

Promising evidence that osteopathy may relieve musculoskeletal pain

Osteopathy, which was first developed in the late 1800s in the U.S., is based on the principle that the structure (anatomy) and function (physiology) of a person's body are intertwined. It aims to repair imbalances in this relationship.

In common with other forms of complementary medicine, osteopathy has grown in popularity over the past decade, particularly for the treatment of musculoskeletal disorders. The researchers therefore wanted to assess its safety and effectiveness for different conditions.

They trawled research databases for systematic reviews and pooled data analyses (meta-analyses) of relevant randomized controlled clinical trials, published up to November 2021 (Only trials carried out by doctors with osteopathic training or osteopaths were included). The search uncovered nine systematic reviews or meta-analyses conducted between 2013 and 2020, involving 55 primary trials and 3740 participants.

The conclusion of the pooled data systematic reviews reports on the use of osteopathy in a wide range of conditions, including acute and chronic non-specific low back pain, chronic non-specific neck pain, chronic non-cancer pain, primary headache, and IBS showed that it was more effective than other approaches in reducing pain and improving physical function.

But small sample size, contradictory findings, and wide variations in study design meant that the evidence on the effectiveness of osteopathy for use in children with various conditions, ranging from attention deficit hyperactivity disorder to asthma and infantile colic, and the treatment of migraine and IBS, was limited or inconclusive.

No serious side effects associated with the therapy were reported in the 7 systematic reviews that evalu-



ated them, although only two defined how these were measured.

“This overview suggests that [osteopathy] could be effective in the management of musculoskeletal disorders, specifically with regard to [chronic non-specific low back pain] and [low back pain] in pregnant women or [those who have just had a baby],” write the researchers.

“In contrast, inconclusive evidence was derived from [systematic reviews] analyzing osteopathy efficacy on pediatric conditions, primary headache, and IBS,” they add.

“Nevertheless, based on the low number of studies, some of which are of moderate quality, our overview highlights the need to perform further well-conducted [systematic reviews] as well as clinical trials (which have to follow the specific guidelines for non-pharmacological treatments) to confirm and extend the possible use of [osteopathy] in some conditions as well as its safety,” they conclude.

Licorice may help in cancer treatments

Licorice is more than a candy people either love or hate — it may play a role in preventing or treating certain types of cancer, according to researchers at the University of Illinois Chicago.

Gnanasekar Munirathinam and his research team are studying substances derived from the licorice plant *Glycyrrhiza glabra* to determine if they could be used to prevent or stop the growth of prostate cancer.



Munirathinam is an associate professor in the department of biomedical sciences at the College of Medicine Rockford.

A research review into molecular insights of a licorice-derived substance called glycyrrhizin for preventing or treating cancer conducted by Dr. Munirathinam and student researchers suggests further research could lead to specific agents for clinical use.

“When we look at the research out there

and our own data, it appears that glycyrrhizin and its derivative glycyrrhetic acid have great potential as anti-inflammatory and anti-cancer agents," Munirathinam said. "More research is needed into exactly how these could best be used to develop therapies, but this appears to be a promising area of cancer research."

That being said, one should not be advised to go out and eat a bunch of licorice, because it may affect blood pressure, interact with certain medications, and cause serious adverse effects, including death, when used excessively. An occasional sweet treat of licorice candy or

tea may be better options until more studies can show how to best harness the plant's benefits.

"Very few clinical trials in humans have been conducted," Munirathinam said. "We hope our research on prostate cancer cells advances the science to the point where therapies can be translated to help prevent or even cure prostate and other types of cancer."

College of Medicine Rockford students Rifika Jain, Mohamed Ali Hussein, Preksha Shahagadkar, Shannon Pierce and Chad Martens are co-authors of the review, which was partly supported by the National Institutes of Health and Brovember Inc.

Alpinia hainanensis has potential to help treat ulcerative colitis

Ulcerative colitis (UC) is a non-specific, chronic, and recurrent inflammatory bowel disease. *Alpinia* plants (Zingiberaceae family) are treated as the ideal materials for finding therapeutic agents against UC. *Alpinia hainanensis* is an important food spice and ethnic medicine in Southwest China. However, there have been few reports about chemical and anti-inflammatory investigations of *A. hainanensis* rhizomes.

In a study published in the *Journal of Agricultural and Food Chemistry*, researchers from the Xishuangbanna Tropical Botanical Garden (XTBG) and the Shanghai Institute of Materia Medica of the Chinese Academy of Sciences found that the EtOAc-soluble fraction (AHE) of the *A. hainanensis* rhizome ethanol extract could ameliorate dextran sulfate sodium-induced UC.

By nuclear magnetic resonance,



chiral high-performance liquid chromatography separation, and electronic circular dichroism calculation, the researchers isolated and structurally characterized 19 compounds, including five pairs of previously unreported enantiomers. The results showed that some

compounds exhibited inhibitory effects on the nuclear factor- κ B (a widely expressed nuclear transcription factor) signaling pathway, and the two most active compounds exhibited significant inhibition of inflammation expression in lipopolysaccharide-induced RAW264.7 cells (mouse macrophage cell line).

The study reports not only the anti-colitis effects of the active fraction from the *A. hainanensis* rhizome ethanol extract but also active ingredient isolation, structural elucidation, putative biosynthetic pathway analysis, and evaluation of anti-inflammatory effects.

"We suggest that the major active fraction AHE of the *A. hainanensis* rhizome ethanol extract could be developed as a nutritional and dietary supplement for treating UC," said Ji Kailong of XTBG.

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