

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi. Coimbatore -641035

COURSE NAME: HUMAN ANATOMY & PHYSIOLOGY (BP301 T)

YEAR : I SEM/I YEAR

TOPIC 11 : STRUCTURE & FUNCTION OF SKIN

DESIGN THINKING IN SKIN ANATOMY

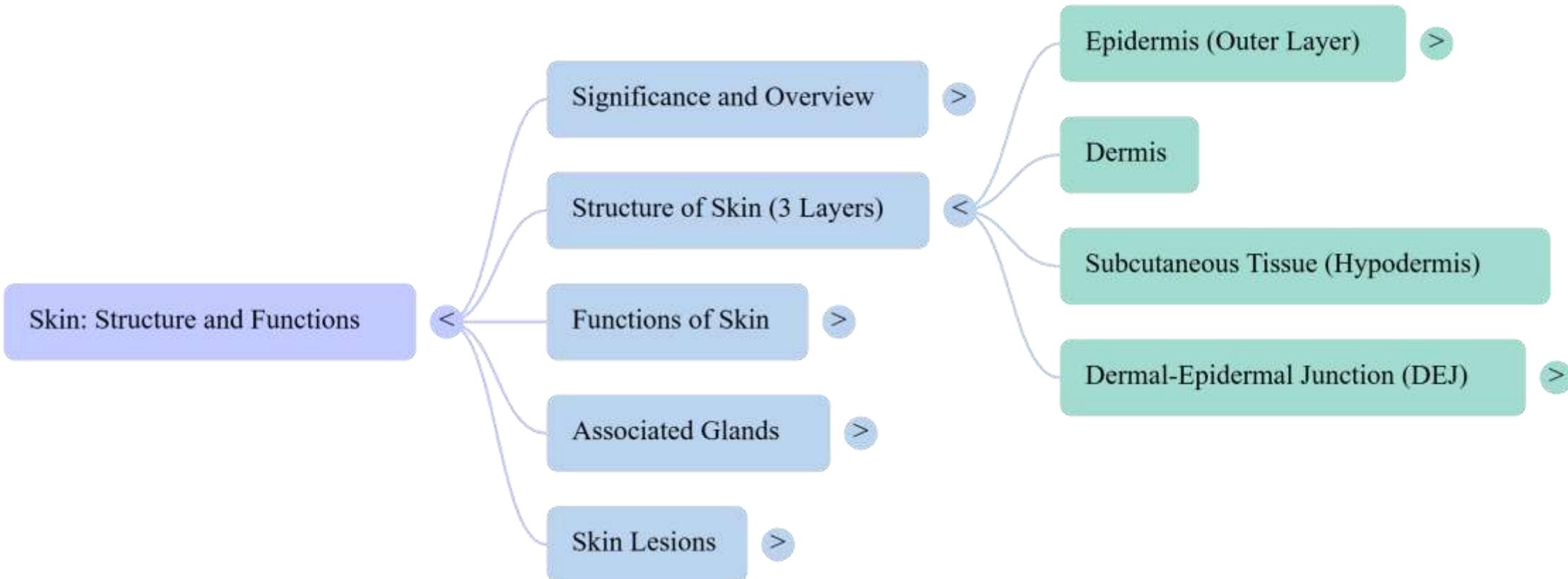
1. Empathize: Deeply understand the learner's challenges, needs, and experiences in grasping skin anatomy. Engage with students, educators, and healthcare providers to uncover pain points and preferences.

2. Define: Reframe the problem based on insights, establishing clear context like the need for detailed skin layer explanations.

3. Ideate: Brainstorm diverse teaching methods, including anatomical diagrams and interactive models.

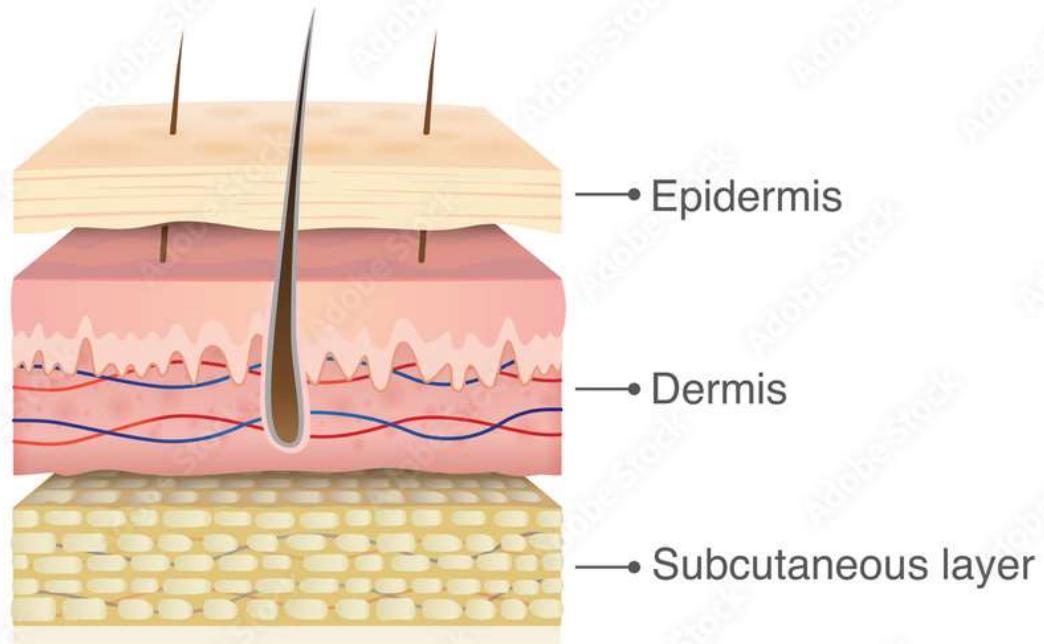
4. Prototype: Simulate educational tools to enhance understanding of skin structure and function.

MINDMAP



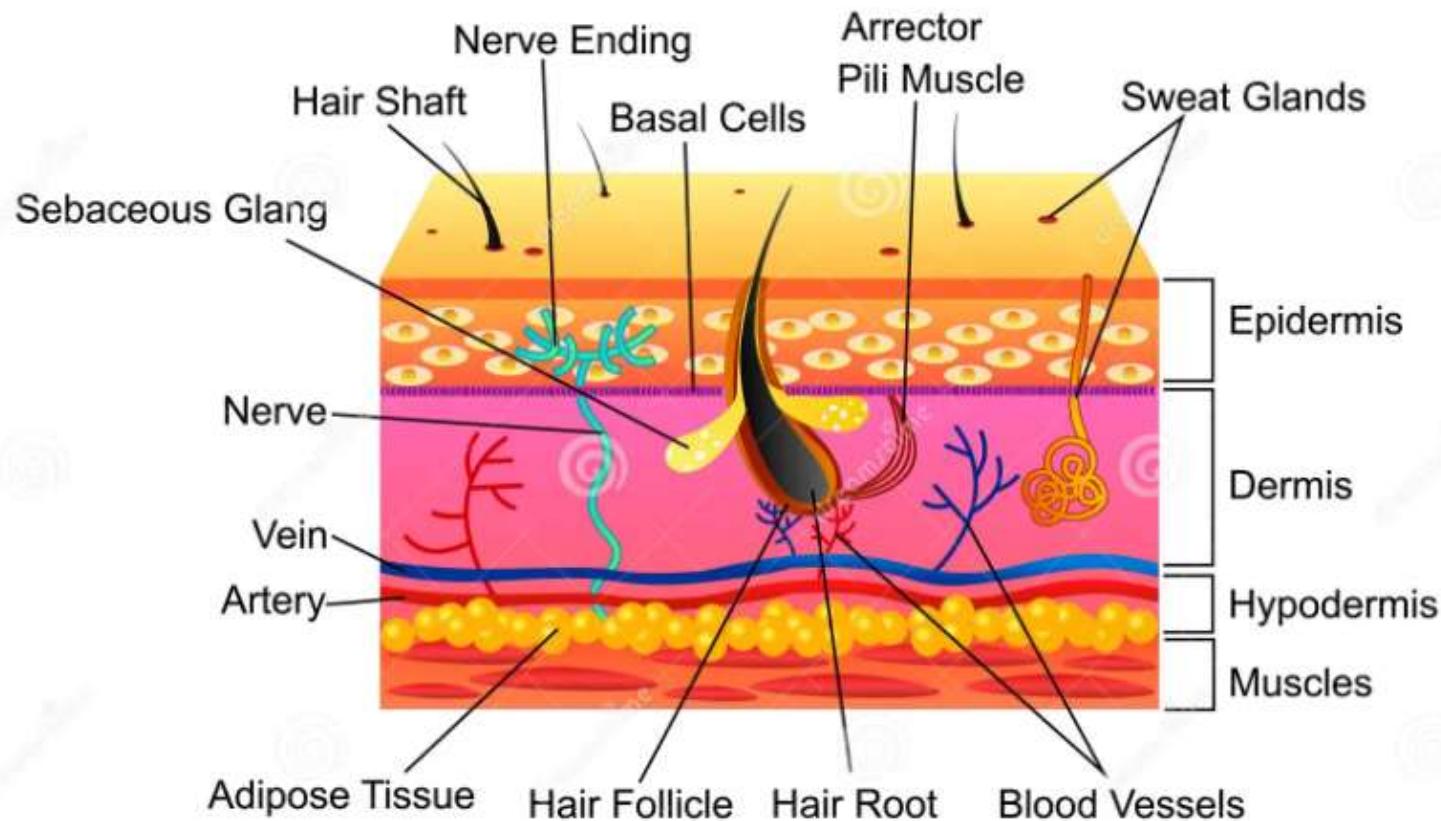
INTRODUCTION -SKIN

Three Main Layers of The Skin

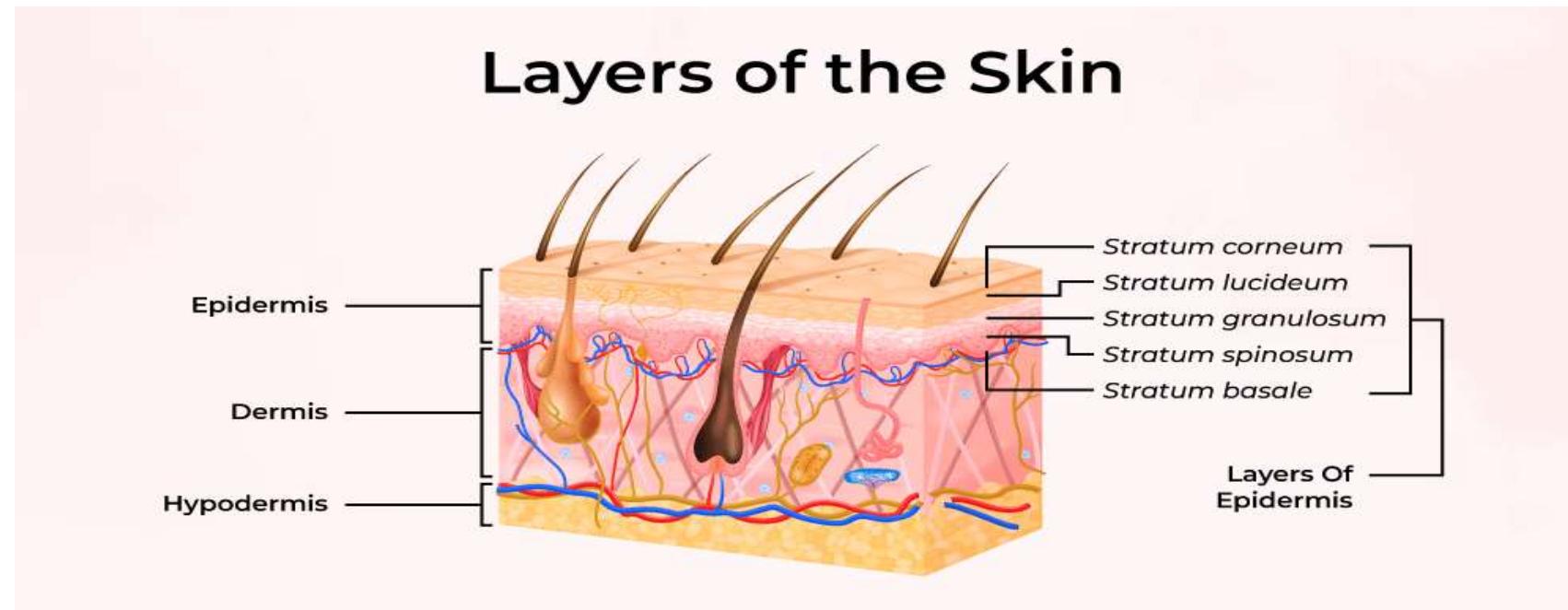


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Skin Structure

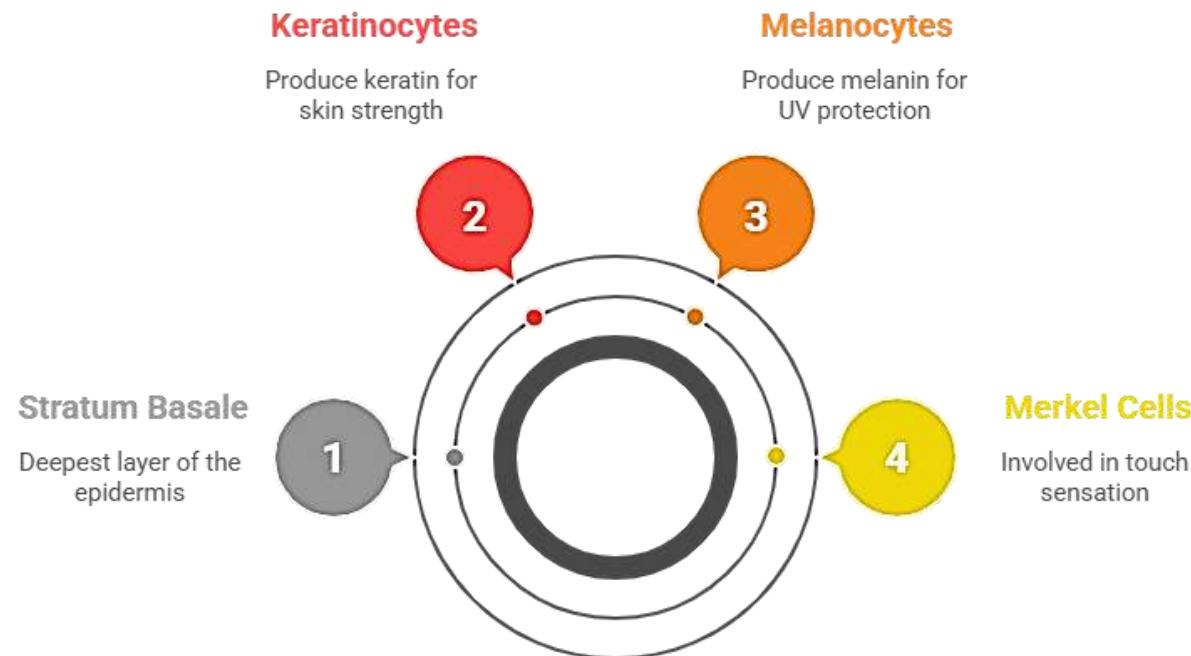


STRUCTURE OF THE SKIN



STRATUM BASALE (STRATUM GERMINATIVUM):

Stratum Basale Composition



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STRATUM SPINOSUM

Skin Defense Hierarchy



Langerhans Cells

Immune cells protecting against infection



Desmosomes

Cell junctions providing structural support



Keratinocytes

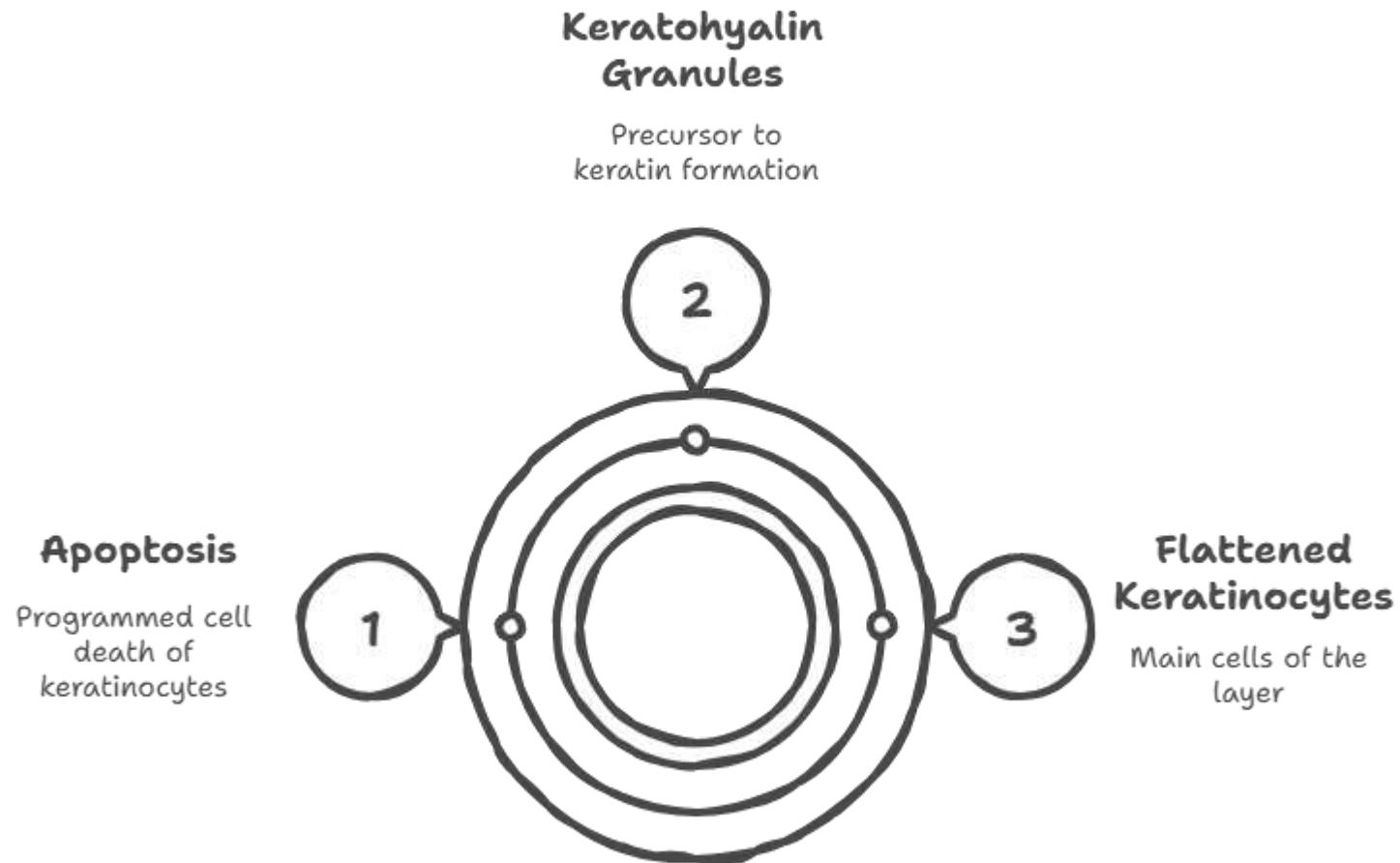
Connected by desmosomes for strength



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STRATUM GRANULOSUM

Stratum Granulosum Layer



STRATUM LUCIDUM

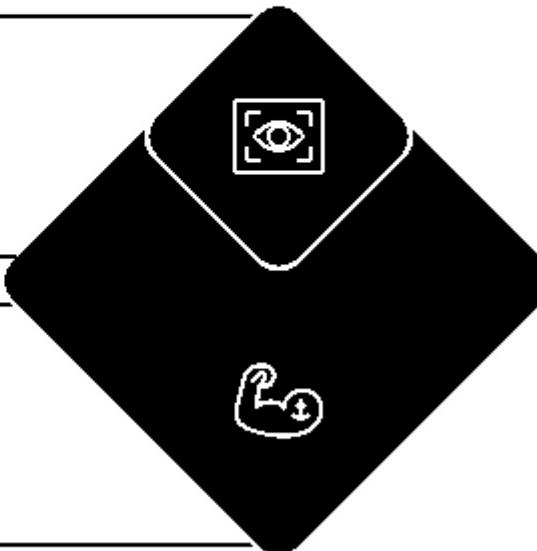
Skin Layer Composition

Stratum Lucidum

Clear layer of dead keratinocytes

Thick Skin

Found in palms and soles

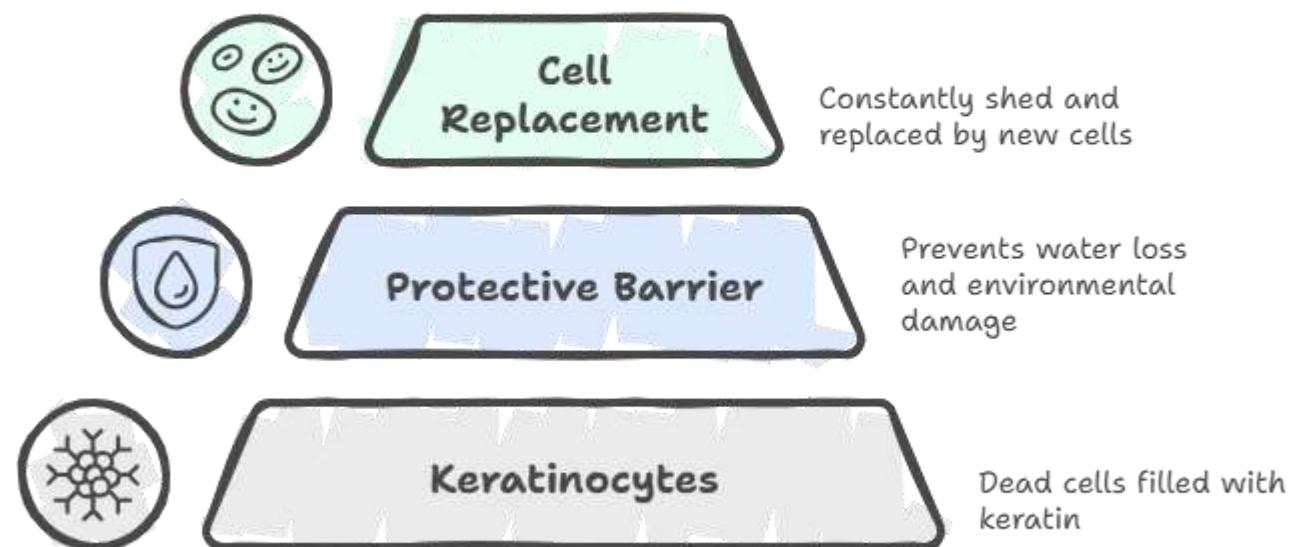


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STRATUM CORNEUM

This is the outermost layer of the epidermis. It is composed of 20-30 layers of dead, flattened keratinocytes that are filled with keratin. This layer provides a protective barrier against the environment and prevents water loss. The cells of the stratum corneum are constantly being shed and replaced by new cells from the underlying layers.

Skin Layer Protection



DERMIS

Dermal Layer Structure

Papillary Dermis

Thin layer with dermal papillae



Reticular Dermis

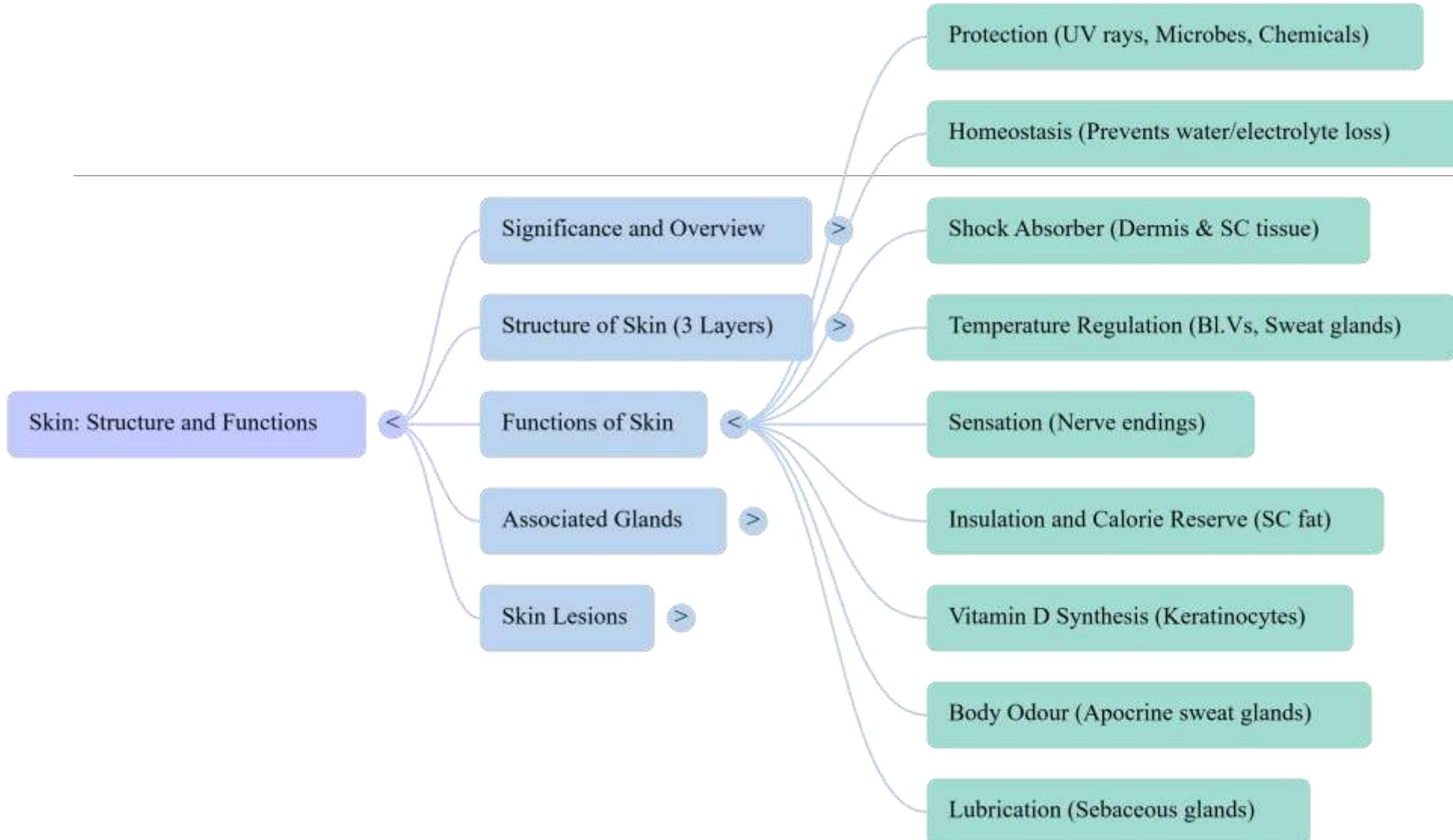
Thicker layer with dense collagen network



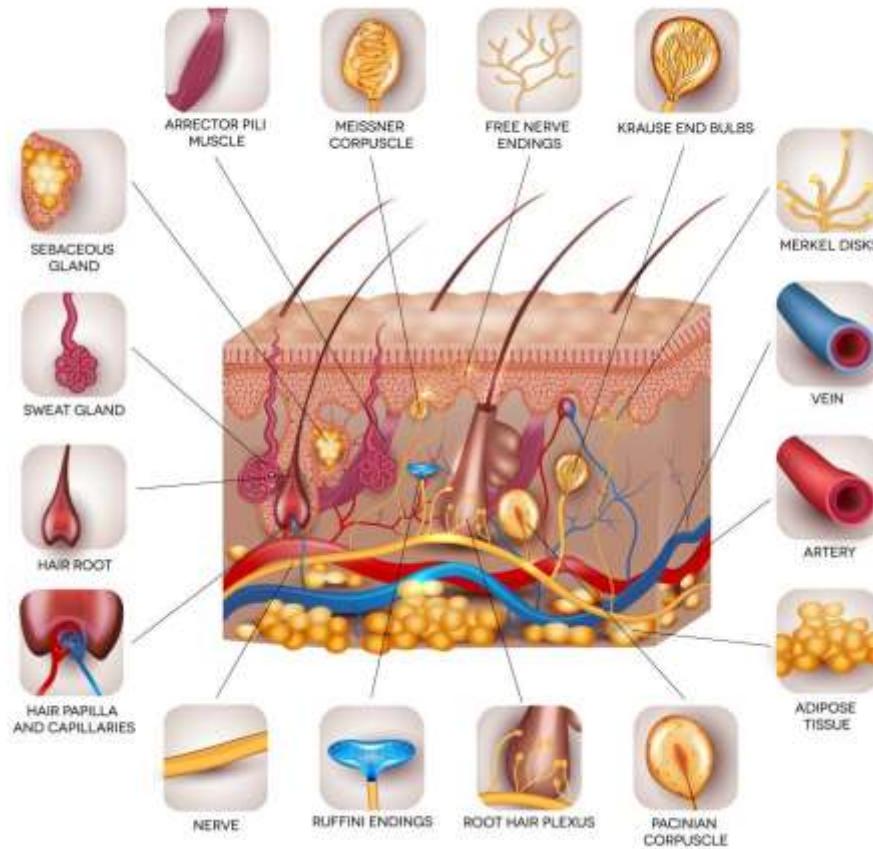
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HYPODERMIS (SUBCUTANEOUS LAYER)





THE SKIN

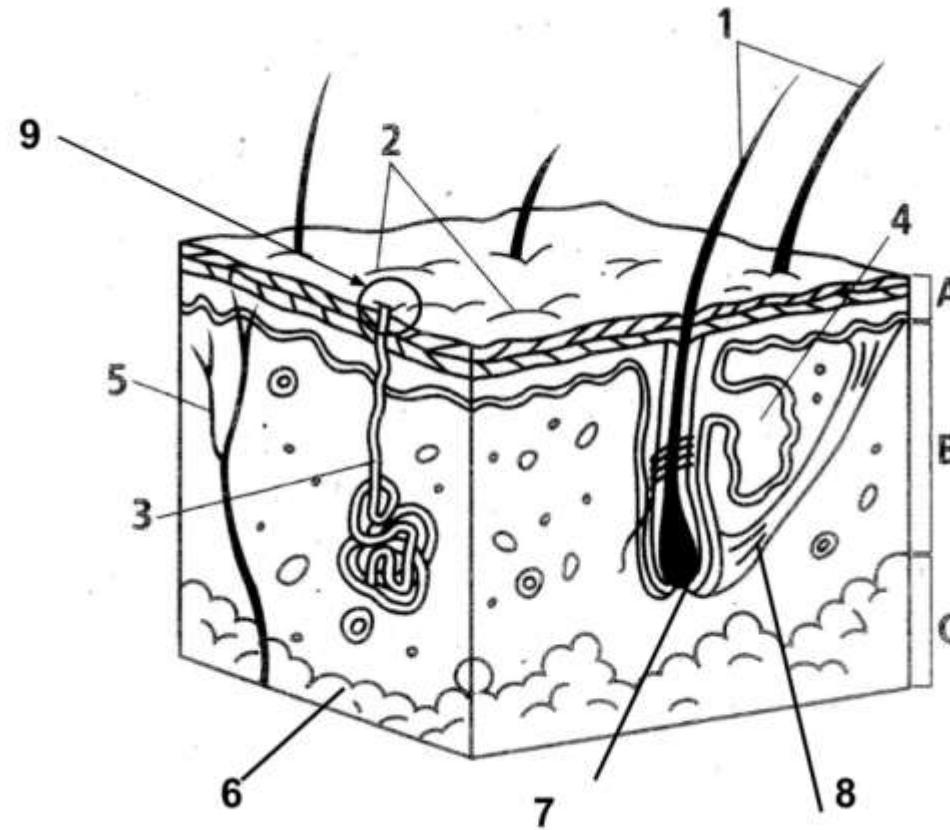


SUMMARY

- The skin is the largest organ of the human body, consisting of three main layers: epidermis, dermis, and hypodermis.
- It protects the body from injury, infection, and harmful environmental factors.
- Skin helps regulate body temperature and senses touch, pressure, and pain.
- Additionally, it plays a role in excretion, vitamin D synthesis, and overall body homeostasis.

IN CLASS ASSESSMENT

LABEL THE FEATURES OF SKIN



REFERENCE

- ✓ Essentials of Medical Physiology, K. Sembulingam & P. Sembulingam (Jaypee Brothers Medical Publishers)
- ✓ A Textbook of Human Anatomy and Physiology-I, SIA Publishers
- ✓ Human Anatomy & Physiology Gerard J. Tortora & Bryan H. Derrickson (Wiley)
- ✓ Ross and wilson anatomy and physiology in health and illness, J W Wilson, Churchill Livingstone, New york
- ✓ Tortora GJ, Derrickson B: Principles of Anatomy and Physiology, 15th Edition, Wiley, 2017.
- ✓ Marieb EN, Hoehn K: Human Anatomy & Physiology, 11th Edition, Pearson, 2019.

