

Current

# Clinical Solutions

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## **What's New from La Roche-Posay: Cosmeceuticals for Preventative and Restorative Aging**

### **Photoprotection Update — How COVID-19 and Working From Home Changed Sun Safe Behaviors**

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## Introduction

La Roche-Posay is named after a town of the same name in France. The patient-treatment center located there, which was founded more than 100 years ago, uses special therapeutic water that has been studied extensively and shown to help patients with various skin conditions and help rebalance the microbiome of patients with inflammatory skin conditions, such as atopic dermatitis and plaque psoriasis, and give relief to patients who have skin irritation related to some cancer treatments. The skin-care brand La Roche-Posay itself began 48 years ago, when chemists started creating skin-care products compounded with the same water used at the treatment facility, to help boost the efficacy of other ingredients.

### Cosmeceuticals for Preventative and Restorative Aging

Dr. Farris began her presentation by discussing the role in skin health that is played by the microbiome, the invisible ecosystem of microorganisms living on the skin. The number of bacteria and microbes on our skin is second only to the gut. Each of us has a unique composition to our microbiota, based on the environment that we live in, the people that we live with, the occupations that we have, whether we live in cold, dry climates or warm, moist climates. Much like the gut, the skin microbiome needs to be balanced and diverse to be healthy, and when we go into dysbiosis, marked by overgrowth of one type of bacteria, we get unhealthy skin, such as atopic dermatitis. We also now know that the microbiome is an integral part of our barrier in that the microbiome must be balanced and diverse for barrier function to be intact. For example, in atopic dermatitis, an overgrowth of Staph occurs and often precedes flare-ups. The state of the microbiome is a key factor in psoriasis, in patients with acne vulgaris, patients with rosacea, and those with obsessive-compulsive hand washing, and can be affected by the medications we treat our patients with. When we use harsh products, we can disrupt the barrier.

How can we change the barrier and make it healthy? It might seem to be a reasonable option to put the kind of bacteria that you want onto the skin, but that's not a practical way to influence the microbiome, so alternatively, what we can use are other agents, prebiotics, that feed the microbiome with the things that it needs. For example, all bacteria need water, and the composition of that water can encourage the growth of certain bacteria. Bacteria also need a carbon source, such as those found in sugars, for example, mannose, and need a nitrogen source, such as those in amino acids, as well as oligoelements, such as calcium, magnesium, manganese strontium, and selenium.

### The Curative Use of La Roche-Posay Thermal Spring Water

La Roche-Posay thermal spring water has a unique composition of minerals that act as prebiotics. In addition to sodium, potassium, calcium, magnesium, chloride, bicarbonates, sulfates, nitrates, the water most notably contains strontium and selenium, which are anti-inflammatory and antioxidant minerals. In fact, compared to other thermal waters from other springs studied, the presence of strontium and selenium is one of the things that distinguishes La Roche-Posay thermal spring water. Selenium is not only an antioxidant in of itself, but it is also part of the antioxidant enzyme glutathione peroxidase. Furthermore, it has a lower pH, 6.9, so it is very gentle on the skin compared to other thermal waters that were studied that had a pHs as high as 7.4. In fact, La Roche-Posay water is sometimes referred to as "velvet" water because it is very gentle on the skin.

### Multiple La Roche-Posay Studies Impacting the Microbiome

In an in vitro laboratory study of La Roche-Posay water, keratinocytes were cultured and exposed for 24 hours to a condition medium that was either reconstituted with deionized water or reconstituted with La Roche-Posay thermal spring water. Then, the keratinocytes were irradiated with UVB, it was found that the medium that contained the La Roche-Posay water, better protected the cells against UVB-induced cytotoxicity, indicating significant antioxidant activity. Also,

the release of interleukin 1 $\alpha$  was measured, and it was found that the medium with La Roche-Posay water had a greater protective effect since fewer inflammatory mediators were released, further indicating that La Roche-Posay water has significant anti-inflammatory and antioxidant properties.

Dr. Farris went on to point out that as of now, there have been 13 different studies that support the efficacy of La Roche-Posay thermal spring water as a treatment for 7 different indications: anti-inflammation, immunomodulation, acceleration of skin renewal, anti-oxidation, anti-itching, soothing, and hydration.

A common thread in the studies looking at La Roche-Posay thermal spring water suggest that treatment with La Roche-Posay thermal spring water, either alone or in product formulation, increases the amount of a specific bacteria in the microbiome, *Xanthomonas*, and reduces *Staphylococcus aureus* colonization. One such formulation, Toleriane Double Repair Moisturizer, contains a very high concentration of not only La Roche-Posay prebiotic thermal spring water, but also other key ingredients. One of them is ceramides-3, which is a skin-identical lipid to support skin barrier function. It also contains niacinamide, a form of vitamin B3 and a precursor to NADPH, and an important cofactor involved in many biological reactions, such as, importantly, lipid synthesis that has broad anti-inflammatory properties and reduces interleukin production and has anti-itch properties and decreases the release of histamine from mast cells, and it strengthens barrier function, by increasing free fatty acid and ceramide synthesis and decreasing transepidermal water loss. Additionally, Toleriane Double Repair Moisturizer contains glycerin, which is an excellent skin humectant.

Ceramides, which are major components of the stratum corneum, are being incorporated into skin care products more frequently now, since depletion of ceramides results in dry skin and is associated with dermatologic conditions in which barrier compromises are found, such as atopic dermatitis, psoriasis, an acne vulgaris. When ceramides are supplemented topically, we can reduce inflammation and improve barrier function.

We can see that skin that was treated for seven days with Toleriane Double Repair Moisturizer shows an increase in *Xanthomonas* and a decrease in staph, compared to untreated skin over the course of the same 7-day period.

In another study, Raman spectroscopy was used to measure the concentration of ceramides in the skin following the use of Toleriane Double Repair Moisturizer. Raman spectroscopy utilizes a single wavelength of laser light, a probe to sample the skin, confocal optics to allow for signal enhancement, and a computer to gather the data. Since each molecule in the skin has a very characteristic spectral fingerprint and the intensity of the peaks are proportional to the concentration of the molecule, it was found that there was a significant amount of ceramides present in the stratum corneum following four weeks of application of the Toleriane moisturizer. Also, Dr. Farris pointed out, since this treatment contains niacinamide, which can stimulate an increase in ceramide production, endogenous ceramides may play a role in this improvement.

Skin hydration in a short-term period was also studied. After four and eight hours, there was a statistically significant improvement in skin hydration after the application of the Toleriane moisturizer compared to untreated skin. The right-side graphic below shows that after tape stripping, in which damage is done to the skin barrier, and then moisturizer is applied to that same area, that after 1 hour, there was a significant increase in transient thermal water loss on the untreated damaged skin, but a reduction in transepidermal water loss on damaged skin treated with Toleriane Double Repair Moisturizer.

Dr. Farris went on to explain that the Toleriane Double Repair Moisturizer comes in two versions, a “nighttime” version without UV protection and a daytime rated at SPF 30, and additionally, there are two accompanying cleansers, the Purifying Foaming Cleanser for normal to oily skin, and the Hydrating Gentle Cleanser for patients with normal to dry skin, and went on to say the products are suitable for patients who are experiencing skin-barrier disruptions, whether due to acne medications or other prescriptions or due to cosmetic procedures such as laser or chemical peels, and patients with conditions such as rosacea or otherwise have sensitive skin.

Another product that contains the La Roche-Posay thermal spring water is Lipikar Balm AP+M, a face and body moisturizer. It is suitable for patients with both eczema and dry skin, and it contains its own unique composition of botanical ingredients. Along with soothing and moisturizing ingredients and the prebiotic thermal water, it contains the post-biotic Aqua Posey filiformis, which helps to restore homeostasis and diversity to the microbiome. Dr. Farris discussed studies that were done on a variety of groups of patients with atopic dermatitis and eczema demonstrating 57% lower scores after 42 days of use, a study that looked at Staphylococcus and its colonization demonstrating 33% reduction after treatment, and a quality-of-life study looking at over 1,300 patients showing improvement in sleep, feeling less stressed, as well as feeling more comfortable. The moisturizer has also been shown to reduce the time between flare-ups and has been shown to reduce the use of steroids in patients with atopic dermatitis.

Glycolic B5 serum is an anti-aging serum designed to target dark spots, hyperpigmentation, and uneven skin tone. It contains five ingredients: glycolic acid, tranexamic acid, kojic acid, and lipohydroxy acid. It utilizes four ingredients to target hyperpigmentation in four different ways. The glycolic acid is used to increase cellular turnover; tranexamic acid inhibits melanin synthesis; and kojic acid is a botanical that is a tyrosinase inhibitor; and lipohydroxy acid, which is a derivative of cell acid, acts as a surface exfoliator.

Figure 1. Glycolic B5 Serum Regimen - Representative Clinical Imaging



Average for Hyperpigmentation. Above Average for Dark Spot Intensity. Above Average for Radiance/Brightness.

Another noteworthy serum La Roche-Posay has come out with recently is Hyalu B5. While the other serum is designed to target hyperpigmentation, this is a replumping and repairing serum, and it also has its own innovative combination of ingredients. It contains hyaluronic acid of both high and low molecular weight. The high molecular weight will stay closer to the surface of the skin, acting more as a moisturizer, whereas the lower molecular weight will penetrate a little bit further into the skin. It contains madecassoside a botanical extract used extensively in ayurvedic medicine but in this case, topically, it is used as an anti-inflammatory and antioxidant as well as for its anti-aging properties. The serum also contains vitamin B5, which is pantothenic acid, a proven moisturizing soothing ingredient, and glycerin as a humectant. This innovative combination of ingredients provides for rejuvenating the skin and treating aging skin.

Figure 2. Results after 4 weeks of use

**Dermatologists' clinical efficacy assessment**

- > Crow's feet wrinkles reduced by 7%  $p < 0.001$
- > Skin tonicity improved by 28%  $p < 0.001$

**Patients' self-perceived improvement**

- > Skin looks replumped: 63%
- > Skin elasticity is improved: 79%
- > Skin tone is more radiant: 65%

**Before After 4 weeks After 8 weeks**

\*PHOTO: Clinical study on 52 Caucasian women aged 45 to 65, all skin types, 100% declaring to have sensitive skin, presenting skin aging signs. HYALU B5 serum morning and night - wash out, 4 weeks. ©1 - Internal use

Dr. Farris said that when you ask women what they're using on their face, they always want to tell you they're using a serum as it seems to be very popular right now, and the La Roche-Posay serums are innovative products that round out the portfolio.

### Photoprotection Update—How COVID-19 and Working from Home Changed Sun-Safe Behaviors

Dr. Farris then handed the presentation over to Dr. Bhatia to discuss how the Covid pandemic and working remotely has affected sun-safe behavior and what to advise patients. Dr. Bhatia said that the pandemic changed behavior not only in the sun, but also by working from home, and that some interesting nuances about light exposure open a different kind of education platform for light safety questions, since consumers were faced with different types of sun-season solar-exposure times.

### The Sun and Blue-Light Exposure Study

A survey of about 1,000 consumers was done in which they were asked about how their sun exposure was affected by the pandemic. The survey set out to understand if there was a change in consumer's sun behavior, looking at more time spent indoors, for example, working from home, and if there was a change in the consumer's understanding of various light sources, for example, direct, indirect, and blue light sources. What was the impact and concern of various light sources? Should consumers be doing something different in terms of application of SPF for themselves and their children? What do they need to be doing in terms of protecting themselves from light sources around the clock?

The study looked at visible light but also blue light. The definitions of the types of light were shown to respondents prior to a series of questions regarding exposure, concern, familiarity, as so on. For example, direct sunlight was defined as an uninterrupted path of light from the sun directly to the skin, and indirect sunlight as sunlight that passes through a medium, whether that is through a window, a shade, sunglasses, a tree's leaves, or reflecting off something such as water or snow. Although blue light is often thought about as only the light emitted from electronic devices, including flat-screen LED televisions, computer monitors, smart phones, and tablet screens, it was also explained to be part of the visible light spectrum (what the human eye can see), and that sunlight is the most significant source of blue light.

The study was conducted as a 10-minute online interview of men and women ages 15 to 74 representative within age, gender, ethnicity, and region. There were 1,001 in the main sample with augments conducted on Black, Hispanic, and Asian audiences, and representative samples of Gen Z, millennials, Gen X, and baby boomers.



Of the survey respondents, 43% were employed full-time, 12% were part time, 12% were employed but available for work, 17% were retired, and then there was only 6% who were students and 10% who were homemakers in the house. So, the vast majority worked either at home or in similar location to it, but 33% were still in an office. The need for photoprotection varies depending on how much light exposure including simple window light exposure, for example. The survey looked at work and school seating arrangements in rooms with a window and distance from a window and natural sunlight source.

Consumers are exposed to 12+ hours of sunlight and blue light each day including devices such as the computer screen, phones, tablets, and TVs. Overall, there has been a net increase in all types of light exposure since pre-pandemic, especially blue light. Among the respondents, there was a 12% increase in direct sunlight exposure, a 15% increase in indirect sunlight exposure, and a 38% increase in blue light exposure, with the Gen Z and Millennial sub-groups showed more exposure than before the pandemic.

Consumers are familiar with the different light sources, but their concern is not as strong as their familiarity. Fifty-four percent of respondents said they were “slightly” or “not at all” concerned with indirect light. Eighty-five percent said they were familiar with indirect light but only 54% were concerned. Seventy-four percent were familiar with blue light but only 38% were concerned. Gen Z was concerned about direct and indirect but not concerned about blue light. Gen X was concerned about all types of light and the Boomers and Caucasians and men were also concerned to some degree but less concerned overall.

One in four of the survey respondents did not know the potential damaging impact of indirect or blue light. The effects of direct sunlight are well known and about half said they know that blue light can cause headaches and damage to eyesight. Their perception of damage did not involve the skin.

Fifty-two percent of consumers are not protecting themselves from indirect or blue light. The majority take some action against direct sunlight. Twenty-eight percent are less likely to apply SPF when in direct sunlight in warmer months. Sixty-seven percent are less likely to apply SPF when in indirect sunlight in warmer months. Furthermore, there is a misconception of temperature associated with exposure and safety. Forty percent rarely wear sunscreen when in indirect light, and 52% rarely or only occasionally wear sunscreen when exposed to blue light. Rarely or occasionally wearing sunscreen in indirect light is very common. Parents are more likely to apply SPF to their children than themselves no matter the light source. Parents are less likely to apply SPF to themselves when in indirect and blue light.

However, Dr. Bhatia said that the communication points in the survey showed merit in terms of an opportunity to drive SPF usage. Fifty-four percent of respondents agreed they would use SPF if they knew ultraviolet (UV) light could penetrate through glass windows. Fifty-two percent agreed they would use SPF if they knew they could be at risk of harmful UV light exposure if they are indoors in a room that has windows. Fifty-seven agreed if they knew using products that contain SPF can help prevent the negative effects on skin caused by indirect light exposure, they would probably use them.

### Key Takeaways

The key takeaways are that due to the 2020 pandemic, more consumers have been working or going to school at home with the majority sitting in a room with a window, and there is increased exposure to different light types, especially indirect and blue light. Consumers are familiar with the different light types, but a third are less likely to be concerned with it. Low concern could be driven by the fact that 1 in 4 consumers do not know the potential damaging effect of indirect or blue light. No matter the season of the year, consumers

are less likely to apply SPF to themselves to protect against indirect light. Parents are more likely to apply SPF to their children, no matter the light source, than to themselves. Finally, it was found that consumers are open to receiving education on the potential damage indirect light can cause and would positively change their SPF habits if they knew SPF helped prevent indirect light skin damage.

### What Should We Advise Our Patients?

There needs to be year-round messaging for daily skin protection to those who are working from home—that exposure to direct and indoor light can cause damage to your skin. If you are exposed to 12+ hours of light per day, there is day off from using SPF products. La Roche-Posay is taking this into consideration with some new products, including Anthelios 60 with Cell-Ox Shield™. The Oxynex-ST formulation contributes 0.5 SPF at 4% use level and contains a photostabilizer and antioxidant. Senna alata is an extract from the leaves of candlewood and has shown in vitro efficacy in DNA protection, thymine dimer formation, DNA strand breaks, and UVA-induced mitochondrial DNA (mtDNA) deletions. The synergistic combination of filters offers enhanced UV protection and demonstrates protective efficacy against UV-induced damage. La Roche-Posay’s Anthelios 60 Ultra light sunscreen fluid demonstrated 25% lower Comet intensities in samples digested by enzyme FPG (DNA glycolase), indicating a higher protection against DNA damage. Cell-Ox Shield technology offers optimized combinations of photostable UVA/UVB filters in chemical and mineral options plus powerful antioxidant protection to defend against free radicals that can accelerate aging. The latest addition to the La Roche-Posay Anthelios portfolio is Anthelios UV Correct SPF 70 Daily Anti-Aging Sunscreen, which is formulated with Cell-Ox-B3 Shield technology. Despite having an SPF of 70, it has a very cosmetically elegant texture. It is a non-tinted sunscreen that offers the traditional filters for broad spectrum UVA/UVB protection as well as the Cellox-B3 Shield Technology, which has been further enhanced with the addition of niacinamide to the thermal spring water, senna alata, oxynex-ST, and vitamin E.

Figure 3. Anthelios UV Correct SPF 70 Daily Anti-Aging Sunscreen

**INGREDIENTS**

Broad spectrum UVA/UVB protection with:

- AVOBENZONE 3%
- HOMOSALATE 13%
- OCTISALATE 5%
- OCTOCRYLENE 10%

Cell-Ox-B3 Shield® Technology with:

- SENNA ALATA
- OXYNEX-ST
- NIACINAMIDE
- VITAMIN E
- LRP THERMAL SPRING WATER

UVA/UVB PROTECTION + ANTIOXIDANTS SENNA ALATA + VITAMIN E + NIACINAMIDE

BLEND EASILY ON ALL SKIN TONES C1 - Internal use

**NEW** LA ROCHE-POSAY ANTHELIOS UV CORRECT SPF 70 DAILY ANTI-AGING SUNSCREEN. CELL-OX-B3 SHIELD™. 1.7 FL. OZ. SRP \$34.99

OXYBENZONE-FREE LIGHTWEIGHT TEXTURE

To learn more about this topic, please watch the webinar on Next Steps in Derm, supported by an independent education grant provided by La Roche-Posay.

<https://nextstepsinderm.com/webinar/whats-new-from-la-roche-posay-in-2022/>