Nutraceuticals aid dermal fibroblasts

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Citation

L Shecterle, J St. Cyr. *Nutraceuticals aid dermal fibroblasts*. The Internet Journal of Nutrition and Wellness. 2009 Volume 9 Number 2.

Abstract

Dermal integrity and function rely on a regenerative supply of mature fibroblasts with proper surveillance in removing aging cells to maintain equilibrium. A recently published article in Journal of Medicinal Food by Borawska et al investigated the potential benefits of certain nutraceuticals on cellular viability in vitro of normal cultured human skin fibroblasts and granulation tissue fibroblasts.[1] Phytochemicals, found in plants, have been promoted for their protective or disease preventative properties centering on preserving cellular integrity and function. Our skin is constantly exposed to environmental pollutants and ultraviolet radiation that not only ages our skin but can initiate potential malignant transformations. Obviously, a healthy diet along with prudent surveillance of skin exposed to the elements is important. Borawska et al reported that the addition of genistein, present in soya, increased the viability of the normal skin fibroblasts and granulation tissue fibroblasts. The addition of epigallocatechin-3-gallate, found in green tea, revealed a linear increase in viability with increasing concentrations; however, no beneficial effect was observed in granulation tissue fibroblasts. In another study, Borel et al reported benefits in cultured human fibroblasts with the addition of D-ribose, a pentose carbohydrate.[2] Assessed basal and mitochondrial respiration rates of cultured human dermal fibroblasts were significantly improved, 37% and 31%, respectively, with the addition of 0.05% D-ribose in the cell culture media.

Nutraceuticals, coined by Dr. Stephen DeFelice, is referred to as “a food (or part of a food) that provides medical or health benefits, including in the prevention and/or treatment of a disease.”[3] As such, consumers consider nutraceuticals important compounds due these general health benefits. The findings by Borawska et al and Borel et al further substantiate the credibility of nutraceuticals at the cellular level, measured in viability and functionality of fibroblasts, both essential for the maintenance of dermal integrity and function.

References

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