

Skin Rejuvenation: An undergraduate Dermatology curriculum for multiple sites.

DTEG
APD Chicago

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I have no financial conflicts

Challenge:

Design a curriculum that:

- 1—Can be multisite
 - 6 clinical sites
 - 3 timezones
 - >25% of the land mass of the US

2—Uses identical curriculum

3—Does not require a



Educational strategy

Flipped Classroom model

Out of class preparation:

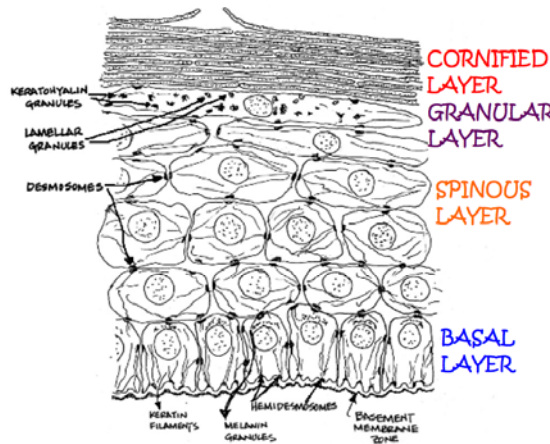
Written syllabus chapters

Vodcasts summaries

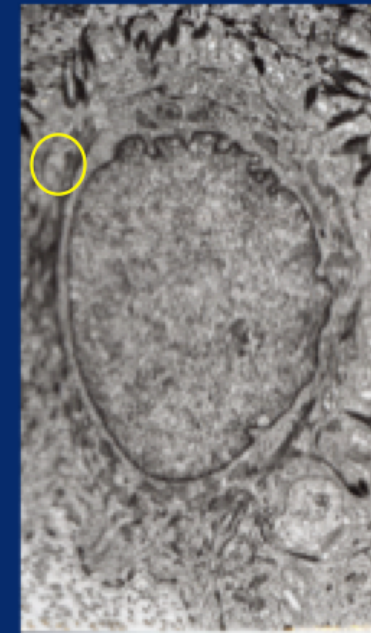
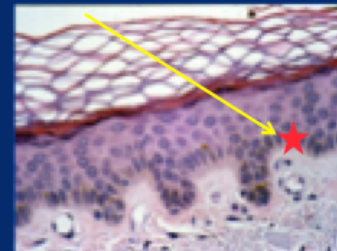
keratinocytes undergo to eventually produce the stratum corneum or cornified layer involved in the barrier function of the skin.

Discussion of the epidermis is based on epidermal histology. **Four** distinctive stages of differentiation give rise to keratinocytes with different structural features. The stages are represented by the **basal**, **spinous**, **granular**, and **cornified** cells. These cells form corresponding layers, or strata, with the same names (**basal layer**, etc) though sometimes the older, latin terms (stratum basale, etc) are still used. Keratinocytes

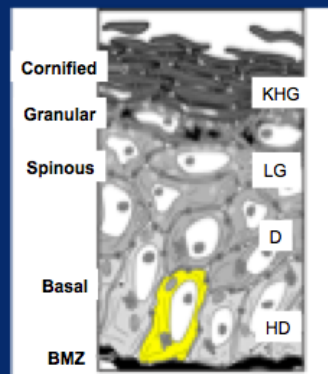
attached to the dermis at the dermal-epidermal junction are **basal** keratinocytes. Most the **basal** keratinocytes differentiate to form the **spinous** or suprabasal keratinocytes. A complex differentiation process takes place in the **spinous** and **granular** layer to ultimately form the anucleated cornified cells of the **cornified** layer (stratum corneum) which detach or desquamate at the skin surface. This morphological and biochemical differentiation process is known as **cornification** or **keratinization**.



Keratinocyte



Keratins
Desmosomes



Case 1

18 year old male with skin changes since birth. Was born with a “colloid” membrane of thick skin over his body.

What do you see?

What is likely happening in the skin to give this appearance?



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Slide 3

Case #1

18 year old male with skin changes since birth. Was born with a “colloid” membrane of thick skin over his body.

What do you see?

Large plates of skin separated by apparent cracks like a dry riverbed or fish scales

What is likely happening in the skin to give this appearance?

The skin is becoming thicker due to overproduction and/or not shedding correctly

Slide 4

{Histology of Case #1}

What part of the epidermis is not normal?

The spinous layer is thicker (acanthosis) and the stratum corneum is thickened and more compact (hyperkeratosis). Note the loss of the normal “basket weave” pattern to the stratum corneum that is seen in the normal epidermis above

Note, acantha is Greek for spine, so acanthosis literally means too much spiny layer.

{Click to show the water filling analogy.}

What is happening to cause acanthosis and hyperkeratosis?

The epidermis can become thicker due to too much production (filling the bucket) or too little shedding (emptying the bucket). In this diagnosis, there is both too much production as well as too little shedding, so the skin becomes thickened and cracks into plates of scale.

In class activities:

9/12 sessions are Case Based TBL

3/12 small group sessions

Powerpoint with a Facilitator’s guide



Designed for TBL, so most sessions are scalable from 5-100 students.

Design

Day 1

Hour 1	Histology— didactics & lab	Structure & Function	
Hour 2	Case study	Epidermis	Ichthyoses, Psoriasis, Eczema
Hour 3	Case study	BMZ	Pemphigus, pemphigoid, staph scalded skin, epidermolysis bullosa,
Hour 4	Case study	Appendages	Acne, hidradenitis, alopecia, Hyperhidrosis, pitted keratolysis

Day 2

	Hour 1	Small group	Full Skin Exam & Morphology	Requires Dermatologist
	Hour 2	Small group	Clinicopathologic correlation	
	Hour 3	Small group	Topical Medications, vehicles, side effects	
	Hour 4	Case study	Itchy skin	Tinea, Scabies, DDx

RWJF module

Day 3

	Hour 1	Case study	Pigmentation	Genetic hypopigmentation, dermal melanocytosis, vitiligo
	Hour 2	Case study	Photobiology	Photodamage, Sunburn, XP, Vit D
	Hour 3	Case study	Skin Cancer	BCC, SCC, Melanoma
	Hour 4	Large group?	Tumor Immunology	melanoma

RWJF module

*Immunology and Microbiology of the skin are not included as the course is integrated with these topics

New Curriculum:

- Requires an “expert” dermatologist for only 1 hour this year.
- Is modular and portable and contains all the materials needed to be given at any site.
- Will serve as a scaffold for future refinement and possibly broader use.

Thank You

Questions?



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