

SKIN FORMULA

(Alpha Lipoic Acid, DMAE & Ascorbyl Palmitate)

How do Wrinkles Form?

According to Nicolas Perricone, M.D., who wrote *The Wrinkle Cure*, a NYTimes Bestseller, wrinkles form due to changes in collagen formation and free-radical damage, because of tiny scarring. Collagen is one protein in our skin that gives it that supple youthfulness that we like so much. Normally, collagen molecules in the skin slide over each other to give the skin flexibility, softness, and resiliency. However, because collagen is an essential part of our skin, it is susceptible to free-radical damage by external factors such as sunlight, cigarette smoke, and air pollution, and internal body processes, such as inflammation.^{1,4}

When collagen is damaged by free-radicals, its molecular composition is changed, and a process occurs called cross-linking that prevents the collagen molecules from "sliding" over each other. It is as if someone installs tiny tie-bars between the molecules, and the skin then becomes more stiff and inflexible...adding to the appearance of aging.^{1,4}

Benefits

- Vibrant, Youthful Looking Skin
- Firmer skin
- Antioxidant Protection

Sunlight damage is a major factor for the development of wrinkled and aging skin. Inflammation can result due to an enzyme that is stimulated by sunlight. Free radical damage can result which also activates molecules inside the cells called transcription factors. Inflammatory processes in the body are now known to be a major cause of accelerated aging of skin. Additionally, these transcription factors which are normally harmless can produce collagen-digesting enzymes that can leave small defects in the skin, called "Microscarring".^{1,4}

Inner and Outer Beauty

The good news is that certain antioxidants can stimulate a similar process in the skin as previously described, but with the opposite effect. In this process instead of the collagen-digesting enzymes attacking all collagen, it will attack only the damaged collagen and actually repair the tiny scars, or remove the wrinkle that started forming. According to Dr. Perricone, supplementation with these specific antioxidants can help the skin become supple, youthful and Vibrant again: alpha-lipoic acid, DMAE, and Ascorbyl Palmitate.^{1,4}

Alpha-Lipoic Acid

Alpha-lipoic acid is a very powerful antioxidant that plays an important role alongside vitamin C and E. Alpha-lipoic acid can even recycle vitamins C and E after they have quenched a free radical in order for them

to do it again. Additionally, because alpha-lipoic acid is both water and fat-soluble it can work in both the lipophilic and hydrophilic areas of the cell making it accessible to areas where Vitamins C and E are not able to travel. ^{1,9-14}

Beyond antioxidant activity alpha-lipoic acid plays other important roles in the promotion of youthful, vibrant skin. Alpha-lipoic acid can affect metabolism from inside of a cell. This is important because as we get older, our cell metabolism slows down and the cell is not able to perform important functions as efficiently. Therefore, when alpha-lipoic acid is present the higher energy cells can perform DNA-repair more efficiently, remove wastes and perform metabolic functions better. ^{1,9-14}

Alpha-lipoic acid also has a key connection in preventing the inflammatory processes that lead to aging skin. Although the free-radical damage that is connected to inflammation can be helped by many types of antioxidants, most antioxidants get overwhelmed when there is a large number of free radicals. Alpha-lipoic acid, on the other hand, can prevent the activation of certain substances in the cell (specifically NFk-B, a type of transcription factor) that can produce an "overdrive" of free-radical damage and inflammation. Therefore, alpha-lipoic acid can actually stop the production and assault of the large number of free-radicals associated with inflammation. ^{1,9-14}

Another area that alpha-lipoic acid is helpful for is in controlling the effect of sugar imbalance on aging. Sugars can cause the cross-linking mentioned above on our collagen molecules that lead to aging skin. When alpha-lipoic acid is taken internally it can prevent this reaction for all of our proteins and also help the uptake and balanced metabolism of sugars by our body. For more information see the information sheet on Alpha-Lipoic Acid. ^{1,9-14}

DMAE

DMAE (dimethylaminoethanol) is described by Dr. Perricone as an "antioxidant membrane stabilizer". DMAE can actually incorporate itself and become part of the skin plasma membrane. Here it works both as an antioxidant and a stabilizer to the actual structure of the membrane. ^{1,4-8}

One of the components of aged-looking skin is sagging. Sagging does not just occur because of gravity's affect on the body, but because the tiny muscles under the skin have become loose and less responsive to acetylcholine; a nerve chemical that causes muscles to contract. Not only are they less-responsive to acetylcholine, aging persons generally produce lower quantities of acetylcholine. One way to reverse this process is to eat more fish or supplement with other sources of DMAE, which is a precursor to acetylcholine production. ^{1,4-8}

C-Ester (Ascorbyl Palmitate)

Vitamin C-Ester is a special form of vitamin C that was designed to access the outer membrane of the cell, the part of the cell where most of the oxidation occurs, due to its fat-soluble nature. Vitamin C is an essential part of the collagen formation process; the substance that gives our skin elasticity. Additionally, it is an important antioxidant that can prevent the dangerous effects of oxidation on the outer surface of our cell membranes and give a more youthful appearance to skin. However, vitamin C in its regular form is only water soluble and cannot help to protect skin cells and membranes very well from aging because it cannot access the areas where most of the damage occurs. ^{1,2,3}

Vitamin C-ester is composed of L-ascorbic acid (which is regular vitamin C) that has been joined with a fatty acid derived from palm oil called palmitic acid. In addition to being able to access the fat-soluble areas of the cell to prevent free-radical damage, it has several other benefits. When discussing bioavailability it has 10 times the uptake into the skin compared to regular vitamin C according to Dr. Perricone. ^{1,2,3}

Suggested Use

Take 100 mg of alpha lipoic acid, 100 mg of DMAE, and 500 mg of vitamin C ester daily for inner and outer beauty. ¹

Safety

Vitamin C-Ester is a form of vitamin C a known safe vitamin for supplementation. Although there

have been few studies on the safety of alpha-lipoic acid in humans, doses of up to 600 mg daily have been used by diabetics in clinical studies with no serious noted adverse effects. The use of up to 1,600 mg of DMAE per day have been studied with no reports of toxicity. The use of DMAE is thought to be relatively non-toxic. Higher dosages may cause anxiety, sleeplessness or nervousness, confusion or drowsiness.^{1, 7,8,11,12}

There is other scientific research available about the use and effectiveness of alpha-lipoic acid, DMAE, and C-Ester. Section 5 of the Dietary Supplement Health and Education Act requires us to present a balanced view of all available information about a dietary ingredient or substance to you. Since that is impossible to do in this fact sheet because of space limitations, we are providing this list of references to you. If you wish a copy of a referenced publication or need information on where you can retrieve it, you may call Optimal Nutrients at 1-800-966-8874.

Available Scientific Information

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The following reference presents one or more views different from that expressed in this publication about the effectiveness of alpha-lipoic acid, DMAE, and C-Ester.

1. Fisman M, Mersky H, Helmes E. Double-blind trial of 2-dimethylaminoethanol in Alzheimer's disease. *Am J Psych* 1981;138:970-2.
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