



# Newsletter

CANCER CONSULTANTS OF AMERICA

BRIDGING THE GAP BETWEEN CANCER AND UNDERSTANDING®

## Cancer Answers

### Sunscreen: "Broad Spectrum"

Most sunscreen users only give attention to the sun protection factor (SPF) which comes with a numerical designation usually ranging between 5 to 100. The higher number of SPF indicates the greater protection from ultraviolet (UV) radiation emitted by the sun. In addition to the SPF number, most sunscreens carry with it a label such as "broad spectrum" which has significance in regard to the type of ultraviolet radiation protection it provides.

The sunlight that we enjoy every day contains multiple types of ultraviolet radiation. This radiation is arranged into 3 different categories: ultraviolet A (UVA) radiation, ultraviolet B (UVB) radiation, and ultraviolet C (UVC) radiation. Two of these types of UV radiation can be problematic whereas one is not. Although UVC radiation is the most energetic and dangerous, it does not reach ground level due to the protective ozone layer in our atmosphere. However, the less energetic UVA and UVB radiation do reach the surface of the earth and can cause problems for the skin, especially in the form of DNA mutations at the cellular level. Two common forms of mutations are named cyclobutane pyrimidine dimers (CPD) and 8-oxoguanine (8-oxoG). These mutations have a significant impact within the cells during the stage of DNA replication. When DNA is being replicated, the enzyme that is responsible for reading the template DNA misinterprets the mutated genetic sequence and synthesizes a new genetic sequence that is not the same as the original sequence. This ultimately changes the DNA sequence of the newly formed cell. When the mutation occurs within a genetic sequence that promotes cellular proliferation, it provides the cell with a growth advantage that allows it to produce more mutated cells at a faster rate than healthy cells. Over time, these mutated cells will replace the healthy functioning cells. This mechanism of UV-induced mutations occurs within the skin and can result in skin cancer.

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The three most common forms of skin cancer are basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma. The 5-year survival rates of all three forms of skin cancer are near 100% when treated early. All three forms of skin cancer occur within the epidermis, which is the outermost layer of the skin. UVB radiation emitted by the sun is absorbed within the epidermal layer of the skin and can induce mutations within the DNA of the cells. In contrast, UVA radiation penetrates the dermis layer of the skin, which is situated below the epidermis. Excess exposure of UVA radiation can cause the skin to appear aged and wrinkled.

Taken together, the information provided on sunscreen labels is important in many ways. The SPF numerical designation indicates the level of protection against the UV rays. Also, the "broad spectrum" indication lets the consumer know that the sunscreen provides protection against UVA rays that impact the dermis layer and UVB rays that can cause mutations in the cells of the epidermis layer. Using broad spectrum sunscreen promotes skin health by fighting skin cancer and maintains the skin's youthful appearance.

Submit your **Cancer Answers** topics to [info@CancerConsultantsOfAmerica.com](mailto:info@CancerConsultantsOfAmerica.com)

### We Are Available to You




Please contact us today if you would like more information about how our services can benefit you and your family.


#### Services:


- Individual and Family Cancer Education
- Medical Appointment Liaison Services
- Information Seminars and Public Speaking Events


### Fun Facts – May


#### Cancer Awareness Month:


- Melanoma Skin Cancer (Black) 
- Bladder Cancer (Blue, Purple, & Yellow) 
- Brain Cancer (Gray) 


May 8 – Have a Coke Day 

May 10 – Mother's Day 

May 16 – National Barbecue Day 

May 23 – Lucky Penny Day 

May 24 – National Brother's Day 

May 25 – Memorial Day (United States) 


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