Anti-Aging MOISTURIZATION

RESEARCHERS AT RAHN DEVELOP A SYMBIOTIC MOISTURE CONCEPT FROM LICHEN, MOSS AND FERN THAT HYDRATES THE SKIN.

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So many sophisticated cosmetic actives have been hitting the skin care market during the past few years that we have been focused too often on what can "combat wrinkles" or "fight aging." The natural elixir, water, and the simple task of supplying the skin with extra moisture have escaped attention. Hydration may seem simple, but in fact it is a very important, yet underestimated, anti-aging strategy.

It is widely agreed that daily exposure to external factors, in addition to the normal process of intrinsic aging, causes loss of moisture over time. Thus, skin aging seems to be associated with a loss of skin moisture. However, there still is no real consensus whether the moisture content in the stratum corneum, the outermost layer of the skin, decreases with age or not. Some studies claim that hydration decreases with aging,[1-3] whereas our data (Figure 1) and others claim no changes or even increases in stratum corneum hydration.[2,4-7] Still others report that the changes in stratum corneum hydration over a lifetime show typical graphs, peaking between the age of 40–50.[8]

However, we shall not waste our time with controversial theories but look at the very practical consequences of dry skin. Adequate stratum corneum hydration is important for properly functioning skin processes. For example, skin cells are constantly being renewed and the dead cells shed (desquamation). The epidermis contains natural enzymes that are important for getting rid of old skin cells, but these enzymes need moisture to work properly. In the case of dry skin, cells are shed too fast. Rather than shedding individually, they come off in clumps that look like white flakes. Another example is the fact that the advantageous elasticity of the skin is dependent on water content. It is widely agreed that youthful skin retains its firmness, elasticity and smoothness, as well as other characteristics such as radiance and complexion, due to its high water content.

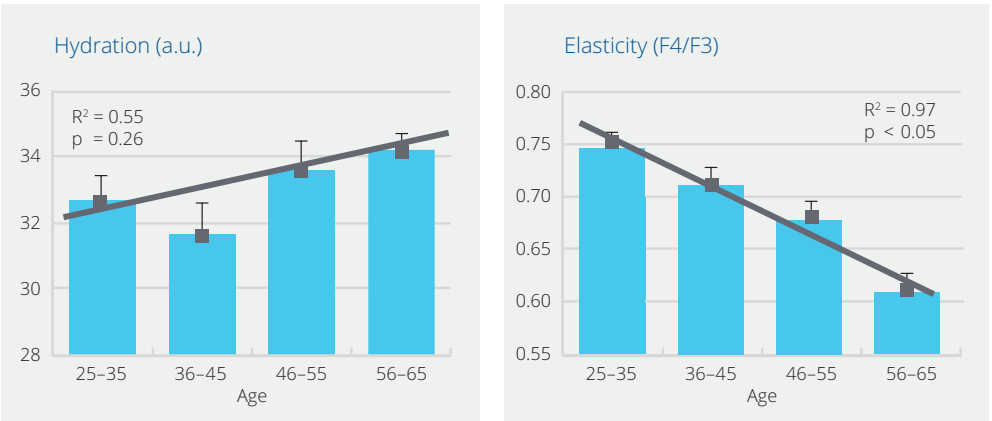

Figure 1: Age-related changes in skin physiology. A total of 80 women, aged 25-65, were evenly distributed into four age groups and skin parameters such as hydration, elasticity, firmness and roughness were assessed at the beginning of the study. The data for firmness and roughness is not shown due to space limitations.

Taken together, aging leads to a progressive deterioration of skin elasticity, firmness and roughness. Elasticity, firmness and roughness correlated very well with the subject's age and were statistically significant (right). Stratum corneum hydration, however, seems to remain unchanged or even tends to increase with age: There was a low and statistically non-significant correlation between mean hydration and the subject's age (R2 = 0.55; p = 0.26). a.u.: corneometry; arbitrary units. F4/F3: cutometry, the closer the ratio to 1, the more elastic the skin. Mean + SEM; n = 20 per age group; Pearson's R Correlation Test.

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To make a long story short, dry skin tends more toward premature aging and is very likely to have reduced turgidity, which eventually contributes to altered elasticity and firmness in aging skin. In other words, dehydrated skin is a breeding ground for unwelcome changes in skin physiology, eventually fuelling the loss of elasticity and the emergence of fine lines and wrinkles (Figures 1 and 2). No matter how many up-to-the-minute ingredients are used to combat the effects of time, it is the core hydration level that makes all the difference, and keeps the skin looking fresh and young.

Knowing this, it becomes

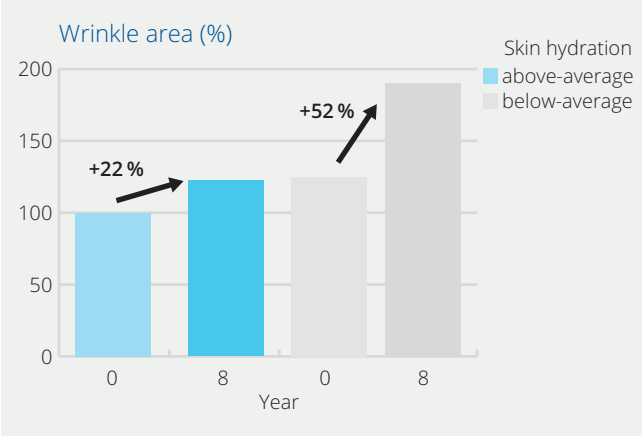

Figure 2: Dehydrated skin is a driver of premature signs of aging. Hillebrand et al.[9] measured facial wrinkles in 122 women at baseline and after eight years. When the women were divided into two groups; i.e., above-average and below-average skin hydration at baseline, the study revealed that women with a drier stratum corneum develop many more wrinkles. In other words, women with dry skin developed 52% more wrinkles within eight years, whereas women with hydrated skin only developed 22% more wrinkles. It is worth noting that women with dry skin already had elevated wrinkle levels at baseline; i.e., by 25%, compared to those with hydrated skin.

apparent that the application of cleverly designed moisturizers will not only alleviate the problem of dry skin, but also will work to improve skin elasticity and firmness, reduce roughness and prevent wrinkle formation. All of this will result in properly hydrated, fresher and younger looking skin. With this in mind, we have developed a novel anti-aging moisturizer: Hydractin-LMF (INCI: Propanediol, water, polypodium vulgare rhizome extract, Cetraria islandica (Iceland moss) thallus extract, Sphagnum magellanicum extract, citric acid).

A Moisture Trinity

We propose a combination of extracts from lichen, moss and fern (Figure 3). This combination will firstly infuse the skin with an extra portion of moisture and, secondly, will help the skin to retain the newly acquired water as long as possible.

Lichen (Cetraria islandica or Iceland moss) imparts moisturization. Substances such as polysaccharides, and in particular lichenan and isolichenan, are thought to (re)hydrate the skin surface by forming a moisturizing, physical film.[10,11]

Moss (Sphagnum) retains water. The water-loving moss is an unrivalled champion in water storage. It is famous for its unique moisture holding capacity as it absorbs 20 to 30 times its weight in water. Moss thus has connotations of humidity, moisture and freshness.[12-14]

Fern (Polypodium vulgare) provides complementary support. Substances such as saponins synergistically support the lichens' action in providing a moisturizing film on the skin.[15,16] It also supports the moss's action in storing water; substances such as polypodines provide adaptogenic and anabolic effects and are thought to make the skin more resistant to stress and aging and to increase its metabolism.[17-19] In particular, we think that substances such as polypodines lead to increased natural moisturizing factor (NMF) levels (data not shown) and, in turn, eventually increase the skin's moisture holding and retaining capacity.

In essence, the combination of these ingredients properly hydrates the skin and helps to turn back the epidermal clock. Indeed, the application of the anti-aging moisturizer rejuvenated the skin by roughly 20 years within four weeks.

Skin Rejuvenation

We aimed to demonstrate a positive impact on skin aging parameters such as hydration, elasticity, roughness and firmness and to calculate skin rejuvenating effects; i.e., to define a distinct gain in youthfulness expressed in years.

Here is a double-blind, placebo-controlled and randomized study design: Before starting, skin parameters such as hydration, elasticity, roughness and firmness were assessed in different age groups (each group with n = 20, female, Caucasian skin) using well-established biophysical measuring methods in order to understand age-related changes and to delineate regression lines (=

Figure 3: The novel anti-aging moisturizer is a combination of three forest plants. The lichen Cetraria islandica (Iceland moss; left), the moss Sphagnum magellanicum (peat moss; middle) and the fern Polypodium vulgare (common polypody, right) are all true experts at dealing with moisture. However, until now, very little attention has been paid to lichens, mosses and ferns in the cosmetics industry. This might be due to the fact that in the absence of flowers they frequently look unattractive to the layperson. Yet the biology of these plants reveals many interesting and unique details.

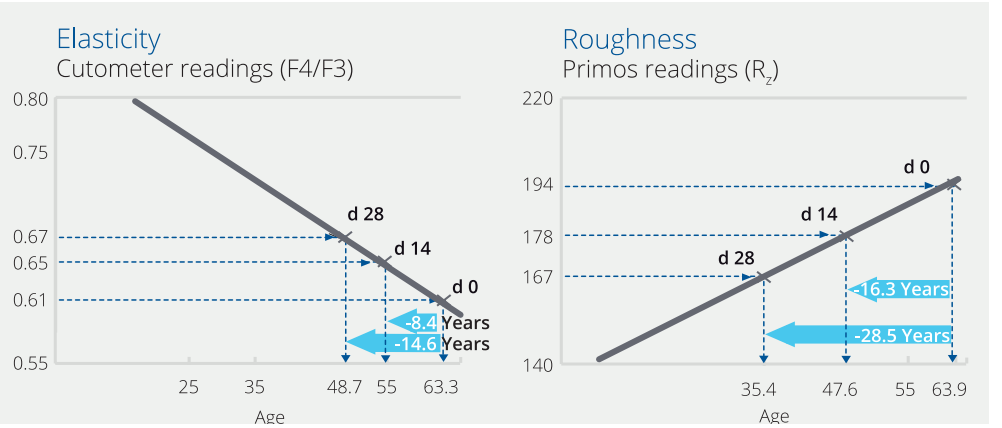

Figure 4: Hydrate the age away. Skin parameters were measured in age group 56-65 years upon application of the active ingredient for 0, 14 and 28 days. Using the regression line functions (see figure 1), corresponding ages and hence rejuvenation effects were calculated. Reading example: After 14 and 28 days of application, the test subjects displayed skin roughness which, on a calculated basis, would be expected in test subjects of 47.6 and 35.4 years respectively. This corresponds to a rejuvenating effect of 16.3 and 28.5 years within 14 and 28 days. F4/F3: see legend figure 1; RZ: a decrease corresponds to a decrease in the mean depth of roughness.

model lines which enable the age to be derived on the basis of the skin parameter, see also figure 1).

Those in the age group 56-65 years applied a light emulsion containing 0% (placebo) or 3% active ingredient twice daily on the inner side of the forearm for 28 days and skin parameters were monitored over time (last application the evening before measurements).

The application of the active ingredient improved skin hydration and provided a three-day retention effect (data not shown). Moreover, it positively affected skin-aging parameters and rejuvenated the skin.

Overall, after 14 days of application, the test subjects displayed skin elasticity, roughness and firmness characteristics that, on a calculated basis, would be found in skin roughly 10 years younger. After 28 days of application, the test subjects displayed skin physiology values that would be found in skin roughly 20 years younger. Notably, the subjects in the age group 56-65 displayed skin roughness that would be expected in subjects of 35.4 years. This corresponds to rejuvenating the roughness by 28.5 years within only 28 days (Figure 4).

Conclusion

Dry skin is a breeding ground for premature aging and eventually contributes to altered smoothness, elasticity and firmness. Hydrated skin, in contrast, is properly functional, looks smooth and young, and tends toward retarded skin aging. External moisturizers can be helpful. However, it is not just a matter of supplying the skin with additional moisture, but also of storing and retaining the moisture as long as possible.

Hydractin-LMF perfectly meets this requirement: Firstly the abbreviation LMF stands for a combination of extracts from lichen, moss and fern, which creates an effective moisturizer. Secondly the suffix LMF is also relates to the NMF; i.e., the sum of a large number of water-retaining substances whose main task consists of retaining water in the stratum corneum layer of the skin. Using the active ingredient can help to enrich the substances of the NMF in the upper layers of the skin, and thus delivers not only an immediate moisturizing effect, but also a moisture-retaining effect.

Taken together, the active ingredient is able to turn back the skin's biological clock: after two weeks, the skin becomes approximately 10 years younger. After four weeks it even gained 20 years of youthfulness. Moreover, the active ingredient is also effective when it comes to foot care: stressed, cornified and cracked feet felt good again and were perceptibly and visibly soft and delicate (not shown).●

More Information:

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