**Laser Fabric Cures Skin Diseases**

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A wearable laser fabric that blasts the skin with red light can now treat chronic skin conditions such as acne, actinic keratosis, and psoriasis. And it can do so in a single 2.5-hour appointment.

Pan-European health consortium PHOS-ISTOS and French scientists at Texinov Medical Textiles have developed a knitted laser fabric — the Fluxmedicare system — that is being heralded as a miracle cure by users in clinical trials.

Nadege Boucard, R&D general manager at Texinov, told Photonics Media that the painless laser fabric quickly eradicates many unwanted skin conditions and has no side effects.

“For actinic keratosis treatment, the light source is based on laser diodes,” Boucard said. “The homogeneity and the emission of light is perfectly controlled red light at 628 nm.”

*Knitted laser fabric that can treat skin diseases. Courtesy of PHOS-ISTOS/Texinov.*

The specifications of the medical device are based on the irradiance of the lighting textile, the homogeneity of the light emitted, and the conformability of the knitted optical fibers.

The affected area is first covered with a [photosensitizer](https://www.photonics.com/EDU/photosensitizer/d6184) cream, then wrapped with the light-emitting textile. Optical fibers knitted into the fabric speed up the reaction beneath the skin between oxygen and the photosensitizer cream.

“Since the lighting textile wraps around the unique, individual contours of a patient, the emitted light in our device is the same at every part of the body under treatment, meaning the beams are homogenous,” Boucard said.

Prior to Fluxmedicare, the only technology used to treat skin ailments such as actinic keratosis came in the form of a photodynamic therapy (PDT). This required the patient to stand under a lamp and be blasted with light from a flat pane, often causing severe pain and skin redness.

*The Fluxmedicare laser system. Courtesy of PHOS-ISTOS/Texinov.*

“PDT was unsatisfactory in many ways,” Boucard said. “Not only did patients report a pain ranking of at least seven out of 10 as well as burns and redness persisting for several days, but also, coming from a flat source, a lot of the emitted light was lost.”

During the clinical trials in Germany, patients using the Fluxmedicare device reported an average pain ranking of between zero and one out of 10. That is a nearly 90 percent drop in pain levels compared to PDT.

“Fluxmedicare is easy to use for both the patient and the clinician,” Boucard said. “Since you don’t need to be protected from the laser treatment, you can put your feet up and watch TV during the treatment.”

The Fluxmedicare device is flexible and mobile, and multiple patients can be treated from one device at the same time. In the future, the PHOS-ISTOS team hopes patients can be treated in their own homes.

The PHOS-ISTOS consortium, made up of participants from France, Germany, Finland, Italy, and the Netherlands, secured a grant of €2,390,000 ($2,946,000) from the European Commission under the CIP funding program to help develop the laser fabric.