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**File: ■ Hibiscus (*Hibiscus sabdariffa*)**  
■ Dyslipidemia  
■ Obesity

**HC 111361-486**

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**RE: Hibiscus Supplementation May Be Effective in Adolescents with Dyslipidemia**

Sabzghabae AM, Ataei E, Kelishadi R, et al. Effect of *Hibiscus sabdariffa* calices [sic] on dyslipidemia in obese adolescents: a triple-masked randomized controlled trial. *Mater Sociomed.* 2013;25(2):76-79.

Dyslipidemia, or atypical lipid concentrations, is often seen in those suffering from obesity and is associated with a higher risk for cardiovascular disease (CVD). It is thought that addressing obesity and CVD risk factors in adolescents may prevent future health problems. Hibiscus (*Hibiscus sabdariffa*) is traditionally used in Iran and has been shown to have broad bioactivity. This randomized, triple-blind, placebo-controlled trial investigated effects of hibiscus supplementation in obese Iranian adolescents.

This study took place at the Isfahan Cardiovascular Research Institute, Isfahan, Iran, and enrolled 90 adolescents from 12-18 years old. Patients had serum triglyceride, total cholesterol, and low-density lipoprotein (LDL) concentrations greater than the 90<sup>th</sup> percentile, high-density lipoprotein (HDL) concentrations less than the 10<sup>th</sup> percentile (percentile demographic is not defined), did not consume tobacco, alcohol, or drugs, did not have diabetes, thyroid, or other organ problems, and were not using pharmaceuticals that impacted lipid concentrations or hormones. Those that did not adhere to compliance, were pregnant or lactating, had sensitivity to drugs, or had health problems affecting lipid concentrations or necessitating drugs impacting lipids were excluded.

At baseline, patients had lipid concentrations, fasting blood glucose, and thyroid hormone measured. Lipid concentrations were also measured at the end of the study. Diet and exercise were standardized, and patients received counseling from a registered dietitian. Hibiscus was procured at a market in Isfahan, Iran, and calyces were dried and powdered. The amount of polyphenols of the powder was determined to be 16.4 mg gallic acid per gram. Treatment consisted of 6 g of powdered hibiscus or placebo in divided doses for 4 weeks. Placebo was not specified. Metabolic measurements were also taken at the end of the study.

From the 90 patients enrolled in the study, 43 were randomly assigned to the treatment group, and 47 were randomly assigned to the control group. From these, 7 in the

treatment group and 11 in the control group were dropped from the study because of pharmaceutical use, diet changes, or lipid measurement inconsistencies. In total, 36 patients in each group completed the study with an average age of  $14.17 \pm 1.61$  years in the treatment group and  $14.25 \pm 1.59$  years in the control group. There were no significant differences in average age, gender, body mass index, or lipid profiles at baseline between groups.

Following treatment with hibiscus, total cholesterol was significantly decreased from  $186.5 \pm 30.42$  mg/dl at baseline to  $176.11 \pm 23.1$  mg/dl at endpoint ( $P=0.003$ ). Those in the treatment group also had a significant decline in triglyceride concentrations ( $134.22 \pm 50.17$  mg/dl vs.  $146 \pm 49.87$  mg/dl at baseline,  $P=0.022$ ). LDL concentrations significantly decreased in the treatment group at the end of the study as compared to baseline measurements ( $103.36 \pm 21.94$  mg/dl vs.  $111.36 \pm 24.54$  mg/dl,  $P<0.001$ ). Although not significant, HDL concentrations also decreased in this group ( $43.17 \pm 7.77$  mg/dl vs.  $45.64 \pm 8.59$  mg/dl at baseline,  $P=0.057$ ). No differences in any of these parameters were observed in the control group; however, the decline in triglyceride concentrations of the control group approached significance as compared to baseline ( $166.17 \pm 44.42$  mg/dl vs.  $163.44 \pm 43.64$  mg/dl,  $P=0.052$ ). The adverse side effect reported was "temporary constipation."

In summary, this study shows that hibiscus supplementation significantly modulated triglyceride and LDL concentrations in obese adolescents. A larger sample size is needed to differentiate the potential effects of hibiscus consumption on triglyceride concentrations as decreases were also observed in the control group. The decrease in HDL concentration with hibiscus treatment approached significance and should be addressed in future studies. Also, the triple-blinded methodology is not described, and it is suggested that the study duration should be longer in future trials. Despite these shortcomings, hibiscus supplementation may be an effective therapy to address dyslipidemia in obese adolescents.

—Amy C. Keller, PhD

Referenced article can be found at [www.ncbi.nlm.nih.gov/pmc/articles/PMC3769081](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3769081).

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