms	Weak bones			
Tetany	-early: no tetany cuz PTH will stimulate clasts -falling: when bones are exhausted, blood Ca will drop -death: tetany failing resp.	Nill	Nill	Nill
Bones	Less mineralize (matrix is preserved)			Less mineralize & less matrix

Path: PTH	
(1) hypoparatsm	
Etiology	-dysfun paraT -paraT removed during thyroidectomy
Signs	Hypocalcemia (vit D def might be present)
Symptoms	-tetany positive chvostek test (tapping on facial nerve will spasm facial muscles) positive trousseau test (blocking blood flow to forearm for few minutes leads to all hand strong contraction) -CVS: delay repolarization & prolonged QT interval -parasthesia (numbness is more common)
Treatment	Ca carbonates & Vit D supplements
(2) primary hyperparatsm	
Etiology	paraT tumors
Signs	-hypercalcemia & hypophosphatemia -hypercalciuria & hyperphoshpaturia -osteitis fibrotic cystica (fibrotic cysts within bones) -renal Ca stones -lethal deposit of Ca in soft tissues (when blood Ca2 >17 mg)
(3) secondary hyperparatsm	
Etiology	-low Ca diet -pregnancy & lactation -rickets & osteomalacia & chronic renal failure
MOA	Body compensate to Hypocalcemia by secretion lots of PTH