

# **In vitro cellular response to osteopathic manipulative therapy provides proof of concept**

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In vitro studies of the cellular effects of modeled osteopathic manipulative therapy (OMT) provide proof of concept for the manual techniques practiced by doctors of osteopathic medicine (DOs), according to researchers from the University of Arizona College of Medicine - Phoenix.

The study, published in *The Journal of the American Osteopathic Association*, focused on modeling two common OMT techniques, myofascial release and counterstrain. Researchers subjected fibroblast matrices to various strains and employed a scratch wound strain model to test the ability of OMT to impact wound healing.

The study data conclusively showed that biomechanical strain had profound and potentially clinically significant effects on several cellular processes, such as proliferation, apoptosis and cytokine production. Also, different strain direction resulted in differential effects on cell growth, morphology and IL-6 secretion.

"Finding the molecular mechanisms of how these therapies work would define the underpinnings of clinical efficacy and could propel OMT into evidence-based, first- line therapy," said the lead author, Paul R. Standley, PhD, who has studied the osteopathic therapies for more than a decade.

"Despite the medical training behind osteopathic manipulative treatment, some outside the profession still consider these modalities to be complementary or alternative. That misunderstanding seems to result from the fact that the mechanisms behind OMT and how it affects physiologic structure and function are poorly understood," Standley added.

The in vitro testing further found human fibroblasts responded to various strains differently by changing cellular morphology, proliferation, and cytokine and NO secretions, illustrating the potential to regulate inflammation and [wound healing](#) in patients.

"Controlled human studies of OMT techniques, in proscribed combinations like those used to evaluate pharmaceuticals, is a logical next step in explaining the science behind OMT," said Lisa M. Hodge, PhD who recently studied the efficacy of OMT on antibiotic effectiveness.

OMT was developed to improve the body's healing capacity. Although a small percentage of DOs offer OMT to their patients, it is most commonly used to diagnose and treat musculoskeletal disorders including back pain, tendonitis and headache.

**More information:** *The Journal of the American Osteopathic Association*, August 2015, Vol. 115, 490-502. [DOI: 10.7556/jaoa.2015.103](#)

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