

Living in the Light *Part Two*

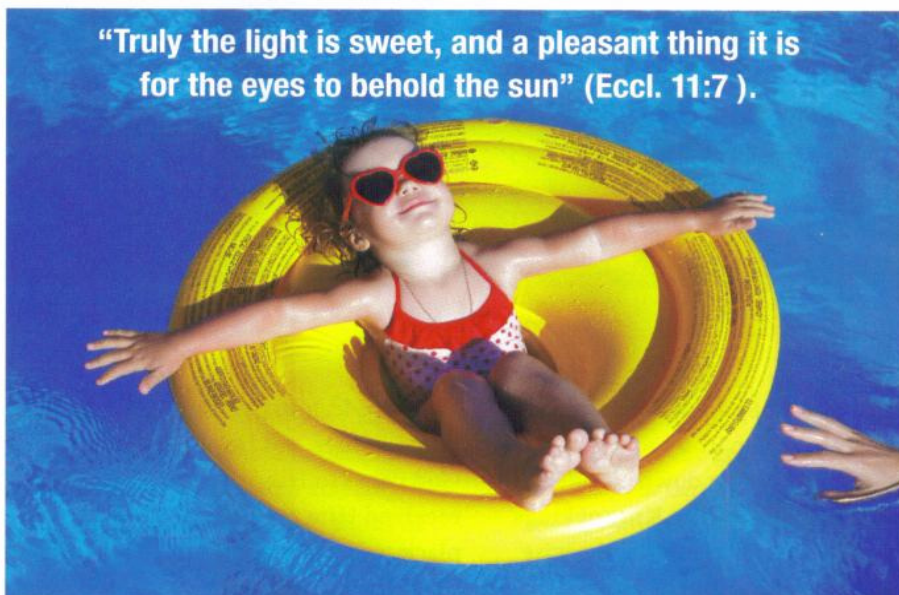
BALANCING RISKS AND BENEFITS

Ultraviolet (UV) light in sunlight can damage human skin and promote the development of skin cancers. Health news abounds with warnings about sun exposure for people with light skin. In recent years, these warnings have increased sharply because of tanning and more vacation travel.

In part 1 of *Living In The Light*, we asked how could it be good for God to have placed the first humans naked into a sunlit garden if sunlight is associated with skin cancers. Wouldn't they have suffered from skin cancer even while having strong bones due to abundant vitamin D?

There are several reasons why this would not have been the case. First, the pattern of sun exposure in the garden would not have produced the most common nor the most deadly forms of skin cancer associated with UV exposure: Basal Cell Carcinoma (>90% of skin cancer cases) and Malignant Melanoma (<5%). Development of these types of skin lesions is associated with excessive but intermittent exposure to the sun, not daily exposure.

Secondly, the risk of developing skin cancer from exposure to UV light is associated with certain genetic mutations which would not have been present in Adam's genetic pool. Even the development of skin cancer that is associated with total cumulative UV light exposure, as in Squamous Cell Carcinoma (0.1%),



would have been unlikely without these genetic defects.

Third, Adam's skin, like ours, was equipped with a protective pigment called melanin. Melanin effectively absorbs ultraviolet light and releases the energy as heat. This prevents damage to genetic material in skin cells which could otherwise lead to skin cancer. People with darker skin are less susceptible to skin damage from UV light. But dark-skinned people don't have so much melanin that production of vitamin D is prevented. Darker-skinned people need longer exposure to more intense sunlight/UV to produce sufficient vitamin D than do lighter-skinned people—just the type of conditions naked people living in an equatorial garden would face. If Adam and Eve were created with medium to dark brown skin, they would have had enough melanin to protect their skin from UV light damage but still allow

sufficient vitamin D production. Strong bones, yes. Skin cancer, no. An elegant balancing of risks and benefits.

The protective design of human skin and the occurrence of the weak bone disease rickets, caused by vitamin D deficiency from insufficient sunlight, are indicators that we were originally designed to live outside and to actually need sunlight (and calcium) for proper health. Today we wear clothes and hide from the sun to prevent skin cancer and often live at high latitudes where sunlight is so weak that we become vitamin D deficient. Today we can cure skin cancer with surgery and treat weak bones with supplements, yet we still need sunlight for our mental health as well as physical health. And what about spiritual health? The light we need most today for our spiritual health is "the light of the knowledge of the glory of God in the face of Christ" (2 Cor. 4:6).

—MICHAEL G. WINDHEUSER, PH.D.