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The effect of dry and wet cupping and rehabilitation exercises in relieving lower back pain in adults

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Abstract

This research was conducted to determine the impact of dry and wet cupping and rehabilitation exercises to lower back pain in the adults. The sample included (10) adults with lower back pain of various levels because the experimental approach was applied in the framework of a single-group design. The subjects were subjected to integrated program of a certain protocol that consisted of dry and wet cupping sessions, and also therapeutic rehabilitation exercises of (8) weeks. The pain Rating Scale (VAS) was used to gather data on pain before and after the program with certain functional indicators. The findings revealed that the pain levels were significantly lower and motor ability had improved at the end of the program, as compared to the pretest. The researchers conclude that the integration of dry and wet cupping and rehabilitation exercises is one of the effective methods of reducing lower back pain in adults. The researcher suggests that this kind of program should be implemented at large scales and their effects should be examined over the extended periods of time.

Keywords: Dry cupping, wet cupping, rehabilitation exercises, lower back pain

Introduction

One of the health issues that affect the quality of life and productivity among adults the most is low back pain, which is one of the most prevalent. According to recent research, especially traditional therapies might not be enough to relieve this pain, and therefore, complementary therapies are sought.

Cupping is applied in all kinds of conditions, including muscle and joint pains, sport-related injuries, stress, back pain, migraines, and even some internal issues, including breathing and digestion issues. Cupping is also an effective way to stimulate the body's vital energy, believed to help balance "energy" (known as "moxibustion" in Chinese medicine) and improve overall health. Dry and wet cupping are common treatments in complementary medicine, while rehabilitative exercises are essential for muscle and joint rehabilitation and improving mobility. Hence, the importance of research in combining these two approaches to relieve lower back pain and improve motor function in adults ^[1].

The lower back, or lumbar region, is susceptible to injury from sports, weightlifting, or carrying heavy objects, all of which often cause muscle strain. Cupping is an effective way to relieve pressure and relax muscles. Cupping can also be used to relieve sciatica, but it may need to be done gently, as the area will be very painful. When sciatica is caused by piriformis inflammation (which involves sharp pain down the buttocks and into the legs), cupping can help relieve inflammation. This type of pain may require vigorous cupping because the piriformis muscle is deep in the buttocks ^[2].

Degenerative disc disorder causes chronic back pain. In traditional Chinese medicine, the lumbar spine is governed by the kidneys, which also control the bones and joints. Gentle cupping can help rejuvenate the kidneys and lumbar region by bringing fresh blood and nutrients to prevent degeneration. Sitting at a desk with poor posture all day can cause lower back pain, as can the unbalanced weight of carrying a bag or briefcase, especially if you tend to carry it on one shoulder.

Research Problem

Despite the numerous therapeutic approaches for lower back pain, a large percentage of patients still experience persistent pain or recurrence shortly after treatment. Hence, the need for treatment programs that combine manual therapy (dry and wet cupping) with rehabilitation

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exercises to determine their effectiveness in relieving pain and improving lumbar spine function.

The research problem is represented by the main question: Does combining dry and wet cupping with rehabilitation exercises contribute to relieving lower back pain in adults?

Research Objectives

1. To identify the effect of dry cupping in relieving lower back pain in adults.
2. To identify the effect of wet cupping in relieving lower back pain in adults.
3. To study the effect of accompanying rehabilitation exercises on pain and mobility.
4. To determine the effectiveness of a combined treatment program (cupping + exercises) in improving lower back functional indicators.

Research Hypotheses

1. There are statistically significant differences between pre- and post-measurements in pain level, in favor of post-measurements after implementing the program.
2. There are statistically significant differences in lower back motor and functional ability after implementing the program.
3. Combining dry and wet cupping with rehabilitation exercises leads to better results compared to using either of them alone.

Research Areas

- **Human domain:** A sample of (10) adults suffering from lower back pain.
- **Time domain:** The program was implemented for (8) weeks, from (June 1, 2025) to (August 1, 2025).
- **Spatial domain:** (A physical therapy clinic in Karbala - Hindiya).

Research Methodology and Field Procedures

The research population consisted of (10) adult males suffering from mild to moderate lower back pain. They were selected from the patients attending a physical therapy center in Al-Hindiya.

Research Sample

(10) adult individuals, aged between 30 and 50 years, were selected who met the following conditions:

- Suffering from lower back pain not accompanied by serious illnesses or acute disc herniation.
- Absence of health contraindications for cupping or rehabilitation exercises.
- Dedicated commitment to the treatment program for 8 weeks.

- Cases with severe heart disease or blood clotting disorders were excluded.

Devices and Tools Used

- Dry and wet cupping cups (various sizes).
- A manual suction device to remove air from the cups.
- (Medical sterilizers (sterile gauze, gloves).
- Simple incision tools for wet cupping according to a safe medical protocol.
- Comfortable mattresses or surfaces for cupping and exercise sessions.
- Follow-up records to record pre- and post-cupping measurements.

Rehabilitation Exercises

The rehabilitation program included (20) rehabilitation sessions over (8) weeks. Rehabilitation exercise sessions were conducted twice per day, with each session lasting (30-45) minutes. Rehabilitation exercises focused on the lower back area.

Rehabilitation Exercises: The exercise program included general warm-up exercises to prepare muscles and joints, flexibility exercises in the first week, stability exercises in the second week, and advanced exercises to increase stability) to improve the range of motion of the spine and strengthen the abdominal and back muscles.

Dry Cupping Application Wet ^[3]

- **First and second weeks:** One dry cupping session per week (to prepare the body)
- **From the third to the sixth week:** One wet cupping session per week
- **Seventh and eighth weeks:** One dry cupping session per week to maintain the effect and stimulate blood circulation.

Measurements and tests used in the research

Pain measurement (visual analogue)

Description of the analogue scale ^[4]

It is a simple and reliable measuring tool widely used in clinical and research studies to subjectively measure pain intensity from the patient's perspective.

It is also called the continuous line pain scale.

Form and method:

It usually consists of a straight line 10 cm long.

- Left end = "No pain" (0)
- Right end = "The most severe pain imaginable" (10)
- The patient is asked to place a mark (X) on the line at the location that represents the intensity of their pain.
- The researcher then measures the distance from the left end to the mark in millimeters or centimeters.

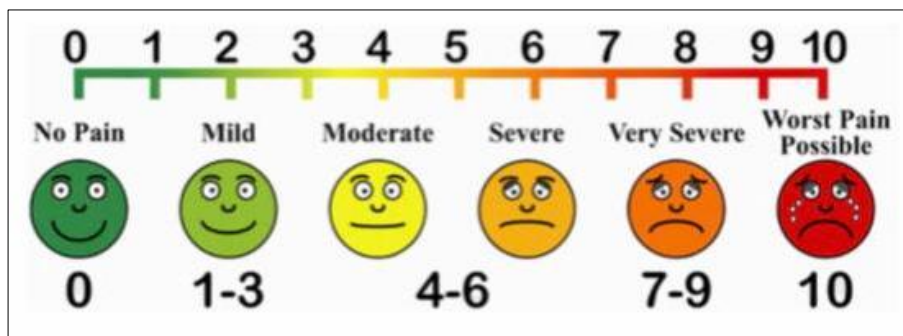


Fig 1: Illustrates the visual analogue scale for pain

Tests used in the research: The researcher developed a questionnaire containing several specific tests related to lower back pain. After presenting it to orthopedic and joint surgery specialists and sports medicine specialists, they identified the appropriate tests to measure physical variables and their suitability for the research sample.

Schober Test ^[5]

- **Purpose of the test:** To measure flexibility or the amount of extension that occurs in the lumbar vertebrae.
- **Unit of measurement:** Centimeters and their parts.

Tools used

- Measuring tape.
- Supporting staff.
- Camera.
- Registration form.
- **Test description:** A point is identified at the spinous process of the fourth lumbar vertebra, marked 5 cm below it and another mark 10 cm above it. The subject is asked to bend their body forward as far as possible from a standing position, ensuring that their knees are not bent. Figure (36) illustrates this.
- **Recording Method:** The new distance between the two points is measured and the reading (flexibility level) is recorded.



Fig 2: Illustrates the Schober test.

Standing Forward Flexion Test

Purpose of the test: To measure the angles of the trunk's range of motion in the lumbar region as a function of trunk movement. Equipment Used:

- Supporting staff.
- Camera.
- Recording form.
- **Test Description:** From a standing position, a camera is installed perpendicular to the tester's body. The tester

then performs the required movement upon hearing the command to flex forward, as shown in Figure (37).

- **Recording Method:** The range of motion angles are obtained using a motion analysis program.

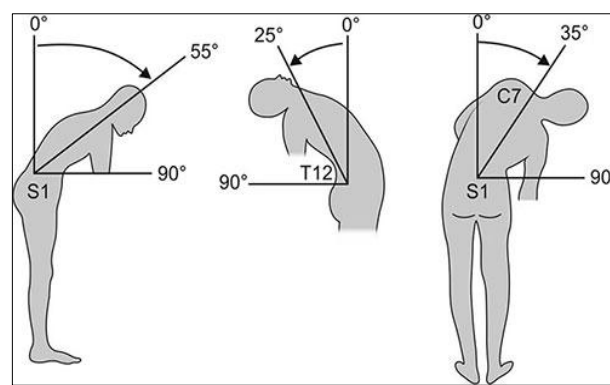


Fig 3: Illustrates the standing forward flexion test ^[6]

Standing Backward Extension Test

- **Purpose of the test:** To measure the angles of the trunk's range of motion in the lumbar region as a function of trunk movement. Equipment Used:
 - Supporting staff.
 - Camera.
 - Recording form.
- **Test Description:** From a standing position, a camera is installed perpendicular to the subject's body. The subject then performs the required movement upon hearing the command to extend backward, as shown in Figure (38).
- **Recording Method:** Range of motion angles are obtained using a motion analysis program.

Right and Left Trunk Flexion Test ^[7]

- **Purpose of the Test:** To measure the range of motion angles of the trunk in the lumbar region as a function of trunk movement.
- **Equipment Used:**
 - Supporting staff.
 - Camera.
 - Recording Form.
- **Test Description:** From a standing position, a camera is installed perpendicular to the subject's body. The subject then performs the required movement upon hearing the command to flex right and left, as shown in Figures (39) and (40).
- **Recording Method:** Range of motion angles are obtained using a motion analysis program.

Results and Discussion

Table 1: Presentation, analysis and discussion of the results of the (Schober test)

Research variables	Mean	N	SD	Mean diff.	SD diff.	(t) value	Sig. value	Significance of differences
Chopper test	Pretest	4.69	10	0.77	4.18	26.64	0.000	Sig.
	Posttest	8.87	10	0.91				

The results of the Schober test in this study showed a significant and statistically significant improvement in the range of motion of the lumbar spine after implementing the proposed treatment program (dry and wet cupping + rehabilitation exercises). The mean increased from 4.69 ± 0.77 cm pre-operatively to 8.87 ± 0.91 cm post-operatively, with a mean difference of 4.18 cm. This result indicates that the combined program contributed to increasing the

flexibility of the lower back muscles and improving the range of motion of the lumbar vertebrae. This is consistent with previous studies that have shown that cupping stimulates blood circulation and reduces muscle inflammation, while rehabilitation exercises strengthen the muscles surrounding the spine and improve balance and stability.

These results are in line with scientific recommendations calling for the integration of manual therapy and movement

exercises in rehabilitation programs for low back pain, as this combination achieves a better complementary effect than relying on any single treatment.

The low standard deviation of the differences in this study also indicates that most participants responded similarly to the program, reflecting the effectiveness of the treatment design and the stability of its results.

Table 2: Presentation, analysis, and discussion of the results (right flexion, left flexion, forward flexion, backward extension)

Research variables		Mean	N	SD	Mean diff.	SD diff.	(t) value	Sig. value	Significance of differences
Bend right	Pretest	19.2	10	2.35	16.4	2.84	18.29	0.001	Sig.
	Posttest	35.6	10	4.93					
Bend to the left	Pretest	19.7	10	3.00	16.8	2.87	18.52	0.000	Sig.
	Posttest	36.5	10	5.04					
Forward bend	Pretest	42.3	10	2.21	26.1	1.79	46.13	0.001	Sig.
	Posttest	68.4	10	3.11					
Back stretch	Pretest	20.337	10	1.31	7.04	1.05	21.2	0.001	Sig.
	Posttest	27.45	10	1.33					

The results of the current study showed a significant improvement in all flexibility and lower back mobility variables (right flexion, left flexion, forward flexion, and backward extension) among the sample members after implementing the proposed rehabilitation program based on dry and wet cupping and rehabilitation exercises for eight weeks. The pre-mean for right flexion increased from 19.2 cm to 35.6 cm, the post-mean for left flexion increased from 19.7 cm to 36.5 cm, and the post-mean for forward flexion increased from 42.3 cm to 68.4 cm. Meanwhile, the pre-mean for backward extension increased from 20.3 cm to 27.45 cm. These results can be explained by the fact that cupping—whether dry or wet—stimulates blood circulation in the affected area, reduces muscle spasm and pain, facilitating rehabilitation exercises and increasing range of motion. Furthermore, rehabilitation exercises help lengthen and strengthen the muscles surrounding the lumbar spine and improve muscle balance, leading to a gradual increase in range of motion. The current results indicate that combining cupping with rehabilitation exercises produced a stronger synergistic effect than either treatment alone. Cupping helped reduce pain and increase blood flow, creating a better environment for more effective rehabilitation exercises. Improvements were noticeable across all parameters.

Physiological Mechanisms of Cupping

The improvements can be partly attributed to the physiological effects of cupping therapy, both dry and wet. Cupping has been known to improve the blood flow in the local area, decrease tissue hypoxia, and stimulate the elimination of metabolic waste products in muscles and fascia. This improved microcirculation can lead to a reduction in muscle tension and spasm, thereby facilitating pain relief and allowing greater freedom of movement. These findings are backed up by a number of clinical studies. The cupping therapy had a strong impact on the intensity of pain and increased functional outcomes among patients with chronic low back pain through induced localized vasodilation and activating neurohumoral mechanisms that suppress inflammation and perception of pain [8].

Role of Rehabilitation Exercises

Simultaneously, rehabilitation exercises are very important in regaining lumbar functions. Formal stretching and strengthening exercises work on the core and paraspinal muscles, enhance the elasticity of the muscles and stability of the spine. These exercises promote the balance between agonist and antagonist muscles groups by lengthening shortened muscles and strengthening weak ones which is the key to proper spinal positioning and mechanical stress on the

lumbar vertebrae. The exercise therapy in itself made a remarkable contribution to lumbar mobility and reduction in pain, which emphasizes its role as an essential element of management of chronic low back pain [9].

Synergistic Effect of Combined Therapy

Notably, the current findings indicate that cupping with rehabilitation exercises exert a synergistic effect that is higher than what is exerted by the two modalities individually. Cupping lessens pain and muscle contraction, thus providing the best atmosphere in which the patient can actively participate in the exercises of rehabilitation. The exercises, in turn, take advantage of pain relief, and better circulation caused by cupping to achieve increased flexibility and strength. This is a combined method in line with modern rehabilitation ideologies that recommend multimodal approaches to musculoskeletal disorders to treat both the biological and functional components of musculoskeletal disorders.

Clinical Implications

Clinically, the results highlight the possible importance of applying traditional forms of treatment such as cupping as a part of contemporary rehabilitation programs to patients with chronic low back dysfunction. Such combined interventions can accelerate recovery, reduce dependence on pharmacological treatments, and provide patients with sustainable functional gains. Future studies could explore the long-term effects of this combined protocol, as well as its applicability to other musculoskeletal conditions [10].

Conclusion

1. Dry and wet cupping demonstrated a positive effect in alleviating lower back pain among the sample.
2. Therapeutic rehabilitation exercises contributed to improving muscle strength and mobility of the lower back muscles.
3. The combined program (cupping + exercises) was more effective than relying on either method alone, as it led to a significant reduction in pain intensity and an improvement in back functional indicators.
4. Combining manual therapy with rehabilitation exercises contributed to improving daily performance and reducing mobility limitations in adults with lower back pain.
5. The proposed program could form the basis for future preventive treatment programs to reduce the exacerbation of lower back pain.

Recommendations

1. Implement the combined treatment program (dry and wet cupping + rehabilitation exercises) more widely in physical therapy and rehabilitation centers.
2. Educate patients about the importance of combining rehabilitation exercises with manual therapies to improve long-term treatment outcomes.
3. Conduct future studies with larger samples and longer time periods to confirm the results and increase their reliability.
4. Use various assessment tools (pain scales, functional tests, and biometric tests) to obtain more comprehensive data.
5. Develop training programs for healthcare workers on how to integrate cupping with rehabilitation exercises into treatment.
6. Encourage applied scientific research in the field of complementary medicine and its impact on the human musculoskeletal system.

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