# Skin Cancer Module: Practice Exercises

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## Module 8: A Diversity of Skin Types

### Objective: Learn how skin color plays a role in sun protection and vitamin D activation.

Think about all the different skin colors in the world. Look around your classroom. You'll find a small sample of the many natural skin shades that make humankind wonderfully diverse. What causes differences in skin color? And how does skin of different types respond to ultraviolet (UV) rays? Why is it important to know your skin type? This module will help you answer these questions.

### A Review of Melanin and Melanocytes

As you learned in module 1, "The Skin":

- Melanin is the pigment that colors the skin.
- Skin color depends on how much melanin is made and carried to the upper layers of the skin. The more melanin in the upper layers, the darker the skin.
- Melanocytes are the cells that make melanin. They are in the basal layer of the epidermis.
- All people basically have the same number of melanocytes, no matter what their skin color.
- Tanning happens when UV rays cause more melanin to be made and carried to the upper layers of the skin.

Melanin is important in keeping us and our skin healthy. Melanin protects a cell's genetic material from ultraviolet damage by forming a cap over the nucleus. The cap can directly absorb harmful UV rays. Melanin can also "scavenge," or clean up, toxins that result from ultraviolet damage to skin cells. So melanin plays a very important role in preventing skin damage and even

cancer in a sunny environment.

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## Skin Color and Vitamin D

There is another important factor at play when it comes to skin color: vitamin D. UV rays "activate" vitamin D in the skin. Our bodies need vitamin D to absorb calcium for building strong bones and teeth. People who don't get enough vitamin D risk bone problems. These problems include weak bones and diseases such as rickets and osteomalacia. Rickets can lead to bent or distorted bones. Osteomalacia is softening of bones.

Lighter skin lets in more UV rays than dark skin. So lighter skin makes the most of whatever sunlight there is for activating vitamin D. This makes sense when you look at how skin color is distributed around the world. People originally from cold, dark climates tend to have lighter skin than those from sunnier regions.

For more information on vitamin D, check out http://ods.od.nih.gov/factsheets/vitamind.asp.

Today, people with different skin types live all over the globe. They live in environments with all different levels of ultraviolet radiation. Too little vitamin D is *not* a common problem for people who eat healthy, varied diets. But skin cancer and skin aging *are* common. Knowing your skin type can help you choose the best ways to protect your skin from the sun. See module 9, "Know Your Skin Type."

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