

Traditional Chinese Medicine Cupping and Health

Wang Hangling

Wanjiafu Institute of Medical Technology,
Beijing, China
gaoziyu314@163.com

Hu Yuxin

Wanjiafu Institute of Medical Technology,
Beijing, China

Abstract – Cupping is a precious heritage of traditional Chinese medicine (TCM), which originated in ancient China. After a long clinical application, Cupping obtained an excellent therapeutic effect. With the development of TCM, Cupping can be used to treat many diseases. In addition, the modern science and technology evolved the horn cup and bamboo cup in early times to pots cup, porcelain cup and glass cup, and the development of modern new materials, various cups with both traditional and novel functions were invented, just like Anion Cup. Cupping exhibited efficient clinical functions in internal medicine, orthopedics, gynecology and pediatrics diseases, it's also widely utilized in the regulation of sub-health. Based on this, this research takes the treatment of TCM cupping as a starting point, and further discusses its regulation of sub-health status, gives a brief description, and then leads to the treatment characteristics of anion cupping, especially its application and mechanism in sub-health condition. It provides reference for the application of anion cans and sub-health control.

Key words – traditional medicine, cupping, health control, glass cup

I. INTRODUCTION

Cupping is a traditional method, which utilize the cupping as a tool making a negative pressure by burning, so that the cupping can adhesion on the body surface and cause local blood stasis. Then, cause the functions of promoting meridians and collaterals, promoting qi and blood circulation, relieving swelling and pain, dispelling wind and dispelling cold, etc. [1]. Medical cupping has a long history in China. Recent years, with the research TCM utilization, the cupping therapy face an accelerated development again, one of whose hot spots is sub-health control[2].

On the other side, with the development of society, science and technology, the early horn cups were gradually replaced by bamboo cups, pottery cups and glass cups, and then, with the development of modern materials science, various new materials cup be applied to traditional cups, such as rubber cups, plastic cups, vacuum cups, magnetic cups, electric heating cups and so on [3]. With the application of anion stones in the science and technology, an anion stones cup could couple the relaxing channels and dredging collaterals function of traditional cup and the characteristics of anion cup [4]. Consider the limited domestic research on the effect of anion cups, especially the related research on the application of the cans in sub-health conditioning, it is necessary to conduct a targeted analysis of anion cup.

Problem Statement: The present study concentration on the utilization of anion cup in clinic, and summarized the issue of TCM Cupping and Health .

Research Questions: Consider the limited domestic research on the effect of anion cups, especially the related research on the application of the cans in sub-health conditioning, it is necessary to conduct a targeted analysis of anion cup.

Purpose of the Study: in order to summarized the relationship of TCM Cupping and Health, this study conducted an overview for this purpose, and give a introduction of anion cupping in the treatment of sub-health condition.

Purpose of the Study: in order to summarized the relationship of TCM Cupping and Health, this study conducted an overview for this purpose, and give a introduction of anion cupping in the treatment of sub-health condition.

II. PHYSIOTHERAPY CHARACTERISTICS OF TCM CUPPING

A. Physical Therapeutic Application of Cupping

China has a long history of cupping in clinic. In the <Fifty-two Pathogenic Formulas> (written in the Western Han Dynasty), there is a record of "horn method", which is similar to the cupping therapy in later generations [5]. Cupping therapy was popular in ancient Greece and Rome also. In the early stage, the therapy was mainly used for anti-fatigue, with the negative pressure and blood stasis of local tissues, especially muscles, as the core way to promote meridians and collaterals, promoting qi and blood circulation [6]. In principle, the cupping can be tightly adjusted on the skin surface to form a closed environment below air pressure. The epidermis and dermis tissues in the adjusted area are activated, thus accelerated the blood circulation, and increased the cells activity obviously. In addition, the local microbial environment was repaired too. With these beneficent factors, the vitality of local tissues restored rapidly, thus eliminating physical labor fatigue caused from movement and other factors.

B. Effective mechanism of Cupping

The improvement of tissue function is the main reason for the initial application of cups. According to TCM theory, most diseases and potential diseases are related to cold pathogen entering body, while cupping therapy could expel wind and clearing away cold. In addition, TCM cups was used for relieving swelling and pain by ancient Chinese scholars, which achieved a positive clinic result [7]. Regarding the TCM function of clearing away cold and dispelling wind, consider cups could made a negative pressure environment by fire, in this environment, the dampness and "evil wind" in the lesion

cannot continue to travel around the body tissues, but exude under the negative pressure gradually, thus caused the clinic effect of clearing away cold and dispelling wind. However, Western medical theory has not been able to explain this effect systematically [8].

C. *Physical Therapeutic Advantages of Cupping*

Compared with the common drug treatment methods, one of the outstanding advantages of cupping is the absence from side effects. In the previous study, scholars have found that the comprehensive adverse reactions of Western medical are between 0.7 and 2.6 in the treatment of promoting blood circulation, analgesia and poor sleep quality and other common sub-health problems [9]. The common side effects of Western medical including alopecia, neurasthenia and even drug dependence. The application of cupping could promote blood circulation and remove blood stasis directly, which could regard as an analgesic also. With the cupping, sleep disorders, caused from fatigue, could be released. The comprehensive side effects of cupping can be neglected, and only a few patients think that the imprinting produced by cupping affects perception. Further analysis shows that people in sub-health state has already in the edge of disease. Although Western medicine could control symptoms in a short time by the blocking of nerves and inhibit cell viability, the accumulation of residual drugs, that cannot be completely metabolized, will cause damage to the body, namely usually called drug toxicity. Cupping is a kind of physical therapy, which does not need to be treated by blood circulation, which reduces its side effects extremely, and has become one of the therapies widely accepted by sub-healthy people recent years.

III. POTENTIAL MECHANISMS OF TCM CUPPING IN REGULATING SUB-HEALTH

A. *Performance of sub-health*

In view of the relatively short research time of sub-health, according to the <TCM Clinical Guidelines of Sub-health > issued by the Chinese Academy of Traditional Chinese Medicine, sub-health refers to a state in which the human body is in between health and disease [10].

People in sub-health state are under the health standard line, whose maintained the performance of decreased vitality, function and adaptability in the certain period, however, they are above the clinical or sub-clinical diagnostic criteria of modern medicine standard line. For instance, the long-term office workers who took espresso-maintained work energy, resulting in the increase of blood sugar. The blood sugar beyond 6.1 mmol/L but less than 7.0 mmol/L, although it's under the standard of diabetes (fasting blood sugar), it can be regarded as sub-health. In addition, the sub-healthy patients exhibited the symptoms to their body indicators, for example, the dizziness may occur in patients with partial blood pressure, and fatigue may occur in patients with hyperglycemia. In addition, psychological abnormalities are also classified as sub-health. In present researches, although scholars from different countries and regions concentrated on the social health problems, the sub-health situation has not been controlled yet, and the incidence of the diseases increased generally worldwide [11].

B. *Clinic factors of Sub-health*

There are many factors leading to sub-health problems, which can be summarized into four factors: mental stress, continuous labor, sudden factors and unhealthy behavior habits. Mental stress refers to the psychological changes caused by emotional factors such as tension, depression, excitement and sadness. These factors affect the mental health of personnel, and increase the incidence of some diseases. For example, people suffer a high work pressure, and under a long-term stress state, will result in a gastrointestinal function disorder, thus increased gastric ulcer by 5–10 % [12]. The sub-health state, which caused from labor, would destruct the physiological functions of the body; for example, frequent flexion and extension of joints may accelerate the aging rate or caused lumbar disc protrusion. The sub-health state of brain tissue damage, which caused by impact, may affect the brain function of patients. In the present time, unhealthy behavior habits are the main reasons of sub-health, such as overtake of carbonated drinks, which may lead to calcium loss in the body, thus make the bone strength between osteoporosis and healthy bone strength [13].

C. *Regulatory mechanism of cupping on sub-health status*

In essence, fatigue is not a disease, but a description of the body's health status. Most people who are inclined to tiredness or suffer fatigue for a long time are in sub-health state [14]; and cupping therapy can be regarding as one solution of the status. For example, the microcirculation improving of local tissues could cause the detumescence and pain relief [15]. With the cupping, vessels in the lesion area could expanded generally, which would accelerate the blood flow speed, neutralized and eliminated the tension, thus result in the pain suppression. In addition, the acceleration of blood circulation in this bio-process could cause a detumescence function, improved the metabolic efficiency, that caused a higher recover rate of function and regenerate in the lesion tissue, and then, controlled the inflammation reaction.

IV. PHYSIOTHERAPY ADVANTAGES AND MECHANISM OF ANION CUPPING

A. *Application of anion cup in Health Regulation*

Originally anion cup is invented by Pro. Wang Hangling in China. Similar as the other cups, anion cup exhibited the therapeutic effects to sub-healthy symptom. In addition, the utilization of anion material gives the particular characteristics form negative ions which exhibited a better therapeutic effect in clinic. Wang Hangling's patent anion-energy cup could conduct a weight loss effect. Generally speaking, weight-loss medicine could cause a weight back and somatic damage. On the contrary, patent anion-energy cup could result in an internal function adjustment which inhibited the occur of weight back. After in-depth analysis, it can be found that individual differences of patients are the main reasons leading to different therapeutic effects; where patent anion-energy cup exhibited an excellent lose weight function to the patients with endocrine disorders or simple obesity. With the treatment of patent anion-energy cup, the microcirculation of patients would accelerate, then burning and consuming the fat under the action of internal and external positive and negative ions,

decrease the excess fat of human body, and during the period, the skin was tighten, which would cause limited harmful effect to skin (such as skin-relax, and skin-wrinkles). The patent anion-energy cup can be regarded as an effective method to the long-term weight loss ineffective, drug weight loss failure without diet, heavy exercise and surgical pain.

B. Effective Mechanism of anion-energy cup

Bio-ceramics technology is an important high-tech material technology in the scientific and technological circles. Bio-ceramics is made from variety of metal oxidized polymers sintered at ultra-high temperature, and anion stone is one kind of bio-ceramics [16]. After high temperature treatment, anion stones can adsorb many kinds of electromagnetic waves (such as sonar, radar and microwave). In practical applications, because of these adsorptions, anion stones integrated various function of the raw stones. In the meantime, with the energy absorbance, it can conduct an energy conversion (resonance-kinetic-thermal energy), which can absorb all kinds of heat, such as flame energy, thermomagnetic energy and so on, and then released to the outside effectively [17]. After loading the external energy, these heats can be released in the form of infrared-radiation effectively. Compared with traditional stone, such as glass and pottery, anion stone obtained a slower infrared radiation, and a higher durable and permeable character [18].

Consider the characteristics of anion stone, a series researches have conducted to this Bio-ceramics material in the medical field. On the other side, the physiotherapy application researches were carried in the meantime. In American, anion stone hot compress bag was used for the rehabilitation of postoperative patient, which can stimulation the local blood circle and recovery the limb function. In order to reveal the clinic effect of Wang's anion cup, plenty researches were conducted for its characteristics. From the result obtained, it is clear that, the far-infrared wavelength released by the cup is 2–18 μm , and its peak value is 9+5 μm , which is similar as the absorption frequency of human macromolecule proteins, and exhibited a strong biological penetration. Further research means that, with the operation of anion cup cupping, the skin temperature of the human body can be directly increased by 5+0.5 $^{\circ}\text{C}$, and the heat release can also make the skin around the cupping area 1 cm^2 rise by 3 +0.5 $^{\circ}\text{C}$. Because the anion cup cupping could averagely release infrared heat continuously, and permeated into human skin, and then, activated the expanded capillaries, muscles, fascia and joint cavity through the release of far infrared. During this period, anion cup cupping also stimulated the blood flow, improved the physiological effects and contacted the pathological state. At the same time, the nerve endings and skin receptors could be stimulated by the strong heat release and the negative pressure of cupping, directly. As the skin temperature increases by 1 $^{\circ}\text{C}$, the blood circulation rate of human body can be increased double, and the blood circulation speed around the cap can be increased by 7–8 times. The congestion blood caused by negative pressure during cupping can be quickly dissolved and dredged. With the promoting blood flow and activation of nerve function, the sub-health states, such as pain, acid swelling and numbness, can be eliminated then. On the other hand, the anion cup could release far-infrared rays,

and exhibited a better heat preservation effect, which means, it can accelerate the human blood circulation and metabolism for a longer time. With these functions, various inflammatory mediators and oxides formed in the human body could be discharged, and stimulated the epidermis, thus regulated the skin receptor function of human body directly. Through these functions above, the body's immunity protection can be increased [19–20].

C. Physiotherapy Theoretic Basis of Anion Cups

The mechanism of anion cups has been discussed in detail above, however, it is important to summarize these scientific contents to a theory, which could guide the practice of anion cups in physiotherapy. In order to achieve this aim, the theory and special concepts of anion cups in physiotherapy are discussed in the following parts.

The Theoretical Basis of Cupping Therapy in TCM. Cupping is an indispensable part of TCM. Cupping appeared in the Silk Book of the Western Han Dynasty "Fifty-two Patient Formulas" for the first time. Cupping was named as "Jiao-fa" then. while in the later "Outside Secrets", the name and function of cupping were discussed in detail [21]. first time. Cupping was named as "Jiao-fa" then. while in the later "Outside Secrets", the name and function of cupping were discussed in detail [21]. With the guidance of Five Elements and dialectics in the frame under the TCM system. Cupping therapy relied on twelve meridians and collaterals. Compared with acupuncture and moxibustion, cupping could supply the deficiency of organism and relieve the pathogenic factors of organism. It is clear that, cupping therapy is deeply influenced by TCM theory. Anion cups could dredge meridians and regulate qi and blood. Traditional Chinese medicine has an ancient saying: "Pain does not pass, pain does not pass." The cupping can dredge blood vessels and eliminate a series of sub-health conditions caused by body stagnation. As the <Internal Classic> says, "Blood and Qi like warm but hate cold, if the Blood and Qi suffer cold, it cannot even trickle, until warm them then".

The Physiological Basis of Cupping Therapy. Modern research shows that cupping can stimulate the nervous system and blood circulation system during the treatment. Cupping could stimulate the skin receptors directly which exhibited the function of "supplementing fire to help Ying qi and Wei qi". The therapeutic effect of cupping can not only stay on the surface of the body, but also stimulate nerve endings, further react on the central nervous system to the cerebral cortex and mediate a series of subsequent body reactions, such as skin, blood vessels, muscles and organs, which can be regulated by the cupping. With the reflex and the excitation and inhibition of cerebral cortex, the problematic human body tends to the balance state.

On the other hand, by stimulating local skin organs, cupping can effectively accelerate the blood flow of various skin tissues, and promote metabolism, improve the efficiency of body fluid metabolism, accelerate the discharge of harmful substances in the human body. Microcirculation is the process of material exchange between blood and tissues in the organism. During the accelerating the metabolism of body fluids process, the microcirculation of the organism is also

improved. The metabolic acceleration effect of cupping can increase the microcirculation, and then increase the absorption of nutrients of human body. Finally, in the process of accelerated metabolism, the lymphatic system will also be activated strongly, a large number of lymphocytes will be released, which could stimulate the body's immune system, impel immune cells swallowed the harmful substances that did not metabolized by body fluids. Compared with the regulation of the body's sub-health through the nervous system directly, metabolic acceleration function can be regarded as the fundamental treatment; and through these synergistic effects, cupping could give consideration of both symptoms and root causes.

Theoretical Basis for the Effectiveness of Anion Material. Anion material is one kinds of biological material, which could release far-infrared ray. Far-infrared ray, as an electromagnetic wave, cannot be obtained from the sunlight, and its health effect has been widely reported [22]. For example, anion stone can promote the expansion of subcutaneous microvascular, enhance blood circulation, accelerate metabolism, which exhibited a series functions as heat preservation, antimicrobial deodorization, and eliminate fatigue. In the early time, anion stone was used in interior decoration and functional garment materials. With the functional research on the anion stone, its medicinal application is widely reported. Anion stone could regulate the functional disorders of the nervous system and exhibited a bidirectional regulation characteristic on the nervous system. The far infrared radiation released by anion stones could promoted metabolism rate and accelerated the blood circulation frequency. The physiological quality of the blood could be improved with the hemorheology changing, also [23].

In addition, the antioxidant effect of the anion stone could widely relieve the oxidative damage of liver, kidney, brain and other tissues produced by oxidation. Through the activation and regulation of the immune system, anion stone could relieve the damage of vascular infiltration and inflammation caused by cellular inflammatory response.

Some functions of anion stone are alike with TCM cup, which means, the anion cups could enhance the physiotherapy efficacy of traditional TCM cupping. As anion stone enhanced the physiotherapy effect of traditional cupping, it also amends the micro-environment of skin by massage and scraping, then improved the elasticity of skin, deeply promoted muscular blood flow and endurance, also. The far infrared radiation released by anion cup could penetrated deeply into the skin, directly excited the abdominal organs and nerves, and regulated gastrointestinal function.

D. Classification of Anion Cups in Physiotherapy

In order to further application anion cup in sub-health controlling, the rationality of its application should be improved in the light of existing problems. During the long-term application of Wang's anion cups in physiotherapy, a standardized treatment programs has been summarized form these first-hand information. Generally, an adjustment is needed according to different geographical characteristics. The specific methods are as follows: For example, in the treatment

of "shoulder pain", a standard shoulder pain treatment parameter could obtain from the cupping methods database, and in the secondary screening, the reason of "shoulder pain" can be regarded as the selected factors, then, in the tertiary screening, the severity of patients' condition was considered as the selected factors. During this process, the final treatment data should be three-tier model, including "shoulder pain treatment", "treatment of shoulder pain with different factors", "treatment of shoulder pain with different pain levels".

In the cupping methods database, according to the causes of pain, the database can be divided into four sub-strain: fatigue damage, cold, impact and others; and in the sub-strain of fatigue damage, the database can be divided into three levels: severe, moderate and slight. Then, in the tri-strain of severe fatigue damage item, the retaining cupping time is 20 minutes, and in the moderate fatigue damage item, the retaining cupping time is 15 minutes, where in the slight fatigue damage item, the retaining cupping time is 12 minutes. These parameters can be used as the basic criteria in the treatment of shoulder pain. As one example, in the other sub-health treatment, this cupping database can be regarded as the standardized treatment parameters during the clinic process.

V. CONCLUSION

In summary, sub-health problem have received widespread attention in modern society, as a potential solution, and the application of cups could release this problem. According to the information obtained, sub-health is a body-state between disease and health, and cups could relieve fatigue and improved the organized function with minimal side effects. Follow-up work should be optimized as appropriate, emphasizing the classification and analysis the existing data, improving the comprehensive value of drugs and cupping therapy, strengthening the control role of cupping on sub-health.

References

- [1] J. Jinghua, T. Ying, Zh. Xiaoli et al., "Discussion on the centralized management of Chinese medicine cans cleaning and disinfection", *Chinese J. of Hosp. Infectiology*, vol. 28, no. 20, pp. 151–154, 2018.
- [2] Zh. Dongmei, Yu. Congcong, W. Chao, "Current situation and Prospect of canning intervention in sub-healthy neck discomfort", *Nei Mongolia Traditional Chinese Med.*, vol. 31, no. 2, pp. 116–117, 2012.
- [3] Ch. Shaolu, Ya. Hongwu, "Development and application of bioceramics cupping", *J. of Acupunct. and Moxibustion Clin.*, vol. 19, no. 2, pp. 45–46, 2003.
- [4] W. Hangling, L. Qingshan, A kind of ceramic canister material for releasing negative ions and its preparation method. China, 2010.
- [5] Ch. Zelin, "Tracing to the Origin of Chinese Cupping Therapy – "Fifty-two Pathogenic Formulas", *Tianjin Tradit. Chinese Med.*, vol. 30, no. 2, pp. 87–89, 2013.
- [6] Y. Jinsheng, "Historical evolution of cupping therapy", *Chinese J. of Med. History*, no. 2, pp. 82–84, 1999.
- [7] H. Benrong, "Cupping, the traditional Chinese medicine miracle", *Chinese J. of Med. History*, vol. 1, pp. 36–37, 2009.
- [8] X. Li, Finite element analysis of moisture diffusion and vascular rupture during cupping Family medicine. Happy health. Wuhan: Huazhong University of Science and Technology, 2014.
- [9] J. Zhang, Q. He, G. Sun, "Discussing the disciplinary advantages of TCM sub-health science from the perspective of TCM culture dynamics", *Chinese J. of Basic Med. of TCM*, vol. 8, pp. 1079–1081, 2014.

- [10] R. Zhu, "Interpretation of Clinical Guidelines of Subhealth Chinese Medicine", *Modern Distance Education of Chinese Med.*, vol. 7, no. 2, pp. 79–80, 2009.
- [11] Fu. Xie, *Diagnostic criteria for sub-health and its potential epidemiological study*. Changsha: Hunan Normal University, 2011
- [12] F. Wei, *Analysis of the health status and influencing factors of civil servants in a district of Tianjin*. Tianjin: Tianjin Medical University, 2010.
- [13] Ch. Li, Zh. Bin, J.Li, "Research progress on the effects of carbonated drinks and estrogens on bone metabolism", *Abstracts of the latest medical information in the world* vol. 16, no. 69, pp. 73–74, 2016.
- [14] B. Zhou, D. Li, "An analysis of the etiology and pathogenesis of fatigue in traditional Chinese medicine--also on fatigue and sub-health", *Chinese J. of Tradit. Chinese Med.*, vol. 22 no. 1, pp. 142–144, 2004.
- [15] Yuhang Gu, "The effect of endothelin on the release of angiotensin II in the cardiovascular system", *Electronic J. of Cardiovascular Disease of Integrated Traditional Chinese and Western Med.*, vol. 3, no. 36, pp. 30–31, 2015.
- [16] Fuzhai Cui, Muyao Guo, "Application and development prospects of bioceramics", *J. of Pharmaceutical Analysis*, vol. 7, pp. 1343–1347, 2010.
- [17] Y. Xiangwen, Y. Huiling, Ch. Guangyuan et al., "Observation of the therapeutic effect of high concentration negative ion oxygen on cor pulmonale", *Guangzhou Med.*, vol. 43, no. 4, pp. 10–12, 2012.
- [18] Liu Lingling, *Study on Room Functional Materials Releasing Negative Ions*. Qinhuangdao: Yanshan University, 2010.
- [19] Yuxin Hu, "Negative ion cupping for varicose veins", *Natural med. and precise recuperation*, pp. 260–264, 2018.
- [20] Hangling Wang, "Negative ion cupping for glioma", *Natural medic. and precise recuperation* pp. 257–259, 2018
- [21] Bing Kong, "The ancient medical instrument-cupping", *Clin. Med. Engineering*, vol. 1 pp. 25–26, 1995.
- [22] Tongxin Li, Wentao Liang, Fei Liu et al., "Functional coatings releasing negative ions", *New building materials*, vol. 5, pp. 34–35, 2006.
- [23] Boning Wang, Bifa Fan, Li Hao, "Application of Medical Far Infrared Thermal Imaging in Pain Department", *Middle-aged and Elderly Health Care*, vol. 2, pp. 20–21, 2017.