

# Clinical application and research progress of cupping therapy

## 拔罐疗法的临床应用与研究进展

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### Abstract

**Objective:** This article collected, organized, and summarized the medical literatures of cupping therapy from three major Chinese databases including China National Knowledge Infrastructure (CNKI), Chongqing VIP (VIP), and WanFang, with cupping, moving cupping, flash cupping, pricking cupping, or medicinal cupping as the retrieve title or key words, and the retrieve range was from 1953 to July 15, 2015. This article was to give an overall review of cupping therapy from the clinical application and mechanism research based on its application form, indications, and mechanism research progress. The results showed that there are various types of cupping methods; its indications cover multiple subjects such as internal medicine, external medicine, gynecology and pediatrics; and its major action mechanisms include negative pressure suction, increasing pain threshold, promoting dermal blood flow and improving body immunity.

**Keywords:** Cupping Therapy; Moving Cupping Therapy; Quick Cupping therapy; Blood-letting Puncturing and Cupping; Medicinal Cupping Therapy; Review

**【摘要】**收集、整理并总结了在中国知网、重庆维普、万方三大中文数据库中关于拔罐疗法的医学文献，检索标题或关键词为“拔罐”或“走罐”或“闪罐”或“刺络拔罐”或“药罐”，搜索范围为1953年至2015年7月15日收录的医学文献。从拔罐疗法的临床表现形式、临床适应症及机制研究进展三个方面进行总结和探讨，力求从临床应用及作用机理研究两个不同角度对拔罐疗法做全面详尽的综述。文献分析结果表明拔罐疗法发展至今有多种表现形式，治疗疾病范围涵盖内、外、妇、儿多个学科，其作用机制主要是负压吸引、提升痛阈、增加皮肤血流量及增强机体免疫力。

**【关键词】**拔罐；走罐疗法；闪罐；刺络拔罐疗法；药罐；综述

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Cupping therapy is one of the commonest treatments in traditional Chinese medicine (TCM). As it's easy-to-operate, simple, safe, practical and significantly effective, cupping therapy has been well-known and widely used in hospital and among common folk. However, there are few literatures focused on the latest clinical application and research progress of cupping therapy, because it always appears as an adjuvant treatment method. In fact, with the accumulation of medical experiences and improvement of medical level, cupping therapy has also developed significantly, presenting a variety of application patterns adapted for different diseases involving internal medicine, external medicine, gynecology and pediatrics. Therefore, we are now reviewing the clinical application and research progress of cupping therapy based on the current literatures.

## 1 Application Forms of Cupping Therapy

### 1.1 Retained cupping

Retained cupping is the most frequently encountered pattern in clinic, and can be divided into two types: single cup or multiple cups.

At the beginning, ancient people used a horn to cover sores and ulcers for sucking and expelling purulent blood, and thus this method was named horn therapy, which was recorded in the *Wu Shi Er Bing Fang (Prescriptions for Fifty-two Diseases)* unearthed from the Mawangdui Han Dynasty Tombs<sup>[1]</sup>. It's also the primary manifestation form of retained cupping of single cup. In Ming Dynasty, *Wai Ke Qi Xuan (Inspirations of External Medicine)* and *Wai Ke Zheng Zong (Orthodox Manual of External Medicine)* also stated that cupping therapy can expel pus and toxins and treat skin and external diseases. Initially, single-cup cupping was invented for incision and drainage of purulent furuncles, as it can promote the release of pus and the healing of lesions. It's safe and effective, not only in extracting the pyecchysis and exudation, as well

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as the toxins produced by germs and histolytic enzyme in the affected area, but also in promoting the growth of granulation and the recovery of wounds. Nowadays, many researchers have conducted similar studies. Yu XJ treated 72 cases of furuncles with cupping therapy and achieved satisfactory results<sup>[2]</sup>. Yang WL, *et al*, adopted a randomized controlled method to study the clinical efficacy of cupping therapy in treating carbuncles, and discovered that incision-drainage plus cupping can significantly shorten the healing time compared to incision-drainage alone<sup>[3]</sup>. With the development of cupping therapy, a lot of doctors have applied it to internal medicine. For example, Zhu HL, *et al*, treated itching skin, anorexia, constipation, and edema with cupping at Shenque (CV 8)<sup>[4]</sup>; Li ZK adopted cupping therapy at Shenque (CV 8) to treat diarrhea in kids and the 102 cases were all recovered<sup>[5]</sup>. Besides, retained single-cup cupping can be the most effective method in expelling the topical toxins from poisonous snakebite, via blocking the spreading of the poison through vessels and lymph vessels and decreasing the poison content till the minimum level. Zhong JR, *et al*, applied cupping therapy to treat 43 cases of early-stage poisonous snakebite and achieved significant efficacies<sup>[6]</sup>.

Compared with single cup, multiple cups are more common in clinic, by using multiple cups to treat diseases. When a disease affects a large area, or more than one acupoint need stimulation, such as chronic pain in neck, shoulder, lower back, and lower extremities<sup>[7]</sup>, and cough due to catching a cold<sup>[8]</sup>, multi-cups cupping would be the appropriate treatment. In the treatment of chronic diseases including pain in neck, shoulder, lower back and lower extremities, or diseases located deeply, multi-cups cupping can help release pathogens thoroughly. Therefore, retained multi-cups cupping is frequently used as an assistant method for the indications of acupuncture-moxibustion and tuina.

### 1.2 Moving cupping

The earliest report about moving cupping was published by *Shanghai Journal of Traditional Chinese Medicine* in 1956 entitled 'Cupping'<sup>[9]</sup>. Some lubricant should be applied to the to-be-treated area prior to the treatment, such as *Dongqing* ointment, essential oil, or Vaseline. After the cup is sucked on the body, the practitioner immediately holds and moves the cup along the meridians and muscles till the skin congests or turns purplish red. As an altered form of cupping therapy, moving cupping only has a short history. But, since it combines the function of cupping, scraping, massage and medicine<sup>[10]</sup>, this treatment method has now been used to treat various diseases, e.g. myofascitis<sup>[11]</sup>, scapulohumeral periarthritis<sup>[12]</sup>, lumbar muscular strain<sup>[13]</sup>, common cold<sup>[14]</sup>, facial paralysis<sup>[15]</sup>, etc. Furthermore, to adapt for different diseases and body areas, moving cupping is no longer restricted to the initial way, but presents new moving routines such as

bi-arc shape, snake shape, and Heaven-Human-Earth three-region moving cupping<sup>[16]</sup>.

### 1.3 Flash cupping

As a special cupping method, flash cupping is performed through repeated suction and removal of the cup till local skin flushes. Different from most cupping methods which work to clear away damp, heat, and toxins from the body, flash cupping emphasizes the heat stimulation, for warming and tonifying, expelling stagnation and unblocking collaterals. Flash cupping is often used to treat facial paralysis<sup>[17]</sup> and hemifacial spasm<sup>[18]</sup>, but is rarely used for other diseases.

### 1.4 Pricking cupping

In the relevant literatures of dry cupping therapy, pricking cupping accounts for the highest percentage. Pricking the collaterals, originally seen in the Internal Medicine, is the foundation of the development of pricking cupping. Compared to pricking therapy alone, pricking cupping works better in expelling the blood stagnation and pathogens, controlling the bloodletting amount. Generally speaking, this therapy can regulate and unblock meridians, disperse mass, expel stagnation and promote the regeneration, and regulate qi and blood circulation. This method is often used for herpes zoster<sup>[19]</sup>, postherpetic neuralgia<sup>[20]</sup>, myofascitis of neck and back<sup>[21]</sup>, knee osteoarthritis<sup>[22]</sup>, and also for peripheral facial paralysis<sup>[23]</sup>, cervical spondylosis<sup>[24]</sup>, and asthma<sup>[25]</sup>, etc.

### 1.5 Other methods

Besides the above common cupping therapies, there are some special cupping methods adapted for various diseases, such as medicinal cupping, scraping cupping, and yang-supplementing cupping. Medicinal cupping<sup>[26]</sup> combines the action of both medication and cupping, by applying the medication to the to-be-treated area, or putting the medication liquid into the cups, or boiling the medication and cups together before treatment. Cupping promotes the absorption of medication via opening hairy holes. With dual actions, medicinal cupping manages to produce a significant clinical efficacy. Literally, scraping cupping<sup>[27]</sup> combines scraping and cupping. Scraping produces a pressure inward, while cupping produces a pressure outward, which combines the internal and external, working to regulate and unblock meridians and collaterals, activate qi flow and disperse stagnation, expel wind and cold, eliminate swelling, and kill pain. Thus, this method can be used to treat common cold, chronic colitis, hyperplasia of mammary glands, chronic insomnia, and so on. Yang-supplementing cupping<sup>[28]</sup> realizes the synchronization of thermal energy, magnetic therapy, and infrared. It combines the function of scraping, moxibustion, tuina, moving cupping, magnetic therapy, and infrared, thus showing a significant advantage in the treatment of deficient cold diseases, including primary

dysmenorrhea<sup>[29]</sup>, and infantile anorexia (due to deficiency of spleen and stomach)<sup>[30]</sup>.

## 2 Indications of Cupping Therapy

Cupping therapy has numerous indications. Li X, *et al* once searched China National Knowledge Infrastructure (CNKI) for the indications of cupping therapy<sup>[31]</sup>. Totally 3 504 valid articles were found, involving 289 195 cases, 19 categories, and 363 diseases, showing that cupping therapy has been widely used. We searched the three major Chinese databases, CNKI, Chongqing VIP (VIP), and Wanfang, with ‘cupping’ or ‘moving cupping’ or ‘flash cupping’ or ‘pricking cupping’ or ‘medicinal cupping’ as the key words or retrieve titles, time range up to 2015-07-15. When the duplicate data and publications, non-clinical papers, and literatures with cupping therapy as the unnecessary treatment were excluded, the rest literatures were divided into two types: dry cupping therapy and cupping plus other therapies. Afterwards, they were put in order according to the frequency of the disease, for discovering the optimal indication of cupping therapy in clinic.

### 2.1 Diseases treated by dry cupping therapy

The literatures of dry cupping therapy were less than that of cupping plus other therapies, and pricking cupping is the most frequently used dry cupping therapy, accounting for 511 articles. Herpes zoster (including postherpetic neuralgia) is the most commonly treated with dry cupping therapy, followed by acne vulgaris, cervical spondylosis, cough, and scapulohumeral periarthritis (Table 1). We can see that diseases treated with dry cupping therapy were focused on dermal diseases and pain in neck, shoulder, low back, and leg, counting on its function of expelling pathogens.

**Table 1. Diseases treated by dry cupping therapy**

Disease	Literature count (piece)	Frequency (%)
Herpes zoster	192	37.6
Acne vulgaris	72	14.1
Cervical spondylosis	39	7.6
Cough	36	7.0
Scapulohumeral periarthritis	33	6.5
Lumbar sprain	27	5.3
Asthma	26	5.1

### 2.2 Diseases treated by cupping plus other therapies

Compared with dry cupping therapy, cupping plus other therapies owns a larger scope of indications and more relevant literatures, totally 3 602 articles, involving more types of diseases. Still, herpes zoster (including postherpetic neuralgia) ranks the top among the

indications, followed by scapulohumeral periarthritis, lumbar intervertebral disc herniation (LIDH), facial paralysis, and acne vulgaris. In all the literatures, although cupping plays an irreplaceable role, it’s used as an assistant method in most cases (Table 2).

**Table 2. Diseases treated by cupping plus other therapies**

Disease	Literature count (piece)	Frequency (%)
Herpes zoster	323	9.0
Scapulohumeral periarthritis	271	7.5
Lumbar intervertebral disc herniation	163	4.5
Facial paralysis	127	3.5
Acne vulgaris	121	3.4
Cervical spondylosis	86	2.4
Urticaria Asthma	63	1.7
Lumbar sprain	57	1.6
Cough	49	1.4
Myofascitis	36	1.0

## 3 Researches of Action Mechanisms of Cupping

### 3.1 Negative pressure suction

Negative pressure suction is the most direct and intuitive action mechanism of cupping therapy. *Wu Shi Er Bing Fang (Prescriptions for Fifty-two Diseases)* recorded that our ancestors covered the skin lesions with a horn for expelling purulent blood<sup>[1]</sup>; nowadays, clinicians applied cupping to inflammatory wounds<sup>[32]</sup>, furuncles<sup>[2]</sup>, carbuncles<sup>[3]</sup>, and poisonous snakebites<sup>[6]</sup> for clearing the toxins. From the view of physics, the negative pressure suction produced by cupping benefits the extraction of the toxins generated by the purulent fluid, exudation, and germs, as well as the histolytic enzyme, meanwhile, it also promotes the growth of granulation and the recovery of wounds.

### 3.2 Increasing pain threshold

Xin Y, *et al*, observed the pain threshold before and after cupping by pressure pain measurement, and found that the pain thresholds increased significantly inside and around the cupped area after cupping ( $P < 0.001$ )<sup>[33]</sup>. With the increase pain threshold, the subjective pain intensity obviously decreases, and subsequently the dysfunction brought by pain improves<sup>[34]</sup>. Therefore, cupping should be used after other treatments to help enhance the therapeutic efficacy and promote the recovery in treating pain in neck, shoulder, low back, and leg.

### 3.3 Promoting dermal blood flow

Cupping will cause local congestion manifested as soggillation, according to which, clinicians can judge the pathological condition and treatment result<sup>[35]</sup>. Cupping

dilates topical capillaries and increases dermal blood flow, which has been proven by numerous studies<sup>[36-37]</sup>. The increase of blood flow can promote the discharge toxins and wastes, improves the local nutrition state, and finally boosts the metabolism. Generally, from TCM perspective, cupping is a process of supporting the healthy aspect and eliminating the pathogenic factors.

### 3.4 Improving body immunity

The effect of cupping on strengthening immunity has also been studied during the recent years. Ye LH revealed that cupping can produce a bidirectional effect on human immunoglobulins: it corrects the irregular immunoglobulin level, while producing insignificant effect on normal immunoglobulin, and the regulation result is related to the original function state<sup>[38]</sup>. Zhang L, *et al*, found that cupping can up-regulate the oxyhemoglobin and deoxyhemoglobin. As the carrier of hemoglobin, the red blood cell is an important defensive system, working to recognize antigens, and eliminate immune complex, tumor cells, and effector cells, as well as bind germs and viruses, and regulate immune function<sup>[39]</sup>. Zhong L, *et al*, discovered that the absolute value of C3b receptor rosette and immune complex of red blood cell significantly increased after moving cupping, which indicated that moving cupping can improve the immune function of red blood cell<sup>[40]</sup>. Chen LH, *et al*, believe that cupping saggillation is the manifestation of autohemolysis, which can produce histamine-like substances, and consequently strengthen the activity of tissues and organs as well as the immunity<sup>[41]</sup>.

## 4 Discussion

### 4.1 Current research situation

Cupping therapy has a history of over 2 000 years according to the written history. It's been widely used because it's simple, safe and effective, and causes few adverse reactions. From one cup to multi-cups, from single indication to varied indications, from the original retained cupping to various cupping methods, cupping therapy has developed a lot up till today. From the view of TCM, cupping acts to dredge and unblock meridians and collaterals, promote qi flow and dissolve stagnation, expel wind and cold, disperse swelling and kill pain, and promote the elimination of toxins and pus; from the perspective of Western medicine, cupping can improve the microcirculation, promote metabolism, enhance body immunity, and mitigate pain. Although cupping often works as an assistant method in clinic, it's essential and irreplaceable.

### 4.2 Conclusion

#### 4.2.1 Variety of cupping methods

Up to now, cupping therapy is usually present as retained cupping, moving cupping, and flash cupping

with multiple cups, used together with many other treatments for different diseases. There are also pricking cupping, medicinal cupping, scraping cupping, and yang-supplementing cupping. The long history and variety of cupping forms all tell that cupping therapy is developing very well.

#### 4.2.2 Wide range of indication

Regarding the disease type, there are not so many types of diseases treated with dry cupping therapy, usually focused on skin problems, and kinds of joint pain. While, diseases treated with cupping plus other therapies involve internal medicine, external medicine, gynecology and pediatrics, including cough, asthma, furuncles, carbuncles, dysmenorrhea, and infantile diarrhea.

#### 4.2.3 Complicated action mechanism

The negative pressure suction, increase of pain threshold, and up-regulation of dermal blood flow are intuitive actions of cupping therapy. Based on these actions, cupping is used to expel toxins after poisonous snakebites, to release pain of lumbar sprain, and to unblock stagnation. Besides, clinicians also start to understand the action of cupping therapy from the perspective of body immunity, revealing that it works through regulating immunoglobulins and hemoglobin, which makes a great progress in the exploration of the action mechanism of cupping therapy.

### 4.3 Problems and prospects

This article has summarized and analyzed the cupping-related literatures from three aspects. We can see that the therapeutic efficacy of cupping is confirmed. There are significant progresses achieved in its applications forms, indications and the research of its action mechanism. Due to the limits of literature collection, i.e. incomplete collection and constant change and development of literatures, and shortcomings of literature analysis (literature analysis cannot totally represent the reality in clinic), this article can only be taken as a reference. Further explorations are expected make in the application forms, indications, and action mechanisms of cupping therapy.

#### Conflict of Interest

There was no potential conflict of interest in this article.

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