

# LASER FOUNDATION

## Photosensitivity



## WHAT IS PHOTOSENSITIVITY?

Photosensitivity is an extreme sensitivity to ultraviolet (UV) rays from the sun and other light sources. Most people are at risk of developing sunburn during long exposure to sunlight.

Exposure to UV rays can also lead to skin damage and skin cancer. People who are photosensitive may develop skin rashes or burns, even after only limited exposure to the sun.

## TYPES OF PHOTOSENSITIVITY

Some chemicals contribute to sensitivity to the sun. These can cause two different types of photosensitive reactions:

### 1. PHOTOTOXIC

Phototoxic reactions are caused when a new chemical in your body interacts with UV rays from the sun. Medications like doxycycline and tetracycline, for example, are the most common cause of this type of reaction.

The result is a skin rash that looks like a severe sunburn, which usually develops within 24 hours of exposure to the sun.



Medication that may cause phototoxicity

**1. Antibiotics**

- Quinolones – ciprofloxacin (Cipro XR, ProQuin XR) and levofloxacin (Levaquin)
- Tetracyclines – tetracycline (Achromocin) and doxycycline (Vibramycin, Oracea, Adoxa, Atridox)
- Sulfonamides -sulfamethoxazole (Bactrim, Septra, Sulfatrim), trimethoprim, co-trimoxazole and sulfamethoxazole (Gantanol)

**2. Antihistamines**

- Diphenhydramine (Benadryl)

**3. Malaria Medications**

- quinine (Quinerva, Quinite, QM-260)
- chloroquine (Aralen)
- hydroxychloroquine (Plaquenil)

**4. Cancer Chemotherapy Drugs**

- 5-fluorouracil (5-FU, Efudex, Carac, Fluoroplex)
- Vinblastine (Velban, Velsar)
- Dacarbazine (DTIC-Dome)

**5. Other Cancer Drugs**

- Epidermal growth factor receptor inhibitors – cetuximab (Erbix), panitumumab (Vectibix), erlotinib (Tarceva), gefitinib (Iressa), lapatinib (Tykerb), vandetanib (Caprelsa)
- BRAF inhibitors – vemurafenib (Zelboraf) and sorafenib (Nexavar)

**6. Cardiac Drugs**

- Amiodarone (Cordarone)
- Nifedipine (Procardia)
- Quinidine (Quinaglute, Quinidex)
- Diltiazem (Cardizem, Dilacor, Tiazac)

## 2. PHOTOALLERGY

Photoallergic reactions can develop as a side effect of some medications. They can also arise from chemicals found in beauty products and sunscreen.

These types of reactions to the sun tend to take a few days for a rash to develop after sun exposure.



Phototoxic and Photoallergic Dermatitis

### Drugs that may cause photoallergic reactions:

#### 1. Sunscreens

- Para-aminobenzoic Acid (PABA)- has been phased out of sunscreen preparations because of the high rate of allergic reactions to this chemical.
- Oxybenzone
- Cyclohexanol
- Benzophenones
- Salicylates
- Cinnamate

#### 2. Anti-microbials

- Chlorhexidine (Peridex)
- Hexachlorophene (PhisoHex, Septisol)
- Dapsone (DDS)

#### 3. Painkillers

- Celecoxib (Celebrex)

#### 4. Cancer chemotherapy drugs

- 5-fluorouracil (5-FU, Efudex, Carac, Fluoroplex)

#### 5. Fragrances

- Musk
- 6-methylcoumarine

## SYMPTOMS OF PHOTSENSITIVITY

Symptoms of photosensitivity vary from mild to severe. The most common symptom is an exaggerated skin rash or sunburn. Rashes may or may not cause itching. In some cases, a sunburn can be so severe that blistering develops. Weeping of your skin and peeling can also occur in severe cases.

The amount of sun exposure required for a reaction varies greatly. For some people, very little sun exposure can cause a rash or burn, while for others, prolonged exposure will bring about a reaction.



## COMMON TYPES OF PHOTOTOXIC DRUGS

- Antibiotics
- Antihistamines
- Malaria medications
- Cancer chemotherapy drugs and other cancer drugs
- Cardiac drugs
- Statins (HMG-CoA reductase inhibitors)
- Diuretics – Lasix and Hydrodiuril
- Diabetic drugs – Diabinese, Micronase, DiaBeta, Glynase
- Painkillers – Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Skin medications – photodynamic therapy for skin cancer
- Acne medications – Isotretinoin and Acitretin (Accutane and Soriatane)
- Psychiatric drugs – Thorazine, Norpramin and Tofranil
- Antifungals – Lamisil, Sporanox, Vfend
- Some fragrances



## MEDICAL CONDITIONS THAT CAUSE PHOTOTOXICITY

### Lupus erythematosus

Lupus is an auto immune disease which occurs when the body's immune system attacks its own tissues and organs.

Lupus causes inflammation which may affect various body systems which can include joints, skin, kidneys, blood cells, brain, heart and the lungs. It may be triggered by the infections, drugs or sunlight.

Red patches, lumps, and purple spots can develop on areas of your skin exposed to the sun. These symptoms also generally becomes worse when in contact with the sun.



Other symptoms may include fatigue, fever, joint pain, butterfly shaped rash on the face, skin lesions that appear worse with sun exposure, chest pain, dry eyes and headaches.

### Polymorphous light eruption

It is a rash caused in people who has developed sensitivity to sunlight or artificial UV light. The rash appears as tiny, inflamed bumps or slightly raised patches of skin. The reactions usually happen during spring and summer when exposure to sunlight increases.



## Actinic prurigo

It is a rare form of photodermatitis that primarily affect sun-exposed areas of the skin. Lesions appears hours or days after sun exposure and may also appear on areas not typically exposed to the sun, like the buttocks.

Itchy inflamed papules, pustules and plaques on the skin. This disorder can occur year-round, even in winter when sun exposure is less likely.

The cause is unknown but researchers believe that protein in our body plays a role as well as UVA and UVB.



## FOODS & PLANTS THAT MAY CAUSE PHOTSENSITIVITY

Some vegetables and plants may cause sun sensitivity if they come into contact with the skin. Mango peel, lime juice, parsnips, or celery, for example, may cause temporary discoloration (darkening) of the skin contact area when in the sun.

- Lime
- Celery
- Carrots
- Figs
- Parsley
- Parsnips
- Mango peel

## DIAGNOSIS OF PHOTSENSITIVITY

The person's doctor will need a complete review of medical history and the medications the person is currently taking to make a proper diagnosis. They will pay attention to the development and patterns of rashes in relation to sun exposure. In some cases, the doctor may recommend a skin biopsy.

## TREATMENT OF PHOTSENSITIVITY

When a skin reaction has already developed, treatments may reduce discomfort and skin inflammation. Over-the-counter pain medications can relieve pain and corticosteroid cream may be prescribed to decrease inflammation.

Some chemicals can cause photosensitivity and should be avoided. These chemicals can be found in some medications and products, such as some forms of chemotherapy. However, sometimes it's not possible to avoid taking these medications.



## TANNING BEDS

Tanning beds may cause a sun sensitive reaction. Ultraviolet (UV) light is radiation energy in the form of invisible light waves. UV light is emitted by the sun and by tanning lamps. The sun discharges three types of ultraviolet radiation,

1. ultraviolet A (UVA)
2. ultraviolet B (UVB)
3. ultraviolet C (UVC)

Only UVA and UVB rays reach earth. (UVC does not penetrate the earth's upper atmosphere.)

Tanning lamps also produce UVA and/or UVB. These artificial rays affect the skin in the same way as do UVA and UVB from the sun.

