



## AGELOC™ ELEMENTS AND AGELOC™ TRANSFORMATION

### CLINICAL BULLETIN

Summarized from a third-party professional assessment performed according to Good Clinical Practices and the Standard Operating Procedures of the Organization.

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#### INTRODUCTION

Aging can occur from biological processes or environmental factors, and in some cases, environmental factors can impact biological processes. These factors—individually and together—contribute to an aging appearance and are responsible for the decline in skin health and function:

- Biological aging (intrinsic)—The result of changes, often genetically determined, that occur naturally within the body
- Environmental aging (extrinsic)—The result of free radical damage generated by accumulated exposure to sunlight (photoaging), pollution, or cigarette smoke. Also, lifestyle choices like diet, sleep, and stress can affect how quickly you appear to age.

Whether from biological or environmental sources, the appearance of aging results from several actions:

1. Loss of skin structure
2. Slowing of skin cell turnover
3. Pigmentation changes
4. Decrease in skin hydration

#### SKIN STRUCTURE

In our youth, our skin has the ability to balance its damage and repair to collagen—a key structural protein in the skin. This balance keeps the skin looking smooth and wrinkle free. As we age, we begin to lose this balance. Less and less collagen is created and more enzymes are produced that break down this protein, resulting in lines and wrinkles.

Nu Skin is continually identifying new anti-aging skin care technologies—topically applied ingredients that have been shown to increase the production of structural proteins that promote youthful looking skin. In vitro studies have shown that these ingredients not only promote the production of skin proteins, but they also inhibit the production of enzymes that break down the proteins in the skin.

#### CELL TURNOVER

As we age, the outer layers of our skin do not slough off as they once did. The adhesion of these skin cells results in rough skin texture and dull, lifeless looking skin. When cell renewal slows with

age, dead skin cells build up along the pores of the skin. This build up increases the appearances of pores, making them appear larger than they did in our youth.

By increasing the cell renewal process through ingredient technologies, younger, healthier skin cells surface, promoting a smoother skin texture. When the skin looks smoother, it reflects light more uniformly, and skin also appears more radiant and bright. Increasing cell renewal also stimulates a healthy exfoliation that results in pores appearing tight.

#### PIGMENTATION

As we age, melanocytes can cluster together. These clusters of melanocytes can then become overly active, resulting in areas of hyperpigmentation—age spots. This three-step process includes activation, synthesis, and expression. Topically applied ingredients can target one or more of these steps. Effective lightening systems will address all three steps to comprehensively decrease the appearance of age spots or discoloration.

During expression, young healthy skin regularly sheds dead cells and replenishes them with newer cells. As individuals age, the cell renewal process takes longer. This results in the cells in the outer layer of the epidermis becoming sticky and accumulating on the surface, leading to a dull, sallow complexion. Increasing cell turnover, part of the expression phase of the pigmentation process, can brighten skin complexion.

#### HYDRATION

Moisture-binding glycosaminoglycans (GAG), found within the extracellular skin matrix, play a critical role in the hydration and moisture levels within the skin. Ample moisturization within the extracellular matrix is vital to maintaining the strength and integrity of the structural proteins. Many GAGs are too large to enter through the epidermis, but there are ingredients that have been shown to increase GAG production.

The epidermis also needs ample moisture to keep it looking healthy and youthful. Aged skin lacks the needed epidermal lipids to main-

tain the sealing properties of the moisture barrier, resulting in trans epidermal water loss, dryness, and ultimately damage to the epidermis and dermis. Gently formulated products that provide the skin with hydrating ingredients can offset dry skin that accompanies aging skin. For example, ingredients like GAGs can bind moisture to the outer layers of the skin, and other ingredients can maintain skin barrier function by replacing skin ceramides, lipids, and fatty acids.

## EVALUATION

We evaluated the potential benefits of topical anti-aging skin care regimens in two separate, independent studies on the visible manifestations of aging appearance—fine lines, youthful skin structure, tactile roughness, appearance of pores, radiance, mottled pigmentation, uneven skin tone, and hydration.

## AGELOC™ ELEMENTS

### METHODS

Nu Skin commissioned a four-week clinical trial with a third party Clinical Research Organization (CRO). The CRO recruited 30 female subjects (15 Asian, 15 Caucasian) between 35 and 70 years of age who used ageLOC Elements skin care products per our standard directions for use. Clinical assessments were taken at baseline, one week, two weeks, and four weeks.

### RESULTS

With the use of ageLOC Elements, study participants showed improvements in signs of aging. A blinded clinical grader noted over 80% of subjects showed improvements in tactile roughness, radiance, lines and wrinkles, and overall appearance in as little as two weeks. (Figure 1)

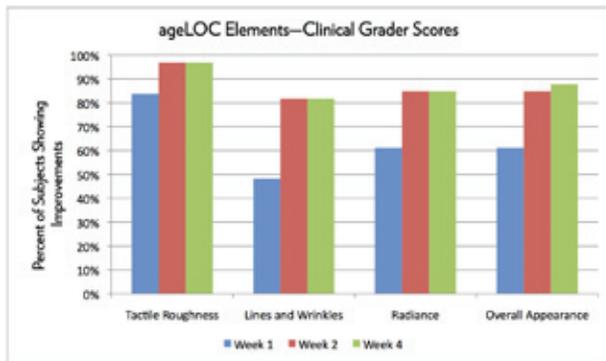


Figure 1. Percent of Subjects Showing Improvements

At the end of the four-week study, subjects showed improvements in fine lines and youthful skin structure. (Figure 2)

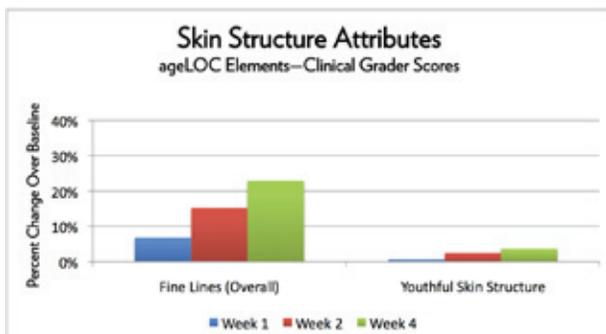


Figure 2. Skin Structure Attributes

According to clinical grader results, ageLOC Elements had an impact on cell turnover resulting in improvements in the following skin attributes (Figure 3):

- Tactile Roughness
- Pore Size
- Radiance

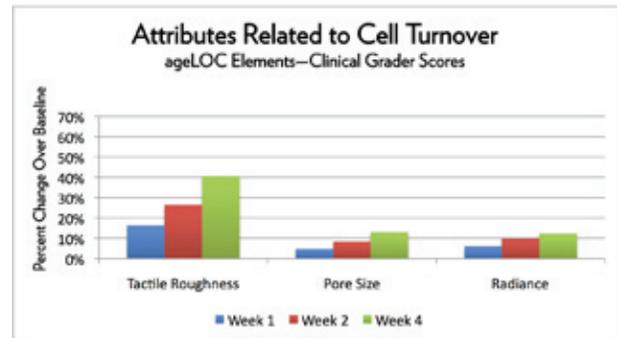


Figure 3. Cell Turnover Attributes

In the four-week clinical study, subjects exhibited improvements in mottled pigmentation and uneven skin tone when using ageLOC Elements, based on clinical grader assessments. (Figure 4)

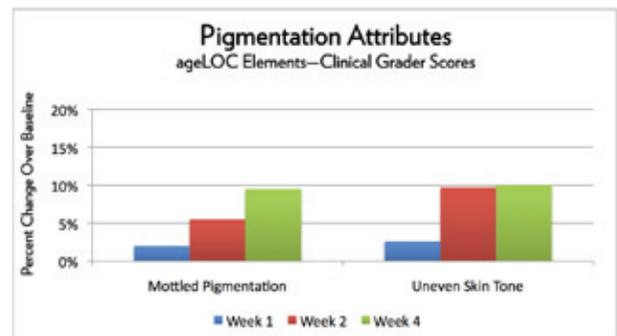


Figure 4. Pigmentation Attributes

## AGELOC™ TRANSFORMATION

### METHODS

Nu Skin commissioned a 12-week clinical trial with a third party Clinical Research Organization (CRO). The CRO recruited 25 female subjects (approximately 50% Asian) between 40 and 70 years of age who used ageLOC Transformation skin care products per our standard directions for use. Clinical assessments were taken at baseline, one week, four weeks, eight weeks, and 12 weeks.

### Results

With the use of ageLOC Transformation, study participants exhibited positive results in eight different signs of aging in as little as one week. These improvements continued to increase throughout the 12-week study.

A clinical grader that was blinded to all prior clinical scores at each time point noted 100% of subjects showed some improvement in fine lines, tactile roughness, radiance, and overall appearance in 12 weeks. All subjects showed improvements in fine lines, tactile roughness, and radiance in eight weeks and the latter two skin attributes in as little as four weeks. (Figure 5)

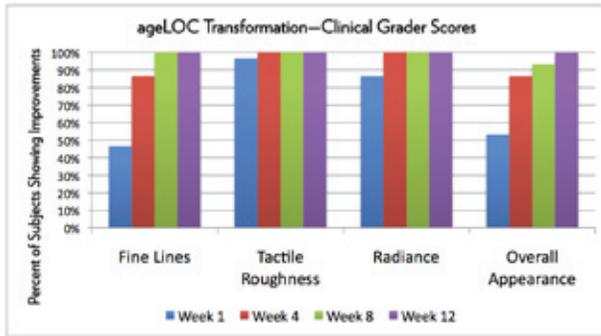


Figure 5. Percent of Subjects Showing Improvements

A blinded clinical grader saw improvements including a 32% increase in fine lines scores and an 11% improvement in youthful skin structure. (Figure 6)

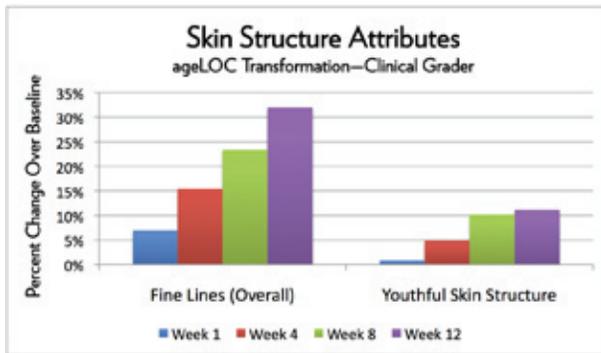


Figure 6. Skin Structure Attributes

When evaluating the subjects' skin-on-skin aging attributes related to cellular turnover, a blinded clinical grader noted the following improvements in 12 weeks:

- Tactile Roughness 66%
- Pore Size 12%
- Radiance 27%

Tactile roughness improved by 32% in just seven days. (Figure 7)

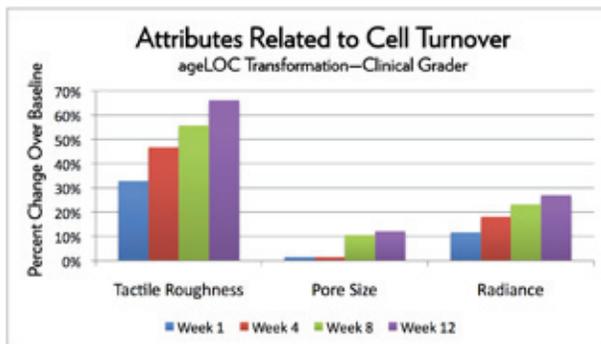


Figure 7. Cell Turnover Attributes

ageLOC Transformation had a positive effect on skin pigmentation in 12 weeks as evaluated by a blinded clinical grader (Figure 8):

- Mottled pigmentation improved by 14%
- Uneven skin tone improved by 15%

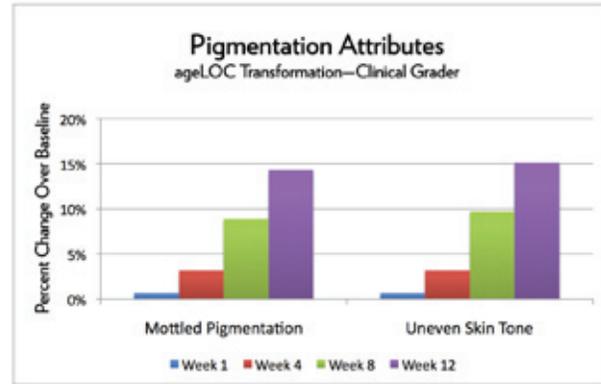


Figure 8. Pigmentation Attributes

The clinical assessment of skin hydration for ageLOC Transformation was conducted using a skin corneometer, as clinical graders are not able to assess this skin attribute. Corneometer results revealed an initial increase of 12% in seven days and further increased to 16% throughout the study.

## DISCUSSION

Both ageLOC Elements and ageLOC Transformation have been shown to provide anti-aging benefits across multiple signs of aging among subjects. The ageLOC Elements study was a shorter, more elementary (or basic) clinical conducted to provide a general understanding of its benefits. However, the ageLOC Transformation study was more substantial and was designed to provide an in-depth determination of the consumer experience with this premier anti-aging system. It is important to understand that these were two separate, independent studies conducted at different times and with completely different sets of test subjects and graders, so the study results should not be analytically compared to each other, but should be considered for overall benefit direction.

While similar in design, these two studies had different protocols. These were two studies conducted on different groups of subjects and were not only conducted for different time periods (four weeks vs. 12 weeks), but also during different times of the year, as previously stated. Environmental (or seasonal) changes can impact the improvements seen even when subjects have been instructed to limit their exposure to the environment, sun, wind, etc. The data gleaned from the studies is compelling and provides the needed information on the benefits of the different anti-aging systems.

## CONCLUSION

The percent improvements seen in the ageLOC Transformation study seem to steadily increase throughout the 12 week study. ageLOC Elements appear to provide similar results early on, and while benefits continued to increase, the incremental increase was not as pronounced as what was seen in the separate ageLOC Transformation study. Additionally, a greater percentage of subjects saw improvements at the four-week time point for selected skin attributes when using ageLOC Transformation than was reported in a separate study conducted on ageLOC Elements. According to clinical grader assessment, both ageLOC Transformation and ageLOC Elements improved the appearance of multiple signs of aging.