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File: ■ Turmeric (*Curcuma longa*, Zingiberaceae)
■ Skin Diseases
■ Systematic Review

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RE: Systematic Review of the Effects of Turmeric for Skin Diseases

Vaughn AR, Branum A, Sivamani RK. Effects of turmeric (*Curcuma longa*) on skin health: a systematic review of the clinical evidence. *Phytother Res.* May 23, 2016; [epub ahead of print]. doi: 10.1002/ptr.5640.

Turmeric (*Curcuma longa*, Zingiberaceae) has been used traditionally as a spice and has been investigated for anti-inflammatory and antioxidant activity. The main bioactive compound in turmeric is thought to be curcumin. Curcumin has been the subject of many studies and is suggested to be bioactive against inflammation and oxidant stress when used topically. This review summarizes the current literature on turmeric and curcumin for skin diseases.

The authors searched PubMed and Embase on August 18, 2015, using general search terms including "Curcumin," "curcumin," "turmeric," "*Curcuma longa*," and "skin diseases." Clinical studies, cohort studies, or randomized clinical trials, all published in English, were included. Enrolled patients had a skin disorder, and the study had to have used turmeric or curcumin. Publications with in vivo or in vitro models and those that did not investigate skin problems were excluded. Data from publications included skin diseases, the number of patients, study design, type of turmeric/curcumin intervention, outcomes, results, conclusions, dosages, and limitations. The Jadad scale was used to assess study quality. This scale takes into account criteria such as quality of blinding and randomization and ranges in scores from 5 as the highest to 0 as the lowest. From a total of 234, 18 publications were selected.

In a study investigating turmeric for acne, those that received both a tablet and topical treatment had the greatest benefit. Discussed limitations include a short duration and small sample size (n=2 in the placebo group, with only one completing the study). In a trial in those with alopecia, those using an extract of *C. aeruginosa* did not see significant improvement. In a trial in patients with eczema, those that used a cream with turmeric and other ingredients (Herbavate®; Troikaa Pharmaceuticals Ltd.; Ahmedabad, Gujarat, India) experienced a significant beneficial effect on eczema symptoms such as redness, scaling, thickening, and itching. Limitations of the study were the absence of a

control group and the high amount of dropouts. In addition, a combination product was used, precluding the assessment of any one botanical.

In a trial investigating a botanical mixture (Tricutan[®]; Natumin Pharma AB; Habo, Sweden) of turmeric, rosemary (*Rosmarinus officinalis*, Lamiaceae), and gotu kola (*Centella asiatica*, Apiaceae) for photoaging in skin, four weeks of use did result in significant effects on skin firmness; however, due to the mixture of plants, conclusions about the efficacy of any one of them cannot be determined from this study. In two trials with Curcumin C3 Complex[®] (Sabinsa Corporation; East Windsor, New Jersey) in patients with oral lichen planus (mouth inflammation), a dosage of 2000 mg/day did not result in any significant differences between treatment and placebo. In the second trial, a higher dose of 6000 mg/day did result in significant changes in the treatment group as compared with placebo. Another study with the 2000 mg/day dosage of curcumin capsules also showed no significant results as compared with the placebo treatment. [Note: It is unclear whether this study also used Curcumin C3 Complex.]

In a study in patients on dialysis who had uremic pruritus (itching), eight weeks of 1500 mg of turmeric (standardized to 66.3 mg of curcumin) daily resulted in a significant decrease in uremic pruritus and a significant decrease of the inflammation marker high-sensitivity C-reactive protein. In patients with chronic pruritus, four weeks of 1 g/day of curcumin resulted in a significant decrease in pruritus and a significant increase in endogenous antioxidant agents as compared with the control. A 1% curcumin alcohol gel was shown to have beneficial effects on psoriasis, and 6 g per day of Curcumin C3 Complex resulted in significant improvement of radiation dermatitis in patients with cancer undergoing radiation treatment.

In conclusion, it is mentioned that bioactivity of curcumin may be dosage-related, and that curcumin concentrations may vary between turmeric powders. The authors cite studies showing curcumin to be safe, and briefly describe some potential adverse side effects in certain populations. Potential mechanisms of curcumin's bioactivity may be due to previously reported modulation of inflammation processes. In regard to study limitations, the authors report that of the 18 publications reviewed, only six studies were rated at a Jadad score of 5, suggesting considerable study weaknesses. It is discussed that more rigorous studies that address curcumin bioavailability are warranted.

—Amy C. Keller, PhD

Referenced article can be accessed at <http://onlinelibrary.wiley.com/doi/10.1002/ptr.5640/epdf>.

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