Achievable

USMLE STEP 1 DUMP SHEET

Endocrine and musculoskeletal pathology

Diabetes

- **Diagnosis:** fasting ≥126, OGTT 2 h ≥200, HbA1c ≥6.5%, or random ≥200 with symptoms
- **Type 1:** T cells destroy β cells; GAD65 antibodies; DKA
- **Type 2:** insulin resistance, obesity; stronger genetics
- **Damage:** aldose reductase spends NADPH making sorbitol; glycation end products

DKA and HHS

	DKA	HHS
Glucose	>250	>600
pH	<7.3	>7.3
Ketones	Present	Trace, none
Osmolality	Variable	>320

- **DKA:** Kussmaul breathing, fruity breath; serum K normal or high, body K low; cerebral edema if fixed fast

Islet cell tumors

- **Insulinoma:** ↑insulin, ↑C peptide (low if injected); MEN1
- **Gastrinoma:** Zollinger-Ellison; MEN1
- **Glucagonoma:** necrolytic migratory rash, diabetes, DVT
- **VIPoma:** watery diarrhea, hypokalemia, achlorhydria
- **Somatostatinoma:** gallstones, diabetes, steatorrhea

Thyroid

Graves	TSH-receptor antibodies; diffuse goiter, exophthalmos, pretibial myxedema; diffuse high uptake
Toxic nodules	Multinodular (older, atrial fibrillation) or single adenoma; patchy or single hot area, rest suppressed
de Quervain	Painful, tender, after a virus; granulomas; high ESR; low uptake; hyper, then hypo, then normal
Hashimoto	Anti-TPO, antithyroglobulin; lymphocytes, germinal centers, Hürthle cells; painless goiter; lymphoma risk
Riedel	Rock-hard fixed goiter from fibrosis; IgG4; mimics cancer
Cancers	Papillary: Orphan Annie nuclei, psammoma bodies; RET, BRAF. Follicular: capsular, vascular invasion. Medullary: C cells, calcitonin, amyloid; MEN2. Anaplastic: p53
Drugs	PTU in the first trimester and storm (also blocks T4 → T3), methimazole otherwise; both cause agranulocytosis

Calcium and parathyroid

	PTH	Ca	PO_4
Primary hyperparathyroid	↑	↑	↓
Secondary (renal)	↑	↓	↑
Hypoparathyroid	↓	↓	↑
Pseudohypoparathyroid	↑	↓	↑

- **Primary:** adenoma; osteitis fibrosa cystica (brown tumors)
- **Pseudohypo:** maternal GNAS (Gsα); short metacarpals 4, 5
- **FHH:** calcium-sensing receptor, low urine Ca. **Cancer:** PTHrP

Adrenal

- **Cushing:** steroids most common, then pituitary adenoma. High-dose dexamethasone suppresses pituitary, not ectopic (small cell lung) or adrenal
- **Addison:** autoimmune (anti-21-hydroxylase); hyperpigmentation, ↓Na, ↑K. Secondary: no pigment, no ↑K
- **Conn:** aldosterone adenoma; hypertension, ↓K, low renin
- **21-hydroxylase:** >90% of CAH; virilized girls, salt wasting, ↑17-OH progesterone
- **11β-hydroxylase:** virilization with hypertension. **17α:** hypertension, ↓K

Joints

- **OA:** osteophytes; DIP (Heberden), PIP (Bouchard); stiffness <30 min
- **RA:** HLA-DR4; anti-CCP most specific; RF; MCP, PIP
- **Gout:** urate needles, negative birefringence; podagra; tophi
- **Pseudogout:** CPPD rhomboids, weakly positive; knee
- **Ankylosing spondylitis:** HLA-B27; bamboo spine; eased by exercise
- **Septic:** *S. aureus*; gonococcus in young adults; >50,000 WBC/mm^3

Bone

- **Osteoporosis:** T score −2.5 or less; Ca, PO_4 normal; spine, hip fractures
- **Osteomalacia:** ↓Ca, ↓PO_4, ↑ALP; Looser zones
- **Paget:** ↑ALP; deafness, heart failure, osteosarcoma
- **Osteopetrosis:** osteoclasts fail; Erlenmeyer flask; marrow failure
- **Osteomyelitis:** *S. aureus*; *Salmonella* in sickle cell; children metaphysis
- **Avascular necrosis:** femoral head; steroids, alcohol, sickle cell

Children and muscle

- **Perthes:** femoral head necrosis, boys 4—10
- **SCFE:** obese 11—14; Klein line misses epiphysis
- **Hip dysplasia:** Ortolani, Barlow; Pavlik harness
- **Dermatomyositis:** Gottron, heliotrope; CD4. **Polymyositis:** CD8
- **PMR:** over 50; shoulder, hip stiffness; ↑ESR, normal CK
- **Rhabdomyolysis:** ↑CK; dipstick blood, no RBCs