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Helping Manage Rosacea

Rosacea is a chronic inflammatory skin disorder that affects approximately 16 million Americans. Clinical presentation of rosacea typically involves the central portion of the face, and includes flushing, persistent erythema (redness), inflammatory papules and pustules (similar to acne), telangiectasia (spider veins) or dilation of blood vessels and edema (swelling). In addition, individuals with rosacea may have watery, swollen or irritated eyes. In fact four clinical subtypes of rosacea have been characterized: erythematotoelangiectatic, papulopustular, phymatous (thickened skin with nodules), and ocular. Some individuals with rosacea may have more than one subtype.

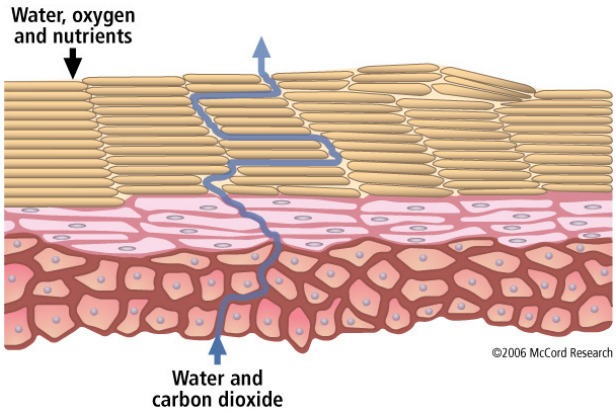
Rosacea is more prevalent in fair-skinned people of Northern and Eastern European or Celtic descent, but can also occur in other populations. The onset of rosacea generally occurs between 30 and 50 years of age and women are more commonly affected than men. Men, however, have a greater risk of developing the phymatous form of rosacea, especially involving the nose. Although symptoms may increase or decrease at times, rosacea is slowly progressive for many individuals.

Rosacea has a significant impact on the quality of life and psychological well being of affected individuals. Rosacea often causes embarrassment and anxiety. In an important study of individuals with rosacea, 75% of affected individuals experienced low self-esteem and were more likely to be depressed compared to the general population. Therefore, it is critical for individuals with rosacea to control their symptoms through treatment and proper skin care, which has been shown to play an essential role in maintaining remission and in alleviating the symptoms of rosacea.

Rosacea skin has a significantly lower heat pain threshold than normal skin. Rosacea is often accompanied by stinging, burning and sometimes pruritic (itching) sensations in the affected skin. Some factors believed to trigger the onset of the symptoms of rosacea or that may exacerbate the condition (and that should be avoided), include sun exposure, wind, exercise, psychological stress, hot and cold weather, and the consumption of hot beverages or alcohol and spicy food. Applying certain medicine to the face including topical steroids should also be avoided due to the fact that they can affect the skin barrier and exacerbate flushing.

Decreasing TEWL and Increasing Skin Barrier Function

Quantitating transepidermal water loss (TEWL) is a way to assess the quality of the skin barrier and how well it functions. Rosacea skin has increased TEWL, suggesting an impaired skin barrier. Small Molecule Technologies skin and wound care products contain ingredients that improve skin barrier function including oleuropein, a polyphenol from olives, and melatonin. Oleuropein reduces TEWL indicating its abil-



ity to increase skin barrier function. Evidence also demonstrates that melatonin has a stimulatory role in building and maintaining the epidermal barrier. Moreover, Small Molecule Technologies Renewal Moisturizer and gentle cleansing lotion, Clean N Moist, provide moisturizing nutrition to help restore skin barrier function.

As mentioned above, sun exposure or ultraviolet light radiation (UVR) can trigger rosacea. It is well known that UVR induces the formation of reactive oxygen species (ROS) in the skin. Furthermore, increased TEWL found with rosacea activates certain epidermal proteases that represent a link between impaired barrier function, ROS and inflammation that occurs in rosacea. In fact, a serine protease cleaves and activates an antimicrobial peptide (LL-37) found in the stratum corneum, which is both pro-inflammatory and angiogenic (produces new blood vessels). LL-37 has been suggested to deplete the antioxidant reserves in the skin, which is likely to result in oxidative stress and increased inflammation.

Decreasing Inflammation and Oxidative Stress

Many ingredients found in Small Molecule Technologies skin and wound products help decrease inflammation and some also counteract oxidative stress. Many of the small molecule ingredients have potent anti-inflammatory activities to help decrease skin inflammation including the polyphenols oleuropein, resveratrol, and epigallocatechin-3-gallate (EGCG) from olives, grapes and green tea respectively, as well as the important small molecules, melatonin and L-glutathione. In addition, dipotassium glycyrrhizinate from licorice, avenanthramides in oats, aloe vera and shea butter possess anti-inflammatory activities.

Various ingredients also counteract oxidative stress including oleuropein, resveratrol and EGCG, as well as melatonin and L-glutathione. Some of the beneficial ingredients found in Small Molecule Technologies skincare products also activate natural antioxidant enzymes including SOD. In a model where manganese SOD (MnSOD) was deactivated, oleuropein induced MnSOD activity. Resveratrol has been shown to increase the expression of MnSOD in endothelial cells. In addition, EGCG has been shown to increase SOD activity in human skin fibroblasts.

Individuals with rosacea sometimes report non-specific triggers of skin inflammation. Toll-like receptors (TLR) represent one of the mechanisms by which the immune system triggers inflammation due to the recognition of specific microbial products or products of cellular injury that are interpreted as danger signals. Individuals with rosacea have abnormal activation of TLRs, particularly TLR2. It has been suggested that the skin of individuals with rosacea may have an imbalance (dysbiosis) in the skin microbiome, or community of normal microbes, that allows certain bacteria or other organisms to overgrow. Rosacea inflammation has been linked with increased growth of epidermal mites and bacteria associated with them, as well as other bacteria. Maintaining a normal skin microbiome is important for keeping skin healthy.

Preserving the Normal Skin Microbiome

Small Molecule Technologies skin and wound care products are pH balanced and correspond with the normal chemistry of skin to help preserve the normal skin microbiome. Disruptions in the microbiome due to harsh soap or cleansers can decrease the protection provided by certain microbes normally found on the skin. Small Molecule Technologies Clean N Moist is a gentle cleanser that preserves the natural balance of skin. Clean N Moist cleanses skin without causing irritation. Diligent skin care including mild cleansing and moisturizing has been shown to significantly improve skin hydration, skin sensitivity and overall skin health.

Proper skin care is critical for individuals with rosacea. Small Molecule Technologies skin and wound care products including Renewal Moisturizer and Clean N Moist can strengthen the skin barrier and increase skin hydration for individuals with rosacea. Small Molecule Technologies skin and wound care products are non-sensitizing and non-irritating. Unlike harsh soaps and cleansers, Small Molecule Technologies Clean and Moist gently cleanses skin and is pH balanced to preserve the normal skin chemistry and flora (microbiome).

Small Molecule Technologies Renewal Moisturizer and Clean N Moist also contain potent anti-inflammatory ingredients as well as ingredients that counteract oxidative stress typically associated with rosacea. Decreasing skin inflammation can help decrease many of the symptoms associated with rosacea including redness, swelling, and itching. It's good to know that Small Molecule Technologies Renewal Moisturizer and Clean N Moist can help soothe the symptoms of rosacea.

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About the author: Nancy Ray, PhD is the Science Officer at McCord Research. Dr. Ray received her PhD in Biochemistry and Biophysics and was a postdoctoral fellow at NIH, Harvard University and Dana-Farber Cancer Institute, and the University of Iowa. She also earned bachelor of science degrees in Chemistry and Microbiology.