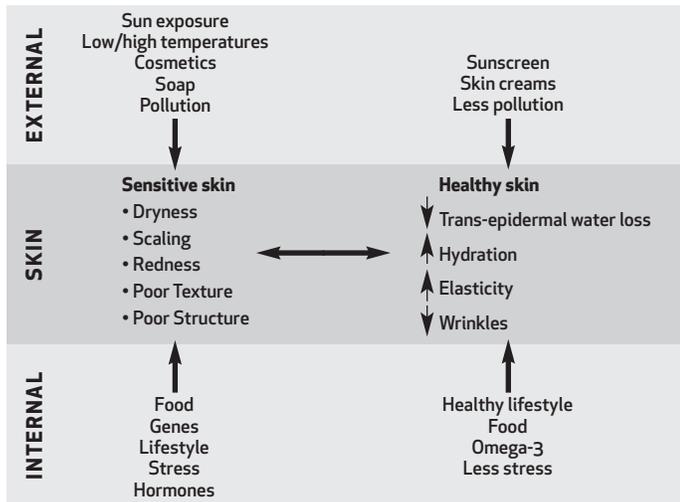


OMEGA-3 PHOSPHOLIPIDS FROM KRILL CAN BENEFIT SKIN HEALTH

MAINTAINING HEALTHY SKIN

Healthy skin is influenced by a complex interplay of factors that can be divided into two main groups – external and internal factors. Good skin health is very dependent on external factors like sun exposure, low and high temperatures, cosmetics, soap and pollution, and too much of these factors could lead to sensitive skin, including dryness, low elasticity, scaling and poor texture and structure. Good skin health is also influenced by internal factors such as diet, lifestyle, stress, hormones and genes⁽¹⁻³⁾ (see Figure 1).

Figure 1:

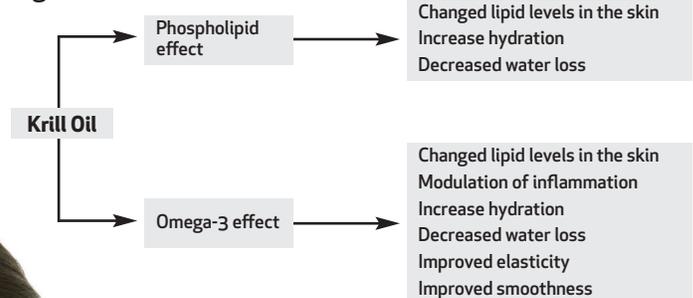


To maintain healthy skin, there should be a good balance between the water content and the amount of water passing through the skin, which influences skin elasticity and topography, and is important for skin smoothness and roughness⁽⁴⁻⁷⁾.

Krill oil is a sustainable source of omega-3 phospholipids where the majority of polyunsaturated fatty acids (PUFAs) are part of the phospholipid molecule. The oil is especially rich in the long-chain omega-3s eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), and more than 80% of these two fatty acids are bound to phospholipids, predominantly phosphatidylcholine.

The intake of both phospholipids and omega-3 fatty acids has been shown to influence the lipid composition in the skin and shift the balance between water loss and water content in the skin in a favorable manner^(8,9). In addition, omega-3s alone also have shown benefits on skin elasticity, smoothness and inflammation levels⁽¹⁰⁾. Since Superba™ krill oil contains omega-3 phospholipids it can add a beneficial action on the skin in two ways, by both the phospholipid effect and the omega-3 effect (see Figure 2).

Figure 2:



KRILL OIL AND SKIN HEALTH

To explore the potential positive effects that Superba™ krill oil could have on skin health, 31 volunteers (middle aged men and women with normal skin) were included in an open label, two-armed clinical trial. The subjects were randomized to take either 1 gram or 3 grams per day of Superba™ krill oil for 13 weeks. All skin measurements were done on the upper forearm.

Skin hydration, elasticity and water loss

Both the volunteers that took 1 gram and 3 grams daily of Superba™ krill oil had a significant increase in skin hydration and elasticity (within group change). The changes were dose dependent and the highest dose had a significantly bigger change compared to the lower dose. There was a significant reduction in the trans-epidermal water loss for both intervention groups (within group change), and this reduction was also dose-dependent with the largest reduction observed in the highest dose group.

In addition, a significant correlation for the change in hydration and the changes both for elasticity and trans-epidermal water loss were found. The volunteers that had a high change in skin hydration also experienced a high change for both elasticity and trans-epidermal water loss.

Wrinkles and skin smoothness

By using a digital camera, the (roughness) portion of wrinkles and (smoothness) width and size of wrinkles were assessed at the start and end of the trial. For both intervention groups a significant change in roughness (within group change) that also was dose-dependent with the highest beneficial change for the 3 gram dose was detected. For smoothness, there was a significant beneficial change for the highest dose group (within group change).

The Omega-3 Index and changes in the skin

The Omega-3 Index – a measure of the percentage of EPA and DHA in red blood cell fatty acids – was measured both at the start and end of the trial. Both groups of volunteers that took 1 gram and 3 grams daily of Superba™ krill oil had a significant increase in their Omega-3 Index, and the change was dose-dependent, where the 3 gram group had a significantly higher change compared to the 1 gram group.

These results indicate that the increases in Omega-3 Index directly relate to the positive changes in skin parameters observed among study subjects. Specifically, there was a significant correlation between an increased Omega-3 Index and a beneficial change for elasticity, hydration, trans-epidermal water loss and roughness.

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