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# AGNIKARMA IN MUSCULOSKELETAL PAIN FROM CLASSICAL RATIONALE TO CLINICAL EVIDENCE

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## ABSTRACT

**Background:** Agnikarma is an Ayurvedic thermal cautery procedure discussed in relation to painful disorders. Interest in its use for musculoskeletal pain requires critical examination of traditional reasoning, clinical outcomes, and procedural safety. Aim: To review the conceptual basis of Agnikarma and assess selected evidence relevant to knee osteoarthritis and tennis elbow. **Methodology:** A focused narrative review examined an accessible translation of the Sushruta Samhita, selected clinical publications, and professional guidance. No systematic search or meta-analysis was performed. Review findings: Classical descriptions emphasize selection of the patient, treatment site, instrument, and intended tissue effect. Small comparative studies report symptomatic improvement, but limited sample sizes, open-label designs, differing comparators, and restricted follow-up reduce certainty. Case reports provide clinical observations but cannot establish efficacy. Proposed analgesic mechanisms remain hypotheses rather than proven explanations. Conclusion: Agnikarma merits further investigation as a possible adjunct for selected musculoskeletal conditions. Current evidence does not establish structural repair, permanent cure, or superiority over comprehensive standard care. Diagnostic accuracy, informed consent, prevention of excessive tissue injury, and systematic adverse-event reporting are essential.

**KEYWORDS:** Agnikarma; Thermal cautery; Musculoskeletal pain; Shalya Tantra; Knee osteoarthritis; Tennis elbow; Narrative review.

## INTRODUCTION

Agnikarma refers to the therapeutic application of heat within the Ayurvedic surgical tradition. The Agnikarmavidhi chapter of the Sushruta Samhita describes cautery, implements, patterns of application, patient selection, and unwanted burns. Its classical significance is therefore both therapeutic and procedural: the intended effect depends on the site and manner of application. Historical claims of lasting cure require modern clinical verification.[1]

Contemporary research has explored Agnikarma for painful musculoskeletal conditions. A preliminary randomized comparison with therapeutic ultrasound in tennis elbow illustrates the move toward clinical evaluation, while also highlighting the limitations of small, unblinded studies. Improvement in symptoms should be distinguished from evidence of tissue repair or prevention of recurrence.[2]

Knee osteoarthritis has also been investigated through comparison of different Agnikarma instruments. Such studies can inform questions about technique, but comparisons between two active versions of a procedure do not establish its benefit over sham treatment, usual care, or rehabilitation. This review considers traditional principles alongside these methodological distinctions.[3]

## AIM

To review the classical basis, proposed mechanisms, clinical evidence, and safety considerations of Agnikarma in musculoskeletal pain, with emphasis on knee osteoarthritis and tennis elbow.

## METHODOLOGY

A focused narrative review was prepared from selected sources consulted on 24 October 2026. Web searches used terms including Agnikarma, thermal cautery, knee osteoarthritis, tennis elbow, clinical trial, and safety. Sources comprised an accessible classical translation, PubMed-indexed clinical publications, and NICE guidance. Selection was purposive, emphasizing sources with identifiable clinical designs or direct relevance to the topic. No registered protocol, exhaustive database search, formal risk-of-bias scoring, or quantitative

synthesis was undertaken. Traditional propositions, observed clinical outcomes, and the present review's interpretations were considered separately.

## Detailed Review

### Concept and classical foundation

Within Ayurveda, Agnikarma belongs to the procedural management of selected disorders. Agni denotes fire or heat, while karma denotes an action or intervention. Classical reasoning associates its use with certain painful presentations described through vata and related traditional categories. These categories should be presented as Ayurvedic explanatory constructs rather than direct equivalents of neurological or inflammatory mechanisms.

The classical account distinguishes patterns such as dots, rings, lines, and rubbing, and relates selection to the affected region and patient. It also recognizes undesirable tissue injury. This supports an interpretation of Agnikarma as a procedure requiring judgment and control, rather than indiscriminate application of heat. Historical descriptions are not a substitute for a validated contemporary treatment protocol.

### Distinction from ordinary heat therapy

Agnikarma involving cautery intentionally produces a localized tissue effect and may disrupt the skin barrier. It therefore differs from the noninjurious warming intended with a hot pack. Therapeutic ultrasound, electrical cautery, and metal-probe Agnikarma also represent different technologies. Findings from one intervention should not be transferred automatically to another merely because heat is involved.

For meaningful comparison, reports need to identify the device or material used, method of heat delivery, anatomical target, treatment extent, number of sessions, and accompanying care. Naming the intervention without describing these features leaves uncertainty about what was actually tested and whether another clinician could reproduce it.

### Traditional rationale and proposed analgesic mechanisms

Traditional accounts describe the intervention in terms of counteracting qualities associated with the disorder and restoring local functional balance. These explanations communicate the internal logic of Ayurvedic practice. They do not themselves demonstrate a biological pathway or establish that a particular patient will benefit.

Possible biomedical explanations include modulation of peripheral sensory input and changes in pain perception after a local stimulus. These are hypotheses for research. A reduction in a pain score cannot establish a specific neural mechanism, and it does not demonstrate cartilage regeneration, tendon healing, or reversal of joint degeneration. Studies designed to test mechanisms would need appropriate physiological measurements and controls.

**Clinical evidence in tennis elbow**

Sreelekshmi and colleagues reported a preliminary randomized comparison involving 30 patients, with 15 allocated to Agnikarma and 15 to therapeutic ultrasound. Outcomes included numerical pain ratings, tenderness, and the Patient Rated Tennis Elbow Evaluation questionnaire. Assessments continued to day 60. Both groups improved; the authors reported advantages for Agnikarma on selected pain and functional comparisons.

The open-label design and small sample limit confidence in the magnitude and reproducibility of the apparent benefit. An active comparator provides useful information but does not isolate expectation, attention, or other contextual effects. Follow-up over approximately two months cannot establish permanent relief. The study supports further investigation rather than a broad claim of definitive superiority.

**Clinical evidence in knee osteoarthritis**

Jethava and colleagues compared Agnikarma performed with silver and iron instruments in knee osteoarthritis. Symptomatic improvement was reported in both groups. The published comparison did not show a statistically significant difference between the groups, despite numerical differences in pain relief. A numerically larger response should therefore not be described as proven superiority of one instrument.

Because both groups received Agnikarma, this design primarily addresses differences between techniques. It does not establish the absolute effect of the procedure or its added value over exercise-based management. Reported symptom changes should also be separated from structural outcomes; pain relief alone provides no evidence of restored cartilage or slowed disease progression.

**What case reports can contribute**

An earlier tennis-elbow report described improvement after a combination of Agnikarma and oral Ayurvedic medicines. Such reports can document the clinical setting, feasibility, and

events observed during care. They can also generate questions for later studies. However, a single patient's response cannot establish a treatment effect.

Combination treatment creates an additional attribution problem: the respective contributions of the procedure, medicines, activity changes, and natural recovery cannot be separated. Claims based on these reports should therefore remain descriptive. They should not be converted into numerical success rates or generalized assurances of safety.

**Patient assessment and procedural responsibility**

A diagnosis should precede consideration of a local procedure. Pain associated with an unexplained mass, acute trauma, suspected infection, progressive neurological symptoms, or systemic illness requires appropriate assessment. Applying cautery to a painful area without identifying the cause risks delaying care and can complicate subsequent evaluation.

As a clinical safety consideration, assessment should include skin condition, local sensation, circulation, healing capacity, relevant medicines, and the patient's ability to attend follow-up. These factors should inform individual judgment; this review does not establish a universally validated eligibility checklist. A trained practitioner should explain the expected local tissue effect, uncertainties, alternatives, and potential adverse outcomes before obtaining consent.

**Treatment stages and follow-up**

A useful descriptive framework separates preparation, treatment, and aftercare. Preparation includes confirming the indication, documenting baseline symptoms, consent, and readiness for wound care. The treatment record should describe what was applied and where. Aftercare should document healing, function, and any unplanned review or additional treatment.

This framework is not an instruction for performing cautery. The selected evidence does not justify a universal temperature, exposure time, contact pressure, or treatment pattern. A standardized protocol would need validation before being treated as transferable across devices, anatomical regions, and patient populations.

**Safety and limits of interpretation**

Potential consequences of a procedure that injures skin include excessive burns, persistent pain, infection, altered pigmentation, scarring, and delayed healing. Their frequencies cannot be estimated from the small studies reviewed here. Reporting no serious event in a small series is insufficient to establish that an intervention is safe for routine or repeated use.

Adverse-event reporting should distinguish the intended local lesion from unintended injury. Useful outcomes include healing time, persistent marks, infection requiring treatment, altered sensation, and the patient's assessment of acceptability. Follow-up should extend beyond the immediate reduction in pain so that delayed problems are not missed.

## DISCUSSION

The evidence reviewed suggests a researchable intervention with preliminary signals of symptomatic benefit. Its interpretation depends on study design. A case report of combined Agnikarma and oral treatment illustrates why improvement in an individual cannot identify the active component or predict outcomes in a wider population.[4]

Diagnostic safeguards are especially important. Pandey and Shukla described two patients with soft-tissue sarcoma who had undergone therapeutic burning by traditional healers without benefit. Burn-related scars complicated subsequent surgical management. These cases concern inappropriate treatment of malignancy and do not quantify risk in properly selected musculoskeletal care, but they demonstrate the consequences of treating a symptom without an adequate diagnosis.[5]

Any proposed adjunctive use should be considered within comprehensive condition-specific care. NICE identifies tailored therapeutic exercise and, where appropriate, weight management as core components of osteoarthritis treatment. Agnikarma has not been established by the selected evidence as a replacement for these measures or for indicated specialist assessment.[6]

Future trials should distinguish two questions: whether Agnikarma has a specific effect, and whether adding it to usual care improves outcomes important to patients. A credible control, concealed allocation, blinded assessment where feasible, prespecified outcomes, and adequate follow-up would strengthen interpretation. The visible local treatment effect can make participant blinding difficult; this limitation should be acknowledged and addressed transparently.

Pain scores should be interpreted alongside function, activity, quality of life, additional analgesic use, recurrence, healing, and adverse effects. Between-group effect sizes and confidence intervals would help readers assess clinical importance. Statistically significant change within a treatment group alone cannot establish comparative efficacy.

This review is limited by focused source selection and the absence of a systematic search or formal appraisal framework. It cannot determine the complete evidence base or calculate an overall treatment effect. Its central inference is that promising observations justify better trials, while present uncertainty requires careful limits on efficacy and safety claims.

## CONCLUSION

Agnikarma is a classical Ayurvedic cautery procedure with continuing interest in musculoskeletal pain management. Selected studies report symptomatic improvement in tennis elbow and knee osteoarthritis, but methodological limitations prevent firm conclusions about comparative benefit, durability, and safety. Clinical use requires accurate diagnosis, informed consent, trained procedural care, and follow-up. Larger, well-controlled studies with standardized reporting are needed before claims of permanent cure, structural repair, or replacement of established treatment can be supported.

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