Nutrition: Acne, Eczema, Psoriasis, and Other Skin Conditions - Part 2

Vitamin K2 prevents calcification of the skin's elastin. Elastin gives skin its youthful, springy quality, prevents lines and wrinkles. People who can't metabolize vitamin K end up with severe premature skin wrinkling. K2 has also been shown to be important for the proper functioning of vitamin A- and D-dependent proteins. Vitamin A cannot work properly if K2 is not available.

Food sources of vitamin K2 are somewhat limited; they include high-fat grass-fed dairy, especially cheese and ghee, egg yolks, liver, natto, which is fermented soybean, and sauerkraut. Be aware that grain-fed dairy products do not contain much vitamin K2, because the vitamin K2 comes from conversion within the animal, within the cows, from vitamin K1, which they get by eating grass, so if they're just conventionally raised and they're just eating grains, they're not going to have a lot of K1, and they won't be able to convert it to K2, and it won't come out in their milk.

Probiotics are really important for skin conditions. The skin-gut axis has been studied since the 1930s. Gut microbiota and oral probiotics influence systemic inflammation, oxidative stress, glycemic control, and tissue lipid content. Probiotics have been shown for almost a hundred years now to impact skin conditions like acne rosacea, atopic dermatitis, and psoriasis. Orally consumed probiotics reduce inflammatory acne; there is a connection between SIBO and the incidence of acne, particularly acne rosacea, in the scientific literature. In fact, I believe one study showed that at least about 80 percent of patients with acne rosacea had SIBO. Intestinal permeability causes systemic and local inflammation and can lead to skin diseases like acne. Stress and gut inflammation can cause leaky skin, similar to leaky gut, which is an impaired epidermal barrier, decreased antimicrobial peptides, increased infection, and inflammation. A neuropeptide called substance P that's produced by the gut plays a major role in skin conditions by influencing tissue fatty acids and lipids, so substance P is not only found in the gut, it's also found in the skin and in the brain. Oral probiotics finally have been shown to improve skin conditions, reduce inflammation, and decrease lipopolysaccharide, which is an endotoxin that can cause skin reactions.

Best food sources of probiotics are fermented foods like sauerkraut, kimchi, yogurt, kefir, and kombucha. But in addition to probiotics, you also want to focus on fermentable fibers or foods with a prebiotic effect. So these are non-digestible carbohydrates that feed the beneficial bacteria that are already in the gut. So these would be things like onions and leeks and garlic, Jerusalem artichokes, starchy vegetables, and some non-starchy vegetables. Oral probiotics can be used as supplements, but use caution if the patient has SIBO or other existing gut issues; you may need to treat those first before using a lot of probiotics. Soil-based organisms or transient commensals would be the exception; those are usually safely used even when SIBO is present. In fact, I typically include them in the treatment protocol for SIBO, and my favorite choices are things like Prescript-Assist and MegaSporeBiotic.

Sulfur is an important nutrient for the skin, and in fact a large proportion of the Western population consumes inadequate amounts of sulfur. It's necessary for collagen synthesis, and inadequate sulfur intake has been shown to reduce collagen formation and increase wrinkles in the skin. Sulfur is also required for glutathione synthesis. High levels of glutathione prevent oxidative damage to cells, which is the primary cause of aging, and regulate production of prostaglandins, reducing inflammation.

Sulfur-containing amino acids are found in egg yolks, meat, poultry, fish, garlic, onion, Brussels sprouts, asparagus, kale, broccoli, and cabbage, and be aware that fermentation makes sulfur more bioavailable. So, fermented cruciferous vegetables like cabbage or kale, etc., are particularly good sources of sulfur.

Vitamin E is secreted on the skin's surface through the sebum. It has potent anti-inflammatory effects and defends the skin against free radicals that cause skin damage. It has a synergistic effect with selenium to increase glutathione levels, it prevents inflammatory damage from ultraviolet radiation, so another nutrient that's important if the patient's spending a lot of time in the sun, and it's involved in immune function, cell signaling, gene expression, and it suppresses the formation of inflammatory arachidonic acid.

The majority of Americans get vitamin E from polyunsaturated vegetable oils like soybean, canola, and corn oil; that's maybe one of the only good things you can say about those oils. But the best sources on a Paleo type of diet would be spinach, turnip greens, chard, sunflower seeds, almonds, bell peppers, asparagus, collards, kale, and broccoli. Olive and avocado oil contain vitamin E as well, and these are fantastic oils to cook with. Avocado oil in particular because it has a higher smoke point, and olive oil certainly fine for medium-temperature cooking. Supplementation with vitamin E is not recommended in most cases because studies have shown that longer-term supplementation with vitamin E may actually increase the risk of death from cancer and heart disease.

Pantothenic acid, or B5, supports wound healing and growth and differentiation of keratinocytes. When it's applied topically, it helps to regenerate skin cells and connective tissue, and it significantly increases glutathione levels in the cells, protecting against oxidative damage.

B5 is found in a variety of foods; the richest sources include organ meats like liver and kidney, egg yolks, and broccoli. It's also in fish, shellfish, dairy products, chicken, mushrooms, avocado, and sweet potatoes. Be aware that high heat processing reduces pantothenic acid levels in foods by up to 75 percent, so it's important to eat a mix of raw and lightly cooked fresh foods to obtain adequate B5.

Let's talk about a case study: M.Z. was a 32-year-old female who came to me with significant cystic acne, particularly around her jawline, as well as other signs of hormonal imbalances, including severe PMS and mood instability. She'd been on oral birth control for five years, which kept her acne under control, but had gone off the pill about a year ago. A few months after stopping the pill, her acne flared and had been an issue ever since. Her diet was strict Paleo, and she was

surprised she'd not seen any improvement in her skin using this dietary approach, despite seeing some improvements in her digestion, though she still had occasional flares of diarrhea. She also had low sex drive and occasional episodes of self-described binge eating due to extreme hunger. She was struggling with low energy and brain fog occasionally.

M.Z. was also an endurance athlete and typically runs about 30 to 40 miles per week. She had slightly elevated fasting insulin at 10, with a normal fasting blood sugar and A1c. She had a DUTCH panel run which indicated elevated free cortisol in the morning and elevated total or metabolized cortisol as well as low estrogen, normal testosterone, and elevated progesterone. An ovarian ultrasound did not show any cysts, though she was not diagnosed with PCOS, she had taken Accutane in the past with some improvement in her skin. Her B12 was 384, which is not out of the reference range, but is lower than optimal, and she was homozygous for the MTHFR C776T polymorphism. Her total cholesterol was 132, which is quite low for a woman of her age, and her white blood cell count was 9.8.

With M.Z., we focused on nutritional quality of her diet to make sure it was meeting her calorie, macronutrient, and micronutrient needs. We established that she needed about 2,400 to 2,800 calories per day, depending on the distance she was running, which was significantly more than she was eating, and we also decided that she needed to experiment with a much higher carbohydrate intake to support her activity level, with a goal of 280 to 300 grams daily, and this was more than doubling what her carbohydrate intake was before, which was about 120 to 150 grams. I also had her add in a weekly portion of about four ounces of liver to increase her vitamin A, and we added a zinc supplement as she was unable to find good-quality shellfish like oysters or clams in Wyoming, where she lived.

We added a high-quality probiotic, Prescript-Assist, and some methylation support including B12 and folate. We added a basic hormone-balancing herbal supplement, FemGuard Balance, to help bring her estrogen and progesterone back to normal, and an adaptogen supplement called HPA Balance to help bring down her elevated cortisol.

I encouraged her to choose a stress management technique like meditation or mindfulness-based stress reduction or deep breathing that she could do on a daily basis, and she chose meditation.

After two months on this plan, M.Z.'s acne had significantly improved, with almost complete elimination of the cystic acne and much-reduced bumpiness around her cheeks and forehead. Her B12 was up to 524 and her white blood cell was down to 5.2, and her insulin dropped down to 2.5. Her digestive system improved further, with nearly no flares of diarrhea. She felt the increase in calories and carbohydrates also positively impacted her training, and she felt less exhausted and recovered better after her workouts. Her sex drive and cognitive function improved, and she no longer felt driven to overeat. Her PMS severity significantly decreased, and her only remaining symptom was mild back pain on the first day of her cycle. Overall, she felt far more able to keep up with her demanding training schedule, and she was excited to see such significant improvements in her skin and hormonal health without having to resort to birth control again. Okay, that's it for now, see you next time.