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Metabolism. 2002 Nov;51(11):1389-91.

Effects of oral L-carnitine supplementation on in vivo long-chain fatty acid oxidation in healthy adults.

Müller DM, Seim H, Kiess W, Löster H, Richter T.

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Despite an abundance of literature describing the basic mechanisms of action of L-carnitine metabolism, there remains some uncertainty regarding the effects of oral L-carnitine supplementation on in vivo fatty acid oxidation in normal subjects under normal conditions. It is well known that L-carnitine normalizes the metabolism of long-chain fatty acids in cases of carnitine deficiency. However, it has not yet been shown that L-carnitine influences the metabolism of long-chain fatty acids in subjects without disturbances in fatty acid metabolism. Therefore, we investigated the effects of oral L-carnitine supplementation on in vivo long-chain fatty acid oxidation by measuring 1-[(13)C] palmitic acid oxidation in healthy subjects before and after L-carnitine supplementation (3 x 1 g/d for 10 days). We observed a significant increase in (13)CO(2) exhalation. This is the first investigation to conclusively demonstrate that oral L-carnitine supplementation results in an increase in long-chain fatty acid oxidation in vivo in subjects without L-carnitine deficiency or without prolonged fatty acid metabolism. Copyright 2002, Elsevier Science (USA). All rights reserved.

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