

## Frequent Chocolate Consumption Linked to Lower BMI

Troy Brown

March 26, 2012 — A recent study showed that frequent chocolate consumption was associated with lower body mass index (BMI), even when adjusting for calorie intake, saturated fat intake, and mood.

Beatrice A. Golomb, MD, PhD, associate professor of medicine at the University of California, San Diego, and colleagues described their findings in a research letter published in the March 26 issue of the *Archives of Internal Medicine*.

The authors used data from 1018 patients already being screened for inclusion in a widely sampling clinical study evaluating noncardiac effects of statin medications. Of the 1018 participants, 1017 answered the question, "How many times a week do you consume chocolate?" BMI was calculated for 972 participants (95.6%); and 975 (95.8%) answered the validated Fred Hutchinson Food Frequency Questionnaire.

The investigators performed analyses with and without adjustment for calorie intake, saturated fat (saffat) intake, and mood. Fruit and vegetable intake was not associated with chocolate consumption ( $\beta$ , 0.004;  $P = .55$ ), but saffat intake was significantly related to both chocolate consumption ( $\beta$ , 0.035;  $P < .001$ ) and higher BMI.

The amount of chocolate consumed was examined, in addition to the frequency of chocolate consumption. Activity (number of times in a 7-day period the participant engaged in vigorous activity for at least 20 minutes) and mood (Center for Epidemiological Studies Depression scale [CES-D]) were also examined.

The relationship between chocolate consumption frequency and BMI was calculated in unadjusted models, in models adjusted for age and sex, and in models adjusted for activity, saffats, and mood.

Study participants consumed chocolate a mean 2.0 (SD, 2.5) times per week and exercised 3.6 (SD, 3.0) times per week. Frequency of chocolate consumption was associated with greater intake of calories and saffats and higher CES-D scores ( $P < .001$  for each of these 3 associations); these all related positively to BMI. Chocolate consumption frequency was not associated with greater activity ( $P = .41$ ), but it was associated with lower BMI (unadjusted  $P = .01$ ). This association remained with and without adjustment for age and sex, as well as for calories, saffats, and depression.

Although chocolate consumption frequency was associated with lower BMI, the amount of chocolate consumed was not (eg, per medium chocolate serving or 1 oz [28 g],  $\beta$ , 0.00057 and  $P = .97$ , in an age- and sex-adjusted model).

"The connection of higher chocolate consumption frequency to lower BMI is opposite to associations presumed based on calories alone, but concordant with a growing body of literature suggesting that the character — as well as the quantity — of calories has an impact on [metabolic syndrome (MetS)] factors," write the authors.

They further explain that as chocolate products are frequently high in sugar and fat, they are often assumed to contribute to an increased BMI. The authors note that this may still be true in some cases.

"[O]ur findings — that more frequent chocolate intake is linked to lower BMI — are intriguing," write the authors. "They accord with other findings suggesting that diet composition, as well as calorie number, may influence BMI. They comport with reported benefits of chocolate to other elements of MetS," the authors write, noting that a randomized trial studying the metabolic benefits of chocolate in humans may be warranted.

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