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# Effect of licorice on the reduction of body fat mass in healthy subjects.

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The history of licorice, as a medicinal plant, is very old and has been used in many societies throughout the millennia. The active principle, glycyrrhetinic acid, is responsible for sodium retention and hypertension, which is the most common side-effect. We show an effect of licorice in reducing body fat mass. We studied 15 normal-weight subjects (7 males, age 22-26 yr, and 8 females, age 21-26 yr), who consumed for 2 months 3.5 g a day of a commercial preparation of licorice. Body fat mass (BFM, expressed as percentage of total body weight, by skinfold thickness and by bioelectrical impedance analysis, BIA) and extracellular water (ECW, percentage of total body water, by BIA) were measured. Body mass index (BMI) did not change. ECW increased (males: 41.8+/-2.0 before vs 47.0+/-2.3 after, $p<0.001$; females: 48.2+/-1.4 before vs 49.4+/-2.1 after, $p<0.05$). BFM was reduced by licorice: (male: before 12.0+/-2.1 vs after 10.8+/-2.9%, $p<0.02$; female: before 24.9+/-5.1 vs after 22.1+/-5.4, $p<0.02$); plasma renin activity (PRA) and aldosterone were suppressed. Licorice was able to reduce body fat mass and to suppress aldosterone, without any change in BMI. Since the subjects were consuming the same amount of calories during the study, we suggest that licorice can reduce fat by inhibiting 11beta-hydroxysteroid dehydrogenase Type 1 at the level of fat cells.

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