

A New Clinically Proven Foam for Treating Xerotic Skin Conditions

By David Zuckerman, DPM and Bree Wright, RN

Podiatrists encounter countless cases of xerotic skin conditions. There are a number of ways to treat these different diseases but getting to the root cause of the condition is, of course, the key to a successful treatment regimen.

One of the most common underlying causes of xerosis is a reduction in the quantity and quality of lipids found in the skin. This decrease of several key lipids, including cholesterol, free fatty acids and ceramides, slows down the reorganization of the lipid lamellae in the stratum corneum (SC). As the lipid lamellae play an integral role in the formation of the skin barrier, this is a critical component to healthy skin.

Moisturizers—Why Are They Failing?

Moisturizers are a common treatment and can temporarily improve the symptoms of decreased hydration of the stratum corneum but do not repair the underlying cause of the issues which is, as discussed above, the reduced quality and quantity of lipids necessary to complete and seal the skin barrier.

Moisturizers typically contain occlusive ingredients like petrolatum or lanolin. These products act as a water-repellent lipid layer that prevents water from moving across the skin in either direction.

Other moisturizers contain humectants, such as glycerin. These products collect water from the atmosphere, but in drier conditions, they're not as affective, so humectants are often paired with (again) an occlusive agent.

Many moisturizers also utilize emollient vegetable oils—olive, coconut, jojoba, or avocado. They don't provide scientifically proven benefits, generally, although they add an appealing texture. An exception are some vegetable oils, including sunflower, safflower, borage, corn and sea buckthorn. These vegetable oils are naturally enriched with lipids in the form of fatty acids (lipids) and because of this have been shown to marginally improve the skin's barrier function. However, the benefits are limited because of their inability to penetrate the stratum corneum.

At the end of the day, it has been noted that many moisturizers can actually worsen skin function and increase inflammation because of their occlusive tendencies.¹ That said, there is a fairly new product—**PodoExpert by Allpremed**[®]—that has been clinically proven to help treat xerotic skin conditions by *repairing* the skin.

Testing a Foam Cream

Skin barrier repair therapy, if it is made up of the three key stratum corneum lipids, has the potential to



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correct the barrier abnormality and decrease inflammation in xerotic skin conditions, such as atopic dermatitis.²

A study published in 2016 evaluated a new foam product for skin barrier repair in feet with very dry skin, measuring the effects of the product using numerous clinical and biophysical analysis tools. Clinical tools included disease severity assessments (SCORAD) and Quality of Life instruments (Derma-

tology Life Quality Index). Biophysical analyses included measurements of skin hydration, length measurements of the intercellular lipid lamellae (ICLL), and chemical analysis and quantification of the ICLL lipids.

The study looked at 12 patients with dry skin on their feet—three male, nine female, with ages ranging from 32 to 58 years. The patients applied two different foam creams twice a day for a period of four weeks—one foam cream contained the active ingredients and the other was a placebo. The active foam was applied to the right foot of each patient while the placebo foam was applied to the left.

The test product was Allpresan[®] Cracked Skin Foam Cream (rebranded today as PodoExpert by Allpremed[®] dry to cracked skin Foam Cream) containing key active ingredients proposed to be capable of repairing the skin barrier in four weeks or less. The placebo was a foam cream that did not contain the key active ingredients and contained only basic moisturizing factors required for the formula to take on its foam texture.

The Results

There was a dramatic increase in skin hydration (as measured by skin capacitance) in the feet receiving the active foam cream after both two and four weeks compared to the placebo group, the latter of which did not demonstrate any significant changes in skin hydration/capacitance.

Additionally, the biggest differences in the results between the two foam creams could be seen in the ICLL itself in two distinct ways—in the lengths of the ICLL fragments and in the quantities of the lipids comprising the ICLL.

Before treatment began, significant ICLL disturbances were found in both treatment groups—very few lipid lamellae could be found in the intracellular spaces and of those present, their lengths were very short, fragmented and physically disorganized. Additionally, their total lipid content was low.

However, after two and four weeks with the active foam cream, there was a substantial improvement in the ICLL structure—the number of lipid lamellae fragments

Clinically Proven Foam *(continued)*

in the intercellular space and their associated lengths had nearly tripled, equaling that of healthy skin, while their physical organization became very tight and distinctly striated. Similarly, after two and four weeks, the total intercellular lipid content had more than doubled—with the visual observation by four weeks that the patients' feet that received the active foam cream resembled clinically healthy skin.

In the placebo group, there was no significant change in the ICLL structure after two weeks, although some increase in the lipid lamellae lengths could be seen by four weeks. This is likely due to the nature of the placebo foam itself requiring some core moisturizing elements to turn into a foam in the first place. Ultimately, however, the differences in improvement levels between the active agent and placebo foam were deemed to be highly significant—the physical organization of the ICLL in the placebo

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group remained greatly disrupted and the total lipid content did not increase from the baseline levels.

The results of the study show that while basic moisturizing additives can have some minor impact on the SC, the overall level of reorganization of the ICLL is wholly insufficient and is ultimately unable to restore an intact skin barrier in four weeks. On the other hand, the results demonstrate that the addition of key therapeutic ingredients into the active foam significantly increases the reorganization of the ICLL, which triggers the reinstatement of normalized homeostatic conditions in the SC and ultimately leads to the restoration of an intact skin barrier in 28 days or less.

Podoexpert by Allpremed®

The active product is now available in the U.S., Canada and Australia as Podoexpert by Allpremed®. The parent company, Neubourg Skin Care GmbH & Co. KG, is headquartered in Germany, and its North American division is Neubourg Healthcare Inc., based in Toronto.

Originally, Allpresan GmbH was founded in Germany in 1998 by Fritz Neubourg. He retired in 2016 and his son, Thomas Neubourg, took over. Then he teamed up in 2020 with Michael Löfvall, whose company offered several foot products and technologies called Onyfix®.

“Besides growing the local business, I was also focused on growing our international business,” Thomas Neubourg told *Business View Magazine*. “We decided to partner on our first international venture in Canada, Neubourg Healthcare, and jointly market our main products, which was a great fit because our products were complementary and had compatible business models.”

Neubourg manufactures and sells three product lines in North America. Two are medical-grade skincare products under the Podoexpert by Allpremed® brand and Handexpert by Allpremed®, as well as nail repair technologies under the brand name Onyfix®. Onyfix® is a new type of nail correction system used as a painless treatment for involuted and ingrown toenails, even with high-risk patients.

Manny Moniz, director of Emerging Technologies for Neubourg, says they are utilizing an education-first approach: “Our market entry strategy uses educators, primarily healthcare practitioners such as nurses specializing in foot care, to teach and certify clinicians or clinics on how to use our products before they gain access to them—to ensure proper application. We also have a distribution network that sells directly to wholesalers across Canada and the U.S. who in turn supply clinics based on the certifications that they have received from our educators.”

In 2020, Neubourg began a partnership with Zuckerman Future Technologies to assist in providing education to the podiatry community in the United States, offering online webinars and training support for podiatrists integrating these technologies into their practices.

One benefit that podiatrists can consider when evaluating Podoexpert by Allpremed® (or, if they have patients interested in hand care as well, Handexpert by Allpremed®), is that several clinical studies, as described above, have demonstrated their clinical effectiveness in barrier repair therapy.

Sources

¹ Elias PM et al. Moisturizers versus current and next-generation barrier repair therapy for the management of atopic dermatitis. *Skin Pharmacol Physiol*. 2019;32:1-7. <https://www.karger.com/Article/Fulltext/493641>

² Daehnhardt D et al. The influence of two different foam creams on skin barrier repair of foot xerosis: A prospective, double-blind, randomized, placebo-controlled intra-individual study. *Skin Pharmacol Physiol*. 2016;29:266-272.

Bree Wright, RN has 21 years of experience as a foot-care nurse. She is an expert nursing footcare consultant and develops postsecondary advanced nursing footcare courses. She is currently an international instructor of both nursing footcare programs and emerging foot care technologies in podiatry today.

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Disclaimer: *Dr. Zuckerman and Bree Wright are distributors for Neubourg.*

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