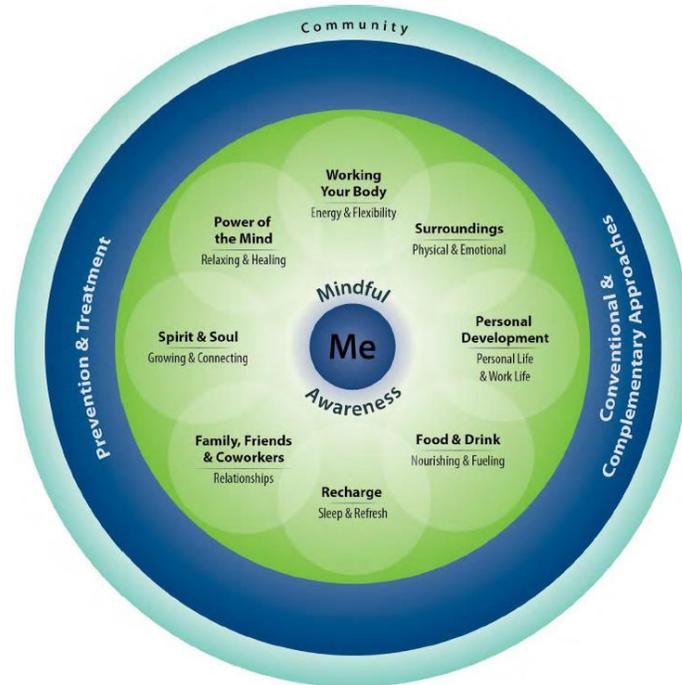


WHOLE HEALTH: CHANGE THE CONVERSATION

Advancing Skills in the Delivery of
Personalized, Proactive, Patient-Driven Care

Supplements for Skin Health Clinical Tool



This document has been written for clinicians. The content was developed by the Integrative Medicine Program, Department of Family Medicine, University of Wisconsin-Madison School of Medicine and Public Health in cooperation with Pacific Institute for Research and Evaluation, under contract to the Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration.

Information is organized according to the diagram above, the *Components of Proactive Health and Well-Being*. While conventional treatments may be covered to some degree, the focus is on other areas of Whole Health that are less likely to be covered elsewhere and may be less familiar to most readers. There is no intention to dismiss what conventional care has to offer. Rather, you are encouraged to learn more about other approaches and how they may be used to complement conventional care. The ultimate decision to use a given approach should be based on many factors, including patient preferences, clinician comfort level, efficacy data, safety, and accessibility. No one approach is right for everyone; personalizing care is of fundamental importance.

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Note: Please see the module on **Dietary Supplements** for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

Healthy dietary choices are important for overall health. Anti-inflammatory or Mediterranean-style dietary approaches have been found to enhance many aspects of health—especially in the setting of inflammatory diseases.¹ Additionally, low glycemic index/low glycemic load diets have been shown to have significant benefit—not only for overall health, but for improving some skin conditions as well as for slowing signs of aging.^{2,3} Supplements can give an added boost to disease prevention and/or minimizing the effects of chronic conditions. The discussion that follows highlights some of the supplements that have been shown to be particularly beneficial for the skin.

Omega-3 Fatty Acids

Omega-3 fatty acids have been shown to decrease the production of inflammatory compounds and of insulin and insulin-related compounds—all of which contribute to impaired function of the skin. These essential fatty acids have been shown to be helpful in specific skin conditions such as eczema, psoriasis, acne, and skin cancer.⁴ The inflammatory markers that are inhibited by omega-3 fatty acids impact collagen and other structural proteins that function to support the skin and underlying tissues. In this way, omega-3 fatty acids may help slow the appearance of visual characteristics of aging.

Ideally, omega-3 fatty acids would come from foods such as fatty fish (salmon, mackerel, and sardines), flaxseeds, and walnuts. When that is not possible, supplements can be helpful. For more information, see the section on fats in the **Food and Drink** educational overview.

Dose⁵: 1 Tbsp of flax oil for every 100 lb daily
1-2 Tbsp ground flaxseeds daily
1-2 gram(s) fish oil capsules twice a day

Gamma-Linoleic Acid (GLA)

GLA is an omega-6 polyunsaturated fatty acid that has anti-inflammatory properties. It is found in borage oil, evening primrose oil, hemp oil, and black current oil. It has been shown to be potentially helpful in atopic dermatitis (eczema).^{6,7} Research in other conditions, however, has been conflicting. Overall, GLA is safe. Gastrointestinal side effects are the

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most common and are generally reversible. There may be increased risk of bleeding when taken along with other blood thinners.

Dose^{6,7}: 920 milligrams daily for people 18 and older
360-460 milligrams daily for people younger than 18

Probiotics

Specific strains of probiotics have been shown to limit ultraviolet damage (*Lactobacillus johnsonii*) and to decrease skin sensitivity as well as increase recovery time after physical damage (*Lactobacillus paracasei*).^{8,9} Probiotics have potential benefits in several skin conditions including atopic dermatitis (especially when taken by the mother in the perinatal and nursing time periods), rosacea, and acne. Diet appears to play a significant role in supporting a healthy gut microflora, and effects of supplemental probiotics may be optimized by following a plant-based diet.¹⁰

There are many strains of probiotics, and comparing studies is difficult since the studies use different strains and concentrations of probiotics. Hopefully, more research will be done to help clarify the specific doses and strains that are most likely to be helpful for skin health.

For more information see the clinical tool [Promoting a Healthy Microbiome with Food and Probiotics](#).

Carotenoids

The carotenoids are a class of pigmented molecules made by plants that have strong antioxidant properties. Beta-carotene and lycopene are two that have been linked to skin health.

Beta-carotene is considered a provitamin because it is converted to vitamin A in the body. Several studies have found decreased rates of many types of cancer in people who regularly eat foods rich in beta-carotene, but studies looking at actual blood levels of beta-carotene and supplementation in people with skin cancer have not shown benefit.¹¹ Supplementation may be risky in some people (heavy smokers), though it appears to be beneficial in generally healthy people.¹² Foods rich in beta-carotene are a staple in anti-inflammatory and Mediterranean-style diets. These foods are high in other antioxidants as well as fiber—both of which are beneficial for many aspects of health.

Food sources: leafy greens, carrots, sweet potatoes, sweet peppers, dried apricots, peas, broccoli, squash, cantaloupe.

Lycopene is a powerful antioxidant and has been identified as having potent photoprotective properties.¹³ Tomatoes and tomato-based products have the highest concentrations of lycopene, and the concentration increases with cooking. Watermelon and pink grapefruit are also good food sources of lycopene. The Observed Safe Level (OSL) for lycopene indicates strong evidence of long-term safety with supplementation up to 75 mg/day.¹⁴

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Turmeric (Curcumin)

Curcumin is the major active component of turmeric. It has strong antibacterial, anti-inflammatory, and anticancer properties.¹¹ There have been no human studies specifically looking at curcumin for skin conditions, and the ideal dose for skin health is unknown. Curcumin can be obtained through diet or by taking capsules of turmeric powder. Clinical studies have found it to be safe at doses up to 8-12 grams/day with the primary side effect being reversible gastrointestinal problems (nausea and diarrhea).¹⁵

Flavonoids

Flavonoids make up a large class of protective molecules that are synthesized by plants. They are powerful antioxidants and have the ability to regulate pathways involved in cell processes such as cell growth, differentiation, and cell death.¹⁶ Beneficial effects on cancer include limiting inflammation, inhibiting proliferation of abnormal cells, and blocking cancerous cells from invading normal tissue. Foods rich in flavonoids include red, blue, and purple berries; red and purple grapes; plums; red and yellow onions; green and black tea; apples; dark chocolate; fresh parsley; kale; broccoli; and citrus fruits.

Green tea contains the flavonoid epigallocatechin-3-gallate (EGCG). It has many anticancer effects as well as antioxidant and photoprotective effects.^{17,18} Topically, it may help with acne as well as overgrown scars.^{19,20} Clinical studies in humans are lacking, and an ideal dose for supplementation is not known. Green tea is easily accessible, safe, and inexpensive.

Suggestion: Drink 2 or more cups of green tea daily.

Soy isoflavones are also members of the flavonoid family. They have weak estrogen-like effects on human tissues. They also appear to inhibit enzymes that are involved in skin breakdown.²¹ Both oral supplementation and topical preparations may reduce wrinkling and other signs of aging.²² The use of these compounds in people who have breast cancer has been an area of considerable debate. Due to the confusing data, some experts recommend that women with a history of breast cancer (especially estrogen receptor positive breast cancer) avoid increasing soy isoflavones in their diets. Others feel that moderate consumption of soy protein will not likely be harmful and may be beneficial.^{23,24} It very well may be that natural food sources of these isoflavones may be helpful while concentrated supplements may be harmful.

Resveratrol

Resveratrol is a compound naturally produced by plants to protect them from infection by bacteria and fungus. It has exhibited inhibitory activity of transcription factors and enzymes involved in inflammatory pathways.²⁵ It has also been shown to inhibit a variety of different human cancer cells including melanoma and to inhibit factors that allow cancer cells to spread to other tissues.²⁶ Although human studies are limited, supplementation appears to be safe. Resveratrol is concentrated in the skin of grapes and is found in highest concentrations in wine and grape-based products. Other sources include berries

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(blueberries, bilberries, cranberries), peanuts (boiled have the highest levels; raw peanuts and peanut butter have lower levels), and the roots of Japanese knotweed (*Polygonum cuspidatum*).

Multivitamin

There is evidence that vitamin A, vitamin B complex, vitamin C, vitamin D, vitamin E, biotin, and the minerals chromium, iron, selenium, and zinc play important roles in maintaining skin health. Additional supplementation may be helpful for specific skin conditions. While a detailed account of the impact individual vitamins and minerals have on the skin is beyond the scope of this document, it is wise to take a regular multivitamin that contains 100% of the daily value for most vitamins and minerals, particularly for those who have limited access to food sources of these important nutrients.

For guidance on choosing a multivitamin see [Choosing an Effective and Safe Dietary Supplement](#).

Whole Health: Change the Conversation Website

Interested in learning more about Whole Health?
Browse our website for information on personal and professional care.

<http://projects.hsl.wisc.edu/SERVICE/index.php>

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