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LIPOIC ACID AND VITAMIN C POTENTIATE NITRIC OXIDE SYNTHESIS IN HUMAN AORTIC ENDOTHELIAL CELLS INDEPENDENT OF CELLULAR GLUTATHIONE STATUS

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Vitamin C and thiol agents improve vasomotor function. To determine whether these compounds directly affect endothelial function, nitric oxide (NO) synthesis was measured in human aortic endothelial cells treated with ascorbic acid or the thiol modulating agents lipoic acid or L-2-oxothiazolidine-4-carboxylic acid (OTC). A dose-dependent increase in A23187-stimulated NO synthesis and elevated cyclic GMP levels were observed in all cases except for OTC.
Cellular GSH levels were not significantly increased, and the GSH/GSSG ratio was not significantly affected, by treatment of the cells with lipoic acid, OTC, or ascorbic acid. Thus, vitamin C and lipoic acid potentiate endothelial NO synthesis and bioactivity by mechanisms that appear to be independent of cellular GSH levels and redox environment.

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