Increasing Tomato Intake to MyPlate Recommended Amount: Effect on Serum Lycopene

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To encourage vegetable consumption and give tomatoes more prominence, Dietary Guidelines for Americans 2010 (DGA) created a new red & orange vegetable subgroup. The intake recommendation of the red & orange subgroup is 0.8 cup equivalents per day, with tomatoes comprising 82% or 0.7 cup equivalents/day, nearly double the 2005 recommended tomato amount.[1] Tomatoes are the primary dietary source of lycopene, the major carotenoid in the diet. Tomato intake and serum lycopene concentration are inversely correlated with chronic disease risk.[2-5] Thus, increased intake of tomatoes leading to increased serum lycopene concentration is desirable. Dose response studies have shown variation in serum lycopene response due to food matrix, cooked or raw state, and concurrent fat intake.[6-8] It is assumed that meeting the recommended tomato intake will favorably affect serum lycopene concentrations, but the magnitude of effect on serum lycopene is unknown.

The purpose of this study is to determine the effect on serum lycopene of the approximate amount of tomatoes recommended by DGA’s MyPlate when consumed as canned/sauce/paste within the usual diet.

Fifty eight men and women (ages 35 – 70, BMI 27 – 37) were asked to consume 1 cup equivalent canned tomatoes, sauce, or paste as part of their usual daily diet for six weeks. Participants’ reported consumption was 0.15 and 1 cup equivalents/d at baseline and six weeks, respectively. At baseline and at 6 weeks serum lycopene was measured.

Results

These data show that increasing tomato intake in the form of canned, sauce or paste, from usual amounts to an amount consistent with MyPlate recommendations, results in a median lycopene increase of 32% and an upward shift in serum lycopene of approximately one quartile across the concentration spectrum.

References