

## Treatment by Photorejuvenation photodynamic therapy (PR-PDT)

Last update on September 2023

Topical photodynamic therapy (PDT) is a valuable technique in dermatology, effective and safe, for the treatment of extensive superficial precancerous or cancerous lesions with a reimbursement from health insurance. It is also interesting in other benign dermatological pathologies such as acne or for rejuvenation (we speak of photorejuvenation photodynamic: PR-PDT), but this time without any reimbursement. This PR-PDT is particularly suitable for people with light skin in areas exposed and damaged by the sun (face, neckline, back of the hands but also forearms or legs sometimes). It will improve the complexion, the spots, the texture of the skin, the periorbital fine lines and some pre-solar keratosis.

### **Mechanisms of action**

The cream (Metvixia \* Galderma) contains a photosensitizing active ingredient which is more concentrated in modified cells, damaged by UV over the years, than in normal cells. It is applied to the area to be treated during a variable time called incubation time, depending on the degree of aging, the number of spots and the light source used.

After this incubation time, protected from light, the light source projected onto the areas to be treated will "activate" the photosensitizer, which is more concentrated in the damaged cells. Healthy tissues are preserved. It is a targeted, selective treatment. Secondary improvement in sun-induced cellular damage and collagen remodeling are also triggered. Clinically, there is an improvement of precancerous lesions (thin keratosis and pre-keratosis), but also in the roughness of the skin, complexion, texture (toned, softer, less tightness), spots, fine lines including the crow's feet and sometimes deeper wrinkles. These improvements have been proven by histologies (skin samples examined under the microscope before and after sessions), either simple or combined with highly reliable immuno-histochemical markings.

### **Protocols**

They are varied and above all "customizable" in 1 or more sessions (often 2 to 3 are required), leading to a more or less long presence in the office. The doctor asks you, examines you, explains you and chooses with you the best protocol for your case:

- "Conventional" photorejuvenation: cream applied 3h then activation by red LED
- Photorejuvenation by pulsed light: cream 2 to 3h then activation by pulsed polychromatic light
- Daylight photorejuvenation for the areas to be treated, but with sunscreen protection for all other parts of the body. The sun serves as a source of light but does absolutely nothing to heal the lesions itself! : cream 30 min then 2h of continuous exposure to daylight

- "Intensified" photo rejuvenation: fractional CO2 or Erbium laser or needle radio frequency, microneedling or sandpaper resulting in gentle abrasion (these techniques create gaps in the skin barrier so that the photosensitizer penetrates better and faster), cream for 1 to 2 hours, then variable light source (LED, pulsed light or daylight).
- "Advanced" photorejuvenation (use of 2 light sources): fractional CO2 laser, microneedling or sandpaper soft abrasion, cream 1 to 2 hours, pulsed light then red LED to finish consuming the photosensitizer.

### **Contraindications:**

Tan skin, too dark skin, black skin

Pregnancy but in general it is not the same age!

Medications that weaken the skin, photo-sensitizing treatments such as anti-inflammatory or antibiotics for urinary tract infections, or old treatments like gold salts for rheumatism ... You must absolutely report to the doctor any medication.

### **Side effects:**

It's the tricky point of this technique!

**Immediate during LED activation: intense pain during LED illumination** and it is often preferred to use pulsed lights (less painful) or daylight (painless)  
**Delayed: maximal on 3<sup>rd</sup> day** and more or less intense and persistent (5 to 8-10 days), identical for all light sources, depending on the protocol used, the sun damage and the sensitivity of each skin

- Redness and intense swelling for 2 to 3 days
- Crusting and desquamation for 7 to 10 days (pseudo-peeling effect)

### **Complications:**

Beyond the expected "heavy" side effects of the first 2 weeks, PDT is recognized in all scientific literature for its excellent cosmetic results and complications are truly exceptional: allergy to the photosensitizer, infection (hand hygiene for post-procedure care is important), prolonged and intense redness but still transient, post-inflammatory brown pigmentation sometimes also prolonged (2-3 to 6 months), but always transient, healing difficulties for the extremely old and fragile skins, persistence of abnormal lesions and natural evolution towards superficial skin cancers (inadequate efficacy).

### **Practical consequences: post-operative care**

Application at least twice a day of a healing cream until complete healing.

Never remove, scrape, or rub crusts

Periorbital zone: Eye drops and compresses with cold physiological serum for the first mornings, sleeping in a half-seated position to decrease the swelling of the eyes in the morning

Total sun protection as long as there are redness, then effective protection so that the spots and other lesions do not reoccur too quickly...

But also regular application of active anti-aging cosmetics (antioxidants, acid vitamin A or derivatives ...) to limit the aging because **the "photodynamic" rejuvenation is a beautiful cure of Jouvence but unfortunately not yet eternal** and maintenance sessions are needed (variable rhythm and number according to the age, past medical history...).

The information consultation provides clear explanations on expected outcomes, side effects and possible complications. This information sheet has been given to you and is used as a consent form that you have to sign.

The number of proposed sessions varies according to the location, the degree of aging and the type of skin (usually 1 to 2 sessions spaced by 1 month, then if necessary annual maintenance or every 2 or 3 years).

Prices are essentially based on the surface to be treated and do not include the price of the photo sensitizing cream Metvixia (210 euros approximately) to buy on prescription at your pharmacy, without any refund.

For example:

Conventional PR-PDT of the face or simple pulsed polychromatic light: 180 € VAT/ session

Intensified PR-PDT of the face by fractional laser and pulsed polychromatic light: 240 € VAT/ session

Intensified PR-PDT and daylight of the face: 150 € VAT

The total cost is to be assessed with the patient and is the subject of a signed quote.

***This information sheet recommended by the French Laser Society can be given to you by your dermatologist. Even if it is not sufficient to have an estimate, it helps to give the patient a clear information.***

*The information consultation provides clear explanations on expected outcomes, side effects and possible complications. There are not any reimbursement from social security or medical leave for these aesthetic treatments. Prices are mainly based on the area to be treated. The total cost is to be evaluated with the patient and is the subject of a signed quote.*

*A post-operative order and an advice sheet are given to the patient with the doctor's contact information.*