



B.Pharm Semester 1

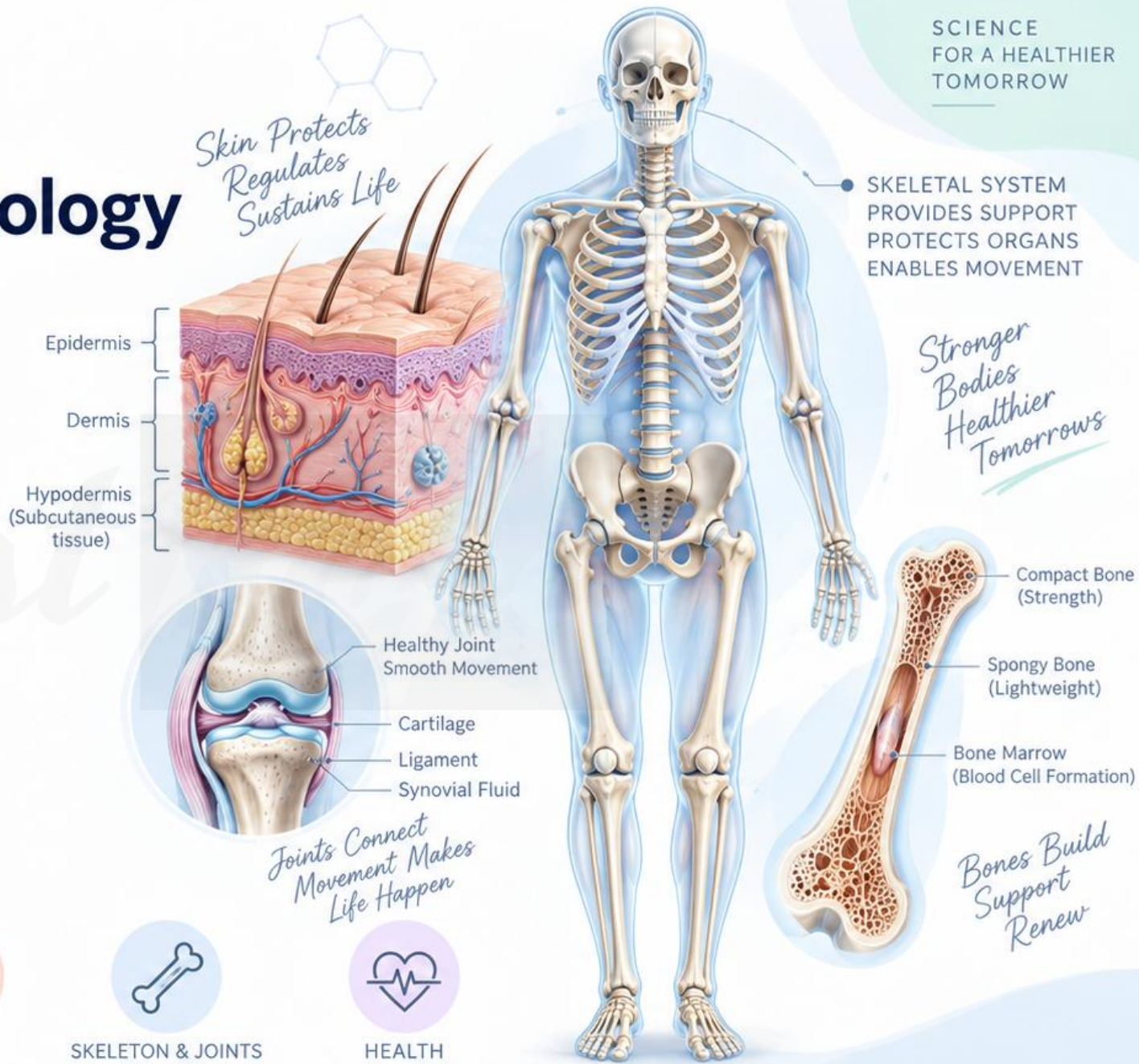
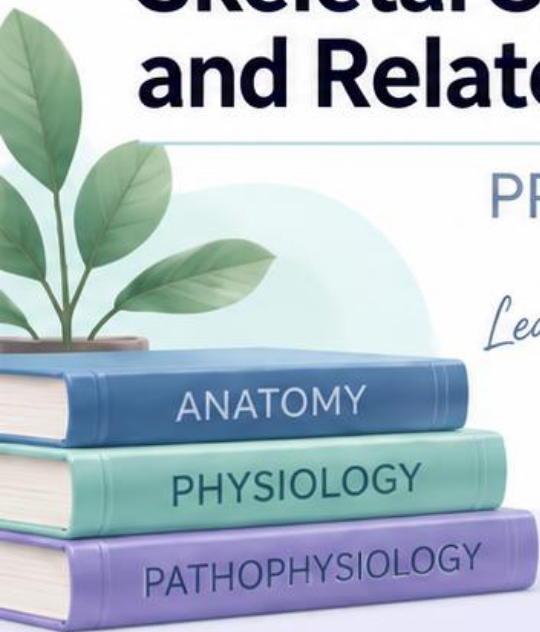
Human Anatomy, Physiology and Pathophysiology I

Unit 02

Integumentary System, Skeletal System, Joints and Related Diseases

PPT Notes

Learn the Structure Behind Life



SCIENCE
FOR A HEALTHIER
TOMORROW



SKIN
PROTECTS LIFE



SKELETON & JOINTS
HELP US MOVE



HEALTH
INSPIRES TOMORROW

STUDY | UNDERSTAND | APPLY | GROW

INTEGUMENTARY SYSTEM OVERVIEW

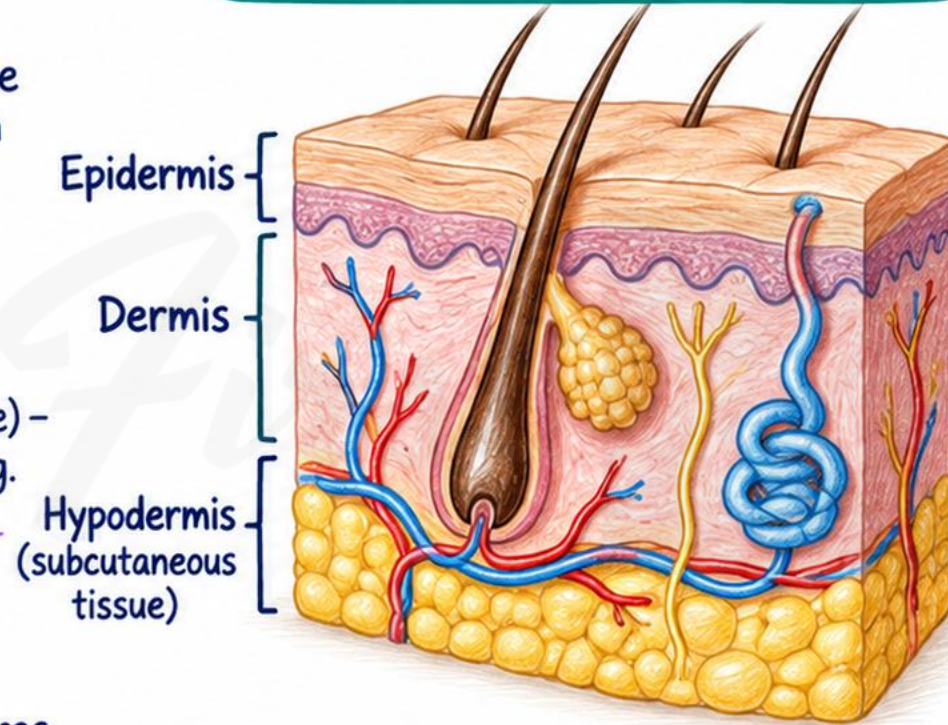
1. SKIN

- Largest organ of the body.
- Three layers:
 - **Epidermis** – outer protective barrier; melanocytes for skin colour & UV protection.
 - **Dermis** – connective tissue with blood vessels, nerves, hair follicles and glands.
 - **Hypodermis** (subcutaneous tissue) – mainly fat; insulation & cushioning.

3. NAILS

- Keratin structures that protect fingertips and enhance the ability to grasp objects.

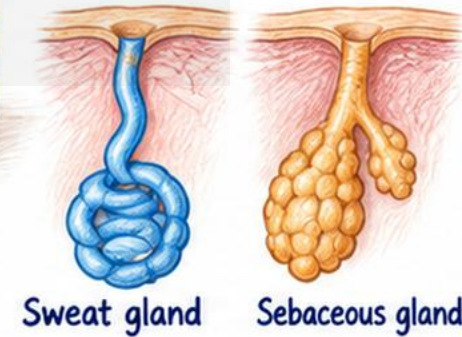
Integumentary System Skin + Hair + Nails + Glands



2. HAIR

- Made of keratin.
- Provides protection, insulation and sensory input.

4. GLANDS



- **Sweat glands** – help in temperature regulation.
- **Sebaceous glands** – secrete sebum (oily substance).

KEY FUNCTIONS



Protection
(barrier)



Sensation
(sensory input)

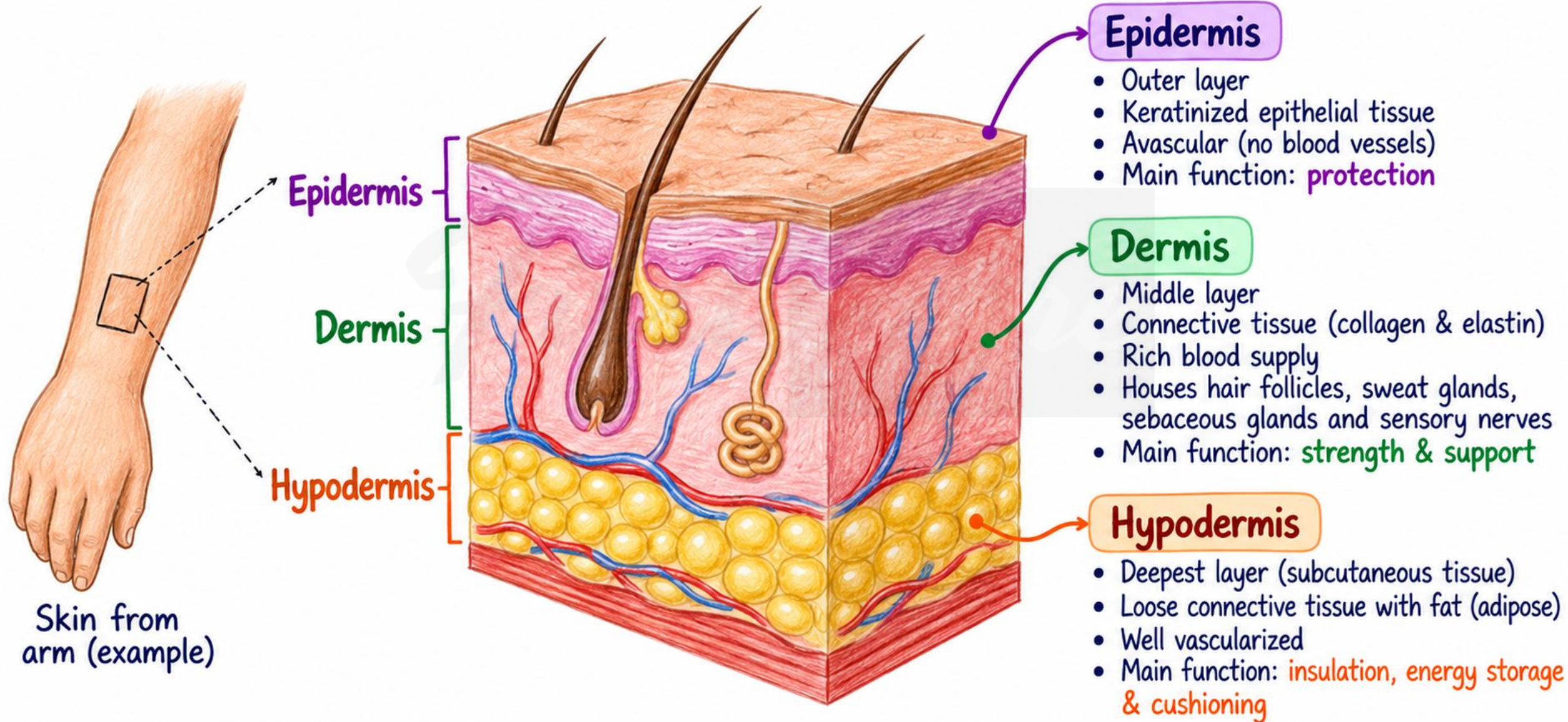


Temperature
regulation

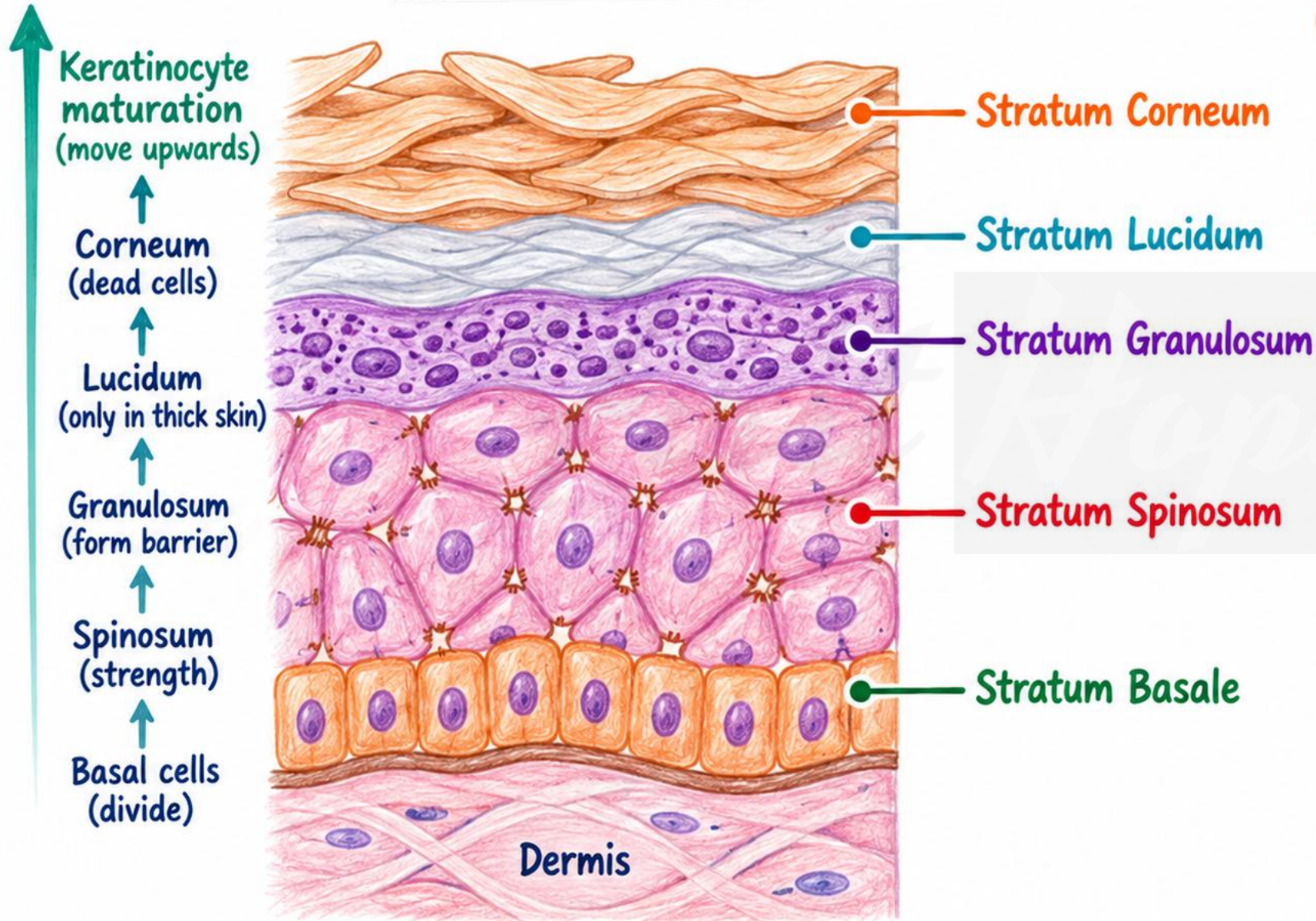


Metabolic roles
(e.g. vitamin D synthesis)

SKIN LAYERS



LAYERS OF THE EPIDERMIS



1. Stratum Corneum

- Outermost layer of dead, flattened keratinocytes.
- Tough, protective barrier.

2. Stratum Lucidum

- Thin, clear layer.
- Present only in thick skin (palms and soles).

3. Stratum Granulosum

- Keratinocytes begin to die.
- Forms a waterproof barrier.

4. Stratum Spinosum

- Provides strength and flexibility to the skin.

5. Stratum Basale

- Deepest layer where new skin cells are produced.
- Contains melanocytes (produce melanin for skin color and UV protection).

DERMIS AND SKIN APPENDAGES

1. PAPILLARY DERMIS

- Superficial layer
- Loose connective tissue
- Contains small blood vessels and nerve endings

2. RETICULAR DERMIS

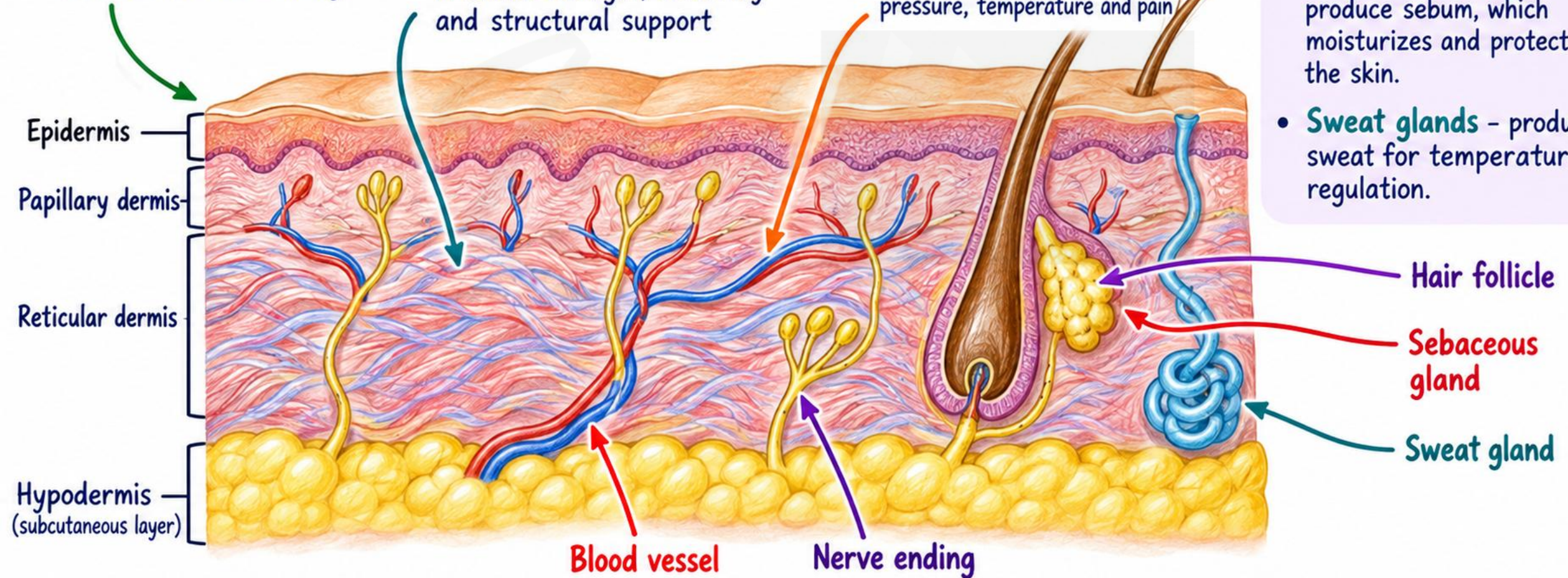
- Deeper, thicker layer
- Dense irregular connective tissue
- Rich in collagen and elastin fibres
- Provides strength, elasticity and structural support

3. BLOOD VESSELS & NERVES

- Blood vessels supply nutrients and oxygen to the skin
- Help regulate temperature
- Nerve endings detect touch, pressure, temperature and pain

4. SKIN APPENDAGES

- **Hair follicles** – sites from which hair grows.
- **Sebaceous (oil) glands** – produce sebum, which moisturizes and protects the skin.
- **Sweat glands** – produce sweat for temperature regulation.





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