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HerbClip™

File: ■ Licorice (*Glycyrrhiza glabra*)
■ Flavonoids
■ Weight Loss

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RE: Licorice Flavonoid Oil May Aid in Weight Loss

Tominaga Y, Nakagawa K, Mae T, et al. Licorice flavonoid oil reduces total body fat and visceral fat in overweight subjects: a randomized, double-blind, placebo-controlled study. *Obes Res Clin Prac*. 2009;3(3):169-178.

Licorice (*Glycyrrhiza glabra*) flavonoid oil (LFO) contains hydrophobic flavonoids. Animal studies by the authors of this paper have shown that LFO reduces abdominal fat accumulation and body weight gain in obese diabetic mice. A prior clinical trial by the same researchers found that LFO safely suppressed weight gain in overweight subjects.[1] In this clinical trial, they examine the effect of LFO on total body fat and visceral fat in overweight subjects and assess the safety and optimal effective dose.

The researchers recruited 56 men and 28 postmenopausal women aged 40-60 years with body mass indices (BMIs) of 24-30 kg/m^2. The LFO (Kaneka Glavonoid™; Kaneka Nutrients; Japan) was prepared by extracting licorice roots with ethanol and mixing the extract with medium chain triglycerides (MCTs), producing a mixture of 30% licorice extract and 70% MCTs. The extract was adjusted to 1% glabridin. There was less than 0.005% glycyrrhizic acid, a compound linked to hypokalemia (elevated potassium) and other problems. The LFO capsules contained 300 mg of the licorice extract and 33 mg beeswax, while the placebo capsules contained 300 mg MCTs and 33 mg beeswax. The subjects took the capsules before dinner with water once daily for 8 weeks. They were randomized into 4 groups: the placebo group (n=19) took 3 placebo capsules per day, the low dose group (n=20) took 1 LFO capsule and 2 placebos per day (300 mg LFO/day), the middle dose group (n=21) took 2 LFO capsules and 1 placebo per day (600 mg LFO/day), and the high dose group (n=21) took 3 LFO capsules per day (900 mg LFO/day). The researchers measured the subjects' body fat mass with dual-energy x-ray absorptiometry (DXA), and measured the subjects' subcutaneous and visceral fat with computerized tomography scanning (CT). They also took blood samples at baseline and after 4 and 8 weeks of treatment.

At baseline, there were 21 subjects in each group, comprising 14 men and 7 women. There were 2 withdrawals in the placebo group: 1 male due to a personal reason and a second due to lumbago. There was 1 male drop-out in the 300 mg group due to lumbago. The caloric intake of the subjects did not significantly change after 4 and 8 weeks of treatment. The subjects in the 900 mg LFO group experienced significant decreases from baseline in body weight and BMI after 4 and 8 weeks of treatment ($P<0.05$ for both). The changes in body weight and BMI were significantly greater in the 900 mg LFO group compared to the placebo group ($P<0.005$ for both). The subjects in all 3 LFO groups, but not the placebo group, had significantly lower body fat masses compared to baseline after 8 weeks of treatment ($P<0.05$). CT scans showed that lean body mass increased significantly from baseline levels in the 300 and 600 mg LFO groups as well as in the placebo group ($P<0.05$ for all). The CT scans also showed that visceral fat mass decreased significantly compared to baseline in the 900 mg LFO group only ($P<0.05$). The researchers did not observe significant changes in the subcutaneous fat area.

Blood parameters related to disease "were within normal ranges" at baseline, except for elevated levels of total cholesterol and low-density lipoprotein (LDL) cholesterol in all 4 groups. The researchers observed significant decreases in total and LDL cholesterol levels in the 900 mg LFO group ($P<0.05$ for both). This decrease is consistent with other studies showing that ethanolic licorice extracts reduce LDL cholesterol in patients with high cholesterol. The authors state that, despite some significant changes, the biochemical and hematological parameters remained within normal values. They also note that "subjective symptoms" were mild and unrelated to the LFO capsules. The levels of plasma glabridin confirmed compliance with the treatment in the LFO group and were dose-dependent.

The authors conjecture that the observed reduction in body weight and fat could be caused by increasing energy expenditure through the enhancement of beta-oxidation and inhibition of lipogenesis. They state "further studies are necessary to clarify the cause of body fat reduction and to examine LFO-mediated metabolic changes in adipose tissue and muscle." They conclude that supplementation with at least 300 mg/day LFO (preferably 900 mg/day LFO) may prevent or ameliorate obesity and metabolic syndrome when combined with lifestyle modifications including diet and exercise.

—Marissa Oppel-Sutter, MS

References

1.Minigh J. Clinical trial finds licorice flavonoid oil safe and beneficial in reducing weight gain. *HerbClip*. June 30, 2008 (No. 120275-355). Austin, TX: American Botanical Council. Review of Licorice flavonoid oil effects body weight loss by reduction of body fat mass in overweight subjects by Tominaga Y, Mae T, Kitano M, Sakamoto Y, Ikematsu H, Nakagawa K. *J Health Sci.* 2006;52(6): 672-683.

The American Botanical Council has chosen not to reprint the original article.