



The Integumentary System

Skin Color and Vitamin D



2 Main Reasons for Skin Color

☞ Colored pigments

☞ Blood seen in the dermis

Every person has a mixture of brown, yellow, pink and blue tones in their skin.



2 Main Reasons for Skin Color

- ☞ Pigments - give yellow and brown color.
- ☞ Blood in dermis - give blue and pink color.



Skin Pigments - 2 Main Ones


☞ **Carotene** - an orange-yellow pigment found in the stratum corneum. The pigment is picked up from the diet by eating orange-colored vegetables (ex., carrots).

☞ **Melanin** -



Skin Pigments - 2 Main Ones

☞ **Melanin** - brown to black pigment produced by special cells called melanocytes.



Melanocytes

☞ Melanocytes are located in the stratum basale (germinativum). Melanocytes convert the amino acid tyrosine into melanin. The melanin is put into vessicles called melanosomes.



Melanocytes (con't)

☞ Very dark skinned people have larger melanosomes.



Ultraviolet Light Protection

- ☞ UV radiation is dangerous as it will alter DNA (though you need a little UV light).
- ☞ Melanin blocks UV light. Exposure to the sun causes melanocytes to produce melanin - a tan.



Ultraviolet Light Protection (con't)

☞ Albinos have melanocytes but can't produce melanin.



Freckles

- ☞ These are areas where the melanocytes are producing more melanin than usual. This is usually found on the face.
- ☞ Liver spots (dark spots on older people) are areas of abnormal melanocytes.



Vitamin D Production

- ☞ A small amount of UV light is needed to produce vitamin D3 or cholecalciferol.
- ☞ The liver turns D3 into the hormone calcitriol which is needed for normal calcium and phosphorus absorption and thus bone growth.