

Original Article

Synergistic effect of Majoon-e-Suranjaan and isometric exercises in improving rheumatoid arthritis

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Received September 12, 2024; Accepted January 14, 2025; Epub February 15, 2025; Published February 28, 2025

Abstract: Objective: The study aimed to evaluate the synergistic effects of Majoon-e-Suranjaan with and without isometric exercises in patients with rheumatoid arthritis (RA). Methods: A prospective, pragmatic, community based, parallel group, single blinded randomized controlled trial conducted at Muhammad Physical Therapy and Rehabilitation Clinic and Rehabilitation Centre, Multan, from May to October 2023. The trial was approved and registered in the Iranian Registry of Clinical Trials (IRCT20230202057310N5). Ninety-five patients were randomly assigned to two groups. Group A received Majoon-e-Suranjaan (5 g orally, twice daily). Group B received the same dosage of Majoon-e-Suranjaan along with The isometric exercises. The exercise protocol for group B consisted of three weekly sessions, each lasting 40 minutes. Patients were evaluated at baseline and at the 24th week based on serological markers, including rheumatoid factor (RF), erythrocyte sedimentation rate (ESR), disease activity score (DAS), and C-reactive protein (CRP), as well as X-ray findings such as nodules and bone degeneration in affected joints. Pain, morning stiffness, and functional activities were assessed using the Western Ontario and McMaster Universities Arthritis Index (WOMAC) and the Numerical Pain Rating Scale (NPRS). Results: Of the 95 patients randomized, 90 completed the 24-week treatment. Among them, 60 (66.6%) were female, and 30 (33.3%) were male. Group B showed significantly greater improvements compared to Group A in in WOMAC activities of daily living (P=0.001), WOMAC stiffness (P=0.004), WOMAC pain and DAS (P=0.000), NPRS (P=0.001). Additionally, Group B demonstrated significant improvements in RF (P=0.001), ESR (P=0.002), and CRP (P=0.003) compared to group A. Conclusions: This study demonstrated the synergistic effect of Majoon-e-Suranjaan and isometric exercises in RA patients, highlighting the potential for more effective RA treatment strategies.

Keywords: Isometric exercises, Majoon-e-Suranjaan, rheumatoid arthritis

Introduction

Rheumatoid arthritis (RA) is an autoimmune disease characterized by persistent joint and tissue joint and tissue inflammation [1]. It is a systemic disease of unknown etiology that primarily affects the joints, causing swelling, pain, and potential loss of function. While RA most

commonly affects individuals aged 45-60 years, it can occur at any age [2].

RA affects joint function by reducing range of motion and muscle strength. It primarily involves smaller joints, such as the wrists, hands, and feet, but gradually progresses to larger joints, leading to biomechanical restrictions [2].

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Rheumatoid arthritis can be managed therapeutically using non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, or biological or synthetic agents such as disease-modifying anti-rheumatic drugs (DMARDs). However, these treatments can have significant side effects, including liver damage, gastrointestinal issues, mouth sores, and hair loss [3]. Additionally, the high cost of these therapies can reduce patient compliance, highlighting the need for more affordable and effective treatment options.

Majoon-e-Suranjaan, a conventional polyherbal formulation used in Unani medicine, has been suggested as a potential treatment for RA [4, 5]. It is known to reduce muscle damage, enhance muscle performance, and alleviate pain. Majoon-e-Suranjaan may influence the levels of pro-inflammatory cytokines such as interleukin-6 (IL-6), tumor necrosis factor- α (TNF- α), and interleukin-1 β (IL-1 β), which play a crucial role in RA pathogenesis by contributing to synovial inflammation, cartilage degeneration, and bone erosion. Additionally, chemokines play a key role in recruiting and activating immune cells in the synovium of RA patients [7]. Majoon-e-Suranjaan may regulate the expression of chemokines such as interleukin-8 (IL-8) and monocyte chemoattractant protein-1 (MCP-1), thereby modulating the inflammatory response in joints [8]. It may also reduce the expression and activity of matrix metalloproteins (MMPs), which contribute to cartilage and bone degradation [9]. Furthermore, Majoon-e-Suranjaan may inhibit prostaglandin production by regulating cyclooxygenase enzymes (COX-1 and COX-2) and exert antioxidant effects that help scavenge reactive oxygen species (ROS), thereby reducing oxidative damage in the synovium [10].

A primary physical therapy intervention for RA includes isometric exercises, which also provide immunomodulatory benefits. These exercises, commonly referred to as resistive exercises, improve muscle strength by engaging muscles against a resistive force [11, 12]. Isometric exercises have proven highly effective in RA management, enhancing patients' functional abilities, reducing dependency, and ultimately improving their quality of life. By increasing muscle power, these exercises

enable patients to move more efficiently with minimum pain [13, 14].

Managing RA presents several challenges, including comorbid conditions, high treatment costs, adverse effects of conventional medications, and inconsistent patient responses to therapy. A novel approach to RA management involves studying the synergistic effects of isometric exercises and Majoon-e-Suranjaan, a traditional Unani formulation with anti-inflammatory properties [8]. This study aims to offer a comprehensive alternative to conventional treatments by integrating strengthening exercises [14] to reduce inflammation, enhance joint stability, and improve overall function. This combined approach addresses the need for safer, more affordable treatment options, particularly for patients who cannot tolerate or afford expensive biologic therapies. Additionally, it highlights the potential benefits of combining pharmaceutical and non-pharmacological interventions for more personalized and effective care. By validating traditional medicine through evidence-based research, this approach could improve patient outcomes and quality of life while reducing reliance on conventional medications.

In this study, we propose a novel approach to RA management by exploring the synergistic therapeutic potential of Majoon-e-Suranjaan and isometric exercises. It aims to enhance our understanding of RA treatment by examining the combined effects of these interventions. This research may contribute to the development of more effective and holistic therapeutic options for individuals suffering from this debilitating autoimmune disorder.

Subject and methods

Study design

A prospective, pragmatic, community-based, parallel-group, single-blinded randomized controlled trial, approved and registered in the Iranian Registry of Clinical Trials (IRCT-20230202057310N5).

Settings and conduct

The study was conducted at Muhammad Physical Therapy and Rehabilitation Clinic and

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Rehabilitation Centre, Multan, from May to October 2023.

Sample size calculation

The sample size was calculated using the Burkoof formula [15] with a 5% level of significance and the calculated sample size was as the following:

$$n=2\sigma^2 [Z1-\alpha+Z1-\beta]^2/[\mu\sigma-\mu\alpha]^2$$

Group-A, n=50.

Group-B, n=50.

Total sample size [both groups] N=100.

Study population and inclusion/exclusion criteria

This study included male and female participants aged 25-65 years diagnosed with rheumatoid arthritis, experiencing joint pain and swelling. Patients were referred by arheumatologist. The exclusion criteria included individuals with fibromyalgia, neuropathy, tumors, vascular neoplasia, radiculopathy, joint fracture, and vestibular disorders. Written informed consent obtained from all participants. To enhance patient education, structured sessions provided comprehensive information about the disease, study objectives, and treatment protocols. Educational materials, including visual aids, were distributed to improve understanding and encourage active participation in treatment. Additionally, participants were given the opportunity to ask questions and express concerns to ensure they were well-informed.

Randomization and blinding

The research team used a sealed envelope method to assign participants to groups after enrollment and obtaining consent. Participants were Randomization was carried out using the lottery method. The designated interventions were administered by a pharmacist and a physiotherapist, while study coordinators ensured proper adherence to the protocol. To maintain objectivity, outcome assessors collected data while remaining blinded to group allocations, and the statistical analyst conducted analyses using anonymized datasets.

Main outcome variables

To evaluate the synergistic benefits of Majoon-e-Suranjaan and isometric exercises in RA, the study's primary and secondary outcomes were assessed at baseline and 24 weeks. Pain intensity was measured using the numerical pain rating scale (NPRS), a commonly used tool that allows individuals to rate their pain on a scale of 0 to 10, where 0 represents no pain and 10 signifies the worst possible pain [20]. The Western Ontario and McMaster Universities Arthritis Index (WOMAC) [21, 22] was used to assess pain, functional activity, and morning stiffness. WOMAC evaluates three key aspects: stiffness, pain, and physical function. It typically consists of a questionnaire in which patients rate the severity of their symptoms on a scale from 0 (no symptoms) to 4 (severe symptoms). The Disease Activity Score (DAS) [23] was also utilized as a composite measure, incorporating the count of tender and swollen joints, the patient's self-assessment of overall health, and the erythrocyte sedimentation rate (ESR). DAS has been validated for use ewen with a reduced number of joint assessments. A comprehensive evaluation of treatment effects was ensured through consistent outcome measurements using standardized methods and qualified personnel, guaranteeing both validity and reliability.

Parameters evaluation

Patients were assessed based on X-ray examination and serological findings (RF, ESR, CRP). The physical assessment was carried out under the supervision of a senior radiologist, rheumatologist, and physical therapist. The diagnosis of rheumatoid arthritis was made according to the American College of Rheumatology Criteria [16].

Study protocol

Five out of the hundred patients assessed were removed for the following reasons: two did not sign the consent form, and the remaining three did not meet the inclusion criteria. The remaining ninety-five patients were randomly divided into two groups based on the inclusion criteria, with forty-seven patients in group A and forty-eight patients in group B. Two patients from group A were lost to follow up, and three patients from group B discontinue the session.

Effectiveness of Majoon-e-Suranjaan in RA

Table 1. Formula of preparation of Majoon-e-Suranjaan according to NFUM

| Ingredients | Weight (mg) |
|------------------------------|-------------|
| Turpeth Root | 441.17 |
| Chebulic Myrobalan | 220.5 |
| Meadow Saffron | 220.5 |
| Fish Berry | 44.11 |
| Caper Bush Root | 44.11 |
| Ceylon Leadwort | 44.11 |
| Ginger | 44.11 |
| Rose | 44.11 |
| Coriander | 44.11 |
| Cuttle Fish Bone | 33.08 |
| Henna Leaf | 33.08 |
| Common Salt | 33.08 |
| Oregano | 33.08 |
| Aloes Extract | 33.08 |
| Black Pepper | 33.08 |
| Fennel Seed | 33.08 |
| Celery Seed | 33.08 |
| Scammony | 33.08 |
| Preservative Sodium Benzoate | 5.51 |

Group A (control group) received Majoon-e-Suranjaan, while group B (treatment group) was treated with isometric exercises and Majoon-e-Suranjaan. A dose of 5 grams, twice a day was recommended for RA patients in both groups, following the National Formulary of Unani Medicine (NFUM) guidelines (Table 1). The treatment was administered under the supervision of a medical practitioner and a pharmacologist [17] (Figure 1).

The isometric exercises for group B included resistive exercises for both upper and lower extremities (Figure 2). The upper extremities involved the upper arm, forearm, and hand. The resistive exercises for these areas included MCP flexion, eccentric wrist extension, gross grip, wrist circumduction, finger pinch, and finger abduction and adduction. Additionally, the regimen incorporated weightlifting, resistance training with a medicine ball for the hands, resistance training with weights for the shoulders or elbows, and resistance exercises with shoulder therapy bands [18]. The lower extremities involved the ankle, knee, and tarsal or metatarsal regions. The resistive exercises for these areas included steps ups, step back lounge, prone leg curls or single leg curls, and

stability ball leg curls. Resistance training also included pressing a soft roller with the knee and using ankle weight. Furthermore, resisted dorsiflexion resisted plater flexion. and resisted eversion and inversion were part of the lower extremities' resisted exercises [19]. The intervention protocol for Group B was of three sessions per week, with each session lasted 40 minutes. The intervention protocol for Group B was of three sessions per week, with each session lasting 40 minutes.

Statistical analysis

To assess quantitative data, the Statistical Packages for the Social Sciences (SPSS, version 23) was used. A *p* value of less than 0.005 was considered significantly significant. The means of two independent groups were compared using the independent t-test, which is appropriate for determining whether two unrelated groups (Group A and Group B) differ significantly in the outcome variable. The test assumes that the variances of both groups are homogeneous and that the data are normally distributed within each group. To examine differences between two time intervals or conditions within the same group, the paired t-test was used. This test is designed for repeated measures, where the same subjects are tested twice under different conditions (before and after the intervention).

Results

In total, 95 patients were randomized, and 90 completed the 24-week treatment period (Figure 1: CONSORT diagram illustrating the flow of participants through each stage of the randomized trial). The study included 30 males and 60 females (Table 2). Compared to patients receiving Majoon-e-Suranjaan alone, those receiving both Majoon-e-Suranjaan and isometric exercises showed significant improvements across all efficacy endpoints ($P < 0.005$). With *p*-values ranging from 0.001 to 0.005, Group A demonstrated substantial reductions in RF, ESR, WOMAC pain, stiffness, ADL scores, NPRS, and DAS from baseline to the 18th session. In contrast, Group B showed even more pronounced improvements, with *p*-values of 0.000, indicating significant reductions in WOMAC pain, stiffness, RF, ESR, CRP, ADL scores, NPRS, and DAS. These findings suggest that, compared to Group A, Group B experi-

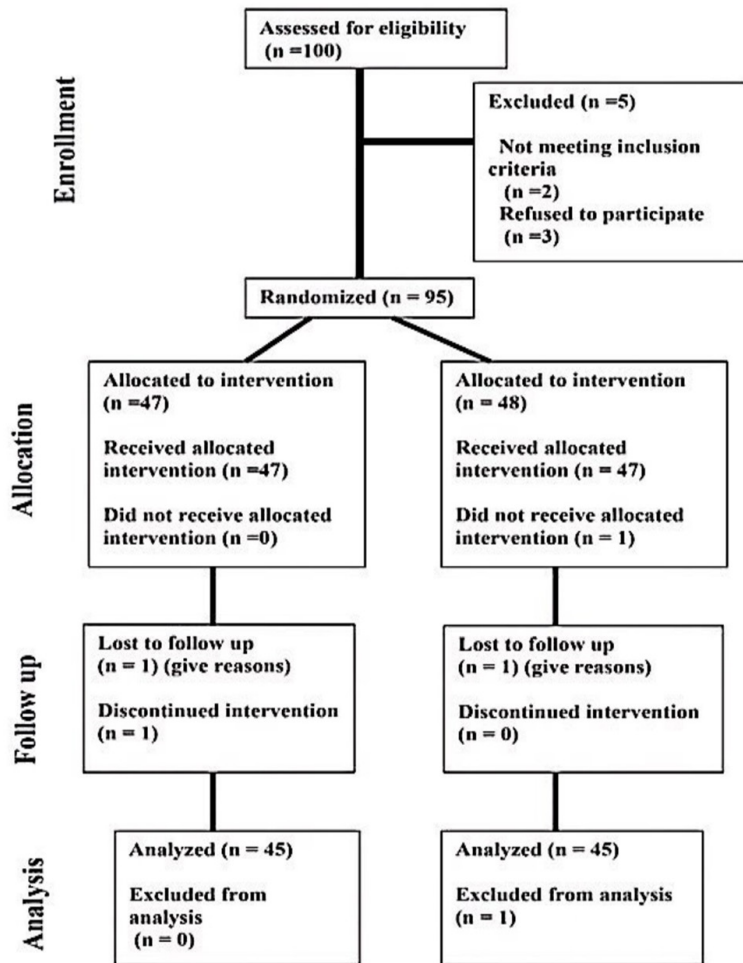


Figure 1. CONSORT diagram showing the flow of participants through each stage of a randomized trial.

enced more extensive and statistically significant improvements in all examined parameters. Intergroup comparisons revealed significant differences between the two groups, with Group B consistently exhibiting lower values than Group A across all measured outcomes.

Impact on serological parameters: In particular, Group B exhibited significantly lower RF (Mean Difference: 9.14, $P=0.001$), ESR (Mean Difference: 20, $P=0.000$), and CRP (Mean Difference: 2.8, $P=0.005$) as shown in **Table 4**.

Impact on functional parameters: Group B also showed significantly lower WOMAC stiffness score (Mean Difference: 1.18, $P=0.000$), WOMAC ADLs score (Mean Difference: 19.92, $P=0.003$), NPRS (Mean Difference: 1.91, $P=0.000$), and DAS (Mean Difference: 2.00,

$P=0.000$). These results indicate that, compared to Group A, Group B demonstrated significantly greater improvements across all these metrics (**Tables 3, 4**).

Radiological findings

Group A (Majoon-e-Suranjaan only) exhibited persistent joint erosion and inflammation, suggesting that the herbal remedy alone may not be sufficient to prevent joint damage. This observation was based on a comparison of pre-treatment and post-treatment X-rays.

In contrast, Group B (Majoon-e-Suranjaan + Isometric Exercises) showed more controlled disease progression in, indicating that incorporating isometric exercises into the treatment regimen may help reduce joint deterioration and swelling (**Figure 3**).

Discussion

The results of this study highlight the potential benefits of incorporating isometric exercises alongside Majoon-e-Suranjaan, a traditional Unani formulation [24], for the treatment of rheumatoid arthritis (RA). This synergistic approach significantly improved clinical symptoms and overall quality of life in patients with this chronic condition. The findings indicate that in RA patients, combining isometric exercises with Majoon-e-Suranjaan led to greater improvements in daily activities, muscle stiffness, and pain while also significantly reducing quantitative markers such as RF, CRP, ESR, or joint tenderness, compared to using Majoon-e-Suranjaan alone (**Tables 3, 4**). Since RA is an autoimmune disease, both isometric exercises and Majoon-e-Suranjaan appear to act synergistically as immunomodulators, helping to regulate immune function and manage RA symptoms [8, 12].

Numerous traditional herbal preparations have been found effective in managing RA symp-



Figure 2. Isometric exercises for RA patients. A. A person performing a hand or finger strengthening exercise by pushing a resistance band apart with both hands. B. Ankle isometric exercises using a resistance band, where a person places their feet in the band to strengthen the muscles in the feet, ankles, and legs. C. A person holding a stress ball to enhance grip strength and strengthen hand muscles. D. Knee isometric exercises using a resistance band, targeting the muscles around the knee joint, including the quadriceps and hamstrings.

toms in previous research [9, 18]. RA is a chronic autoimmune disease characterized by joint inflammation, leading to pain, swelling, stiffness, and loss of function. The condition occurs when the immune system mistakenly attacks the synovium, the membrane lining the joints, triggering the release of inflammatory cytokines, including TNF- α (tumor necrosis factor-alpha), IL-1, and IL-6, which contribute to further joint degradation. While non-steroidal anti-inflammatory drugs (NSAIDs) and disease-

modifying anti-rheumatic medications (DMARDs) remain the cornerstone of conventional treatment, there is growing interest in alternative therapies, including herbal medicine and exercise [8].

Majoon-e-Suranjaan is a traditional polyherbal Unani formulation with Suranjaan (*Colchicum luteum*) as one of its key ingredients. Suranjaan possesses anti-inflammatory and analgesic properties, primarily due to the presence of

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Table 2. Demographic data of participants

| Variables | Group A n (%) | Group B n (%) |
|---------------------|---------------|---------------|
| Age (years) | | |
| 25-35 | 8 (17.71) | 6 (13.33) |
| 35-45 | 10 (22.22) | 12 (26.67) |
| 45-55 | 15 (33.33) | 13 (28.88) |
| 55-65 | 12 (26.67) | 14 (31.11) |
| Gender | | |
| Male | 22 (48.89) | 8 (17.77) |
| Female | 23 (51.11) | 37 (82.22) |
| Marital status | | |
| Single | 16 (35.55) | 14 (31.11) |
| Married | 18 (40) | 19 (42.22) |
| Divorce | 7 (15.55) | 8 (17.77) |
| Widow | 4 (8.88) | 4 (8.88) |
| Disease duration | | |
| 5 years | 13 (28.88) | 14 (31.11) |
| 10 years | 15 (33.33) | 13 (28.88) |
| 15 years | 10 (22.22) | 10 (22.22) |
| 20 years | 7 (15.55) | 8 (17.77) |
| No of swollen joint | | |
| 1 | 6 (13.33) | 8 (17.77) |
| 2 | 12 (26.67) | 10 (22.22) |
| 3 | 11 (24.44) | 12 (26.67) |
| 4 | 9 (20) | 8 (17.77) |
| 5 | 6 (13.33) | 7 (15.55) |
| Functional Class | | |
| FC (I) | 5 (11.11) | 3 (6.66) |
| FC (II) | 15 (33.33) | 17 (37.77) |
| FC (III) | 20 (44.44) | 22 (48.88) |
| FC (IV) | 5 (11.11) | 3 (6.66) |

FC: Functional class.

the alkaloid colchicine. Colchicine inhibits microtubule polymerization, suppressing leukocyte migration and reducing the release of cytokines, such as IL-1 β and TNF- α . This mechanism helps mitigate synovial inflammation and prevent joint damage [6, 25].

Majoon-e-Suranjaan may also contain antioxidants that reduce oxidative stress, a key factor in the pathophysiology of RA. By scavenging reactive oxygen species (ROS), the formulation helps minimize oxidative damage to joint tissues. These combined actions may contribute to reducing discomfort and swelling associated with RA [7].

Isometric workouts involve static muscle contractions without joint movement, helping to

strengthen and stabilize the muscles surrounding affected joints [26]. Strengthening these muscles enables RA patients to move more freely and reduces joint stress, as muscle weakness can accelerate joint deterioration [27]. At the molecular level, isometric exercises decrease pro-inflammatory markers such as TNF- α and IL-6 while increasing the production of anti-inflammatory cytokines like IL-10 [11, 12].

This shift in cytokine balance can slow joint degeneration and help regulate inflammation [24]. Additionally, isometric workouts enhance synovial fluid circulation, improving nutrient transport to cartilage and supporting overall joint health [12].

The research suggests that combining Majoon-e-Suranjaan with isometric workouts is more effective than using either therapy alone. While isometric exercises focus on musculoskeletal strengthening and functional improvement, the herbal formulation primarily works through biochemical pathways, reducing inflammation and oxidative stress [8, 12].

Isometric workouts promote the production of anti-inflammatory cytokines and enhance joint function [26], while the herbal components of Majoon-e-Suranjaan may suppress pro-inflammatory mediators and reduce oxidative damage at the molecular level [28]. When combined, these therapies may offer a more comprehensive therapeutic effect, alleviating pain, improving joint function, and slowing the progression of RA [29]. The synergy between these treatments likely arises from their complementary mechanisms. Isometric exercises address the mechanical and physical limitations imposed by the disease, whereas Majoon-e-Suranjaan mitigates the biochemical and inflammatory drivers of RA [30]. By simultaneously targeting different aspects of RA pathogenesis, this combination approach may optimize symptom relief and functional improvement [8, 11, 12].

Despite its contributions, this study has certain limitations, including a small sample size and single-centered design. However, its findings may inspire young researchers to explore this area further. Future research should focus on expanding our understanding of RA treatment

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Table 3. Intragroup comparison was calculated and the respective *p*-values were estimated for the significance (<0.005) and highly significance (<0.001) with respect to baseline and 18th session of the treatment in both groups

| Parameters | N | Baseline Mean ± SD | 9 th session Mean ± SD | 18 th session Mean ± SD | <i>p</i> -value |
|-----------------------|----|--------------------|-----------------------------------|------------------------------------|-----------------|
| Group-A | | | | | |
| RF (IU/mL) | 45 | 34.16±6.75 | 25.85±4.95 | 19.34±3.20 | 0.005 |
| ESR (mm/hr) | 45 | 89±19.9 | 78±14.2 | 50±5.2 | 0.005 |
| CRP (mg/dL) | 45 | 11.1±6 | 6±3.1 | 4±2.3 | 0.002 |
| WOMAC pain score | 45 | 17.14±2.75 | 14.66±3.65 | 10.32±2.30 | 0.001 |
| WOMAC stiffness score | 45 | 7.80±1.15 | 4.6±0.86 | 3.60±0.51 | 0.005 |
| WOMAC ADLs score | 45 | 49.57±22.14 | 39.40±19.63 | 30.46±12.46 | 0.005 |
| NPRS | 45 | 6.62±1.36 | 5.90±1.20 | 4.36±1.22 | 0.001 |
| DAS | 45 | 5.86±0.64 | 5.17±0.54 | 4.01±0.74 | 0.005 |
| Group-B | | | | | |
| RF (IU/mL) | 45 | 30±6.4 | 19.1±3.1 | 10.2±1.1 | 0.000 |
| ESR (mm/hr) | 45 | 88±21.6 | 69.32±9.8 | 30±3.6 | 0.000 |
| CRP (mg/dL) | 45 | 10.1±5.1 | 5.11±2.2 | 1.2±0.6 | 0.000 |
| WOMAC pain score | 45 | 14.56±2.11 | 10.32±4.20 | 3.14±2.01 | 0.000 |
| WOMAC stiffness score | 45 | 6.08±1.01 | 4.23±2.12 | 2.42±1.46 | 0.000 |
| WOMAC ADLs score | 45 | 52.43±1065 | 31.47±20.21 | 10.54±6.51 | 0.000 |
| NPRS | 45 | 8.20±1.02 | 6.04±2.43 | 2.45±1.55 | 0.000 |
| DAS | 45 | 5.86±0.64 | 3.17±0.54 | 2.01±0.74 | 0.000 |

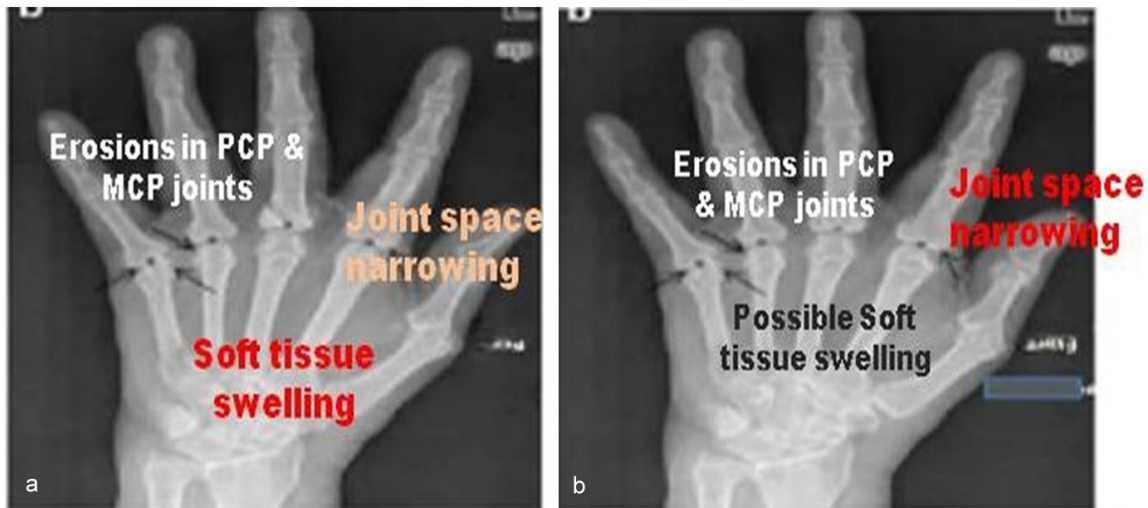
RF: Rheumatic factor; ESR: Erythrocyte sedimentation rate; CRP: C-reactive proteins; SD: Standard Deviation; WOMAC: Western Ontario and McMaster Universities Arthritis Index; NPRS: Numerical pain rating scale; DAS: Disease activity score; ADLs: Activities of daily life.

Table 4. Intergroup comparisons were evaluated by independent t-test and the appropriate t-values were calculated to measure statistical significance

| Parameters | | N | Mean ± SD | Mean Difference | t value | Significance (2-tailed) |
|-----------------------|---------|----|------------|-----------------|---------|-------------------------|
| RF (IU/mL) | Group-A | 45 | 19.34±3.20 | 9.14 | 18.12 | 0.001 |
| | Group-B | 45 | 10.2±1.1 | 9.14 | | |
| ESR (mm/hr) | Group-A | 45 | 50±5.2 | 20 | 21.21 | 0.000 |
| | Group-B | 45 | 30±3.6 | 20 | | |
| CRP (mg/dL) | Group-A | 45 | 4±2.3 | 2.8 | 7.90 | 0.005 |
| | Group-B | 45 | 1.2±0.6 | 2.8 | | |
| WOMAC pain score | Group-A | 45 | 10.32±2.30 | 6.72 | 15.77 | 0.000 |
| | Group-B | 45 | 3.14±2.01 | 6.72 | | |
| WOMAC stiffness score | Group-A | 45 | 3.60±0.51 | 1.18 | 5.12 | 0.000 |
| | Group-B | 45 | 2.42±1.46 | 1.18 | | |
| WOMAC ADLs score | Group-A | 45 | 30.46±12.6 | 19.92 | 9.42 | 0.003 |
| | Group-B | 45 | 10.54±6.51 | 19.92 | | |
| NPRS | Group-A | 45 | 4.36±1.22 | 1.91 | 6.49 | 0.000 |
| | Group-B | 45 | 2.45±1.55 | 1.91 | | |
| DAS | Group-A | 45 | 4.01±0.74 | 2.00 | 12.82 | 0.000 |
| | Group-B | 45 | 2.01±0.74 | 2.00 | | |

RF: Rheumatic factor; ESR: Erythrocyte sedimentation rate; CRP: C-reactive proteins; SD: Standard Deviation; WOMAC: Western Ontario and McMaster Universities Arthritis Index; NPRS: Numerical pain rating scale; DAS: Disease activity score; ADLs: Activities of daily life.

Group-A (Majoon-e-Suranjaan)



Group-B (Majoon-e-Suranjaan)+ Isometric Exercises

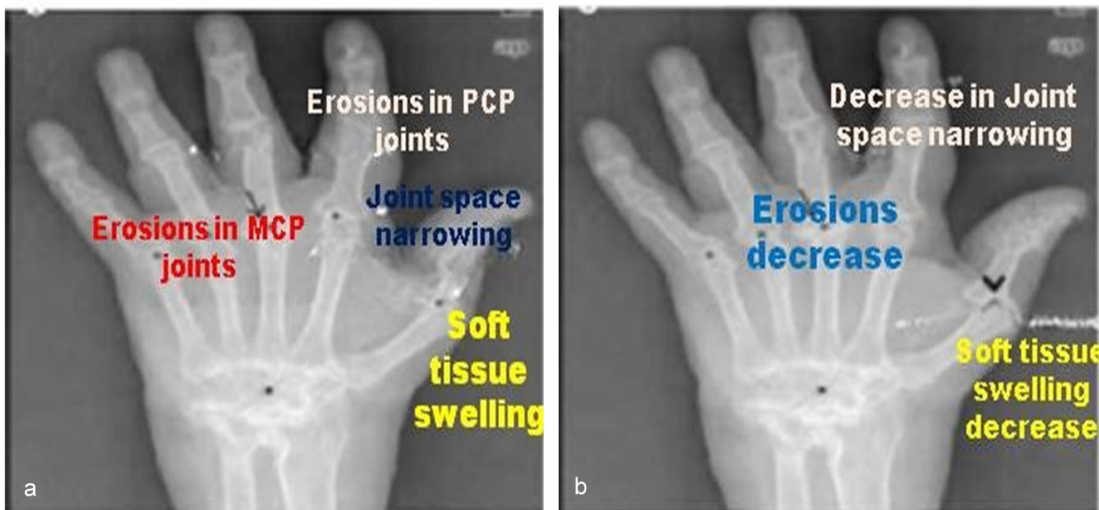


Figure 3. X-ray presentation of rheumatoid arthritis in the hand before and after treatment in both groups. The pre-treatment X-rays of Group A show joint space narrowing, soft tissue edema, and erosion in the MCP joints, indicating ongoing inflammation and joint damage. Following treatment, no significant improvement in joint condition is observed. Similarly, the pre-treatment X-rays of Group B reveal joint space narrowing, soft tissue edema, and erosion in the MCP joints. However, post-treatment findings suggest that, while joint space narrowing and erosion persist, the severity of soft tissue edema appears to have decreased. These observations suggest that Majoon-e-Suranjaan in combination with isometric exercises, may offer better protection and rehabilitation as the X-rays indicate reduced evidence of joint erosion and inflammation progression.

by examining the combined effects of various therapies, ultimately contributing to the development of more effective and holistic therapeutic options for individuals suffering from this debilitating autoimmune disorder.

Conclusion

Both Majoon-e-Suranjaan and isometric exercises have a synergistic effect in reducing the impact of rheumatoid arthritis. The combined

approach significantly lowers quantitative markers associated with the disease. By regulating cytokines and inflammatory biomarkers or reducing their levels in RA patients, Majoon-e-Suranjaan demonstrates excellent efficacy. Therefore, incorporating both Majoon-e-Suranjaan and isometric exercises can enhance the management of RA. Additionally, Majoon-e-Suranjaan is more affordable than conventional pharmaceutical medications and is readily available in herbal medicine shops. Isometric exercises, once prescribed by a senior physiotherapist, can be performed at home. Together, these methods provide a safer and more effective approach to RA treatment.

Acknowledgements

The authors of this study extend their appreciation to the Researchers Supporting Project (RSPD2024R856), King Saud University, Riyadh, Saudi Arabia.

Funding: The author(s) disclosed receipt of the following financial support for the research, or publication of this article: this study was supported by a researchers supporting project (RSPD2024R856), King Saud University, Riyadh, Saudi Arabia.

Disclosure of conflict of interest

None.

Abbreviations

RA, Rheumatoid Arthritis; WOMAC ADLs, Western Ontario and McMaster Universities Arthritis Index Activities of daily life; WOMAC stiffness, Western Ontario and McMaster Universities Arthritis Index stiffness; WOMAC pain, Western Ontario and McMaster Universities Arthritis Index pain; DAS, Disease modifying scale; NPRS, Numeric pain rating scale; RF, Rheumatic factor; ESR, Erythrocyte sedimentation rate; CRP, C-reactive proteins; NSAIDs, non-steroidal anti-inflammatory drugs; DMARDs, disease-modifying anti-rheumatic drugs; IL-6, Interleukin-6; TNF- α , Tumor necrosis factor- α ; IL-1 β , Interleukin-1 β ; MCP-1, Monocyte chemoattractant protein-1; MMP, Matrix metallo protein; COX-1 and COX-2, cyclooxygenase enzymes; NFUM, National Formulary of Unani Medicine; MCP, Metacarpal phalangeal joint; ANOVA, Analysis of Variance.

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