**Massage and spine correction therapy**

**Brief introduction to the historical development and therapeutic effects of cupping therapy in traditional Chinese medicine**

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**Highlights**

This article gives an overview of the historical development, therapeutic effects and mechanism of cupping therapy practice and introduces a new and updated classification of cupping therapy.

**Editor’s Summary**

The earliest record of cupping in ancient times appeared in the Fifty-two Bingfang (B.C. 202~220, Han Dynasty) that demonstrated a detailed record of the use of “corn cupping” (horn-shaped) for treating diseases.
Abstract

Cupping therapy (CT) is an ancient traditional and complementary medicine practice. Recently, there has been a growing evidence of its potential benefits in the treatment of various diseases. The CT has been constantly developing with the emergence of various modern and improved cupping devices. It is now evident that cupping could adjust the Qi, blood, Yin and Yang, dredge the meridian, as well as relieve the effect of illness, achieve fitness and relative equilibrium of Yin-Yang. It exerts its effects through the negative pressure suction via the mechanical and thermal stimulations, and the negative pressure effects induced by cupping. This article gives an overview of CT practice, its historical development, as well as its therapeutic effects and mechanism. Furthermore, a new and updated classification of CT was briefly introduced.

Keywords: Cupping therapy, Therapeutic mechanisms, Historical development, TCM

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Abbreviations:
CT, Cupping therapy; TCM, Traditional Chinese medicine.

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Introduction

Cupping therapy (CT) is a popular traditional healing therapy especially in Asia, the Middle East, and Central Europe. It was an early technique used in traditional medical systems such as traditional Chinese medicine (TCM) [1-4]. Till now, CT was widely used in clinical treatment. Several previous studies that reported on CT mostly focused on pain conditions, stroke rehabilitation, hypertension, and herpes zoster [5-8]. This article gives an overview of CT practice, its historical development, and the mechanism of its therapeutic effects. Furthermore, a novel and updated classification of CT was briefly introduced.

Brief history

CT is an ancient healing technique [1-3]. Cupping is performed by applying cups to selected skin points and creating a subatmospheric pressure, either by heat or by suction. The earliest record of cupping in ancient times appeared in the Fifty-two Bingfang (B.C. 202-220, Han Dynasty) that demonstrated a detailed record of the use of "corn cupping" (horn-shaped) for treating diseases. The Taiwan Medical Department established by the Tang Dynasty listed the corner law as a specialist, and established a three-year school system, indicating that the angle method was completely standardized (from theory to clinical). The corner method has recorded of water angles and mercury angles in the Song Dynasty, for example, Taiping Shenghui Fang (A.D. 992, Song Dynasty) recorded by Wang Huaiyi, the “Certificate of Herbs” written by Tang Shenwei, all of these have recorded that the water angle was used to treat sputum. There was a record of the use of the fire tube treatment for a long time. The "Surgical Authentic" and "Ji Xian Fang" written by Chen Shigong, a doctor of the Ming Dynasty, have greatly enriched and developed the treatment and theory of CT. All these developments laid the foundation for the diagnosis of diseases with CT.

According to the type of material and the functional characteristics, the traditional cupping could be divided into angle cups, bamboo cups, ceramic cups, glass cups, etc. Based on the CT effects, it is divided into water (wet) cupping, dry cupping, clay cupping, medicine pots, moxibustion cupping, and so on. With the development of modern medical therapies and techniques, a variety of innovative cups with novel materials and functions, such as soft and hard rubber cups, metal cups, vacuum cups, nano-silicone cups, smart cups, etc. have been developed [1-3]. The innovative expansion of the traditional CT is promoted by transforming a negative pressure of an environmental factor so as to achieve an overall advantage of all environmental factors, including force, heat, electromagnetic, light, chemical and biological factors, etc. that subsequently enhance the effect of CT far beyond the traditional cups [9-14]. As it is constantly being recreated and improved CT possess more and more functions of sputum, attachment, application and rubbing, which greatly improves the application range and clinical efficacy of CT. During the Qing Dynasty, the "Ministry of Medicine" recorded that the cupping method was used for the treatment of common cold, headache, and abdominal pain. And CP treatment of jaundice, wind pain, and blood stasis were recorded. Different tank methods, such as selection of cans, cuppings, and bottle suction, have been proposed for different disease. From the records of the past literature, it is evident that the CT is widely used in clinical practice.

The continuous development in the CT has led to its spread to other countries and regions. CT is widely used for the treatment of diseases in countries all over the world such as France, Greece, Italy, Japan, North Korea, Southeast Asia, Central Asia, India, Arabia, America (Indian), Egypt and other countries [9, 15-18]. Today, various modern and improved cupping devices have been developed, including magnetic cups, hot pots, acupuncture, electric cups, and infrared radiation cups. Among them, the invented cups are regarded as a combination of traditional cups and general cupping methods, and have presented a great improvement and innovation in the cupping body and its usage methods as compared to the traditional single cup [19].

CT effects and mechanisms

Under the guidance of the Chinese medicine theories, especially the meridian theory, CT could adjust the Qi, blood, Yin and Yang, dredge the meridians, and achieve the effect of illness, fitness and relative equilibrium of Yin-Yang, which exerts effects via negative pressure suction, ironing the skin, pulling and squeezing the shallow muscles, stimulating the meridians, and propagating sensation along the channel [20-34]. Thereby, CT could adjust skin blood flow, make changes in biomechanical properties of the skin, increase the immediate pressure pain thresholds in some areas, adjust serum substance, and quickly reduce the inflammation [19, 24, 27, 29, 35-41, 42]. All these effects may be essentially induced by the mechanical stimulation, thermal stimulations, and the negative pressure effects obtained from the cupping.

Mechanical stimulation

CT causes a negative pressure in the tank through the exhaust, while the edge of the cup is tightly attached to the surface of the skin, pulling the nerves, muscles, blood vessels and subcutaneous glands that causes a series of neuroendocrine reactions, regulate vasodilation and contraction functions, as well as vascular permeability to improve the local blood circulation [12, 26, 30, 38, 43, 44].

Thermal stimulations

The warming stimulations and the effects induced by the cupping treatment in the local cupping regions not only increase the blood vessel expansion, but also enhance the permeability of the blood vessel wall and the phagocytic ability of the cells [21, 26, 45].

Changes in the vascular tone and mucosal permeability...
at the cupping regions could also accelerate the lymphatic circulation, enhance phagocytosis, and undoubtedly form a good environment for the anti-biological causes. In addition, the chronic stimulation of hemolysis produced by the cupping treatment has a health function of improving human immunity, disease resistance, reducing sub-health and treating various chronic diseases for the human body [12].

Negative pressure effects
First, the negative pressure produced by the cupping treatment causes local rapid congestion, small capillaries congestion and even rupture, destruction of red blood cells and hemolysis [12, 18, 26-29, 46-51]. During the cupping treatment, the release of hemoglobin from the red blood cells heralds a benign stimulus that originate from the CT to the body, which subsequently regulate the functioning of tissues and organs through the nervous system stimulated by cupping, promote phagocytosis (via the white blood cells), improve the sensitivity and tolerance of the skin to external changes, thereby enhancing the immune system of the body and ultimately treating the disease.

Second, the strong suction force of negative pressure produced by CT makes the pores of sweat open completely. The function of the sweat glands and the sebaceous glands are strengthened by the negative pressure stimulation, and the aging cells originating from the surface of the skin fall off, so that there is an accelerated discharge of the toxins and wastes present in the body. The negative pressure exerted is less than the intradermal pressure so as to promote the transdermal action of the drug [19].

Moreover, the mechanical and warm stimulations induced by CT expand the capillaries, stimulate the temperature receptors on the skin, regulate the body's heat production and heat dissipation via the hypothalamic body temperature regulation center, and restore the body temperature to normal [52, 53].

Clinical application of CT
Assist the diagnosis
The location, severity and nature of the disease could be judged and diagnosed by observing the cupping spot, cupping sha, cupping bubble, etc. that appears after cupping. During the Ming Dynasty, Chen Shigong analyzed the pus and the blood extracted from the hemorrhoids in the cups to determine the pathological condition of the sore and prognosis of ulcers. Usually, the deeper lesion areas in the cup spot and cup sha are the sites where the pathogenic factors exists.

For example, when cupping with a walking way on the back, the dark spot of the cup and the area of the sha appear in some regions, that is, the corresponding organs have pathological changes.

After CT, the cupping spots or sha turn from deep to shallow, showing the pathological cause of evil removal and recovery of vital and positive qi. When the canal is shallow at the beginning of the cupping treatment, it indicates that the vital energy and the blood of the patient is weak. If the cup bubbles are prone to generate, it indicates the patient is weaker and possess less blood and positive Qi.

Curing disease
The development of cupping technique and its use, as well as the in-depth study of its mechanism of action indicates that cupping has a good therapeutic effect on many diseases, and its effect is superior to other traditional Chinese and Western medicine [2, 9, 10, 17, 18, 20, 22, 26, 28, 37, 42, 50, 53-65]. Cupping has been widely used in the treatment of the following diseases: pertussis, exogenous cough, asthma [58, 66, 67], cold, pneumothorax [68], stroke sequelae, snoring, hypertension [55, 69, 70], rheumatoid arthritis [49, 50], diarrhea, hemorrhoids [64], acute appendicitis, abdominal pain [2, 11, 23, 24, 27, 29, 33, 35, 36, 38-40, 45, 48, 50, 52, 56, 58, 60, 62, 69-105], sporotrichosis, vitiligo, facial macula, neurodermatitis, urticaria [45], scab, psoriasis [41, 106], chronic sinus, hemifacial spasm, herpes zoster [5, 10, 58, 107], dysmenorrhea [83], urinary calculi, vocal nodules, lower limb erysipelas, pediatric hyperactivity, cognitive decline in the elderly, multiple dreams, low back pain [23, 27, 29, 33, 35, 40, 58, 69-73, 75-77, 80, 82, 85, 87, 88, 90, 92, 101, 104], lumbar disc herniation [10, 48], tibia external epicondylitis, cervical spondylosis [10, 34, 105, 108], gastrointestinal reactions after chemotherapy [64, 84], etc.

In addition, it was obvious that CT has obvious advantages. The injection of traditional drugs after cupping on human bodies is a treatment via CT in combination with medication, so that the pores of the skin are opened, the magnetic field effect is beneficial to the transdermal absorption of the drug, meaning that more drug reach the affected part of the body. CT generally does not cause any serious pain to the patient, and the transdermal administration after cupping does not cause any side effects on the liver and kidney as compared to that caused by the oral or intravenous or intramuscular injection. On the contrary, with acupoint injection using a small amount of drug can help achieve a better therapeutic effect.

Cup point selection principles
The most commonly used principle in the cupping treatment is that the pain indicates the cupping points, namely “cupping where disease is”, and some research showed that it has a good effect on various pain syndromes [45, 80, 82, 83, 87, 99-101, 103, 105]. According to the meridian differentiation (for some exogenous and chronic disease syndrome), electing pain points and cupping on back cup can help achieve better therapeutic effects [69]. For chronic diseases, first go to the back of the bladder line, and then leave the cupping at the back Shu, Mu, Original, Joint points, etc. to increase its stimulation in the human body.

Conclusion
In general, cupping shows a good therapeutic effect against many diseases. Although, cupping is contraindicated directly on veins, arteries, nerves, skin inflammation, any skin lesion, body orifices, eyes, lymph nodes, or varicose veins. Cupping is also contraindicated on open wounds, bone fractures, and sites involving deep vein thrombosis. Nonetheless, CT is widely used for the treatment of modern diseases. Currently a novel application for CT has been discovered through which CT can be used as a new form of physical technology for transdermal administration of TCM, so as to exert a significant effect on enhancing the penetration, and possess a high value for the clinical application of TCM [19]. Thus, it may provide novel clues and references for the modern application of CT.

Reference


