From Medscape Education Clinical Briefs

News Author: Troy Brown
CME Author: Penny Murata, MD Faculty and Disclosures
CME/CE Released: 04/03/2012; Valid for credit through 04/03/2013

More Intake of Chocolate May Yield Lower Body Mass Index

CLINICAL CONTEXT

Chocolate appears to have a beneficial role in blood pressure and insulin sensitivity, according to Grassi and colleagues in the March 2005 issue of the American Journal of Clinical Nutrition, and in cholesterol levels, according to Allen and colleagues in the April 2008 issue of the Journal of Nutrition. However, the benefit of chocolate intake might be offset by the caloric intake.

This cross-sectional study by Golomb and colleagues assesses whether the frequency of chocolate intake is associated with body mass index (BMI).

STUDY SYNOPSIS AND PERSPECTIVE

A recent study showed that frequent chocolate consumption was associated with lower BMI, even when adjusting for calorie intake, saturated fat (satfat) 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 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, satfat intake, and mood. Fruit and vegetable intake was not associated with chocolate consumption (β, 0.004; $P = .55$), but satfat intake was significantly related to both chocolate consumption (β, 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, satfats, 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 satfats 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, satfats, 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], β, 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.

This study was funded by a grant from the National Heart, Lung and Blood Institute, National Institutes of Health, and was supported by the University of California, San Diego, General Clinical Research Center. The authors have disclosed no relevant financial relationships.

Arch Intern Med. 2012;172:519-521.

Related Link:

A recent article in the BMJl provided a systematic review of the effect of chocolate on cardiometabolic parameters.

STUDY HIGHLIGHTS

- 1018 patients 20 to 85 years old from a single US city were screened for a study on noncardiac effects of statins.
- Patients did not have cardiovascular disease, diabetes, or extremes of low-density lipoprotein cholesterol levels.
- 1017 participants answered the question, "How many times a week do you consume chocolate?".
- 975 (95.8%) completed the Fred Hutchinson Food Frequency Questionnaire that assessed calories, fruit and vegetable intake, satfat intake, and amount of chocolate intake.
- 972 participants (95.6%) had weight and height data at the screening visit to determine BMI.
- The mean age was 57 years, 68% were men, and the mean BMI was 28 kg/m2.
- Mean frequency of chocolate intake was 2.0 times per week.
- Mean frequency of physical exercise was 3.6 times per week.
- Physical activity was reported as the number of times of vigorous activity for at least 20 minutes per 7 days.
- Mood was assessed with use of the CES-D scale.
- Analysis models were adjusted for age, sex, physical activity, calorie intake, satfat intake, CES-D, and fruit and vegetable intake.
- Fruit and vegetable intake was not related to the frequency of chocolate intake.
- Frequency of chocolate intake was associated with greater calorie intake, greater satfat intake, and higher CES-D scores.
- Greater frequency of chocolate intake was associated with a lower BMI in unadjusted and adjusted models.
- Amount of chocolate intake was not associated with BMI.
- Study limitations included cross-sectional design.

CLINICAL IMPLICATIONS

- Greater frequency of chocolate intake is associated with lower BMI, but the amount of chocolate intake is not associated with BMI.
- Age, sex, physical activity, caloric intake, satfat intake, fruit and vegetable intake, and mood do not affect the link between frequency of chocolate intake and BMI.