

REVIEW

Anatomical Points of Cupping Therapy for Musculoskeletal Pain: A Systematic Review



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Abstract

Background: The prevalence of musculoskeletal pain is rising and plays a substantial role in disease and disability worldwide. There have been several previous studies on cupping therapy's effectiveness in reducing musculoskeletal pain. However, studies that specifically review the literature on cupping points to reduce musculoskeletal pain are lacking.

Purpose: This study aimed to identify the anatomical points of cupping therapy for musculoskeletal pain.

Methods: A systematic review was employed. PubMed, ScienceDirect, and Google Scholar were used for the search process. The screening was performed based on inclusion and exclusion criteria. Crowe Critical Appraisal Tool (CCAT) was used to measure the quality of the articles. Standardized forms were used to extract essential characteristics from articles, including study design, participant and sample, and results. Data were narratively analyzed for thematic synthesis.

Results: From a total of 1,045 articles acquired, eight articles were included in data synthesis. All articles were randomized control trials (RCT) design. Seven regions of cupping points were identified, including upper-middle-lower fibres of the trapezius muscles, the inter-scapular area around the 2-4th vertebrae torachalis, the sacrum area, between the lower vertebrae and the coccyx bone, the 1-5th vertebrae lumbalis, the 3-5th vertebrae lumbalis, knee joint, and lower border of the spinous process of the second lumbar vertebra (L2).

Conclusion: Seven anatomical points of cupping therapy for musculoskeletal pain were identified by this systematic review based on studies. Single research could not define the whole range of advantages of each point. To support the previously described theories regarding cupping and develop new ones, future novel scientific studies are also required.

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1. Introduction

Musculoskeletal pain is extremely prevalent and contributes significantly to worldwide disability and disease, with most countries reporting neck and low back pain as the primary cause of disability. The treatment of musculoskeletal pain often consists of a combination of physical therapy, self-management, and short-term analgesic medicine to improve function and control pain (Babatunde et al., 2017; Vos et al., 2017). Cupping therapy is currently one of the conventional treatments frequently taught and used in the medical field to reduce musculoskeletal pain (Micozzi, 2014). The growing body of research demonstrating cupping's efficacy as a therapeutic intervention has led to its widespread use in complementary medicine (Siregar et al., 2021). Practitioners of both conventional and complementary medicine have employed cupping therapy for ages. Recent research indicates that it might help treat pain-related disorders (Aboushanab & AlSanad, 2018). A study by Stephens et al. (2022) reported that health professionals in the USA perform cupping as a typical supplemental therapy. Health professionals are reported to use cupping to treat muscular discomfort, myofascial trigger points, and musculoskeletal pain.

Cupping therapy is a traditional medical treatment that dates back centuries and has been used in many countries and regions worldwide. Dry-cupping and wet-cupping are the two primary subsets that fall under the umbrella term "cupping therapy". The process of dry cupping involves applying a vacuum to various parts of the body to collect blood from that area without making any incisions in the skin. The method of using a vacuum at different points on the body in conjunction

with incisions (small, light scratches made using a razor) is called wet cupping (or *hijama* in Arabic). This method removes previously referred to as “harmful blood”, which refers to accumulated blood just beneath the skin’s surface (Aleyeidi et al., 2015; Mahdavi et al., 2012).

East Asian countries have utilized cupping therapy as a conventional treatment for several diseases since ancient times. Cupping therapy is said to have begun in Egyptian civilization (1550 BC), then spread to Chinese culture, Greek culture, the Middle East, and today all seven continents. Cupping therapy was first performed with hollow animal horns, which evolved into bamboo cups, eventually replaced by glass or plastic cups. Prophetic medicine refers to the health and disease remedy knowledge derived from the prophet Muhammad’s (570 CE) teachings, recommendations, and sayings (hadiths) (Qureshi et al., 2018). Ancient societies such as the early Greeks and Egyptians acknowledged the therapeutic possibilities of cupping therapy. Initially, it was employed to treat diseases and pain; however, clinical experience has expanded its application to a broad spectrum of chronic conditions (Rauf, 2019). Health promotion, prevention, and treatment are among the many purposes for which cupping therapy has been employed. This therapy involves the placement of a suction cup to an acupoint, a particular spot of the skin. Even though the exact mechanism of action is unknown, cupping therapy is routinely utilized to alleviate chronic pain (Khan, 2017).

Cupping therapy has been demonstrated to be beneficial for lower back pain, neck and shoulder pain, headaches and migraines, knee pain, facial paralysis, brachialgia, carpal tunnel syndrome, rheumatoid arthritis, hypertension, and asthma (Al-Bedah et al., 2019; Darmawan et al., 2017; Setyawan, Sari, et al., 2020). According to research, cupping can help individuals with low back pain caused by blood vessel spasms and muscle spasms to relax. Therefore, cupping is useful for reducing pain, particularly on minor pain scales (Al-Eidi et al., 2019; Parawansa et al., 2020). The location of cupping therapy is determined by the problem being treated. The back is the most common application site, followed by the chest, abdomen, buttocks, and legs. Cupping can also be used to treat other body parts, including the face. The majority of cupping points are located in the head and neck region, back, front chest, abdomen, anterior, posterior, and sides of trunk, front of upper arms, front, rear, and sides of both legs, and feet; nevertheless, the dorsal side of the body contains the most cupping points (Qureshi et al., 2017).

There have been several previous studies regarding cupping to reduce musculoskeletal pain. Hanan and Eman (2013) published the results of their research where *hijama* can reduce the incidence of disability and lower back pain; however, the study did not entirely mention the cupping points used. Research results by Abdulaziz et al. (2021) proved the effectiveness of cupping points in the waist area in reducing pelvic pain in women. Arslan et al. (2015) published the results of research on cupping points to treat neck and upper shoulder pain. Both of these studies are experimental research, not a literature review. Mohamed et al. (2022) conducted a literature review regarding cupping therapy for musculoskeletal and sports rehabilitation, but it did not discuss the points of cupping. Concerning the results of the literature search that the researchers have conducted, there has not been a study that reviews the literature specifically regarding cupping points to reduce musculoskeletal pain. Therefore, it is essential and valuable to do a literature review research on cupping points to alleviate musculoskeletal pain. This study aimed to identify the anatomical points of cupping therapy for musculoskeletal pain.

2. Methods

2.1 Research design

A systematic review method based on the Joanna Briggs Institute Manual of Evidence Synthesis was employed. This study developed and synthesized representative literature to establish new frameworks and views on the issue. The process included (1) defining the purpose, (2) defining inclusion criteria, (3) defining the strategy for searching, selecting, and extracting articles, (4) analyzing evidence, (5) presenting results, and (6) summarizing the evidence (Peters et al., 2020).

2.2 Search method

This systematic review utilized three databases for its literature search: PubMed, Science Direct, and Google Scholar. Researchers used Boolean operators to widen or restrict the literature searches with the following term: “Cupping Therapy”, “Cupping Treatment”, “Cupping Therapy

Points”, and “Cupping Treatment Points”. The databases were searched by four authors (AS, INH, IMMYS, and EO).

2.3 Inclusion and exclusion criteria

The inclusion criteria of the studies were (1) the articles related explicitly to cupping therapy, (2) the articles that discuss the anatomical points of cupping therapy for musculoskeletal pain, (3) original research articles (4) publications published between 2018-2021, (5) English-language articles, and (6) full-text availability. In addition, the articles with no specific research methodology, including the protocol, editorial, and narrative review, were excluded.

2.4 Screening of articles

Three reviewers (AS, IMMYS, and INH) independently assessed all titles and abstracts of the articles obtained from the search method to identify papers that met the inclusion and exclusion criteria. In the event of disagreement, a fourth independent reviewer was engaged (EO). When studies covered subjects unrelated to the anatomical regions where cupping therapy was used, they were excluded from the full-text review. Based on the inclusion and exclusion criteria, the findings and analysis from databases such as PubMed, Google Scholar, and ScienceDirect were retained.

2.5 Data extraction

After the initial screening, the full text was obtained for further assessment. All authors together simultaneously extracted the data. A standardized form was used to extract essential characteristics from the articles, which were then extended into structured points, such as study design, participant and sample, and results. The synthesis outcomes are presented in Table 1 (See Appendix 1).

2.6 Quality appraisal

Before the data extraction process, the Crowe Critical Appraisal Tool (CCAT) review of the article was conducted to determine the viability of the article’s contents. There were eight categories and 22 items in the form. A category could have a maximum score of 5 and a minimum score of 0. The score was given based on the presentation of item descriptors. The more item descriptions checked, the higher the score obtained. However, the assessment was not only based on the item descriptors but also looked at the importance of each item being assessed. The appraisal process was entirely up to the appraiser’s judgement. The methodological quality was evaluated separately by two reviewers (EO and IMMYS). Through discussion with two other reviewers (AS and INH), the findings were validated, and the requirements’ completion was determined.

The total CCAT score can be calculated as a percentage by calculating the sum of the eight category scores multiplied by a maximum score of five and dividing by 40. In addition, the CCAT evaluation is conducted by considering the points of each category to prevent the assessment of research publications with a high overall score but a very low category score. If the scores for each category are not assessed, poor performance in one or more areas will be masked by the overall result (Crowe, 2013).

2.7 Data analysis

A narrative method, specifically thematic synthesis described by Purssell and Gould (2021) was used to analyze the data. The characteristics of the articles, including the study design, participant and sample, and results were all taken into consideration while describing the research findings. Every study was assessed by three reviewers (EO, INH and IMMYS) who also noted every aspect of the articles under investigation. Reviewers looked more closely at each individual study to see if it used the same language to describe the same aspects or if it used a different one. Through this approach, a set of fundamental components was produced. Each specific cupping points was then assessed once more to see if it fell into one of the categories or not. A fourth reviewer (AS), who was a lead author, double-checked the earlier procedures.

3. Results

3.1 Literature search

A total of 1,045 articles were initially acquired, after conducting duplication screening and a management reference system employing Endnotes, left as many as one 1,038 articles. Based on the title and abstract, 1,014 items were omitted from the records during the screening step because they did not meet the inclusion criteria. Eight included articles were produced as a result of full-text screening. The results and the flow of the search process are illustrated in Figure 1 based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2009 Flow Diagram (Liberati et al., 2009; Moher et al., 2015).

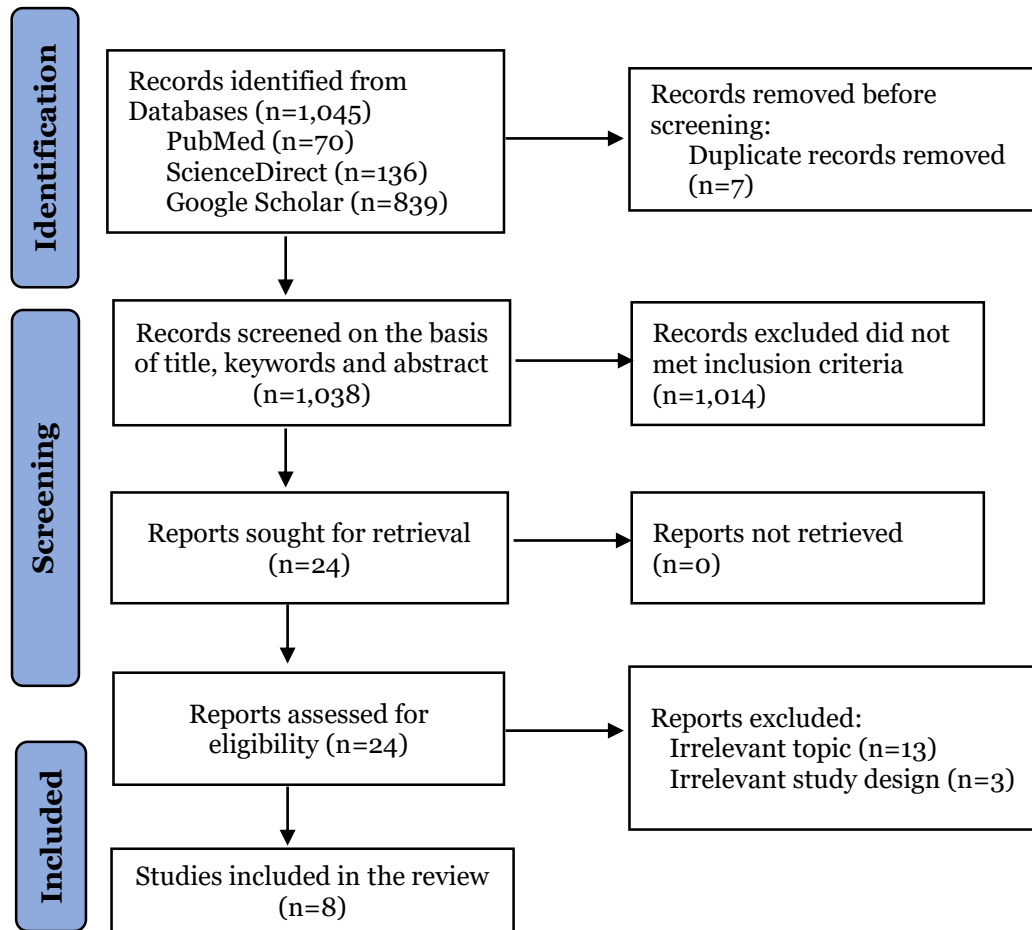


Figure 1. Literature search flow based on PRISMA guideline

3.2 Risk of bias for the included studies

According to the CCAT results table for the eight articles, the overall average scores for each assessment category were in the good category. Three articles were obtained a score of 92.5% (Abdulaziz et al., 2021; Al-Eidi et al., 2019; Mardani-Kivi 2018), two articles were obtained a score of 90% (Chiu et al. 2020; Yang et al., 2018), one article obtained a score of 87.5% (Islam et al., 2021), one article obtained score 85% (Moura et al., 2021), and one article obtained a score of 65% (Silva et al., 2021). The results of the evaluation of the article's quality are shown in Table 2 (See Appendix 2).

3.3 Characteristics of the study

Eight articles were included in the screening process. The eight articles were randomized control trials (RCTs) with as many as 30-198 samples made up of the participants and showed various recommendations for cupping duration, ranging between 3 minutes to 20 minutes per session period of every one week to two weeks. The eight articles explained the benefits of each cupping location, including neck and myofascial pain syndrome (Chiu et al., 2020; Yang et al., 2018), low back pain, pelvic pain, and physical disability (Abdulaziz et al., 2021; Al-Eidi et al., 2019; Mardani-Kivi, 2018; Moura et al., 2021; Silva et al., 2021) and knee pain (Islam et al., 2021).

Two studies were carried out in China (Chiu et al., 2020; Yang et al., 2018), two studies in Brazil (Moura et al., 2021; Silva et al., 2021), one study in Iran (Mardani-Kivi, 2018), one study in India (Islam et al., 2021), one study in Egypt (Abdulaziz et al., 2021) and one study in Saudi Arabia (Al-Eidi et al., 2019). Both wet and dry cupping was demonstrated in eight included articles. Wet cupping was demonstrated by Mardani-Kivi (2018), while dry cupping was explained by the remaining studies (Abdulaziz et al., 2021; Al-Eidi et al., 2019; Chiu et al., 2020; Islam et al., 2021; Moura et al., 2021; Silva et al., 2021; Yang et al., 2018). Dry cupping is a painless skin bruising method involving lighting the bottom of a glass cup, placing it over the skin, and then rinsing the cup bottom with methylated spirits. On the other hand, wet cupping incorporates two different application techniques in prophetic medicine. The first is the cupping, puncturing and cupping (CPC) technique. The CPC process used six phases: skin demarcation, sterilization, cupping, puncturing, and cupping and sterilization. Second, the puncturing and cupping (PC) technique consisted of four steps: skin demarcation, sterilization, puncturing, and cupping (Aboushanab & AlSanad, 2018).

3.4 Anatomical points of cupping therapy

Eight included articles showed seven various locations of the cupping points to relieve musculoskeletal pain according to their benefits, which included one (1) cupping point for neck and myofascial pain syndrome, five (5) cupping points for non-specific and chronic low back pain, pelvic pain and physical disability, and one (1) cupping point for knee pain as shown in Table 3.

Table 3. Regions and benefits of cupping points

No	Regions	Benefits	Cupping Duration	Type of Cupping
1.	Upper, middle, and lower fibres of the trapezius muscles	Neck and Myofascial pain syndrome (Chiu et al., 2020; Yang et al., 2018)	15-20 minutes each time, twice a week, for four weeks	Dry cupping
2.	The inter-scapular area around the vertebrae torachalis T2-T4	Nonspecific low back pain (Mardani-Kivi, 2018)	Once a week and lasted about 20 minutes	Wet cupping
3.	Sacrum area, between the lower vertebrae and the coccyx bone	Nonspecific low back pain (Mardani-Kivi, 2018)	Five times and lasted about 20 minutes	Wet cupping
4.	Vertebrae lumbalis L1-L5	Nonspecific low back pain (Silva et al., 2021)	10 minutes once a week for eight weeks	Dry cupping
5.	Bilateral bladder meridian (BL) 23, spinal neurogenic acupoint located in 1.5 cun lateral to the lower border of the spinous process of the second lumbar vertebra (L2).	Pelvic pain (Abdulaziz et al., 2021)	20 minutes each time, with no specific period	Dry cupping
6.	Knee joint (medially above, medially below, laterally above and laterally below the joint line)	Knee osteoarthritis (Islam et al., 2021),	15 minutes every 2 days for a period of 20 days.	Dry cupping
7.	The lower border of the spinous process of the second lumbar vertebra (L2), bilateral bladder meridian (BL) 23, BL 24, and BL 25.	Chronic Low back pain and physical disability (Moura et al., 2021; Al-Eidi et al., 2019).	10 minutes each time, with no specific period	Dry cupping

3.4.1 Cupping points for neck and myofascial pain syndrome

The trapezius muscles' upper, middle and lower fibers were cupping points to relieve neck and myofascial pain syndrome pain. It was done by dry cupping for 15 minutes twice a week for four weeks (Chiu et al., 2020; Yang et al., 2018).

3.4.2 Cupping points for chronic low back pain, pelvic pain, and physical disability

The interscapular area around the thoracic vertebrae T2-T4 and the sacrum area, between the lower vertebra and the coccyx bone, and lumbar vertebrae L1-L5 were cupping points for nonspecific low back pain. They were done both by wet cupping carried out five times, each of which lasted for about 20 minutes (Mardani-Kivi, 2018) and dry cupping for 10 minutes weekly for eight weeks (Silva et al., 2021). Bilateral bladder meridian (BL) 23, 24, 25, and the lower border of the spinous process of the second lumbar vertebra (L2) were cupping points to reduce pelvic pain, chronic low back pain, and physical disability (Abdulaziz et al., 2021; Al-Eidi et al., 2019; Moura et al., 2021). The dry cupping therapy was done on the two points lasting for about 10 -20 minutes for each session.

3.4.3 Cupping points for knee joint pain

The knee joint is a cupping point to relieve knee pain done by dry cupping for 15 minutes for a period of 20 days (Islam et al., 2021). Cupping was placed on the knee joint that was being treated, with the first cup placed medially above the joint line, the second cup below the joint line, the third cup above the joint line, and the fourth cup below the joint line. Throughout the process, the cups' maximum tolerable pressure was maintained.

4. Discussion

This study aimed to identify the anatomical points of cupping therapy for musculoskeletal pain. Based on the results, eight articles were included, and seven regions of cupping points were identified. The cupping points can be classified into three categories, namely one cupping point for myofascial syndrome, and five cupping points for non-specific and chronic low back pain, pelvic pain and physical disability, and one cupping point for knee joint pain.

4.1 Cupping points for myofascial pain syndrome

The review reported that anatomical points for myofascial pain syndrome were located on the upper, middle, and lower fibres of the trapezius muscles (Figure 2). According to Chiu et al. (2020), cupping therapy on the trapezius muscles' top, middle, and lower fibres can boost functional recovery and maintain soft tissue health, and reduce myofascial pain. Additionally, Yang et al., (2018) reported the result from randomized controlled trial that cupping therapy in this site significantly reduced the neck pain severity in patients. The upper, middle, and lower fibres of the trapezius muscles are located close to the pain. These points are also employed in cupping techniques to lessen myofascial pain. By removing the metabolic wastes that generate pain, lactic acid, interstitial fluid, and the causative pathological substance (CPS) mechanism, cupping therapy relieves pain (Setyawan, Budiayati, et al., 2020). According to the theories of diffuse nopsious inhibitory control theory, pain gate theory, and reflex zone theory, the vacuum effect at the point of cupping will affect the biomechanics of the skin. The first suction on the skin will excite the skin nerves, which will then travel through the delta and c nerves to the spinal cord and then towards the thalamus, where they will promote the release of endorphins. This endorphin is what will lessen the discomfort (Yang, 2018). Previous studies had shown that cupping might help improve local oxygen intake, blood microcirculation, hemodynamic activity, lower deoxyhemoglobin and boost oxyhemoglobin (Chen et al., 2017). This effect may aid in the treatment of neck and myofascial pain syndrome and the facilitation of muscular function. Previous research corroborated this conclusion, and it was reported that cupping therapy conducted during the recovery period from strenuous exercise could speed muscle fatigue recovery and retain superior exercise performance (Chen et al., 2017; Li et al., 2017).

4.2 Cupping point for nonspecific and chronic low back pain, pelvic pain and physical disability

The review showed that the anatomical points for nonspecific low back pain included three areas: (1) on the interscapular area surrounding the T2–T4; (2) on the sacrum between the lower vertebrae and coccyx bone, and (3) on the vertebrae lumbalis L1 to L5 (Figure 3a). Mardani-Kivi

(2018) pointed out that cupping therapy have a potential therapeutic effect on nonspecific neck and upper shoulder pain. The study also found that cupping therapy for persistent nonspecific low back pain (PNSLBP) patients had an immediate response and was as effective as conventional treatment in pain intensity reduction. The points included the interscapular area surrounding the T2-T4 and the sacrum between the lower vertebrae and coccyx bone. Individuals with nonspecific low back pain have also been proven to benefit from cupping therapy (Silva et al., 2021). The cups were positioned bilaterally on the lower back, parallel to the L1 to L5 vertebrae, with a 3-centimetre gap between them.



Figure 2. Cupping points for neck and myofascial pain

In addition to nonspecific low back pain, Al-Eidi et al. (2019) evaluated the effects of traditional cupping and Asian cupping techniques in treating chronic low back pain patients. Cupping points for Chronic Low Back Pain (CLBP) included the bilateral bladder meridian (BL) 23, BL 24, and BL 25 points that were the most uncomfortable. This discomfort results from the location of more superficial nerves. BL 23 is at the level between the L2 and 3 processus spinosus, BL 24 is at the level between the L3 and 4 processus spinosus, and BL 25 is at the level between the L4 and 5 processus spinosus (Figure 3b). Additionally, Moura et al. (2021) in their study showed that cupping therapy in the lower border of the spinous process of the second lumbar vertebra (L2) effectively treated chronic back pain and physical impairment. This point is effective because it is closer to the area of pain. When cupping therapy is carried out on the point, a mechanism will occur to release lactic acid and P substance for alleviating pain (Setyawan, Budiati, et al., 2020). Furthermore, Abdulaziz et al. (2021) claim that cupping therapy can assist women with persistent pelvic pain in experiencing less pain. Cupping on bladder meridian (BL23) spinal neurogenic acupoint was effective in reducing the effects of pelvic pain in women with chronic pelvic problems (CPP). Dry cupping on this site reduces pain, promotes local blood and lymphatic circulation, activates the autonomous nerve system, stimulates the skin, and diminishes skin sensitivity. The mechanism of the referred visceral pain is thought to involve neurogenic inflammation and central sensitization of the spinal cord. Acupoint sensitization stressed that pathological changes in the functional activity of internal organs can affect the size and function of neurogenic acupoints on the surface of the body.

4.3 Cupping point for knee joints

Knee pain is a problem for public health and one of the main sources of discomfort and functional impairment (Hay et al., 2017). According to Islam et al. (2021), dry cupping in the following points: (1) medially above the joint line, (2) medially below the joint line, (3) laterally above the joint line, and (4) laterally below the joint line, effectively reduces knee pain. Hence,

regarding the quantity of suction, the duration of dry cupping treatment for people with knee pain is 15-20 minute application. Furthermore, Zhao et al. (2009) found that dry cupping application that lasts more than 30 minutes can lead to a complication, namely burn injuries. According to some studies, cupping therapy has a pain-relieving effect comparable to that of an analgesic. Ischemia, which results in inflammation and pain mediators, occurs in low back pain. This mediator will activate the pain-related nerve fibres, resulting in pain. Lactic acids are built up in the tissues more due to anaerobic metabolism when ischemia occurs. Removing inflammatory and pain-causing mediators from the body by cupping therapy will lead to less activation of the pain nerve fibres. Additionally, there is the release of the endorphin hormone, which aids in pain relief (Setyawan, 2022; Setyawan, Budiayati, et al., 2020).

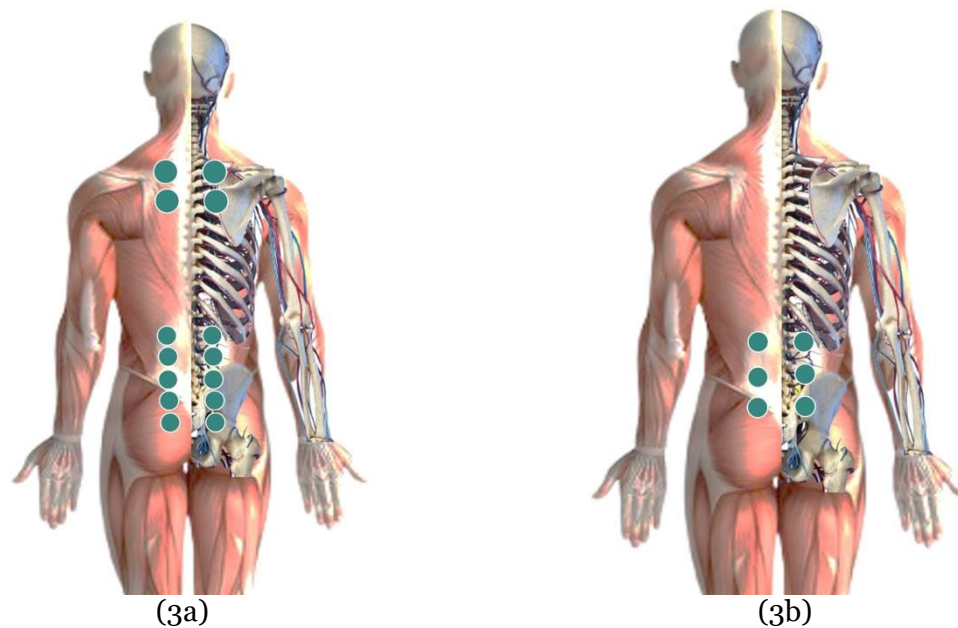


Figure 3. cupping points for low back pain, pelvic pain and physical disability

Unknown physiological processes may underlie the effects of cupping. Cupping results may be divided into a series of categories, including neurological, hematological, immunological, and psychological consequences (Silva et al., 2021). Sites for cupping therapy are chosen according to the condition being treated. The most frequent areas for application are the back, chest, abdomen, buttocks, and legs. However, the cupping technique can also treat other areas, such as the face (Yoo & Tausk, 2004). In addition to being a robust, efficient, and effective therapy in and of itself, cupping therapy should be seen as a potent, curative, and potentiating treatment. Although cupping therapy has specific indications, much like any other medical treatment methods, it is a valuable adjuvant preventative and therapeutic procedure in which blood and interstitial fluid are eliminated. There are significant variances in how the cupping point is determined, as seen by the multiple references to evidence. Cupping therapy is effective when used as a treatment for musculoskeletal pain disorders. Cupping treatment is one of the most efficient ways to cure various illnesses when performed alone or in conjunction with other therapeutic procedures (El Sayed et al., 2013; El Sayed et al., 2014).

5. Implications and limitations

According to the study's findings, several cupping locations have been proven to lessen discomfort brought on by musculoskeletal issues. Health professionals or cupping practitioners might utilize these findings when treating musculoskeletal pain as proof. The findings of this study can also be used as a foundation for further experimental studies on the effects of cupping on musculoskeletal pain issues. Although substantial efforts were made, our review has significant limitations, including limited sources and bias of selective publishing and reporting, which must be considered that may influence both the quality and the quantity of research and limit the conclusiveness of this review.

6. Conclusion

This systematic review identified seven anatomical points of cupping therapy for musculoskeletal pain based on certain studies explaining its various benefits. No single research could explain the full spectrum of benefits of every point. The beneficial effects of cupping therapy need to be substantiated by large randomized clinical trials, systematic reviews and meta-analyses in future. Basic scientific innovative research is also necessary to verify the discussed cupping theories and invent new ideas.

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Author contribution

AS and EO conceptualized, designed, drafted the initial draft and framework, authored the paper, and analyzed the data. The data were conceptualized and interpreted by IMMYS and INH. All authors have read and approved the version of the manuscript that has been published.

Conflict of interest

We have no conflicts of interest to disclose.

References

- Abdulaziz, K. S., Mohamad, R. T., El-Din Mahmoud, L. S., Ramzy, T. A. A., & Osman, D. A. (2021). Effect of neurogenic acupoint cupping on high sensitive C-reactive protein and pain perception in female chronic pelvic pain: A randomized controlled trial. *Journal of Musculoskeletal & Neuronal Interactions*, 21(1), 121–129.
- Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: An overview from a modern medicine perspective. *Journal of Acupuncture and Meridian Studies*, 11(3), 83–87. <https://doi.org/10.1016/j.jams.2018.02.001>
- Al-Bedah, A. M. N., Elsubai, I. S., Qureshi, N. A., Aboushanab, T. S., Ali, G. I. M., El-Olemy, A. T., Khalil, A. A. H., Khalil, M. K. M., & Alqaed, M. S. (2019). The medical perspective of cupping therapy: Effects and mechanisms of action. *Journal of Traditional and Complementary Medicine*, 9(2), 90–97. <https://doi.org/10.1016/j.jtcme.2018.03.003>
- Al-Eidi, S. M., Mohamed, A. G., Abutalib, R. A., AlBedah, A. M., & Khalil, M. K. M. (2019). Wet cupping—traditional hijamah technique versus Asian cupping technique in chronic low back pain patients: A pilot randomized clinical trial. *JAMS Journal of Acupuncture and Meridian Studies*, 12(6), 173–181. <https://doi.org/10.1016/j.jams.2019.04.005>
- Aleyeidi, N. A., Aseri, K. S., Matbouli, S. M., Sulaiamani, A. A., & Kobeisy, S. A. (2015). Effects of wet-cupping on blood pressure in hypertensive patients: A randomized controlled trial. *Journal of Integrative Medicine*, 13(6), 391–399. [https://doi.org/10.1016/S2095-4964\(15\)60197-2](https://doi.org/10.1016/S2095-4964(15)60197-2)
- Arslan, M., Yaman, G., Ilhan, E., Alemdag, M., Bahar, A., & Dane, S. (2015). Moving dry cupping therapy reduces upper shoulder and neck pain in office workers. *Clinical and Investigative Medicine*, 38(4), E217–E220.
- Babatunde, O. O., Jordan, J. L., van der Windt, D. A., Hill, J. C., Foster, N. E., & Protheroe, J. (2017). Effective treatment options for musculoskeletal pain in primary care: A systematic overview of current evidence. *PloS One*, 12(6), e0178621. <https://doi.org/10.1371/journal.pone.0178621>
- Chen, C.-L., Lung, C.-W., Jan, Y.-K., Liau, B.-Y., & Tang, J.-S. (2017). The effects of cupping therapy on reducing fatigue of upper extremity muscles—A pilot study. In T. Ahram (Ed.), *Advances in Human Factors in Sports, Injury Prevention and Outdoor Recreation-Proceedings of the AHFE 2017 International Conference on Human Factors in Sports, Injury Prevention and Outdoor*, 603, 73–83. Springer. https://doi.org/10.1007/978-3-319-60822-8_7
- Chiu, Y.-C., Manousakas, I., Kuo, S. M., Shiao, J.-W., & Chen, C.-L. (2020). Influence of quantified dry cupping on soft tissue compliance in athletes with myofascial pain syndrome. *PloS One*, 15(11), e0242371. <https://doi.org/10.1371/journal.pone.0242371>

- Crowe, M. (2013). *Crowe critical appraisal tool (CCAT) user guide*. Conchra House: Scotland, UK.
- Darmawan, B., Fatmasari, D., Sri, R., & Pujiastuti, E. (2017). Negative air pressure on wet cupping in decreasing blood pressures in hypertensive patients. *Nurse Media Journal of Nursing*, 7(2), 116–129. <https://doi.org/10.14710/nmjn.v7i2.15177>
- El Sayed, S. M., Al-quliti, A.-S., Mahmoud, H. S., Baghdadi, H., Maria, R. A., Nabo, M. M. H., & Hefny, A. (2014). Therapeutic benefits of Al-hijamah: in light of modern medicine and prophetic medicine. *American Journal of Medical and Biological Research*, 2(2), 46–71. <https://doi.org/10.12691/ajmbr-2-2-3>
- El Sayed, S. M., Mahmoud, H. S., & Nabo, M. M. H. (2013). Methods of wet cupping therapy (Al-Hijamah): In light of modern medicine and prophetic medicine. *Alternative & Integrative Medicine*, 2(3), 1–16. <https://doi.org/10.4172/2327-5162.1000111>
- Hanan, S., & Eman, S. (2013). Cupping therapy (al-hijama): It's impact on persistent nonspecific lower back pain and client disability. *Life Science Journal*, 10(4s), 631–642.
- Hay, S. I., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., Abd-Allah, F., Abdulkader, R. S., Abdulle, A. M., Abebo, T. A., Abera, S. F., Aboyans, V., Abu-Raddad, L. J., Ackerman, I. N., Adedeji, I. A., Adetokunboh, O., Afshin, A., Aggarwal, R., Agrawal, S., Agrawal, A., ... Murray, C. J. L. (2017). Global, regional, and national disability-adjusted life-years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 390(10100), 1260–1344. [https://doi.org/10.1016/S0140-6736\(17\)32130-X](https://doi.org/10.1016/S0140-6736(17)32130-X)
- Islam, M., Nayab, M., & Ansari, A. N. (2021). Effect of dry cupping versus soft and prolonged massage in the management of knee osteoarthritis - A randomized controlled clinical trial. *Journal of Complementary & Integrative Medicine*, 18(4), 797–804. <https://doi.org/10.1515/jcim-2020-0350>
- Jáριο, H., Silva, A., Medeiros, G., Scattone, R., Saragiotto, B. T., Maria, J., Oliveira, P., Tavares, Y., Alano, C., Lins, A., Cardoso, M., & Souza, D. (2021). Dry cupping therapy is not superior to sham cupping to improve clinical outcomes in people with non-specific chronic low back pain: A randomised trial. *Journal of Physiotherapy*, 67(2), 132–139. <https://doi.org/10.1016/j.jphys.2021.02.013>
- Khan, J. A. (2017). Cupping (al-hijamah) in unani system of medicine: Opportunities and scope. *Research and Reviews: A Journal of Unani, Siddha and Homeopathy*, 4, 12–15.
- Li, T., Li, Y., Lin, Y., & Li, K. (2017). Significant and sustaining elevation of blood oxygen induced by Chinese cupping therapy as assessed by near-infrared spectroscopy. *Biomedical Optics Express*, 8(1), 223–229. <https://doi.org/10.1364/BOE.8.000223>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *Journal of Clinical Epidemiology*, 62(10), e1–e34. <https://doi.org/10.1016/j.jclinepi.2009.06.006>
- Mahdavi, M. R. V., Ghazanfari, T., Aghajani, M., Danyali, F., & Naseri, M. (2012). Evaluation of the effects of traditional cupping on the biochemical, hematological and immunological factors of human venous blood. *A Compendium of Essays on Alternative Therapy* (pp 67-88). Intechweb. <http://www.dr-naseri.com/oldsite/images/stories/venous.pdf>
- Mardani-Kivi, M., Montazar, R., Azizkhani, M., & Hashemi-Motlagh, K. (2019). Wet-cupping is effective on persistent nonspecific low back pain: A randomized clinical trial. *Chinese Journal of Integrative Medicine*, 25(7), 502–506. <https://doi.org/10.1007/s11655-018-2996-0>
- Micozzi, M. S. (2014). *Fundamentals of complementary and alternative medicine*. Elsevier Health Sciences. <https://books.google.co.id/books?id=t7HSBQAAQBAJ>
- Mohamed, A. A., Zhang, X., & Jan, Y. K. (2022). Evidence-based and adverse-effects analyses of cupping therapy in musculoskeletal and sports rehabilitation: A systematic and evidence-based review. *Journal of Back and Musculoskeletal Rehabilitation*, 10.3233/BMR-210242. Advance online publication. <https://doi.org/10.3233/BMR-210242>
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., & PRISMA-P Group (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews*, 4(1), 1. <https://doi.org/10.1186/2046-4053-4-1>

- Moura, C. C., Chaves, E. C. L., Nogueira, D. A., Iunes, D. H., Corrêa, H. P., Pereira, G. A., Silvano, H. M., Azevedo, C., Macieira, T. G. R., & Chianca, T. C. M. (2021). Effects of ear acupuncture combined with cupping therapy on severity and threshold of chronic back pain and physical disability: A randomized clinical trial. *Journal of Traditional and Complementary Medicine*, 12(2), 152–161. <https://doi.org/10.1016/j.jtcme.2021.07.008>
- Parawansa, N., Pertiwi, N. A., Hasyati, F., Quddusi, T. R., & Septadina, I. S. (2020). The effect of cupping therapy on low back pain literature review. *International Journal of Islamic and Complementary Medicine*, 1(2), 71–76. <https://doi.org/10.55116/IJICM.V1I2.10>
- Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., & Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis*, 18(10), 2119–2126. <https://doi.org/10.11124/JBIES-20-00167>
- Purssell, E., & Gould, D. (2021). Undertaking qualitative reviews in nursing and education-A method of thematic analysis for students and clinicians. *International Journal of Nursing Studies Advances*, 3, 100036. <https://doi.org/10.1016/j.ijnsa.2021.100036>
- Qureshi, N. A., Ali, G. I., Abushanab, T. S., El-Olemy, A. T., Alqaed, M. S., El-Subai, I. S., & Al-Bedah, A. M. N. (2017). History of cupping (Hijama): A narrative review of literature. *Journal of Integrative Medicine*, 15(3), 172–181. [https://doi.org/10.1016/S2095-4964\(17\)60339-X](https://doi.org/10.1016/S2095-4964(17)60339-X)
- Qureshi, N., Alkhomees, O., & Alsanad, S. (2018). Cupping therapy (al-hijamah) points: A powerful standardization tool for cupping procedures?. *Journal of Complementary and Alternative Medical Research*, 4(3), 1–13. <https://doi.org/10.9734/jocamr/2017/39269>
- Rauf, E. (2019). Cupping (hijamah): A unique regimenal therapy. *World Journal of Pharmaceutical Research*, 8(5), 1513–1524. <https://doi.org/10.20959/wjpr20195-14759>
- Setyawan, A. (2022). *Cupping for nursing: Tinjauan syariah dan ilmiah [Cupping for nursing: Syaria and scientific review]* (1st ed.). Cendekia Muslim.
- Setyawan, A., Budiayati, G. A., & Hardiyanti, W. O. S. (2020). The comparison of effectiveness and mechanisms of dry cupping therapy and wet cupping therapy in reducing neck pain symptom in hypertension. *Jurnal Keperawatan Respati Yogyakarta*, 7(3), 187–191. <http://dx.doi.org/10.35842/jkry.v7i3.542>
- Setyawan, A., Sari, D. N. A., & Budiayati, G. A. (2020). Effectiveness and mechanism of wet cupping therapy in reducing mean arterial pressure value in hypertension patients. *Jurnal Keperawatan*, 12(4), 727–734. <https://doi.org/10.32583/keperawatan.v12i4.987>
- Silva, H. J. A., Barbosa, G. M., Scattoni Silva, R., Saragiotto, B. T., Oliveira, J. M. P., Pinheiro, Y. T., Lins, C. A. A., & de Souza, M. C. (2021). Dry cupping therapy is not superior to sham cupping to improve clinical outcomes in people with nonspecific chronic low back pain: A randomised trial. *Journal of Physiotherapy*, 67(2), 132–139. <https://doi.org/10.1016/j.jphys.2021.02.013>
- Siregar, R., Setyawan, A., & Syahruramdhani, S. (2021). A model to standardize safety and quality of care for cupping therapy. *Journal of Integrative Medicine*, 19(4), 327–332. <https://doi.org/10.1016/j.joim.2021.01.011>
- Stephens, S. L., DeJong Lempke, A. F., Hertel, J., & Saliba, S. (2022). Clinical usage, application procedures, and perceived effectiveness of cupping therapy among healthcare professionals in the United States: A cross-sectional survey. *Complementary Therapies in Clinical Practice*, 48, 101610. <https://doi.org/10.1016/j.ctcp.2022.101610>
- Vos, T., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., Abd-Allah, F., Abdulkader, R. S., Abdulle, A. M., Abebo, T. A., Abera, S. F., Aboyans, V., Abu-Raddad, L. J., Ackerman, I. N., Adamu, A. A., Adetokunboh, O., Afarideh, M., Afshin, A., Agarwal, S. K., Aggarwal, R., ... Murray, C. J. L. (2017). Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 390(10100), 1211–1259. [https://doi.org/10.1016/S0140-6736\(17\)32154-2](https://doi.org/10.1016/S0140-6736(17)32154-2)
- Yang, Y., Ma, L., Niu, T., Wang, J., Song, Y., Lu, Y., Yang, X., Niu, X., & Mohammadi, A. (2018). Comparative pilot study on the effects of pulsating and static cupping on nonspecific neck pain and local skin blood perfusion. *Journal of Traditional Chinese Medical Sciences*, 5(4), 400–410. <https://doi.org/https://doi.org/10.1016/j.jtcms.2018.09.001>

- Yoo, S. S., & Tausk, F. (2004). Cupping: East meets West. *International Journal of Dermatology*, 43(9), 664–665. <https://doi.org/10.1111/j.1365-4632.2004.02224.x>
- Zhao, X., Tong, B., Wang, X., & Sun, G. (2009). Effect of time and pressure factors on the cupping mark color. *Zhongguo Zhen Jiu = Chinese Acupuncture & Moxibustion*, 29(5), 385–388.



Appendix 1

Table 1. The included studies characteristics

Author	Design	Participants & Sample	Results
Chiu et al. (2020)	Experimental design	40 participants with myofascial pain	Shoulder and upper extremity function significantly improved.
Mardani-Kivi (2018)	A Randomized Clinical Trial	180 individuals with nonspecific low back pain	There was a significant reduction of NSLBP among participants.
Al-Eidi et al. (2019)	A randomized clinical trial	70 participants with at least three months of chronic low back pain (CLBP)	There was a significant reduction of CLBP immediately following the intervention, seven days later, and fourteen days later. There was no significant difference between the two groups on any of the outcome measures 14 days after the intervention.
Silva et al. (2021)	Randomized controlled trial	90 participants with nonspecific low back pain	Cupping was effective in relieving pain, physical function, mobility, quality of life, psychological symptoms, and medication use in patients with nonspecific chronic low back pain.
Moura et al. (2021)	Randomized, parallel-group controlled clinical trial	198 patients with chronic low back pain	Patients who received cupping therapy showed significant changes in pain relief, and physical impairment were observed during the follow-up session.
Yang et al. (2018)	Randomized controlled clinical trial	70 individuals with neck and nonspecific myofascial pain	This study suggests that pulsating cupping may have greater analgesic effects on nonspecific myofascial pain than static cupping, possibly due to its greater effect on enhancing local skin blood perfusion.
Islam et al. (2021)	Randomized controlled clinical trial	40 patients with knee osteoarthritis	Significant changes in knee osteoarthritis pain reduction in intervention group.
Abdulaziz et al. (2021)	A randomized controlled trial	30 patients, with 15 intervention group and 15 control group	Inflammation, pain perception and intensity, and the impact of pelvic pain on daily living were all considerably improved by cupping therapy in women with chronic pelvic pain (CPP).

Table 2. The Crowe Critical Appraisal Tool (CCAT) results

No	Author and Year	Result of CCAT Scoring Categories and Items								Total (/40)	Total (%)	Summary
		Pre- liminaries	Introduction	Design	Sampling	Data Collection	Ethical Matters	Results	Discussion			
1.	Chiu et al. (2020)	5	5	4	4	4	4	5	5	36	90	Good
2.	Mardani-Kivi (2018)	5	5	5	5	4	4	4	5	37	92.5	Good
3.	Al-Eidi et al. (2019)	5	5	4	5	4	4	5	5	37	92.5	Good
4.	Silva et al. (2021)	4	3	3	3	4	3	3	3	26	65	Fair
5.	Moura et al. (2021)	5	4	4	4	4	4	4	5	34	85	Good
6.	Yang et al. (2018)	5	4	4	5	4	4	5	5	36	90	Good
7	Islam et al. (2021)	4	4	4	5	4	4	5	5	35	87.5	Good
8	Abdulaziz et al. (2021)	5	5	5	5	4	4	5	4	37	92.5	Good