Skin barrier video 6 Notes

Stem cells. This is a very hot topic, and change may occur. We think there are two sites of keratinocyte stem cells: in the epidermis as I talk about here, and half way down the hair follicle. Each stays separate but the follicular ones can repopulate the epidermis. This is quite important in wounding. You can remove the epidermis and 're-build' it by movement from surrounding areas, but also from migration of stem cells from the follicle. This story has changed in my professional lifetime.

Spindle cell layer. So named because of the shape. Also known as the prickle cell layer, in which the prickles represent the desmosomal attachments between cells, which stand out after the cells shrink in the routine dehydration that occurs in paraffin embedding for histopathology.

Keratins. Do not go about learning numbers! In wounding we see different expression patterns and we similar 'wounding' like changes in psoriasis. Since we have all these different keratin genes, they must have important biological differences, although we understand little in this area. Mutations of different keratins can produce diseases with **very different phenotypes**.

Cell death. The stratum corneum ('horny layer') corneocytes have no nuclei. The cells have undergone cell death, although there are both similarities and differences from other types of cell death. The environment external to the corneocyte should not be thought of as inert: there are enzymes working there, and its make up is tightly controlled / regulated during differentiation.

Desmosomes. Mentioned only in passing, but dealt with in a later video. Desmosomes attach cells to each other. To desquamate — unless you want to be a like a snake and step out of a complete old skin — you need to break desmosomal attachments down. You need proteases to do this work for you. If cells fall off individually, you do not see them! Many diseases disturb this process: the result is visible scale (e.g. dandruff, eczema, psoriasis…..)

Irritant dermatitis. This is a non-immunological reaction, but one which looks similar to type 4 hypersensitivity reactions (see later video). Hand dermatitis of the irritant variety or allergic type, was once the most common industrial disease in the UK. Many occupations are still at risk: hairdressers, where it is almost ubiquitous during the early years of training, or kitchen staff, for instance. Food is not the only villain, but it was convenient for my videoing. ….(I am a dab hand with a duster and polish, too)

Atopic dermatitis. Do not get hung up on any confusion here between irritant and atopic dermatitis. I deal with this *thoroughly* in edderm101.