

## Review

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# Cupping Therapy: An Alternative Method of Treating Pain

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## ABSTRACT

Cupping therapy is a form of Chinese medicine that is believed to act by correcting imbalances in the internal biofield. Cupping involves applying a heated or suction type cup to generate a partial vacuum that mobilizes the blood flow and promotes effective healing. Cupping therapy has gained popularity and acceptance as a method of treating pain as well as sports injuries and other medical conditions. This review outlines various tools and techniques of cupping therapy for the purpose of gaining greater understanding of this method of treatment.

**KEY WORDS:** Cupping therapy; Empty cupping; Moving cupping; Sports injury; Musculoskeletal condition; Adverse event.

## INTRODUCTION

Since ancient times, complementary and alternative medicine (CAM) have played an important role in human health and welfare. Cupping therapy gets its name from the cups that are used to deliver the treatment. Cupping therapy mostly associated with Chinese medicine, is practiced world-wide and among different cultures to manage pain and other health problems.<sup>1</sup> Pain can be steady and constant with the patient feeling discomfort, distress and often agony if the severity is high.<sup>2</sup> Pain that can't be managed by traditional medical care, is the most common reason for seeking therapeutic alternatives to conventional medicine and the more severe the pain, the more frequent is the use of such therapies.<sup>1</sup> According to Journal of Traditional Chinese Medical Sciences, "nearly 80% of all visits to general practice involve at least one complaint directly related to pain, and 75% of Americans have experienced chronic or recurrent pain, costing \$200 billion annually".<sup>3</sup> There are different descriptions of pain which can help relate as to what might be causing the pain. Pain can be classified physiologically as skeletal, neuropathic, or inflammatory; or be classified by type of tissue involved, such as skin, muscle, viscera, joint and bone; or related to disease/condition, such as cancer, fibromyalgia; or may reflect psychologic states, age, gender, and culture.<sup>3</sup> According to the latest International Classification of Disease, pain is classified as either acute or chronic.<sup>3</sup> In discussion with the patient, it is important to understand that pain is a very individual experience and perceptions of pain intensity can vary from individual to individual.<sup>2</sup>

Cupping is a technique that involves a plastic, glass, rubber, or bamboo cup. The cup is then used to create a vacuum on the skin over the target area.<sup>4,5</sup> There are many types of cupping therapy, but eight types of cupping are used in clinical practice: empty cupping, moving cupping, retained cupping, needle cupping, moxa cupping, wet cupping, herbal cupping and water cupping.<sup>6</sup> Cupping is generally safe when applied by trained professionals on people who are otherwise healthy. Cupping may result in bruising, burns, and/or skin infection. Cupping therapy adverse events can be divided into two adverse events: local and systemic.<sup>7</sup> The local adverse events were scar formation, burn, skin infection, panniculitis, and abscess formation. Systemic adverse events include: anemia, dizziness, vasovagal attack insomnia, headaches, and nausea.<sup>6,7</sup> Cupping therapy can last anywhere from 15 minutes to one hour. In this review, we will discuss the difference between two of the most common types of cupping, the dif-

ference in the equipment used for cupping, and the benefits of cupping. Keep in mind that cupping is often used as a symptomatic treatment for a wide range of conditions in clinical practice; however, its clinical effectiveness remains uncertain, and many clinicians are skeptical about its value.

## HISTORY

In ancient times, tribal medicine practitioners utilized bamboo, bones, large nut shells, animal horns, seashells and gourds as suction devices to purge bites, infections and skin lesions from the body.<sup>4</sup> Ancient healers even used this method on the body to draw out evil spirits. Depending on the type of equipment used to perform cupping, the vacuum is created by using heat or a mechanical pump. Cupping was thought to treat various medical conditions including its use to diminish headache, restore appetite and improve digestion, remove the tendency to faint, to draw 'matter' to the surface, increase secretions, promote menstrual flow, hasten the crisis of disease, remove too great a disposition to sleep and, if applied behind the ears, to produce a natural and refreshing repose.<sup>5</sup> Cupping therapy has been used for over 2,000 years, by individuals without any medical background. There is reason to believe the practice dates from as early as 3000 BC.<sup>9</sup> The Ebers Papyrus, written c. 1550 BC and one of the oldest medical textbooks in the Western world which describes the Egyptians' use of cupping, while mentioning similar practices employed by Saharan peoples.<sup>9</sup> In ancient Greece, Hippocrates (c. 400 BC) used cupping for internal disease and structural problems.<sup>9</sup> The method was highly recommended by Egyptians and Arabs, and hence well-practiced by Muslim scientist who elaborated and developed the method further.<sup>9</sup> Consecutively, this method in its multiple forms spread into medicine throughout Asian and European civilizations. In China, the earliest use of cupping that is recorded is from the famous Taoist alchemist and herbalist, Ge Hong (281-341 A.D.).<sup>9</sup> Cupping was also mentioned in Maimonides' book on health and was used within the Eastern European Jewish community.<sup>9</sup>

## DISCUSSION

Is cupping therapy a passing sports fad? We've all seen various Olympic athletes with distinct "circles" on their body as a result of cupping therapy. To better understand the uses of cupping therapy and its benefits, we must explore how it works and the various methods of application.

Cupping therapy has been defined by the World Health Organization (WHO) as a therapeutic method using suction created by a vacuum.<sup>8</sup> Cupping therapy has been shown to increase blood flow to the desired area, by causing rupture of capillaries on the skin surface.<sup>8,10</sup> This is thought to increase blood flow to injured area and help in the healing process by bringing oxygenated blood and nutrients to the damaged tissue.<sup>6-8</sup> Additional benefits from cupping therapy is pain relief from musculoskeletal conditions such as low back, neck and shoulder pain, pain from herpes zoster, hypertension, fibromyalgia, facial paralysis,

cervical spondylosis and stroke rehabilitation.<sup>6-8</sup> Chi et al<sup>8</sup> reviewed the effectiveness of cupping therapy on neck and shoulder pain. Their study utilized acupuncture points in cup placement and examined skin surface temperature differences using an infrared camera before, during and after cupping treatment. Their conclusions found that cupping provided an analgesic effect with little negative side effects and the treatment was easy to learn, easy to administer and patient outcomes were positive for pain relief.

## Various Types and Methods of Application

Dry cupping is a method by which suction is created on specific points on the patient's body. Suction could be created by using heat to warm the cups so that the cooling air inside the cup creates a vacuum that tugs the skin upwards.<sup>8,10</sup> Some methods are now using a combination of air pumps to remove the air out of the cup. In today's times, glass cups are used so that the therapist can monitor the condition of the skin.<sup>8,10</sup> An alternative method of cupping used is medical grade silicone cups because of their pliability. This therapy can cause redness at the treatment area in addition to some amounts of swelling when the vacuum draws blood and fluids under the treatment space.<sup>10</sup> In some cases dry cupping can cause bruising of the skin.<sup>9</sup> At times, blisters might form and the healer will mistakenly tell you that this is an indication that the treatment has been effective in targeting the ailing section of the body.<sup>10</sup> Dry cupping involves cups of various shapes including balls or bells, and may range in size from 1 to 3 inches across the opening.<sup>9</sup> Various ingenious modifications of the plain glass cup were produced in the early 19<sup>th</sup> century.<sup>9</sup> These include Fire Cupping, Acu-Point (Vacuum Cupping), Acucups (Massage Cupping), Myofascial Cupping, and Magnetic Cupping.<sup>5</sup> It is important to understand that this therapy should not cause any pain, burns or blisters.<sup>8</sup> Patients at most, might experience a "pinching sensation followed by a relaxed feeling".<sup>9,10</sup> Dry cupping can be combined with other forms of treatment such as massage therapy, gliding cupping, water cupping, magnetic cupping and many more.<sup>10</sup>

Fire cupping involves soaking a cotton ball or cloth swab in flammable liquid, oil or alcohol. The cotton ball or swab is clamped by a pair of forceps and lit *via* match or lighter, and, in one motion, placed into the cup and quickly removed, while the cup is placed on the skin.<sup>8</sup> Fire heats the inside of the cup and a small amount of suction is created by the air cooling down again and contracting. Massage oil may be applied to create a better seal as well as allow the cups to glide over muscle groups in an act called "moving cupping".<sup>8</sup> A problem involving fire cupping is there are documented cases of burns, ruptured capillaries just under the treatment area resulting in "dark circles".<sup>8</sup> Fire cupping's most potent impact by far is its tried-and-true ability to optimize circulation. Increased blood flow to all areas of your body provides a number of important health improvements, such as: open the chest and lungs, alleviate menstrual cramps, diminish digestive problems, clear up coughs, wheezing and other respiratory problems, halt migraines, and

manage acute and chronic pain.<sup>11</sup> So while fire cupping is a great one-time treatment for many common conditions it's also said to assist in maintaining your overall health. It is speculated that along with proper nutrition and exercise, cupping offers a relaxing means of keeping yourself healthy, and can be performed on a monthly basis, or as a complement to other detoxification programs.<sup>11</sup>

Myofascial cupping is directed at the muscular and skeletal system of the body.<sup>12</sup> This form of therapy uses mechanical suction equipment to create the required vacuum. A cup or a cylinder is attached to a hand operated suction pump and this cup is applied on the skin and utilizes the same technique used in vacuum therapy.<sup>12</sup> The therapist may first massage the patient's body to locate the areas that need treatment and apply herbal oils or cream on the skin before attaching the cup. Depending on the area to be treated, cup size is selected according to the area to be treated and most treatments include two or more cups applied at the same time.<sup>12</sup> For example, a upper back or low back area may have four large cups applied, while a shoulder or thigh may have two to four smaller sized cups.<sup>12</sup> Typically, there is minimal bruising that dissipates in a few days' time. The patient should not experience any pain. Myofascial cupping increases circulation which attracts blood to the affected area that brings the essential nutrients to assist in healing.<sup>12</sup> If there is any blockage and accumulation of fluids, it is released. This form of therapy works very effectively in case of patients that cannot undergo acupuncture treatment and can also be used to perform massage therapy.<sup>12</sup> Myofascial cupping is used to relieve any injuries received when playing sports. Patients with musculoskeletal related conditions will find that this therapy is very effective, especially back and neck pain, sprained muscles, strained tissues and other such problems can be alleviated with the use of myofascial cupping.<sup>12</sup>

Vacuum cupping therapy also known as "air cupping" eliminates the use of fire and heat completely. In this form of healing, a pump is attached to the top of the cup and vacuum is created by pumping the air out of the cup.<sup>12</sup> The therapist cleans and sterilizes the targeted area on the patient's body and applies herbal oils or skin cream for lubrication. Next the equipment is prepared by washing it with warm water and dish soap. The appropriate sized cups are then placed on the patient's body and suction is caused by pumping the air out.<sup>12</sup> The mechanism uses a connector which links the cup to the pump that sucks the air out creating a vacuum. Once the vacuum is created, the valve on the top of the cup is closed and the connector and pump are removed.<sup>12</sup> Another advantage to this type of cup is that it contains a therapy stick that has a small ball on the end of it. This ball has a diameter of approximately a few millimeters. This purpose of this therapy stick is to provide access to use in acupoint therapy.<sup>13</sup> Acu-point therapy is an extension of "akupunkt" massage which was created by Willy Penzel<sup>13</sup> and is a part of his modern technology. Acu-point therapy allows for the stimulation of a variety of acupuncture points not with needles but by way of a therapy stick.<sup>13</sup> The main goal of acu-point therapy is

to bring the two nervous systems, the parasympathetic and the sympathetic to a point where they can be in balance as well as perfect harmony with one another.<sup>14</sup> It works by way of vasodilation which then causes the stimulation.<sup>14</sup> This is a very common and popular type of cupping because there is no flame needed to create the vacuum and the administrator has complete control over the amount of suction.

Massage cupping employs suction to tug the skin and tissue upward in the vacuumed cup, which is similar to massage techniques such as kneading and effleurage in typical massage treatment, but instead use exerting downward compression on the muscles.<sup>15</sup> According to Stavrou et al<sup>16</sup> "the suction of the cups rapidly facilitates rigid soft tissue release by stretching it up from underlying structures, thus loosening areas of adhesion or restriction, activating muscle spindle reflexes that relax contractile tissue and retraining the myofascial structures". Locating the points and sections of the body that need to be treated is essential to the cupping application.<sup>8-10</sup> A light oil is applied on the area where suction is to be created. Depending on the location of the treatment area, the therapist uses (medical grade) silicone cups that are available in different sizes.<sup>15</sup> Silicone cups are pliable so they are easy to move over the body and their transparency allows the therapist to monitor the condition of the skin. Skin color is a good indicator of the effectiveness of the treatment so the therapist can make adjustments accordingly. If the skin is white or a light pink in color, this indicates that only slight suction is needed. Vibration, shaking and friction may be used to affect the treatment area. If the therapist notices that the skin is a darker shade of color following treatment, this may indicate the presence of inflammation and congestion in the area. Thus, three techniques are used to drain the excessive fluids such as pumping, rolling, rotation and parking.<sup>15</sup> The therapist then creates suction in the cup. The therapist allows the cup to stay in the place for a few minutes so that the muscles are stretched and relaxed. The cup is gently moved over the skin in smooth massaging motions so that the vacuum raises the skin and tissues. On certain sections where there is excessive stagnation or inflammation, the cups could drag a little or resist movement assisting the therapist identify the areas that need special care.<sup>15</sup> This type of therapy was thought to cure a wide range of ailments such as fibromyalgia, hypertension, muscle pain and herpes zoster.<sup>8</sup> There is some documentation that acne, cervical spondylosis were treated using cupping therapy.<sup>6,8</sup> Massage cupping can be used to treat ailments like stiff muscles, stress, migraines, fatigue and exhaustion, back and neck pain. It can also be used in rheumatism, weight loss and cellulite reduction treatments.<sup>15</sup> When the therapist exerts suction on the different points on the body by way of massage suction, certain changes are brought about up to four inches inside the body.<sup>15</sup> Some of the therapeutic effects of massage cupping include increased blood flow to the treated area, increase oxygen and nutrients to the cellular tissue, relaxing of tight muscle, and breaking up of adhesions and knots in the muscles.<sup>15</sup> There are also claims that the peripheral nervous system in the treatment area benefits from this form of treatment.<sup>15</sup> In contemporary times, massage cupping is

seen as an effective, non-invasive, inexpensive, and safe form of treatment that can be used by itself or in combination with other forms of therapeutic approaches.<sup>15</sup> Because of its versatility, it is being used in physical therapy, chiropractic settings, and in spa treatments. The massage cupping has been found to be safe to use and can be performed on patients of all ages including kids, adults and elderly people.<sup>15</sup> It is also found to be a highly effective form of therapy because it allows the therapist to heal the deeper tissues in the body without causing any discomfort to the patient.<sup>15</sup>

Magnets when combined with the healing effects of cupping therapy have shown to be beneficial for patients' outcomes.<sup>12</sup> The magnets are known to have positive effects on the body since they can induce the movement of electric currents through the body.<sup>12</sup> These currents aid in the blood circulation in the body and since blood carries oxygen-rich nutrients to different parts of the body, magnets can assist in the healing of many ailments. The therapist begins by applying soothing oils or creams on the patient's skin. The mechanism used for magnetic cupping is similar to massage cupping and mechanical pumps in the sense they are used to create suction. Except in this case, a small cylindrical magnet is fitted to the bottom of the cup.<sup>12</sup> When a vacuum is created inside the inverted cup, the skin rises and comes in contact with the magnet. Since the magnet is set to target specific points on the patient's body, it is also a form of acupressure, and provides the benefits of both cupping therapy and acupressure.<sup>12</sup> As per the needs of the patient, the therapist might place more than one or two cups on the skin simultaneously. Treatments vary from 15-20 minutes, and upon completion, there may be some residual redness and circles on the skin from the cups, but these marks typically disappear over time.<sup>12</sup>

Early practitioners favored wet cupping to treat ailments with Europeans using this method the most.<sup>6-8</sup> However, there are other parts of the world that may practice this cupping technique. Wet cupping is a form of blood-letting.<sup>6,17</sup> Traditionally this was achieved by burning incense or a swab on the inside top of the cup to heat the air inside for about two seconds.<sup>17</sup> This increased the inside temperature of the cup, with the cup placed on the skin with one edge raised about one and a half inches.<sup>5</sup> This created a vacuum which would suck the glass from the operator's fingers. The skin would rise slowly into the glass.<sup>5</sup> The cup would be kept in place for one minute, then removed and its lancets (usually a scalpel) lightly penetrated through the skin. The glass was then immediately reapplied so the vacuum would cause blood to flow into the heated cup.<sup>5</sup> Today this treatment involves lacerating the skin and placing a glass cup against the skin and then creating a partial vacuum in the cup in order to suck blood into the vacuumed cup.<sup>17</sup> In ancient years, wet cupping was thought to expel heat, treat high fever, loss of consciousness, convulsion, pain, local areas of inflammation, and to remove "stagnant blood."<sup>5,17</sup> Today wet cupping is used for the purpose of low back pain, muscle pain, joint pain, fatigue, and headaches.<sup>17</sup> This type of cupping is also used to expel unnamed toxins, increase blood flow, or activate the immune system.<sup>17</sup> In

this procedure up to 20 ounces of blood can be withdrawn at a time from a local site, using 5 cups and obtaining 4 ounces per cup. Wet cupping is a complex procedure requiring extreme care to provide a sterile environment because of the lancing of the skin to produce blood flow into the vacuum.<sup>5</sup> In addition, the therapist administering the treatment needs to guard against exposure to blood-borne pathogens. Wet cupping is generally performed only by a few experienced practitioners.<sup>5</sup>

## CONCLUSION

Cupping therapy has its benefits in the treatment of various medical conditions. With the many forms of cupping therapy the clinician should review the literature and make their selection of cupping method based on treatment studies. Although, discussed as a traditional form of Chinese medicine, it has gained wider acceptance, especially in the treatment of sports injuries. Cupping therapy in its various forms will continue to be used due not just to its popularity, but because it is beneficial to treating patients pain and other medical conditions.

## AUTHORS CONTRIBUTIONS

All authors have contributed to the data collection and writing of this manuscript.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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