Phothera Webinar:
Phototherapy 101

Understanding the benefits, applications, history, and debunking common myths of phototherapy.

In this webinar, we will delve into the science behind phototherapy, discover treatable conditions, learn the history of the treatment, and address common misconceptions surrounding this time-tested treatment modality.

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Agenda:

- **A Brief History of Phototherapy: (5 minutes)**
  - How and when the benefits of phototherapy were discovered
  - The evolution of the treatment: from Broadband, PUVA, to Narrowband UVB
- **The Science of Phototherapy: (5-10 minutes)**
  - A look at how phototherapy works when treating chronic skin conditions such as psoriasis, atopic dermatitis, and vitiligo.
- **Phototherapy in Use: (5-10 minutes)**
  - Understanding who is a candidate for phototherapy
  - Utilizing phototherapy in conjunction with other treatment modalities
- **Debunking Common Phototherapy Misconceptions: (10-15 minutes)**
  - Using science and clinical studies to disprove common misconceptions
- **Closing Remarks & Summary (5 minutes)**
- **Q&A**

Phototherapy Timeline

UNDERSTANDING THE ORIGINS OF PHOTOTHERAPY AND ITS PLACE IN THE MODERN PRACTICE

Phototherapy History & Why It Matters

Understanding the evolution of this time-tested treatment modality empowers healthcare providers with confidence.

Why the History of Phototherapy Matters

- **Establishes credibility** – Phototherapy is a proven, evidence-based treatment backed by over a century of research.
- **A Century of Proven Efficacy**– Beginning in the early 1900's to now, phototherapy has over a century of being successfully utilized to treat chronic skin conditions.
- **Advancements in technology** – The evolution from broad-spectrum light to narrowband UVB maximized efficacy while minimizing risks.
- **Dispels misconceptions** – Phototherapy is not the same as sun exposure or tanning; it is a controlled, physician-guided treatment.
- **Supports patient education** – A strong historical foundation helps providers confidently recommend phototherapy as a safe, effective option for managing chronic skin conditions.

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A History of Phototherapy:

- **1808**
  - Robert Willan, M.D. (1757-1812), the founder of dermatology as a medical specialty, offers the first accurate clinical description of psoriasis.
- **1900**
  - Due to the rise of the synthetic chemical industry Coal tar becomes a common treatment for psoriasis.
- **1920s**
  - William Goeckerman, M.D. (1884-1954), develops the Goeckerman therapy for treating psoriasis, combining coal tar with broadband ultraviolet light B (UVB) phototherapy.

- **1970s** The light-sensitizing medication psoralen with ultraviolet light A (PUVA) starts trials for psoriasis, with eventual FDA approval ini1982.

- **1988**
  - Narrowband UVB phototherapy is introduced as a psoriasis treatment, in a very limited manner in Europe, taking advantage of the monotherapy psoriasis action spectrum developed in the early 1980s.
- **2019**
  - LITE, the clinical trial to study the effectiveness and safety of home-based versus office-based phototherapy for the treatment of psoriasis, launches. The LITE study is a patient-centered trial that will enroll approximately 1,000 people of all skin types. It is federally funded by the Patient-Centered Outcomes Research Institute and will hopefully increase access to phototherapy. LITE is a collaboration among NPF, the University of Pennsylvania, and the University of Utah.
- **2024**
  - The LITE study demonstrated that home phototherapy is non-inferior to office phototherapy, with both home and office phototherapy demonstrating excellent effectiveness and safety in real-world settings across all skin types. The **findings support the use of home phototherapy as a first-line treatment option for psoriasis, including individuals with no prior phototherapy experience**, and advocates for efforts to make phototherapy more available to people living with psoriasis.

The Science of Phototherapy

UNDERSTANDING PRIMARY PRINCIPLES OF PHOTOTHERAPY AND HOW IT WORKS

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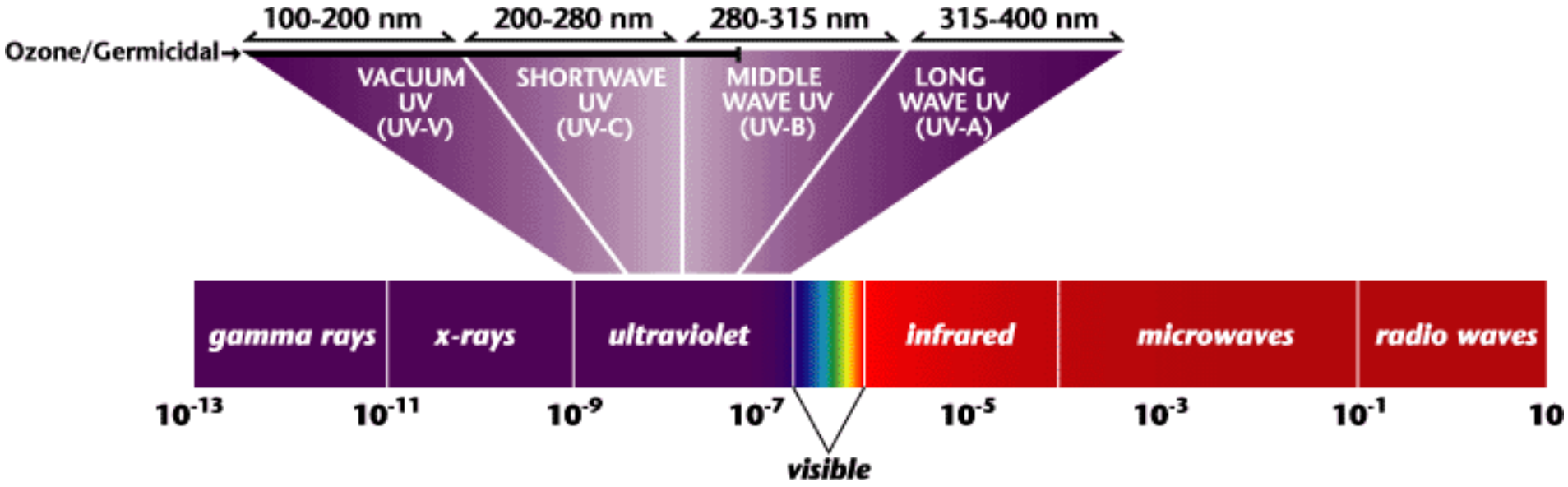
The Electromagnetic Spectrum:



Note: North America splits UVB and UVA at 320nm, the rest of the world uses 315nm. In medical applications, this is not a particularly large difference, however, it is relevant in basic research and sunscreen chemistry.

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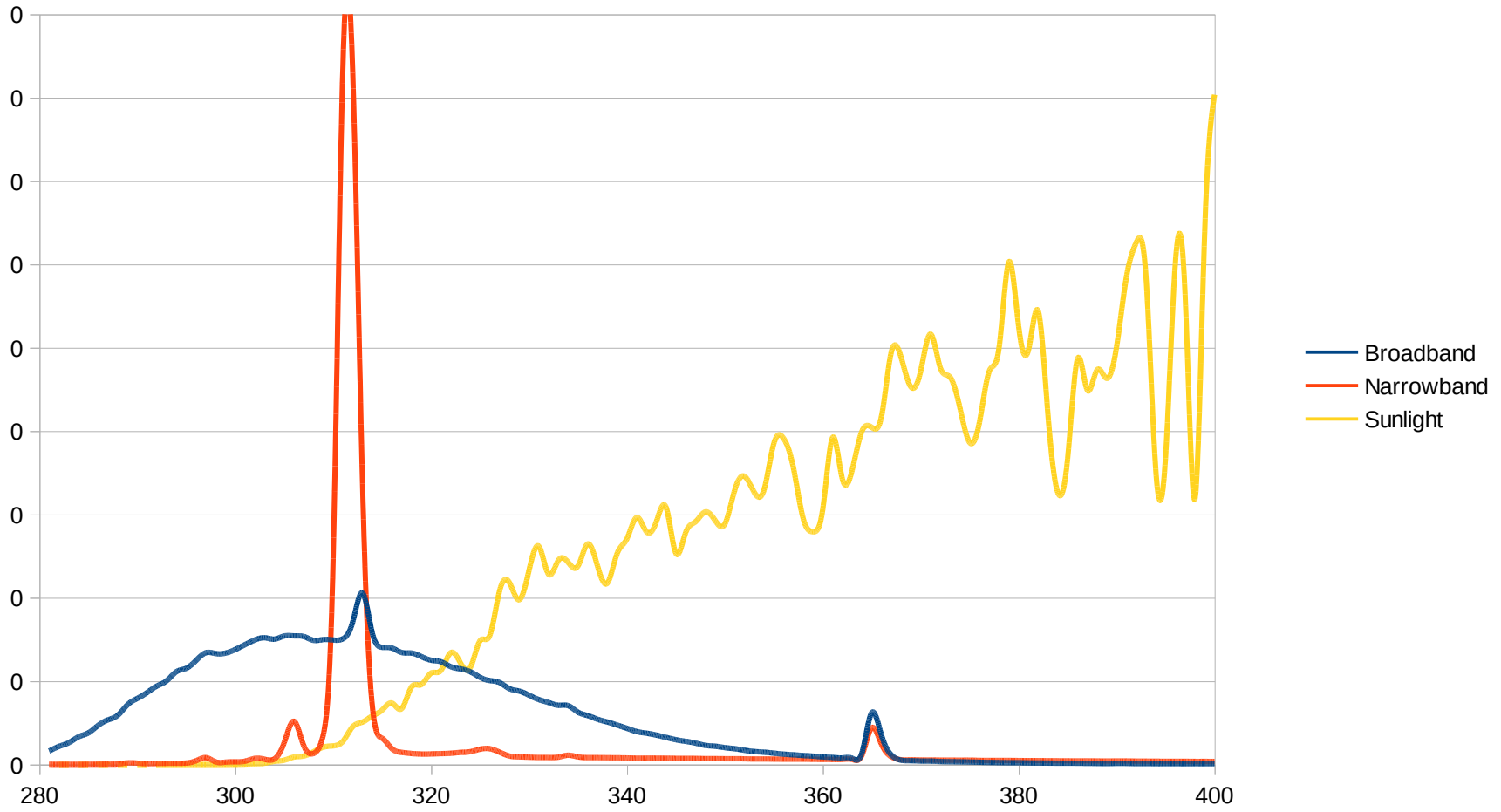
UVB Lamps vs Sunlight



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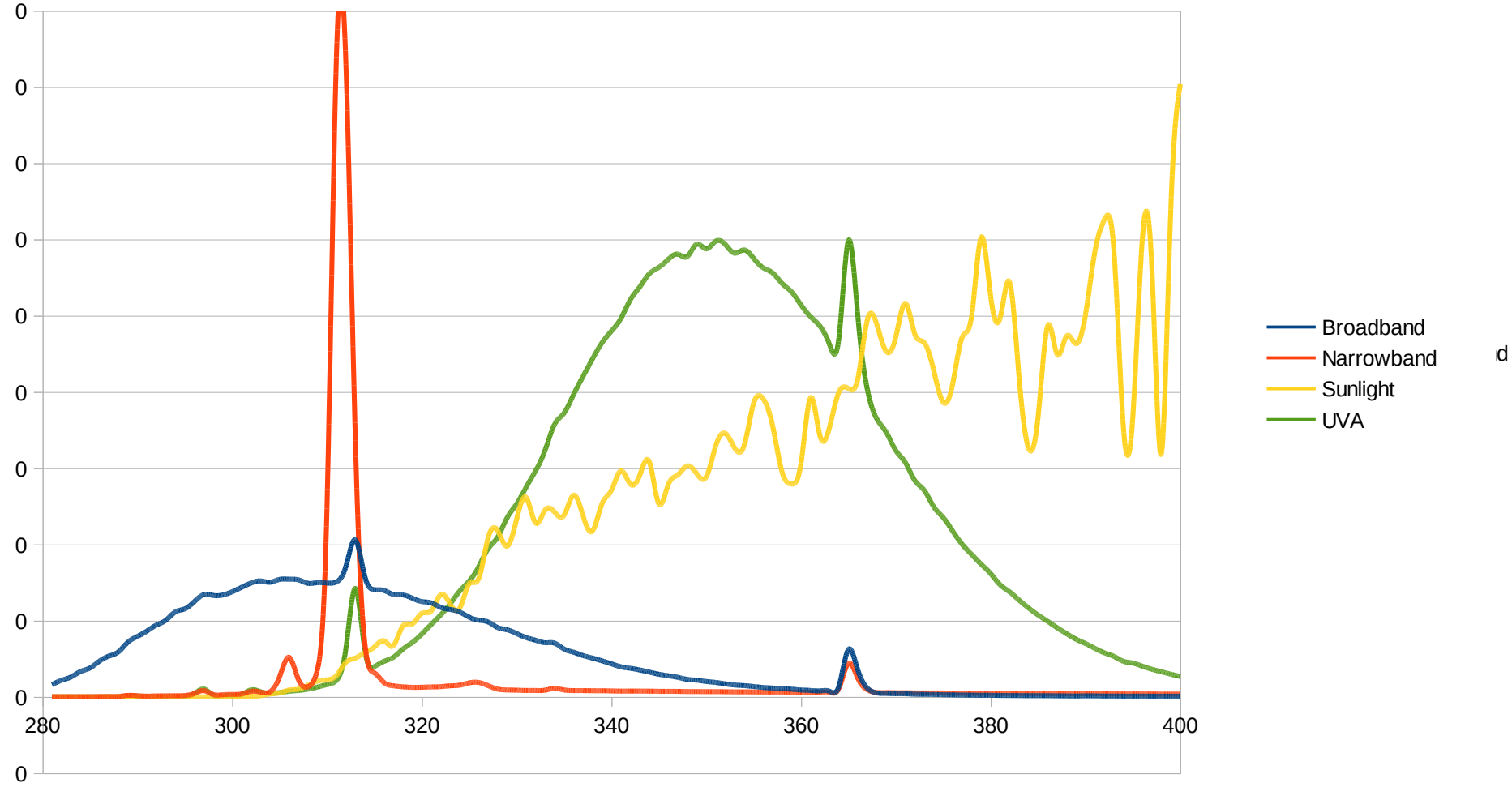
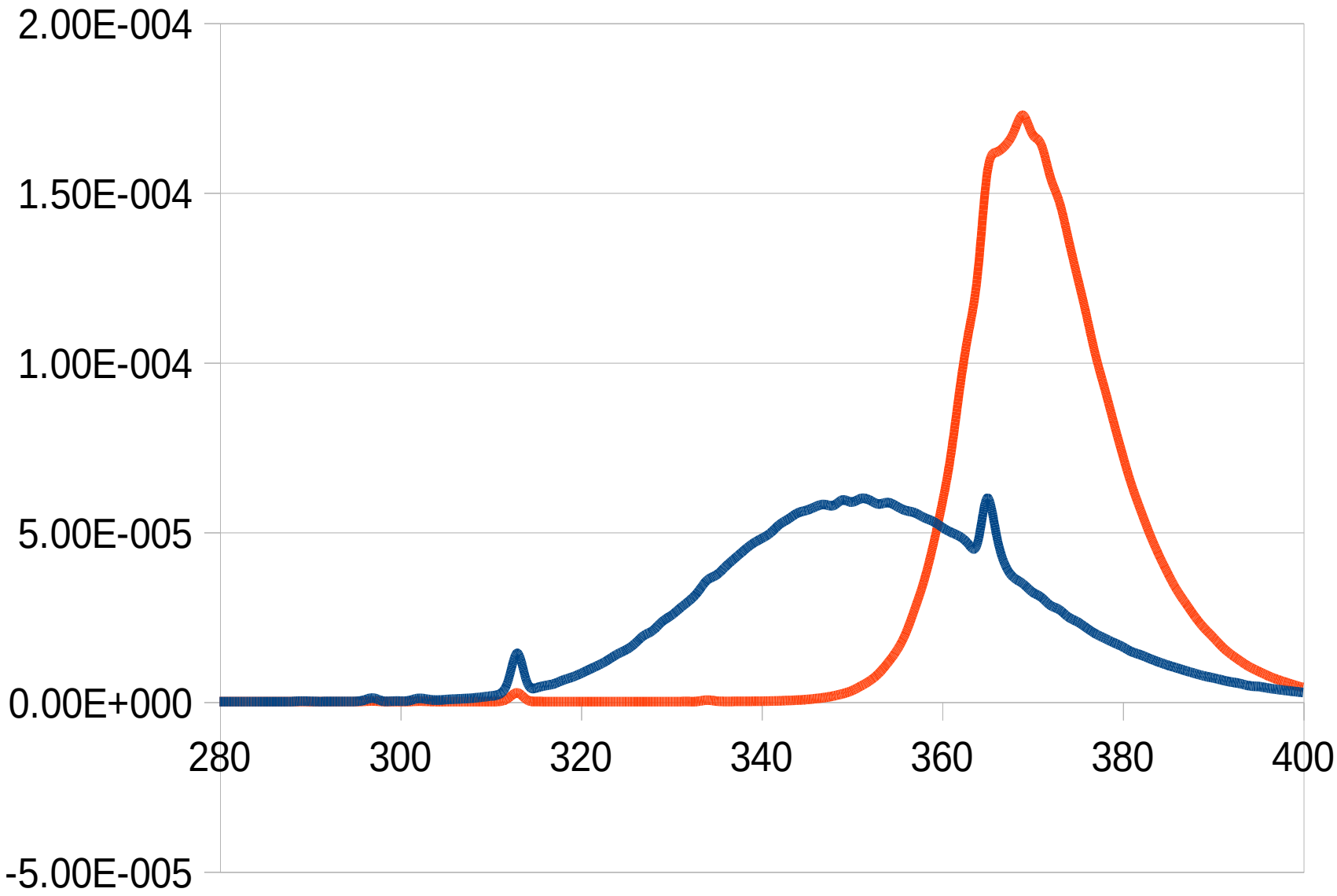
UVB Lamps, Tanning Lamps, and Sunlight



UVA1 vs PUVA Fluorescent Lamps



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Photherapy In Use

UNDERSTANDING WHO IS A CANDIDATE FOR PHOTOTHERAPY

Mechanisms of Action

- Phototherapy acts by multiple mechanisms to treat psoriasis and dermatitis, including:

1. IL-17/IL-23 pathway
2. IFN-γ production
3. Increased Vitamin D levels (very minor contribution)
4. photoisomerization of trans-UCA
5. formation of pyrimidine dimers causing reduced DNA synthesis rates
6. Direct and indirect T-Cell Apoptosis

- These processes, primarily the reduction in inflammatory cytokines reduce inflammation and slow the turnover of skin cells that causes scaling

- Gradually the area clears, with an expected return to baseline PASI in about a year. (Studies range from 9 to 14 months)

Who Phototherapy Is For:

Phototherapy can be utilized to treat a wide variety of patients. Outlined below are some of the primary reasons why phototherapy is a time-tested and trusted treatment modality for a variety of different demographics.

Pregnant Women[1]:

Phototherapy provides drug-free relief from skin conditions like psoriasis and eczema without systemic side effects, ensuring both maternal and child safety.

Immunocompromised[2]:

Phototherapy offers safe, effective relief for immunocompromised patients without suppressing the immune system, making it a well-tolerated alternative to systemic treatments.

Varying Skin Types[3]:

The LITE study confirmed phototherapy's effectiveness across all skin types, demonstrating significant symptom improvement in patients of diverse backgrounds. The findings highlight phototherapy as an effective treatment for chronic skin conditions, regardless of skin tone.

Children[4]:

Offering a non-invasive, drug-free option for managing chronic skin conditions. Phototherapy provides targeted relief with minimal side effects, making it a well-tolerated choice for pediatric patients.

Elderly Patients[5]:

Phototherapy is a safe, well-tolerated treatment for elderly patients, providing effective relief from chronic skin conditions without the risks of systemic medications. Its non-invasive nature and minimal side effects make it an excellent choice for aging skin.

In Conjunction with Other Treatment Modalities[6]:

Phototherapy is an excellent supplemental treatment that enhances the effectiveness of other therapies while helping to reduce systemic medication doses and their potential side effects. Its targeted approach provides safe, non-invasive relief, making it a valuable addition to comprehensive treatment plans.

Debunking Common Phototherapy Misconceptions

USING SCIENCE TO DISPROVE COMMON MISCONCEPTIONS

Common Phototherapy Misconceptions

The Top 5 Misconceptions

1. Misconception: "Phototherapy causes skin cancer."

1. **Fact:** Narrowband UVB phototherapy is carefully controlled and does not include the harmful UVA rays associated with increased melanoma skin cancer risk. Studies show[1] that when used appropriately, phototherapy has a low risk of long-term damage, especially compared to uncontrolled sun exposure or tanning beds.[7]

2. Misconception: "Phototherapy is just like tanning or sun exposure."

1. **Fact:** Unlike sunlight and tanning beds, which expose skin to a broad spectrum of UV radiation (including harmful UVA), phototherapy uses specific wavelengths of UVB to provide therapeutic benefits while minimizing risk.

3. Misconception: "Home phototherapy isn't as effective as in-office treatment."

1. **Fact:** Modern home phototherapy devices, like those from Phothera, use the same narrowband UVB technology as clinical treatments. When used as directed, they offer comparable efficacy with added convenience for patients.[3]

4. Misconception: "Phototherapy is outdated compared to biologics and newer treatments."

1. **Fact:** Phototherapy remains a clinically proven, cost-effective, and safe option, especially for patients who prefer non-systemic treatments or who do not qualify for biologics. It is often recommended as a first-line or adjunct therapy.

5. Misconception: "More exposure means better results."

1. **Fact:** Phototherapy is precisely dosed to maximize benefits while minimizing risks. Overuse can lead to burns or other adverse effects, making controlled treatment essential.

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8. Phototherapy Timeline Material: National Psoriasis Foundation (NPF), psoriasis.org

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