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# UV- Phototherapy

Effective and proven  
treatment method for skin diseases

**Feel confident!  
Effective and proven phototherapy  
treatment for skin diseases**

**1. About this video**

Millions of people worldwide suffer from the symptoms of skin diseases like Psoriasis, Neurodermitis and Vitiligo. For some patients these skin disorders are a nuisance, others find that they affect every aspect of their daily life. Coping with the outbreaks can be a difficult challenge.

Whilst it can be frustrating finding the right treatment, fortunately there is a wide range of options available. Phototherapy is a modern treatment that uses the healing power of light to treat skin disorders. Building on a wealth of scientific research and medical studies, it has become the option of choice for thousands of physicians and tens of thousands of patients around the globe. We always recommend patients to contact their dermatologist for further information about phototherapy and discuss how it may be applied in their condition.

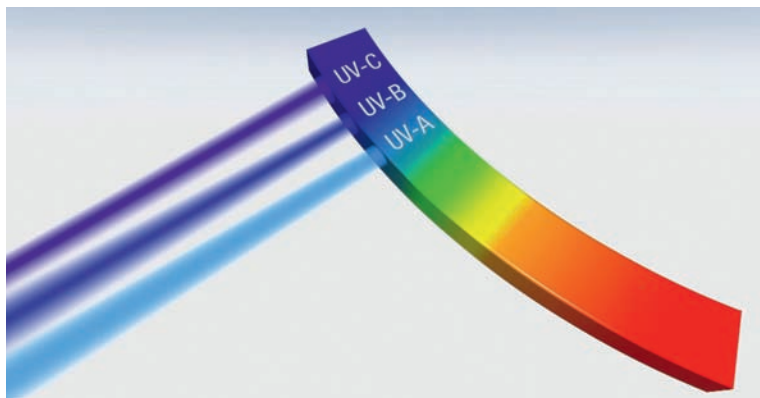
This video has been specially developed to provide patients and dermatologists with more insight into phototherapy, how it works and how it may be used to treat skin disorders. We hope that this video will help you find the best treatment option for you.

**2. History  
The human and sunlight – the  
start of phototherapy**

Light provides us with energy and vitality. Far back in history, the sun was already considered a source of life. People believed in the healing powers of its rays and used the soothing effect for medical purposes.

Already in the times of the Greek and Romans, phototherapy (heliotherapy) was born and Hippocrates (460 B.C.) is, with good reason, considered to be the “father” of medical sciences. The Nobel Prize in Physiology or Medicine 1903 was awarded to Niels Ryberg Finsen in recognition of his contribution to the treatment of diseases, especially lupus vulgaris, using concentrated light radiation, whereby he has opened a new avenue for medical science.

Since then, phototherapy has made huge progress and has been researched by leading dermatologists and institutes around the world. Today, after more than 100 years of development, modern and sophisticated phototherapy equipment and lamps are available to help you cope with your skin disease.



### **3. How phototherapy works**

#### **Spectrum of sunlight**

Just like natural sunlight, it is possible to achieve an improvement in a skin's condition by using artificial UVA or UVB light. Ultra-Violet (UV) light is invisible to the human eye and can be subdivided into three categories: UVA (long-wave) from 315 to 400 nm, UVB (medium-wave) from 280 to 315 nm and UVC (short-wave) from 100 to 280 nm. Both UVA and UVB light is known for its positive effect on treating skin disorders. This light occurs naturally as a component of sunlight and is called ultraviolet light. In essence, phototherapy is a refined form of exposure to natural light.

### **4. Options for phototherapy treatment**

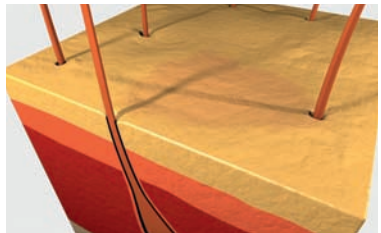
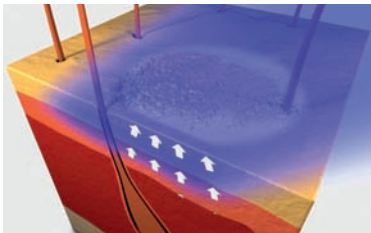
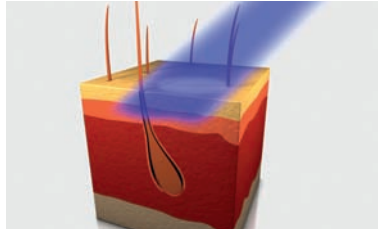
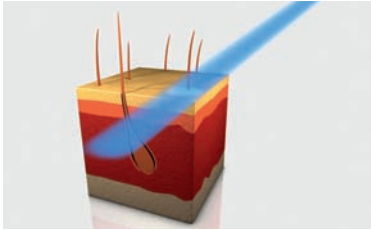
Psoriasis is a complicated condition that is very unique to each individual. Each patient copes with it in a different way, and also the amount of affected skin varies considerably from person to person. It is important, therefore, that both the physical signs of psoriasis (how much of your skin is affected) and the psychological aspects of psoriasis (how you cope with the condition) are assessed together, and regularly, so that the most appropriate treatment can be prescribed by your dermatologist. Within phototherapy, there are different types of treatment available of which we will highlight two types in this booklet.

## **PUVA-Phototherapy**

PUVA is used for the treatment of many different skin diseases and at present contains more than 20 indications. It combines Psoralen (P) with long-wave ultraviolet radiation (UVA). Psoralen is a medication that may be taken topically or orally to reach the skin by blood circulation, making the skin more responsive to ultraviolet light. The patient is subsequently irradiated by UVA light. A typical PUVA session consists of coming into the clinic, removing clothes and receiving phototherapy treatment. The lights are automatically turned off once the required dose has been obtained. The length of each session is increased by a small amount over the previous session. Patients must wear protective eye-wear while they are in the light box. When treating psoriasis, the skin becomes slightly red one or two days after the treatment. Light treatment is given 2-3 times per week for 12-15 weeks. After 15 weeks, maintenance therapy is often required once a week. After a PUVA treatment, patients must also avoid sunlight on the skin for 24 hours.

## **UVB-Phototherapy**

Both UVB and UVA are found in sunlight, but UVB works best for psoriasis. UVB from the sun works the same way as UVB in Phototherapy treatments. Various investigations [1,2] imply that the most favorable range for the effective treatment of psoriasis is in the wave part between 305 and 315 nm of the UVB spectrum. These wavelengths allow for a high therapeutic efficiency with minimum risks. There are two types of UVB treatment, broadband and narrowband (TL/01). The major difference between them is that narrowband UVB is light energy which is emitted in a narrow portion of the UVB range which is concentrated in the therapeutic range, with an optimum peak at 311 nm. UVB narrowband has shown to be most effective for treating psoriasis. Several studies [1,2,3,4] indicate that narrowband UVB clears psoriasis faster and produces longer remissions than broadband UVB. It also may be effective with fewer treatments than broadband UVB. In addition, the erythema effect (reddening of the skin) of the radiation from narrowband UVB is much smaller than from the broadband therapy so that – with the aim of being able to irradiate as much UVB as possible without producing erythema – the narrow-



band is a better option. Moreover, recent investigations [5] show that for successful therapy, TL/01 radiation can be dosed far below the erythral threshold. This makes the period of exposure shorter, reducing overall dosages and thus any acute or chronic side effects. UVB can be combined with other topical and/or systemic agents to enhance efficacy, but some of these may increase photosensitivity and burning, or shorten remission. Combining UVB with systemic therapies may increase efficacy dramatically and allow for lower doses of the systemic medication and UVB radiation to be used. UVB-Phototherapy may be administered in a medical setting or

at home. Treating psoriasis with a UVB light unit at home is an economical and convenient choice for many people. Like phototherapy in a clinic, it requires a consistent treatment schedule. In general, patients are treated initially at a medical facility and then begin using a light unit at home. The therapy schedule is drawn up by the dermatologist who will verify its success at regular intervals. The treatment should be performed as regularly as possible in accordance with your personal therapy schedule. Phototherapy should only be applied after consultation of your dermatologist and should be carried out under the supervision of a doctor!

## **5. Contraindications and potential side effects**

As we all know, virtually every treatment for any type of illness carries with it some level of risk. We know that excessive exposure to UV light over a long period of time may increase the chances of skin cancer. However, with guidance from your dermatologist, you will find that using UV light will keep you in almost complete remission with minimum side effects.

### **Contraindications**

Photo(chemo)therapy should not be used in case of gene defects with higher light sensibility, spasm, compulsory intake of photo-sensitizing medicines or malignant skin tumors in anamnesis.

### **Risks and potential side effects**

Risks and potential side effects include actinic dermatitis erythema (from UVB) and phototoxic reactions (from overdoses), premature skin ageing, provocation of photodermatoses (PLD, Light allergies), itching or nausea (from oral PUVA-Therapy)

## **6. Therapy devices and lamps Phototherapy lamps**

Since its introduction in 1988, the Philips UVB narrowband TL/01 lamp has been used successfully and safely in phototherapy for the treatment of many skin diseases. A major advantage of this lamp is that patients can be treated effectively with only minimum potential side effects compared with other treatment options. Medical studies [6] imply that the most promising range for the effective UVB treatment of psoriasis is with a wavelength of 311 nm due to its low erythemogenicity and high therapeutic efficacy. Philips TL/01 lamps have a precise and unique spectral energy distribution with an emission peak at 311 nm, minimizing potential side effects like redness, itching and burns.

The effectiveness of this spectrum also means that patients require a shorter period of exposure and receive less erythema radiation than with conventional UVB lamps. The duration of clearance may be variable but often persists for months. Next to UVB narrowband (TL/01) lamps, Philips also offers an extensive range of UVB broadband and UVA lamps for phototherapy treatment. They are available in linear (TL) and compact (PL-L and PL-S) versions.



## Phototherapy equipment

Waldmann offers a full range of UV-therapy solutions (full body and partial body irradiation) for professional use, home use, photodynamic therapy and diagnostic luminaires. As a pioneer with over 30 years of phototherapy experience for the treatment of skin diseases, such as Psoriasis, Neurodermitis and Vitiligo, Waldmann is a competent partner for all questions relating to this field. To medical specialists and operators worldwide, the diagnostic and therapy systems from Villingen-Schwenningen in Germany are synonymous with safety and comfort. "Safety first" is not only a watchword, but the technical reality.

## 7. Safety measures

Safety has absolute first priority. That's why UV therapy should only be performed upon the instructions of a dermatologist.

## Dosage

Important in phototherapy is to maximize the effect whilst minimizing the level of risk. For this the most important element is the correct dosage. This means that phototherapy must always be carried out under the supervision of a doctor and dosage recommendations need to be followed precisely. We recommend the use of equipment with dose control. Exceeding the dose results in sunburn, and frequently exceeding the dose may cause skin damage.

## Eye protection

The radiation can cause severe inflammation of the Keratitis (cornea) or conjunctivitis (HAW). That's why patients should always wear protective eye-wear. UV lamps of therapy equipment must be turned off to ensure safe operation by service personnel.

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Both companies are focused on developing and providing solutions that enhance the quality, use and experience of light. For advice on phototherapy treatment, please consult your doctor or phototherapy specialist.

For further information on these companies, please visit

**[www.waldmann-medizintechnik.com](http://www.waldmann-medizintechnik.com)**

**[www.philips.com/phototherapy](http://www.philips.com/phototherapy)**

Feel confident – you're working with the best.

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