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ORIGINAL RESEARCH COMMUNICATION

Influence of inulin on plasma isoflavone concentrations in healthy postmenopausal women[1,2,3]

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Background: Bacterial intestinal glucosidases exert an important role in isoflavone absorption. Insoluble dietary fibers such as inulin may stimulate the growth of these bacteria in the colon and, hence, stimulate the absorption of these substances in subjects who may need isoflavone supplementation.

Objective: The objective was to assess the influence of inulin on plasma isoflavone concentrations after intake of soybean isoflavones in healthy postmenopausal women.

Design: Twelve healthy postmenopausal women participated in a randomized, double-blind, crossover study. They consumed 40 mg of a conjugated form of soybean isoflavones (6 mg daidzein and 18 mg genistein as free form) with or without 3.66 g inulin twice daily in two 21-d experimental phases. Blood samples were collected 0, 1, 2, 3, 4, 6, 10, 12, and 24 h after intake of isoflavones with breakfast and dinner at the end of each 21-d experimental phase. Plasma concentrations of isoflavones were assessed by HPLC with an electrochemical detector.

Results: Plasma 24-h areas under the curve indicated that the intake of soybean isoflavones with inulin for 21 d was followed by higher plasma concentrations of daidzein and genistein (38% and 91%, respectively) compared with the formulation without inulin. Furthermore, the time for the maximum concentration of daidzein and genistein appeared to be lower after the 21-d intake of soybean isoflavones, with or without inulin. However, the time for the maximum concentration of daidzein and genistein after supplementation with the inulin-containing formulation on day 21 was not significantly different from that after supplementation with the formulation without inulin.

Conclusions: Inulin may increase the apparent plasma concentrations of the soybean isoflavones daidzein and genistein in postmenopausal women. The higher plasma concentrations of the 2 isoflavones suggests that the absorption of each was facilitated by the presence of inulin.

Key Words: Isoflavones • plasma inulin concentrations • postmenopausal women