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Effects of combined supplementation with EPA and vitamin E on the inflammatory response and oxidative capacity of male basketball players

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The objective of the present study was to investigate the effects of vitamin E and EPA supplementation on the blood levels of pro-inflammatory cytokine TNF α , anti-inflammatory cytokine IL-2 and the erythrocyte antioxidant enzyme glutathione reductase (GR) in male basketball players.

In a randomized double-blind placebo-controlled clinical trial thirty-six healthy well-trained male basketball players (17–35 years old) were randomized into four groups to take daily 2 g EPA (plusEPA™; Minami Nutrition, Edegem, Belgium), 400 mg vitamin E, a combination of the two or a placebo. Venous blood samples for analysis were taken from the subjects between 17.00 and 18.00 hours after exercising for 2 h and at the beginning and after 6 weeks of supplementation. Serum IL-2 and TNF α were measured with Bender Medsystems kits (Vienna, Austria) using ELISA and GR was determined by the Sauberlich method⁽¹⁾.

The Table shows that for the EPA + vitamin E group when compared with the vitamin E, EPA and placebo groups there was a decrease in the serum TNF α level ($P < 0.005$; paired t test) and an increase in the serum IL-2 level ($P < 0.05$). The erythrocyte GR level increased significantly in both the EPA + vitamin E ($P = 0.04$) and vitamin E groups ($P = 0.01$).

Group..	1				2				3				4			
	Initial		Final		Initial		Final		Initial		Final		Initial		Final	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
IL-2 (pg/ml)	18.9	9.2	25.1*	13.3	19.1	8.7	28.9	2.9	20.7	12.1	26.1	1.3	31.5	2.1	33.4	5
TNF α (pg/ml)	10.9	6	7.4***	4.3	10.4	5.0	6.1	0.9	7.8	2.6	4.2	1.4	8.7	5.1	7.6	0.4
GR (U/ml)	2.9	1.4	3.9**	1.7	3.4	1.4	4.8	0.6	2.0	1.9	5.4†	1.5	3.9	1.5	4.1	0.2

Group 1, EPA + vitamin E; group 2, EPA; group 3, vitamin E; group 4, placebo.

Mean values were significantly different from the initial value: * $P = 0.05$, ** $P = 0.04$, *** $P = 0.005$, † $P = 0.01$.

Adding EPA to vitamin E supplements can result in desirable changes in the inflammatory response and antioxidant capacity of male basketball players. This effect would have implications from a practical point of view, since exercise produces inflammatory and oxidative effects.

1. Sauberlich HE, Judd JH Jr, Nichoalds GE, Broquist HP & Darby WJ (1972) *Am J Clin Nutr* 25, 756–762.