Finally, in wuxing, or the five phase theory, the phenomena relationship between yin and yang phenomena in the body.\(^1\) Dependence and metabolic activity.\(^2\) Yin, on the other hand, is associated with cold, rest, darkness, and stability.\(^3\) Therefore, diagnosis and treatment in TCM intends to detect and correct imbalances that are present in the body.\(^3\)

Although the practices of TCM originated in ancient China, they have been passed down through generations and introduced to societies all over the world. These practices have been modernized, but still maintain some semblance of their roots in Eastern philosophy. In the 1970s, traditional Chinese medicine infiltrated communities all across the United States.\(^4\) Today, nearly 38% of adults living in the United States use some form of complementary or alternative medicine, many of which involve TCM in some capacity.\(^5\) Due to their efficacy in the treatment of various health conditions, the TCM treatments of tai chi, qigong, acupuncture, and cupping, in particular, have surged in popularity throughout the United States.

**MAIN THEORIES OF TCM**

TCM treatments are shaped by the three major philosophical theories of qi, yin yang, and wuxing.\(^6\) The concept of qi introduces a “vital energy,” which one must learn to balance and harness appropriately in order to prevent illness.\(^6\) In contrast, the yin-yang theory expresses a universal standard that describes two complementary aspects of an indivisible whole.\(^7\) Yin is associated with cold, rest, darkness, and the structure and form of the body. Yang, on the other hand, is associated with heat, stimulation, movement, light, body function and metabolic activity.\(^7\) In medicine, this theory compares and contrasts both physiological and pathological phenomena while acknowledging that the two are interdependent.\(^8\) Ultimately, the goal of treatment is to balance the relationship between yin and yang phenomena in the body.\(^9\)

Finally, in wuxing, or the five phase theory, the phenomena of the universe falls into five categories associated with the natural world: wood, fire, earth, metal, and water.\(^3\) TCM uses these elements’ clear relationships to interpret the physiology and pathology of the human body in relation to one another.\(^3\) The elements represent organs, and TCM holds that good health depends on a dynamic relationship between them.\(^3\) Thus, a combination of these three theories creates the foundation for a majority of TCM treatments.

**TAICHI AND QIGONG**

Though tai chi and qigong have been around for over 5000 years, tai chi was first introduced to America in the 1950’s, when a Chinese modern dancer taught the practice to a group of students and was featured in a Popular Mechanics article.\(^6\) Since then, it has become much more common, as approximately 3.45 million people in the U.S. currently practice tai chi.\(^9\) Additionally, tai chi, qigong, and yoga have been used in combination, and this complementary health approach became very popular among adults in the U.S. in 2012.\(^10\)

Tai chi and qigong are a series of similar practices based on TCM principles that aim to improve the center of the body, mind, and breath.\(^7\) Qigong focuses on posture, fluid movements, breath control, and meditation to enhance energy in a deeply focused, relaxed state.\(^7\) Similarly, tai chi is a form of meditative movement used to enhance physiological and psychological function.\(^7\) However, tai chi is more active than qigong and typically includes a series of highly choreographed, lengthy, and complex exercises.\(^7\)

According to various research reports and clinical trials, tai chi and qigong can have numerous health benefits, especially for the elderly.\(^6\) A comprehensive review of the health benefits of the two practices found strong evidence that they both have positive effects on bone health, cardiopulmonary fitness, quality of life, self-efficacy, and fall prevention.\(^7\) A review of clinical trials found that they may improve physical ability and reduce blood pressure, fall risk, depression, and anxiety.\(^11\) Additionally, a 2016 review found that tai chi has the potential to temporarily relieve the chronic pain caused by osteoarthritis, low back pain, and osteoporosis.\(^12\) Tai chi and qigong are therefore quintessential forms of TCM that should continue to be embraced and clinically evaluated as beneficial forms of complementary or alternative medical treatment due to their low-risk potential for health benefits.

**Author contact:** Helen Mizrach is a sophomore at Tufts University. Address correspondence to Helen.Mizrach@tufts.edu
ACUPUNCTURE

Western civilizations have embraced acupuncture as a widely practiced form of TCM. The origin of acupuncture in Chinese history is often debated, though it seems to have originated around the 1st century BCE, when it was discussed as a signature form of TCM in an East Asian canonical text. Acupuncture is embedded in the philosophical framework of TCM, since it is believed to shift a person's unique internal climate. This is done by inserting fine needles into precise points on the body in order to correct imbalances of yin and yang. The needles are intended to reorganize or recalibrate an individual's internal weather patterns. There are at least 2000 acupuncture points in the human body, each of which has a specific therapeutic treatment.

Although acupuncture has been available throughout the United States since the 19th century, its popularity increased dramatically in the 1970's. Today, there are over 18,000 licensed acupuncturists in the United States. Western medical acupuncture has adapted the traditional form of acupuncture by incorporating current anatomical knowledge and evidence-based medicine into the practice. In the west, most acupuncturists disregard yin yang and qi and, instead, view acupuncture as a sort of conventional medicine. It is most often used to treat musculoskeletal pain but also has benefits in treating nausea, cancer pain, and other chronic pains by stimulating the nervous system.

Despite acupuncture's popularity among Americans, there is some controversy regarding its effectiveness. There is no universally accepted biological mechanism behind acupuncture treatment for pain relief, which leaves many patients and clinicians skeptical of its supposed benefits. A 2012 meta-analysis of 29 randomized control trials, including nearly 18,000 patients, examined the effect of acupuncture on chronic back, neck, and shoulder pain, osteoarthritis, and chronic headaches. Researchers found that acupuncture reduced subjects' pain more than treatments without acupuncture or those involving a placebo acupuncture treatment. However, the difference in the effect of the acupuncture treatment and the placebo treatment were modest, which suggests that multiple factors may contribute to perceived therapeutic effects of acupuncture. While it is uncertain whether or not western medical acupuncture is simply a glorified placebo, this method continues to be widely practiced in the United States.

CUPPING

At the 2016 Summer Olympics, the large, circular bruises on Michael Phelps' back were also sported by many other athletes. These bruises were a result of the TCM treatment of cupping, which exists in many forms. Cupping therapy dates back to 1550 BCE when it was mentioned in the Egyptian Ebers Papyrus. It was later introduced to the Greeks, Europeans, and Americans and was widely used by physicians into the late 1800s. However, cupping did not become popular in the United States until the early 2000s, when Gwenyth Paltrow attended a 2004 New York film premiere with cupping marks on her back. Since then, cupping marks have been seen more often in the media, on celebrities such as Jennifer Aniston and, of course, Michael Phelps. Cupping marks have essentially become a widespread trend in American popular culture.

The two most common forms of cupping are dry cupping and wet cupping. Dry cupping traditionally involves using fire to heat multiple glass cups that are lined with alcohol and placed firmly against the skin just before the flame is extinguished. This creates a vacuum effect that draws the skin up and into the cup. The cups are left in place for 5-20 minutes and leave a circular bruise on the skin upon removal. This sort of dry cupping is mainly used on areas of the body that are saturated with muscle, such as the back, chest, abdomen, and buttocks. It is known to increase circulation in the treated area, which then allows toxins to rise to the body's surface. Additionally, dry cupping is thought to activate the immune system in order to increase lymph flow, and it may also be used on acupuncture points to elicit endorphins, serotonin, or cortisol to enhance pain relief. The main reason dry cupping has been so common among athletes in the U.S. is because of the notion that it improves athletic performance.

Wet cupping is rather similar to dry cupping. In addition to placing the heated cups on the body, wet cupping also involves further scarring of the skin to the point of bleeding through the use of a needle. This is believed to decrease
oxidative stress, drain excess fluids, increase blood flow to skin and muscles, and stimulate both the peripheral nervous system and the immune system. All of these potential benefits serve as a rationale for athletes’ use of cupping as a treatment, even despite its temporary negative effects on appearance.

How effective is this trendy treatment for pain, though? There have been many systematic reviews and meta-analyses of cupping therapy, yet most articles call for increased research that includes large-scale unbiased studies before stronger claims can be made about cupping’s efficacy. In 2015, a journal article found that dry cupping appeared effective in treating various musculoskeletal pain conditions, and called for further long-term studies on the effects of repeated interventions at different time intervals. A 2015 overview of clinical evidence for cupping therapy found that it may be beneficial for pain related conditions, acne, and facial paralysis, but researchers similarly called for further investigation. Furthermore, a 2016 study of wet cupping found that many of the associated adverse effects could be avoided if practitioners received standardized training and strictly adhered to safety guidelines. Thus, the studies that promote the benefits of cupping recognize its limitations and encourage additional findings to support the efficacy of this brand of TCM.

CONCLUSION

Tai chi, qigong, acupuncture, and cupping are all popular forms of alternative and complementary medical treatments in the United States that originated from philosophies central to Traditional Chinese medicine. In numerous clinical trials, tai chi and qigong have been shown to improve bone health, physical function, and mental health, as well as temporarily relieve chronic pain. Thousands of licensed therapists throughout the United States perform acupuncture in order to treat musculoskeletal pain, headaches, cancer pain, and nausea. Finally, cupping has become a very popular trend in alternative medicine, providing pain relief and improving athletic performance. Due to the official relationship that the World Federation of Chinese Medicine Societies established in 2015 with the World Health Organization, TCM is soon likely to play a greater role in overseas healthcare. With new advances and a growing body of clinically proven benefits, TCM is thus bound to thrive in the U.S. as an alternative form of medical treatment.

References for this article can be found at TuftScope.squarespace.com

NEWS BRIEF

Onions May Inhibit Tumor Growth
Rachel Burd

Scientists from Kumamoto University in Japan have been researching the effects of onionin A (ONA), a natural compound isolated from onions, on a preclinical model of epithelial ovarian cancer (EOC) as well as other preclinical models. EOC is the most common type of ovarian cancer, and it has an 80% relapse rate. Therefore, it is necessary to develop a more effective treatment for EOC. Fortunately, the group at Kumamoto University has recently discovered that ONA possesses some anti-ovarian cancer properties.

In vitro experiments have shown that the growth of EOCs is inhibited by the presence of ONA. It is thought that ONA impacts a transcription factor called STAT3, which is known for its involvement in the proliferation of cancer cells. Moreover, the group’s preclinical sarcoma (cancer of non-epithelial tissue) model showed that ONA inhibits the tumor-promoting functions of myeloid derived suppressor cells (MDSC). ONA initiates an immune response against cancer by destroying the immunosuppressive functions of MDSCs.

The researchers’ ovarian cancer murine model showed a correlation between orally administered ONA and inhibited ovarian cancer tumor development, as well as increased longevity when studying this phenomenon in mice. This was attributed to ONA’s suppression of M2 polarized macrophages, which are cells associated with tissue repair that can promote tumor growth. Additionally, ONA was found to generally increase the efficacy of anti-cancer drugs with virtually no cytoxic impact on healthy cells, and no side effects in animals have been detected.

The hope is that this research can result in the production and administration of an oral ONA supplement. This breakthrough in oncological research may therefore be capable of greatly improving the life span, quality of life, and overall prognosis for EOC patients.