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File: ■ Maca (*Lepidium meyenii*)
■ Sexual Function

HC 091064-416

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RE: A Systematic Review of Biological Activity of Maca

Shin BC, Lee MS, Yang EJ, Lim HS, Ernst E. Maca (*L. meyenii*) for improving sexual function: a systematic review. *BMC Complement Altern Med*. Aug 6, 2010;10:44. doi: 10.1186/1472-6882-10-44.

Maca (*Lepidium meyenii*) is a member of the Brassicaceae family that has a long history of use as a staple food and medicine in South America. Maca has been traditionally used to increase fertility in the Andes Mountains. Animal studies and small clinical trials have provided some evidence that maca may be effective in treating erectile dysfunction.[1] Animal studies have shown spermatogenic effects, improvements in sexual behavior, and an enhancement of "androgen-like effects in rats." The bioactive constituents of maca are not definitively identified, but they may include macaridine, macamides, macaene, and glucosinolates. The purpose of this review was to examine the clinical evidence for the effects of maca on "the improvement of sexual function, including sexual desire and sexual responses."

The authors searched the following databases (inception-April 2010): Medline, AMED, CINAHL, EMBASE, PsycInfo, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, DARE, Psychology and Behavioral Sciences Collection, Korean Studies Information, DBPIA, Korea Institute of Science and Technology, KERIS, KoreaMed, Korean National Assembly Library, CNKI, and The Japanese Science and Technology Information Aggregator. The authors also performed hand searches of departmental files and relevant journals.

They included trials on maca that had at least one measure of sexual function in subjects with or without sexual dysfunction. The authors read the trials in full and extracted data, including methods, sample, treatments, and outcome measures. They applied the Cochrane classification "to evaluate the risk of bias." It was not possible to conduct a formal meta-analysis, as planned, due to the "statistical and clinical heterogeneity" of the data.

The authors recovered 88 articles, and four of them met the inclusion criteria. They were conducted in Peru, Australia, Italy, and the United Kingdom. The study designs were: crossover (n=2), two-armed parallel group (n=1), and three-armed parallel group (n=1).

The trials enrolled a total of 131 subjects. Two studies used dried maca, and two used gelatinous maca. The studies lasted 2-12 weeks and employed dosages ranging from 1.5 to 3.5 g. The age ranges of the subjects were 21-56 years for healthy male subjects, 31-41 years for male subjects with erectile dysfunction (ED), and 43-65 years for postmenopausal women. Outcome measures included the International Index of Erectile Dysfunction (IIEF-5), sexual dysfunction Greene Climacteric Scale, sexual desire rated on a six-point Likert scale, and the Sexual Desire Inventory. Three of the studies used commercially available maca products, and one used dried unprocessed maca. None of the trials reported the method of sequence generation, and none used allocation concealment. All were double-blinded, and "one trial reported complete outcome measures." None of the trials reported the presence or absence of adverse effects.

The one trial that enrolled patients with ED "showed positive effects of maca on IIEF-5 in patients with mild ED compared to the placebo control." The other three RCTs examined the effect of maca on sexual function in healthy adults. A placebo-controlled trial found positive effects on the sexual function of postmenopausal women. Another found that high and low doses of maca (3 g/day and 1.5 g/day, respectively) had beneficial effects on sexual desire in healthy adult men. The final clinical trial found no positive effects on sexual desire in male cyclists.

The small number of trials on maca and sexual function that are currently available makes it difficult to draw conclusions. The four trials reviewed here had problems that included failure to report adverse effects, sequence generation for randomization, allocation concealment, power calculation, and success of blinding. One of the crossover studies did not include a washout period between treatments and another had a "poor description of the outcome and was therefore difficult to interpret." One trial did not use a validated questionnaire.

More research is needed to determine the relationship between maca and sexual function and to determine the optimal dose. Future clinical trials should report the presence or absence of adverse events and employ large sample sizes and rigorous study designs.

—Marissa Oppel-Sutter, MS

Reference

1. Milot B. Subjective effects of maca root extract on men's health. *HerbClip*. June 30, 2009 (No. 060191-379). Austin, TX: American Botanical Council. Review of Subjective effects of *Lepidium meyenii* (maca) extract on well-being and sexual performances in patients with mild erectile dysfunction: a randomised, double-blind clinical trial by Zenico T, Cicero AFG, Valmorri L, Mercuriali M, Bercovich E. *Andrologia*. 2009;41(2):95-99.

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