

The Claim:

Sunbeds Emit 6 To 30 Times
More UVA Photons Than Sunlight

"Facts are stubborn things."
—Ebenezer Elliott: *Field Husbandry*

The Facts

One of the most egregious, false, deceptive and misleading lies told by dermatologists about sunbeds is that they emit six to 30 times more UVA photons than the sun. This article sets the record straight on how low-pressure and HID/high-pressure sunbeds *really* compare to sunlight and the PUVA booths used by dermatologists.

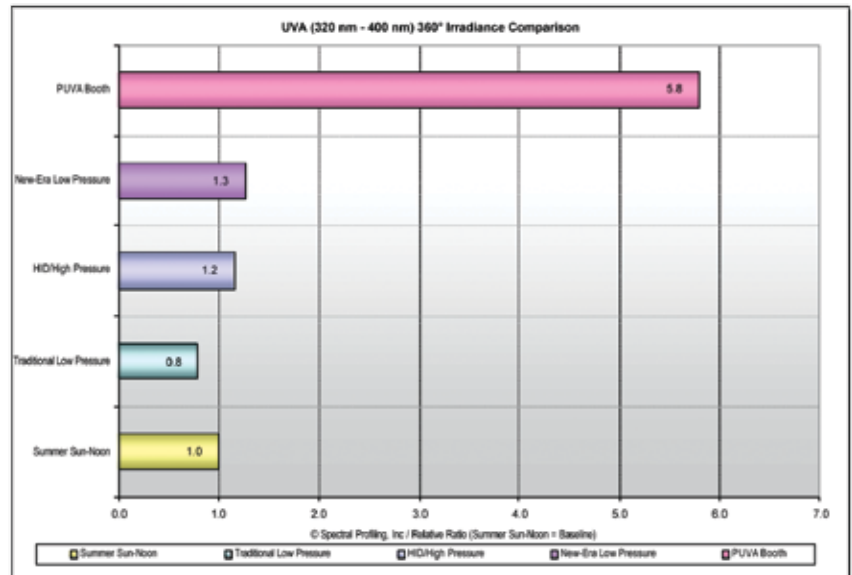
None of the pseudoscientific articles written by dermatologists set forth the spectral data necessary to properly compare sunlight and sunbeds, and therefore, are unable to make a valid scientific comparison. Note: The reason the dermatologists don't specify the spectral data is because they—for reasons that should be obvious—are comparing "weak" sunlight with a "strong" sunbed.

On the other hand, the data for the irradiance sources shown in the graph to the right—and used for this article—has been normalized so they all 1) have the same spectral output, i.e., they all have a 6.4 UVI (Ultraviolet Index), which means they are all equal to noon on a Midwestern summer day, and 2) were adjusted to reflect 360-degree (whole-body) coverage. This makes it possible—for the first time—to make a fair and valid comparison between sunlight and sunbed UVA emission.

A comparison of this fair and scientifically-valid data shows that a sunbed equipped with traditional low-pressure sunlamps emits 20 percent less UVA than sunlight; an HID/high-pressure sunbed emits only 20 percent (1.2 times) more UVA than sunlight; and a sunbed equipped with a new-era sunlamp emits only 30 percent (1.3 times) more UVA than sunlight. However, a PUVA booth—like those used by the dermatology community to treat psoriasis—emits 5.8 times (580 percent) more UVA than sunlight.

Therefore, when the irradiance is normalized so a fair and valid scientific comparison can be made, we find that the amount of UVA emitted by both low-pressure and HID/high-pressure sunbeds is comparable to sunlight on a typical Midwestern summer day

at noon. PUVA booths used by dermatologists, on the other hand, emit far more UVA photons than does either sunlight and/or sunbeds.

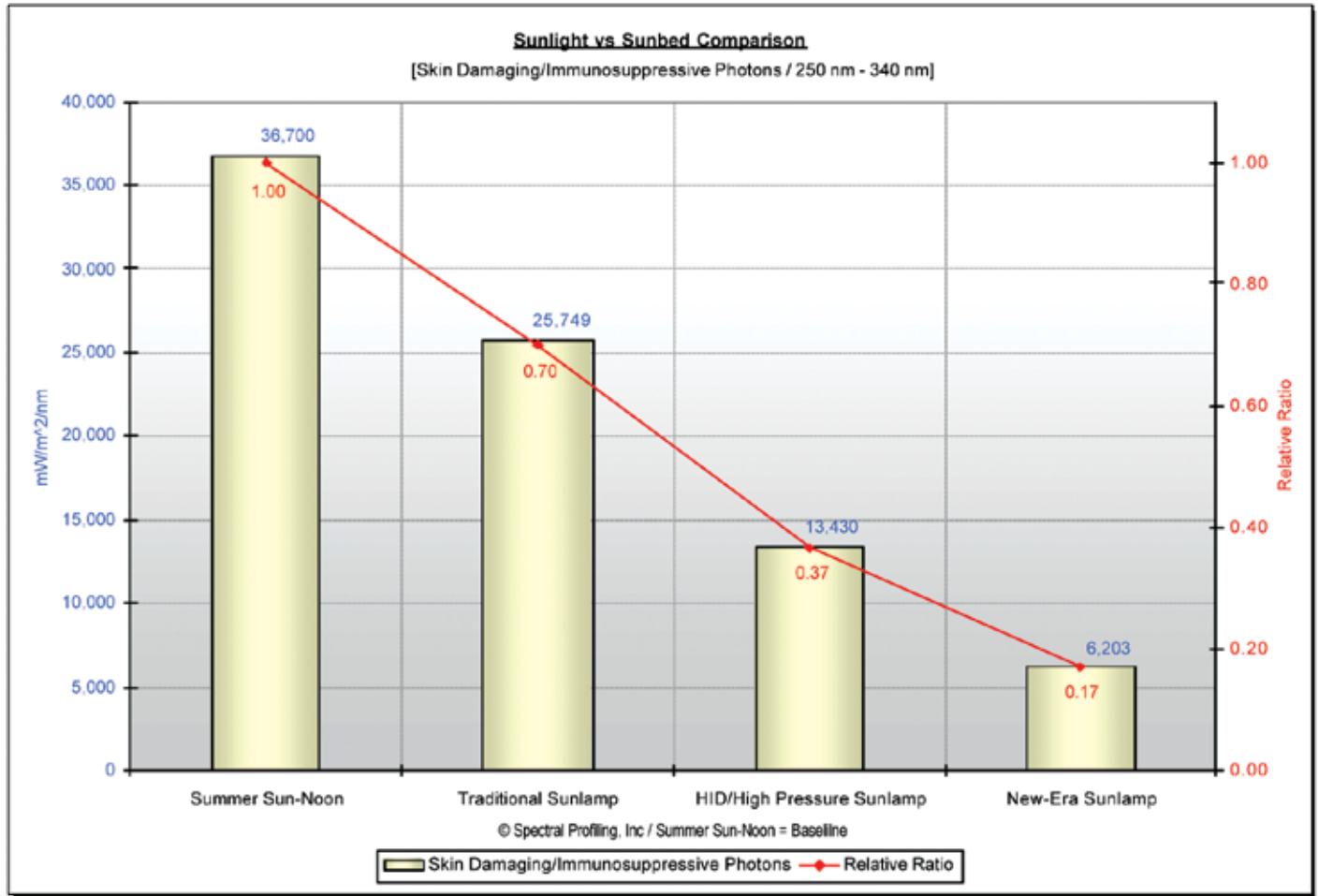


Defining UVA

UVA is made up of two components—UVA2 (320 nm-340 nm) and UVA1 (340 nm-400 nm). The former (UVA2) acts biologically like UVB (280 nm-320 nm) and UVC (250 nm-280 nm), which means that it is immunosuppressive (i.e., it will suppress our immune defense system, which makes us more susceptible to disease) and has more power to damage the skin. The latter (UVA1) has much less power to damage the skin and is immunostimulatory (i.e., it stimulates our immune defense system, which helps us to fight disease). Importantly, the UVA1 wavelengths primarily are responsible for causing the skin to develop photoprotective facultative pigmentation, i.e., to tan.

Skin-Damaging Photons

It should be obvious—even to the dermatology community—that a comparison of sunlight and sunbeds looking at the number of photons that have the most power to damage the skin and are immunosuppressive (i.e., in the wavelengths between 250 nm and 340 nm) would be much more meaningful and informative. The graph below shows that a sunbed equipped with a traditional low-pressure sunlamp has *30 percent less skin-damaging/immunosuppressive photons* than does sunlight on a typical Midwestern summer day at noon; an HID/high-pressure sunbed has *63 percent less*; and a sunbed equipped with a new-era low pressure sunlamp has reduced the potential to damage the skin (and suppress our immune defense system) by an *incredible 83 percent*.



The Bottom Line

When the irradiance of UVA sources are normalized to approximate noon on a typical Midwestern summer day so a fair and valid comparison can be made, we find that both low-pressure and HID/high-pressure sunbeds emit about the same number of UVA photons as does sunlight. More importantly, it can be seen that the PUVA units used by the dermatology community to treat psoriasis have far more potential to cause damage to the skin and to suppress our immune defense system than does a sunbed equipped with either low-pressure or HID/high-pressure sunlamps.

Therefore, the often repeated claim that sunbeds emit six to 30 times more UVA than does an unspecified level of sunlight can be seen to be just another lie—in a long series of lies—made by the dermatology community to financially damage the indoor tanning industry.

Please send a copy of this article to your local media outlets so they will have the facts about how sunbeds emitting UVA really compare to sunlight. ▲

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