



PART III

◆ Pre-test: 10 min

LEARNING OUTCOMES

As a result of the lesson you will be able to:

- ❑ Describe the three most common forms of skin cancer
 - ❑ describe the three classes of burns and the priorities in burn treatment
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Skin Disorders

Skin Cancer

- skin cancer – induced by the ultraviolet rays of the sun
 - most often on the head and neck
 - most common in fair-skinned people and the elderly
 - one of the most common cancers
 - one of the easiest to treat
 - has one of the highest survival rates if detected and treated early
 - three types of skin cancer named for the epidermal cells in which they originate

Basal Cell Carcinoma

Anatomy & Physiology: The Unity of Form and Function McGraw-Hill Education; 8th Edition



(a) Basal cell carcinoma

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- most common type
- least dangerous because it seldom metastasizes
- forms from cells in stratum basale
- lesion is small shiny bump with central depression and beaded edges

Squamous Cell Carcinoma

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(b) Squamous cell carcinoma

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- arise from keratinocytes from stratum spinosum
- lesions usually appear on scalp, ears, lower lip, or back of the hand
- have raised, reddened, scaly appearance later forming a concave ulcer
- chance of recovery good with early detection and surgical removal
- tends to metastasize to lymph nodes and may become lethal

Malignant Melanoma

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(c) Malignant melanoma

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- skin cancer that arises from melanocytes
- often in a preexisting mole
- less than 5% of skin cancers, but most deadly form
- treated surgically if caught early
- metastasizes rapidly - unresponsive to chemotherapy - usually fatal
- person with metastatic melanoma lives only 6 months from diagnosis
- 5% - 14% survive 5 years
- greatest risk factor – familial history of malignant melanoma
- high incidence in men, redheads, people who experience severe sunburn in childhood



LOST IN THE DESERT!

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Part III: Subsequent Months

9. What did Mark do that increased his chance of burns?



Evolution of Skin Color

- **skin color** – one of the most conspicuous sign of human variation
- results from combination of evolutionary selection pressures
 - especially differences in **exposure to ultraviolet radiation (UVR)**
- **UVR has two adverse effects:**
 - causes **skin cancer**
 - **breaks down folic acid** needed for normal cell division, fertility, and fetal development
- **UVR has a desirable effect:**
 - stimulates **synthesis of vitamin D** necessary for dietary calcium absorption
- populations native to the **tropics** and their descendants tend to have **well-melanized skin** to screen out excessive UVR

Evolution of Skin Color

- ancestral skin color is a compromise between vitamin D and folic acid requirements
- women have skin averaging about 4% lighter than men
 - need greater amounts of vitamin D and folic acid to support pregnancy and lactation
- high altitude and dry air increases skin pigmentation
 - Andes, Tibet, Ethiopia
- UVR accounts for up to 77% of variation in human skin color
- other exceptions:
 - migration, cultural differences in clothing and shelter
 - intermarriage of people of different geographic ancestries
 - darwinian sexual selection – a preference in mate choice for partners of light or dark complexion

◆ **Post-test: 10 min**