

Part of the effects of acupuncture in knee pain are probably due to the activation of the reward system

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Acupuncture is an ancient therapy with a variety of different explanatory models. A cascade of physiological effects have been reported following the insertion of a needle both in the peripheral and in the central nervous system.

Clinical trials testing the specific claims of acupuncture generally have tried to focus on testing the efficacy of applying specific techniques and/or specific points. However, different conditions may respond differently to different modes of stimulation. Also, insertion of needles into the body can stimulate effects not dependent on the location(s) of stimulation. Recently, it was demonstrated that both superficial and deep needling (with de Qi) resulted in amelioration of patellofemoral pain and a feeling of wellbeing.

One area in the brain that is affected by acupuncture stimulation is the limbic system. The limbic system consists of a group of brain structures, including the hippocampus, amygdala, and their interconnections and connections with the hypothalamus, septal area, and portions of the tegmentum. It contains many of the centres related to emotionality and reward.

The improvement in wellbeing resulting from acupuncture has largely been ignored as it was considered to be part of its anti-nociceptive effects. We have previously reported that physical exercise and electro-acupuncture in animals results in modulation of the peptidergic content in limbic structures. Our results are supported by recent animal studies in Japan that clearly demonstrate that acupuncture and moxibustion result in the activation of the reward system. These studies are supported by fMRI studies in patients showing that the insula ipsilateral to the site of needling was activated as well as the dorsolateral prefrontal cortex, the anterior cingulate and the midbrain.

Taken together, these results suggest that acupuncture as well as the patients' expectation and belief regarding a potentially beneficial treatment modulate activity in the reward system.