

Acupuncture Enhances Generation of Nitric Oxide and Increases Local Circulation

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Although it is widely used, the mechanisms and effects of acupuncture on pain are not completely understood. Recently, increased nitric oxide (NO) synthase activity has been found in meridians and acupoints. Because NO is a key regulator of local circulation, and because change in circulation can affect the development and persistence of pain, we propose that acupuncture might regulate NO levels. We studied the effects of acupuncture on local NO levels and circulation in a randomized, double-blind, crossover study with 20 volunteers, each of whom underwent one session each of real and noninvasive sham acupuncture in a single hand and forearm with a 1-wk interval between treatments. NO concentration in the plasma from the acupunctured arm was significantly increased by 2.8 +/- 1.5 micromol/L at 5 min and 2.5 +/- 1.4 micromol/L at 60 min after acupuncture. Blood flow in palmar subcutaneous tissue of the acupunctured arm also increased, and this correlated with the NO increase. These changes were not observed in noninvasive sham-acupunctured hands and forearms. In conclusion, acupuncture increases the NO level in treated regions and thereby increases local circulation. These regulatory effects might contribute to pain relief provided by acupuncture.

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