

Bone

Lycopene Supplementation and Disease Risk

Disease type	First Author	Study Title and Complete Citation	Date	Abstract	Study Type	G.Tom +, N, -	P.Tom +, N, -	F.Tom +, N, -	Lyco +, N, -	Other +, N, -
Bone	Mackinnon ES	Supplementation with the antioxidant lycopene significantly decreases oxidative stress parameters and the bone resorption marker N-telopeptide of type I collagen in postmenopausal women. Mackinnon ES, Rao AV, Josse RG, Rao LG. Osteoporos Int. 2011 Apr;22(4):1091-101. Epub 2010 Jun 15.	2011	<p>To date, no intervention studies have been published demonstrating the effect of the antioxidant lycopene on bone. Postmenopausal women supplemented with lycopene had significantly increased antioxidant capacity and decreased oxidative stress and the bone resorption marker N-telopeptide (NTx). Lycopene decreases bone resorption markers and may reduce the risk of osteoporosis.</p> <p>INTRODUCTION: We have previously shown in vitro and in vivo that lycopene from tomato is associated with a protective effect on bone, but lycopene intervention studies have not been reported. Our aim was to carry out a randomized controlled intervention study to determine whether lycopene would act as an antioxidant to decrease oxidative stress parameters, resulting in decreased bone turnover markers, thus reducing the risk of osteoporosis in postmenopausal women.</p> <p>METHODS: Sixty postmenopausal women, 50-60 years old, were recruited. Following a 1-month washout without lycopene consumption, participants consumed either (N = 15/group): (1) regular tomato juice, (2) lycopene-rich tomato juice, (3) tomato Lyc-O-Mato lycopene capsules, or (4) placebo capsules, twice daily for total lycopene intakes of 30, 70, 30, and 0 mg/day respectively for 4 months. Serum collected after the washout, 2 and 4 months of supplementation, was assayed for cross-linked aminoterminal N-telopeptide, carotenoid content, total antioxidant capacity (TAC), lipid, and protein oxidation.</p> <p>RESULTS: Participants who consumed juice or lycopene capsules were analyzed in one group designated "LYCOPENE-supplemented". Repeated measures ANOVA showed that LYCOPENE-supplementation for 4 months significantly increased serum lycopene compared to placebo (p < 0.001). LYCOPENE-supplementation for 4 months resulted in significantly increased TAC (p < 0.05) and decreased lipid</p>	RCT				(-) ↑ PL ↓ NTx	

			<p>peroxidation ($p < 0.001$), protein oxidation ($p < 0.001$), and NTx ($p < 0.001$). These decreases in lipid peroxidation, protein oxidation, and NTx were significantly different from the corresponding changes resulting from placebo supplementation ($p < 0.05$, $p < 0.005$, and $p < 0.02$, respectively).</p>						
--	--	--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--	--

CONCLUSIONS: Our findings suggest that the antioxidant lycopene is beneficial in reducing oxidative stress parameters and the bone resorption marker NTx.