Musculoskeletal, Skin & Subcutaneous Tissue

United States Medical Licensing Examination (USMLE) Step 1

8 to 12% of Step 1 · 8 sections · content outline and specifications

This system covers the skin and subcutaneous tissue and the musculoskeletal system, about 8 to 12% of Step 1. Skin questions ask you to name a lesion from its look and site, then explain its cause, histology, or immune mechanism. Bone, joint, and muscle questions test infection, autoimmune arthritis, metabolic bone disease, tumors, and inherited disorders of collagen and growth. Anatomy appears in nerve roots, blood supply, and injuries. Pharmacology focuses on how drugs for gout, osteoporosis, acne, and fungal infection work.

You should be able to: After this guide, you should be able to name a skin, bone, joint, or muscle disorder from a vignette and explain its mechanism, its key findings, and how its main drugs work.

Every section: the key point and the trap

1 Skin infections and infestations

Staphylococcus aureus causes impetigo, abscesses, and scalded skin syndrome; its exfoliative toxin cuts desmoglein-1.

Trap: Mucous membranes help you decide. Scalded skin syndrome spares them; Stevens-Johnson syndrome and toxic epidermal necrolysis involve them.

2 Inflammatory and immune skin disease

Psoriasis: silvery plaques on extensor surfaces, nail pits, parakeratosis, and neutrophils in the stratum corneum; Th17 cells and IL-17 drive it.

Trap: Timing tells the hypersensitivity type. Minutes means IgE (type I). One to three days means T cells (type IV).

3 Blistering diseases

Pemphigus vulgaris: IgG against desmoglein 3, suprabasal split, fragile blisters, mouth sores, positive Nikolsky sign, net-like staining.

Trap: Ask where the split is. A thin roof that breaks easily means an epidermal split (pemphigus). A thick, tense roof means a subepidermal split (pemphigoid).

4 Skin tumors, pigment, and sun damage

Basal cell carcinoma: pearly papule with a rolled edge and telangiectasias; palisading nuclei; hedgehog pathway mutations; rarely spreads.

Trap: Do not use size or color to judge melanoma prognosis. Depth of invasion matters most.

5 Hair, glands, wounds, and drug reactions

Acne comes from more sebum, plugged follicles, Cutibacterium acnes, and inflammation. Isotretinoin shrinks sebaceous glands and is a strong teratogen.

Trap: Isotretinoin is not an antibiotic. Do not pick a ribosome mechanism for it.

6 Bone, joint, and soft tissue infection

Staphylococcus aureus is the most common cause of osteomyelitis and septic arthritis overall.

Trap: Septic arthritis fluid has very high white cells with mostly neutrophils. Crystals do not rule out infection, but a gram stain can be negative in gonococcal arthritis.

7 Autoimmune arthritis and muscle disease

Rheumatoid arthritis: symmetric small-joint swelling, morning stiffness over 1 hour, anti-CCP antibodies, HLA-DR4, pannus. Felty syndrome adds splenomegaly and neutropenia.

Trap: Inflammatory back pain improves with activity. Mechanical back pain from a disc worsens with activity.

8 Metabolic bone disease, crystals, tumors, and inherited disorders

Osteoporosis has low bone mass with normal labs. Osteomalacia has unmineralized osteoid with low vitamin D and high alkaline phosphatase. Paget disease has very high alkaline phosphatase with normal calcium.

Trap: Read the calcium, phosphate, alkaline phosphatase, and parathyroid hormone together. Normal calcium with very high alkaline phosphatase points to Paget disease, not hyperparathyroidism.

Key terms

Nikolsky sign: The outer skin slides off with light rubbing.

Parakeratosis: Nuclei kept in the outer layer of the skin.

Panniculitis: Inflammation of the fat under the skin.

Enthesitis: Inflammation where a tendon or ligament attaches to bone.

Osteoid: Bone matrix before it is mineralized.

Birefringence: A change in color or brightness under polarized light.

ExamDragon, examdragon.com/usmle-step-1. Independent exam preparation, written in our own words from the USMLE's published content outline and Step 1 specifications. United States Medical Licensing Examination® and USMLE® are registered marks of the Federation of State Medical Boards (FSMB) and the National Board of Medical Examiners® (NBME®).