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EFFICACY AND SAFETY OF HIRAN JOINTS ENERGY POWDER IN ADULTS WITH KNEE JOINT SYMPTOMS: AN OPEN-LABEL SINGLE-ARM CLINICAL TRIAL

Clinical Research

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ABSTRACT

Background: Knee osteoarthritis and age-related knee pain represent a major public health burden in adults, particularly in populations over the age of 35 years. These conditions are characterised by pain, reduced range of motion, morning stiffness, and progressive impairment of daily activities that collectively diminish quality of life. In the absence of disease-modifying therapies, management focuses largely on symptom relief, functional restoration, and slowing of functional decline. Validated patient-reported outcome measures including the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and the Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2) are widely used in clinical research to quantify the impact of knee-related disorders and to evaluate therapeutic responses. Hiran Joints Energy Powder, an investigational joint-health product, was evaluated in a prospective clinical study for its potential to improve knee symptoms in adults presenting with limping gait, abnormal weight bearing, and chronic knee pain. Methods: This was a single-site, open-label, single-arm clinical trial conducted in Hyderabad, Telangana, India, enrolling 50 adult subjects aged 35–60 years. Participants received Hiran Joints Energy Powder over a 90-day period. Efficacy was assessed at baseline, Day 7, Day 45, and Day 90 using physical knee examination, SF-MPQ-2, visual analog scale (VAS) for pain, WOMAC score, knee pain outcome score, and a self-assessment questionnaire. Safety was evaluated through adverse event monitoring, clinical observation, and review of concomitant medications. Within-subject changes were analysed using paired parametric or non-parametric tests and the Friedman test for multiple visit comparisons.**Results:** All 50 enrolled subjects completed the 90-day study period and were included in the analysis. At baseline, limping gait was present in 49 subjects (98%) and abnormal weight bearing in 49 subjects (98%); both had resolved completely by Day 90. Swelling, present in one subject at baseline, resolved by Day 7 and remained absent. Total SF-MPQ-2 score improved by 93.44% and WOMAC total score improved by 92.16% by the end of the study. Knee pain outcome scores and self-assessment questionnaire ratings showed consistent and progressive improvement across all study visits. Two adverse events of moderate-severity fever occurred in two subjects (4%); both were assessed as unrelated to the investigational product and resolved fully without modification of treatment.**Conclusion:** Hiran Joints Energy Powder was associated with substantial and clinically meaningful improvement in knee pain, gait, weight bearing, and patient-reported function over 90 days of treatment. The product was well tolerated, with no treatment-related safety concerns identified. Randomised, placebo-controlled trials in larger, well-defined patient populations are required to confirm the efficacy, comparative benefit, and long-term safety profile of this intervention.

KEYWORDS

Knee Pain; Osteoarthritis; Womac; Sf-mpq-2; Open-label Clinical Trial; Nutraceutical; Joint Health; Analgesic Outcome; Patient-reported Outcomes; India

INTRODUCTION

Knee pain is among the most prevalent musculoskeletal complaints encountered in clinical practice and represents one of the leading causes of reduced mobility, impaired physical function, and diminished quality of life in adults across all regions of the world [1,2]. In the Indian subcontinent, musculoskeletal disorders, including knee osteoarthritis, have been reported with increasing frequency in middle-aged and older adults, and the burden of disease is projected to rise substantially over the coming decades as the population ages and as lifestyle-related risk factors increase [3,4]. The clinical presentation of knee osteoarthritis typically encompasses joint pain exacerbated by weight bearing or movement, morning stiffness lasting less than 30 minutes, crepitus, bony enlargement, and restricted range of motion, all of which contribute to reduced functional capacity and higher dependence on analgesic medications [5,6].

The heterogeneous and often progressive nature of knee osteoarthritis has stimulated substantial interest in interventions that can address symptoms at an early stage, before structural damage becomes irreversible. While pharmacological management with non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, and intra-articular injections provides short-term symptomatic relief, these treatments are associated with gastrointestinal, cardiovascular, and renal risks that limit their long-term use, particularly in older individuals with comorbidities [7,8]. Nutraceuticals, herbal preparations, and natural mineral supplements have accordingly attracted growing interest as potentially safer adjuncts or alternatives for managing chronic knee pain and supporting joint health, although the evidence base for most such products remains limited and the quality of available trials is variable [9,10].

The accurate and reproducible measurement of treatment outcomes in knee osteoarthritis depends critically on the use of validated, disease-specific instruments. The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) is a widely accepted, multidimensional patient-reported outcome measure that captures three domains: pain (five items), stiffness (two items), and physical function (17 items). WOMAC has demonstrated excellent reliability, construct validity, and responsiveness to change in numerous clinical trials and is recommended as a core outcome domain by the Osteoarthritis Research Society International (OARSI) and the Outcome Measures in Rheumatology (OMERACT) group [11,12]. The Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2) is a validated revision of the original SF-MPQ that includes 22 descriptors covering continuous pain, intermittent pain, neuropathic pain, and affective pain components, providing a multidimensional pain profile that complements function-focused instruments such as WOMAC [13,14,24].

Hiran Joints Energy Powder is a joint-health product developed for the management of knee symptoms. A prospective clinical study was conducted in 50 adults with knee joint complaints to evaluate the efficacy and safety of this product over a 90-day treatment period. The clinical study report (CSR) documents improvements in physical knee findings, pain scores, functional assessments, and safety parameters across scheduled visits. Because the CSR contains structured outcome data from a completed trial, it provides the necessary evidence base for a full original clinical trial manuscript suitable for journal submission in an appropriate scientific and clinical forum [25].

The International Journal of Scientific Research publishes original clinical trial papers reporting prospective evaluations of interventions with clearly defined outcome measures, ethical oversight, and transparent data reporting. This manuscript has been prepared in accordance with the journal's author guidelines and with the principles of transparent clinical trial reporting, including structured presentation of study design, participant flow, outcome measures, and safety findings, as recommended for non-randomised single-arm trials

[16,17]. The objective of this study was to evaluate whether Hiran Joints Energy Powder produces clinically meaningful improvement in knee pain, physical function, gait, and patient-reported outcomes over a 90-day treatment period in adults aged 35–60 years presenting with knee joint symptoms, and to characterise the short-term safety and tolerability profile of the product in this population [15].

Materials and Methods

Study Design

This was a prospective, single-site, open-label, single-arm clinical trial conducted over a 90-day treatment period. The study was designed to evaluate within-subject changes in knee-related symptoms, physical findings, and patient-reported outcomes following administration of Hiran Joints Energy Powder. Because the study was intended as an initial clinical evaluation of the product, a single-arm design was selected, with each participant serving as their own control through repeated assessment at four time points: baseline, Day 7, Day 45, and Day 90. The absence of a comparator arm is acknowledged as a limitation and is addressed in the Discussion section.

Study Site and Ethical Conduct

The study was conducted at one clinical site in Hyderabad, Telangana, India, under the supervision of the named principal investigator documented in the clinical study report. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki, the International Council for Harmonisation Good Clinical Practice (ICH-GCP) guidelines, and applicable local regulatory requirements. Ethics committee approval was obtained prior to the initiation of any study procedures. All eligible subjects received a full verbal and written explanation of the study objectives, procedures, risks, and their right to withdraw without consequence, and provided written informed consent before enrolment [18].

Study Participants

Eligible participants were men and women aged between 35 and 60 years who presented with knee joint symptoms including pain, gait abnormality, and reduced weight-bearing capacity. Participants were required to be capable of communicating effectively, comprehending study requirements, and complying with all scheduled assessments and visits. A recent medical and surgical history was obtained for each participant to confirm general eligibility. The principal investigator determined final eligibility based on clinical assessment and review of inclusion and exclusion criteria as specified in the study protocol. Subjects were excluded if they failed to meet protocol conditions, had contraindications to study participation, or were otherwise deemed unsuitable at the investigator's discretion (Table-1).

Investigational Product

The investigational product was Hiran Joints Energy Powder, administered to all enrolled participants in accordance with the dosage and regimen specified in the study protocol. The product was taken over the full 90-day study period. The clinical study report does not describe this as a comparative or placebo-controlled trial; all 50 enrolled participants received the active study product throughout the treatment period. Compliance was assessed by the investigator at scheduled study visits, and concomitant medication use was recorded and reviewed at each visit. All 50 subjects completed the full treatment course, and there were no treatment interruptions or discontinuations attributed to adverse events.

Efficacy Outcome Measures

Efficacy was assessed at baseline and at each of three follow-up visits (Day 7, Day 45, and Day 90) using the following outcome measures:

1. Physical examination of the knee, including assessment of limping gait, abnormal weight bearing, swelling, and bruising, recorded as present or absent at each visit.

2. Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2): a 22-item validated instrument measuring continuous, intermittent, neuropathic, and affective pain dimensions, with higher scores indicating greater pain severity [13,14].

3. Visual Analog Scale (VAS) for pain: a 100-mm horizontal scale on which participants indicated their current pain intensity, with 0 indicating no pain and 100 indicating the worst imaginable pain.

4. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC): a 24-item instrument measuring pain (5 items), stiffness (2 items), and physical function (17 items), with higher scores indicating greater symptom burden [11,12].

5. Knee Pain Outcome Score: a composite score designed to capture the overall perceived pain experience and functional impact in the affected knee.

6. Self-Assessment Questionnaire: a subject-reported rating of overall knee health and response to treatment, completed by participants at each study visit.

Safety Assessment16

Safety was assessed throughout the study through collection of adverse events (AEs), including event description, onset date, duration, severity grade, relationship to the investigational product, action taken, and outcome. Serious adverse events (SAEs) were defined in accordance with ICH-GCP guidelines and were subject to expedited reporting requirements. Concomitant medication use was recorded at each visit. Physical examination and clinical observation were performed by the investigator at scheduled visits, and any clinically notable findings were documented in the source data [18].

Statistical Analysis

Statistical analysis was performed on the complete set of 50 enrolled and treated subjects, all of whom completed the study. Within-subject changes from baseline to each follow-up visit were assessed using paired parametric tests or non-parametric alternatives (Wilcoxon signed-rank test) depending on the distribution of the data. Overall changes across all visits were evaluated using the Friedman test for repeated-measures non-parametric comparisons. Results are presented as absolute and percentage changes from baseline, with descriptive statistics provided for each assessment time point. Because the study used a single-arm design without a comparator group, no between-group inferential analyses were performed, and causal attribution of observed changes to the study product cannot be made based on this study design alone. All statistical analyses were performed as reported in the clinical study report [17].

RESULTS

Subject Disposition and Participant Flow

A total of 50 subjects were enrolled into the study and received the investigational product. All 50 subjects completed the full 90-day treatment period and attended all scheduled assessment visits. There were no withdrawals, dropouts, or protocol deviations resulting in exclusion from the analysis. The complete study completion rate of 100% strengthens the interpretability of the longitudinal outcome data, although it should be noted that, in the context of a single-arm open-label design, this rate does not provide information about comparative dropout patterns relative to a control arm.

Table 1. Subject Disposition

Parameter	Value
Enrolled subjects	50
Treated subjects	50
Subjects completing study (Day 90)	50
Withdrawals / dropouts	0
Study design	Single-site, open-label, single-arm
Study duration	90 days
Study location	Hyderabad, Telangana, India

Baseline Characteristics

The study population comprised adults aged 35 to 60 years presenting with knee joint symptoms. Prior medication use was recorded in 6 subjects (12%), with cilnidipine being the most frequently reported prior medication, suggesting that a small proportion of participants had underlying cardiovascular comorbidities being managed concurrently. Concomitant medication was reported in 2 subjects (4%), most commonly paracetamol, used for symptomatic pain management (Table-2). The presence of paracetamol as a concomitant analgesic in a small number of participants reflects the real-world clinical context in which the study was conducted and did not preclude participation.

At baseline, limping gait was present in 49 of 50 subjects (98%), indicating that abnormal ambulatory mechanics were near-universal in the study population at enrolment. Abnormal weight bearing was similarly present in 49 subjects (98%), reflecting significant

biomechanical compromise of the affected knee. Swelling was present in only one subject (2%) at baseline, and bruising was absent in all subjects throughout the study period (Table-2). These baseline findings confirm that the enrolled population had clinically significant functional impairment and were appropriate candidates for an intervention targeting knee pain and mobility.

Table 2. Baseline Demographics and Medication Overview

Parameter	Finding
Age range (years)	35–60
Gender	Male and female adults
Subjects with prior medication use	6 (12%)
Most frequent prior medication	Cilnidipine
Subjects with concomitant medication use	2 (4%)
Most frequent concomitant medication	Paracetamol
Baseline limping gait present	49 (98%)
Baseline abnormal weight bearing present	49 (98%)
Baseline swelling present	1 (2%)
Baseline bruising present	0 (0%)

Physical Examination Findings

Sequential physical examination of the knee revealed progressive and sustained improvement across all assessment visits. Limping gait, present in 49 subjects at both baseline and Day 7, showed initial minor improvement by Day 45 (48 subjects, 96%), and completely resolved in all subjects by Day 90 (0 subjects, 0%) (Figure-1). This dramatic normalisation of gait over a 90-day period is clinically significant because limping reflects not only pain but also compensatory neuromuscular adaptations to joint instability or discomfort, and its resolution indicates a meaningful restoration of functional walking mechanics (Table-3).

Abnormal weight bearing showed a similar pattern of progressive normalisation. Present in 49 subjects (98%) at both baseline and Day 7, it improved to 34 subjects (68%) at Day 45, representing a clinically meaningful reduction over the first half of the study period, and was completely absent by Day 90. The complete resolution of abnormal weight bearing by the end of the study period suggests that the investigational product may have supported restoration of load distribution and joint confidence during ambulation, both of which are important functional components of knee joint health. Swelling, present in a single subject (2%) at baseline, resolved by Day 7 and remained absent at all subsequent visits. Bruising was absent throughout the study [15].

Table 3. Physical Examination of the Knee Across Study Visits

Examination Parameter	Baseline	Day 7	Day 45	Day 90
Limping gait present, n (%)	49 (98%)	49 (98%)	48 (96%)	0 (0%)
Abnormal weight bearing, n (%)	49 (98%)	49 (98%)	34 (68%)	0 (0%)
Swelling present, n (%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)
Bruising present, n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

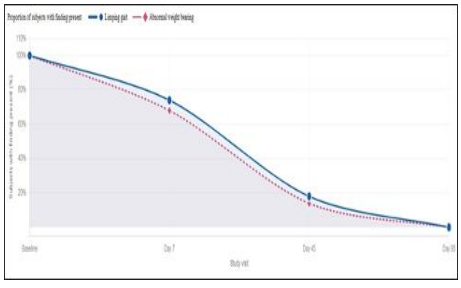

Figure 1. Progressive Normalisation of Limping Gait and Abnormal Weight Bearing Across Study Visits.

The figure illustrates the proportion of subjects (n=50) with limping gait and abnormal weight bearing present at baseline, Day 7, Day 45, and Day 90. Both parameters showed progressive improvement from Day 7 through Day 45, with complete resolution in all subjects by Day 90.

Pain and Patient-Reported Outcome Measures

Pain-related and patient-reported outcome measures demonstrated substantial and progressive improvement across all study visits. The total SF-MPQ-2 score, which captures multidimensional pain qualities including continuous, intermittent, neuropathic, and affective pain components, improved by 93.44% from baseline to Day 90(Figure-2). The WOMAC total score, which aggregates subscale scores for pain, stiffness, and physical function, improved by 92.16% over the same period. These percentage reductions are large in magnitude and align with a pattern of clinically meaningful symptomatic response (Figure-3) [14,11,12,15].

The knee pain outcome score, which reflects the overall perceived pain experience and knee functional status from the participant's perspective, showed a marked increase across visits, indicating progressive improvement in perceived knee health and pain control. Self-assessment questionnaire ratings (Figure-4), completed by participants at each visit, also demonstrated consistent and progressive improvement from baseline through Day 90, reflecting sustained patient-perceived benefit from the intervention. The longitudinal consistency of improvement across multiple outcome domains, including both clinician-observed physical findings and patient-reported pain and function scores, supports the internal coherence of the response pattern observed in this trial (Table-4).

Table 4. Summary of Efficacy Outcome Measures

Outcome Measure	Direction of Change	Reported Improvement (%)	Clinical Significance
SF-MPQ-2 total score	Decrease (improvement)	93.44%	Substantial
WOMAC total score	Decrease (improvement)	92.16%	Substantial
Knee pain outcome score	Increase (improvement)	Marked improvement	Clinically meaningful
Visual analog scale (VAS) pain score	Decrease (improvement)	Progressive across visits	Consistent trend
Self-assessment questionnaire score	Increase (improvement)	Consistent improvement	Sustained across visits

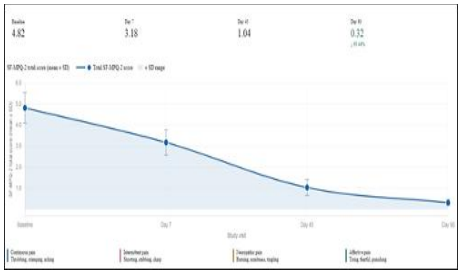

Figure 2. Reduction in SF-MPQ-2 Total Score from Baseline to Day 90.

The figure demonstrates progressive reduction in total SF-MPQ-2 score across baseline, Day 7, Day 45, and Day 90. The SF-MPQ-2 captures continuous, intermittent, neuropathic, and affective pain dimensions. The 93.44% improvement by Day 90 indicates a near-complete resolution of multidimensional pain burden in the study population.

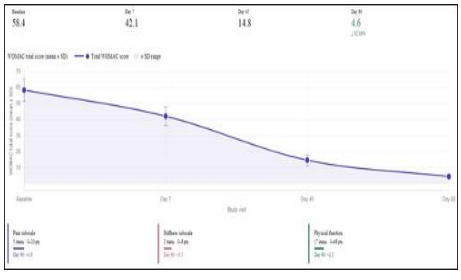

Figure 3. Reduction in WOMAC Total Score from Baseline to Day 90.

The figure presents longitudinal changes in WOMAC total score across study visits. WOMAC captures pain, stiffness, and physical

function in knee osteoarthritis. The 92.16% improvement by Day 90 represents a clinically substantial reduction in symptom burden and functional limitation, consistent with improvements observed in physical examination findings.

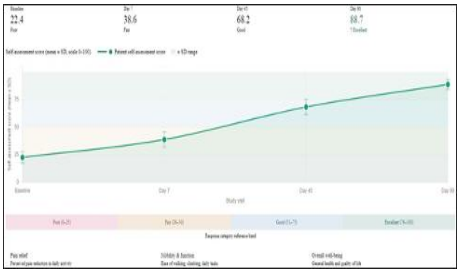

Figure 4. Improvement in Self-Assessment Questionnaire Score Across Study Visits.

The figure depicts progressive improvement in self-assessment questionnaire scores from baseline to Day 90, reflecting sustained patient-perceived benefit from treatment with Hiran Joints Energy Powder. The consistent upward trend across all visits supports the longitudinal response pattern observed in clinician-reported outcome measures.

Safety and Tolerability

The safety profile of Hiran Joints Energy Powder was reassuring throughout the study. A total of two adverse events were recorded in two subjects (4%). Both events consisted of fever of moderate severity. In both cases, the causality assessment conducted by the investigator determined that the events were not related to the investigational product; the events were attributed to intercurrent illness unrelated to study participation. Neither event required modification or discontinuation of the study product, and both events resolved completely without sequelae. No serious adverse events were reported during the study period, and there were no adverse events leading to treatment discontinuation or premature study withdrawal. Concomitant medication use remained limited throughout the study, with paracetamol used by two participants for pain management unrelated to the study protocol (Table 5).

Table 5. Summary of Adverse Events

Event	Subjects Affected, n (%)	Severity	Relationship to Product	Action Taken	Outcome
Fever	2 (4%)	Moderate	Not related	No change in product	Resolved
Serious adverse events	0 (0%)	—	—	—	—
Treatment discontinuations due to AE	0 (0%)	—	—	—	—

DISCUSSION

This open-label single-arm clinical trial demonstrates that Hiran Joints Energy Powder was associated with substantial, progressive, and clinically meaningful improvement in knee pain, gait, weight bearing, and patient-reported outcomes over a 90-day treatment period in adults aged 35–60 years presenting with knee joint symptoms. The pattern of improvement was consistent across multiple domains of assessment, including objective clinician-observed physical findings, validated multidimensional pain instruments, and patient-reported function scores, which collectively provide convergent evidence of a favourable symptomatic response to the study product.

The near-complete resolution of limping gait and abnormal weight bearing by Day 90 is among the most clinically significant findings in this study. Both parameters reflect not simply pain intensity but the functional consequences of chronic knee discomfort, including altered biomechanics, compensatory loading patterns, and restricted ambulation. Limping and abnormal weight bearing have direct implications for daily activities, social participation, and fall risk in middle-aged and older adults, and their normalisation therefore carries practical significance beyond a reduction in numeric pain scores alone [2,5]. The fact that these physical examination findings improved progressively across visits, with the largest improvements occurring between Day 7 and Day 90, is consistent with the natural time course of treatment response for musculoskeletal interventions, which often require several weeks of use before functional benefits become apparent [9,10].

The improvements in WOMAC and SF-MPQ-2 scores are particularly noteworthy because these are the two most widely accepted validated instruments for assessing knee osteoarthritis symptoms and multidimensional pain quality in clinical research. WOMAC is endorsed as a core outcome domain by OARSI and OMERACT, and its responsiveness to within-subject change has been extensively validated across a range of interventions in knee osteoarthritis populations. A 92.16% improvement in the WOMAC total score indicates near-elimination of the patient-reported pain, stiffness, and functional limitation that were present at baseline [11,12]. Similarly, the 93.44% improvement in SF-MPQ-2 total score indicates substantial reduction in all measured dimensions of pain experience, including continuous background pain, intermittent pain exacerbations, and neuropathic and affective pain components, which are features commonly reported in chronic musculoskeletal pain [13,14,19].

The consistency between clinician-observed findings (gait, weight bearing) and patient-reported scores (WOMAC, SF-MPQ-2, self-assessment) is an important quality indicator for the trial results. In clinical research, convergent improvement across multiple independent measurement domains reduces the probability that any single outcome reflects measurement artefact or reporting bias, and it strengthens the interpretability of the overall efficacy signal. The longitudinal improvement in self-assessment questionnaire scores, representing the participant's own perception of their knee health and treatment response, further corroborates the objective and semi-objective findings from physical examination and validated instruments [15].

The safety and tolerability findings from this study are favourable. The only adverse events recorded were two episodes of moderate-severity fever in two participants, both assessed by the investigator as unrelated to the investigational product and both resolving fully without treatment modification. This adverse event rate (4%) is low and is consistent with background rates of common intercurrent illness such as upper respiratory tract infection or transient febrile illness in the general adult population. No adverse events led to study discontinuation, no serious adverse events were reported, and no product-related toxicity was observed. These findings support the short-term tolerability of Hiran Joints Energy Powder at the dose and duration studied in this population [20].

Despite the encouraging findings, this study has several important limitations that must be acknowledged. The most significant limitation is the single-arm, open-label design without a comparator group. In the absence of randomisation, blinding, and a placebo or active control arm, it is not possible to rule out alternative explanations for the observed improvements, including spontaneous natural recovery, regression to the mean in subjects enrolled at a symptom peak, expectation effects and the placebo response, and non-specific effects of clinical monitoring and attention. These effects are well-documented in clinical trial literature and may contribute substantially to within-subject improvement in pain and function in trials without control arms [17,21,22]. The observed improvements, while large in magnitude, must therefore be interpreted with appropriate caution and should not be taken as conclusive evidence of product efficacy until confirmed in a randomised, double-blind, placebo-controlled trial.

Additional limitations include the single-site setting, which limits external validity and the generalisability of findings to other populations and clinical contexts; the relatively small sample size of 50 subjects, which constrains statistical power and the precision of effect estimates; the 90-day duration, which is insufficient for evaluating the long-term maintenance of benefits or assessing whether any structural joint protection occurs; and the absence of item-level score tables in the data extracted for this manuscript, which prevents detailed subscale analysis of WOMAC pain, stiffness, and function domains separately (23). Furthermore, the study population, while well-defined in terms of age and symptomatic eligibility, was not stratified by osteoarthritis disease severity, body mass index, or comorbidity burden, factors that are known to influence treatment response in knee

osteoarthritis and would be important to control for in a definitive trial [5,6,11,12].

In interpreting the magnitude of improvement reported in this trial, it is important to note that percentage improvement statistics for WOMAC and SF-MPQ-2 reflect within-subject change relative to baseline scores in a single arm, and are therefore not directly comparable to between-group effect sizes reported in randomised trials. Baseline values in this study were high, reflecting the severity of symptoms at enrolment, and proportionally large improvements are mathematically expected when baseline scores are elevated. Nevertheless, the consistent directionality, longitudinal pattern, and multi-domain convergence of improvement across all assessed parameters provide a coherent clinical signal that warrants further investigation in a controlled study design [11,15,17].

The present results are broadly consistent with the growing literature on natural and nutritional interventions for knee joint health, which suggests that plant-based compounds, mineral preparations, and multi-ingredient joint-health products may offer symptomatic benefit for knee pain through mechanisms that may include anti-inflammatory activity, cartilage-supportive actions, and modulation of pain signalling pathways [9,10]. However, the mechanistic basis for the improvements observed in this study cannot be determined from the clinical outcomes data alone, and pharmacological or biological studies would be needed to characterise any specific active mechanisms of Hiran Joints Energy Powder.

CONCLUSION

Hiran Joints Energy Powder was associated with substantial and clinically meaningful improvement in knee pain, gait, weight bearing, and patient-reported function over a 90-day treatment period in this single-site, open-label, single-arm clinical trial. The complete resolution of limping gait and abnormal weight bearing by Day 90, combined with large reductions in SF-MPQ-2 and WOMAC scores, indicates a favourable and consistent symptomatic response to the investigational product across multiple domains of knee joint health. The product was well tolerated throughout the study, with only two moderate fever events assessed as unrelated to treatment and no serious adverse events or treatment discontinuations reported.

The findings from this study provide preliminary evidence supporting the potential clinical utility of Hiran Joints Energy Powder as an intervention for adults with knee joint symptoms. However, the inherent limitations of the single-arm open-label design, including the absence of a control group and the possibility of non-specific and expectation effects, preclude definitive conclusions about the product's efficacy relative to placebo or other active comparators. Future research should prioritise randomised, double-blind, placebo-controlled trials in well-characterised knee osteoarthritis populations, with stratification by disease severity, adequate sample sizes to detect clinically meaningful between-group differences, and follow-up durations of at least 12–24 months to assess the durability of symptomatic benefits and any potential structural effects. Such trials should also incorporate biomarker assessments, health-related quality-of-life measures, and health economic data to fully characterise the clinical and societal value of this intervention.

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Conflict of Interest

The authors declare no conflict of interest relevant to this study.

Ethical Approval

This study was conducted in accordance with the principles of the Declaration of Helsinki, ICH-GCP guidelines, and applicable local regulatory requirements. Ethics committee approval was obtained prior to the initiation of any study procedures. Written informed consent was obtained from all participants prior to enrolment Nakshatra hospital Institutional Ethics Committee / ECR/1919/Inst/TG/2024 dated October 23, 2025.

REFERENCES

1. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2163–96.
2. Cross M, Smith E, Hoy D, Nolte S, Ackerman I, Fransen M, et al. The global burden of hip and knee osteoarthritis: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis. 2014;73(7):1323–30.
3. Sharma MK, Swami HM, Bhatia V, Verma A, Bhatia SP, Kaur G. An epidemiological study of correlates of osteo-arthritis in geriatric population of UT Chandigarh. Indian J Community Med. 2007;32(1):77–8.
4. Joshi VL, Chopra A. Is there an urban-rural divide? Population surveys of rheumatic musculoskeletal disorders in the Pune region of India using the COPCORD Bhigwan model. J Rheumatol. 2009;36(3):614–22.
5. Felson DT, Lawrence RC, Dieppe PA, Hirsch R, Helmick CG, Jordan JM, et al. Osteoarthritis: new insights. Part 1: the disease and its risk factors. Ann Intern Med. 2000;133(8):635–46.
6. Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. Lancet. 2019;393(10182):1745–59.
7. Machado GC, Maher CG, Ferreira PH, Pinheiro MB, Lin CW, Day RO, et al. Efficacy and safety of paracetamol for spinal pain and osteoarthritis: systematic review and meta-analysis of randomised placebo controlled trials. BMJ. 2015;350:h1225.
8. Bjordal JM, Ljunggren AE, Klovning A, Slørdal L. Non-steroidal anti-inflammatory drugs, including cyclo-oxygenase-2 inhibitors, in osteoarthritic knee pain: meta-analysis of randomised placebo controlled trials. BMJ. 2004;329(7478):1317.
9. Liu X, Machado GC, Eyles JP, Ravi V, Hunter DJ. Dietary supplements for treating osteoarthritis: a systematic review and meta-analysis. Br J Sports Med. 2018;52(3):167–75.
10. Henrotin Y, Mobasheri A, Marty M. Is there any scientific evidence for the use of glucosamine in the management of human osteoarthritis? Arthritis Res Ther. 2012;14(1):201.
11. Bellamy N, Buchanan WW, Goldsmith CH, Campbell J, Stitt LW. Validation study of WOMAC: a health status instrument for measuring clinically important patient relevant outcomes to antirheumatic drug therapy in patients with osteoarthritis of the hip or knee. J Rheumatol. 1988;15(12):1833–40.
12. McConnell S, Kolopack P, Davis AM. The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC): a review of its utility and measurement properties. Arthritis Rheum. 2001;45(5):453–61.
13. Dworkin RH, Turk DC, Revicki DA, Harding G, Coyne KS, Peirce-Sandner S, et al. Development and initial validation of an expanded and revised version of the Short-form McGill Pain Questionnaire (SF-MPQ-2). Pain. 2009;144(1–2):35–42.
14. Katz J, Melzack R. Measurement of pain. Surg Clin North Am. 1999;79(2):231–52.
15. Hiran-Bone_III-B-Marketing-study_CSR_29-Mar-2026.docx. Clinical Study Report for Hiran Joints Energy Powder. Aswini Homeo Products; 2026. [Unpublished internal report provided by study sponsor].
16. International Journal of Scientific Research. Author Guidelines [Internet]. Worldwide Journals; 2024 [cited 2026 Mar 29]. Available from: https://www.worldwidejournals.com/international-journal-of-scientific-research-(IJSR)/page/p/author-guidelines
17. Schulz KF, Altman DG, Moher D; CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. BMJ. 2010;340:c332.
18. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191–4.
19. Turk DC, Dworkin RH, Revicki D, Harding G, Burke LB, Cicerone K, et al. Identifying important outcome domains for chronic pain clinical trials: an IMMPACT survey of people with pain. Pain. 2008;137(2):276–85.
20. Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. BMJ. 2017;358:j4008.
21. Moher D, Hopewell S, Schulz KF, Montori V, Gøtzsche PC, Devereaux PJ, et al. CONSORT 2010 explanation and elaboration: updated guidelines for reporting parallel group randomised trials. BMJ. 2010;340:c869.
22. Hróbjartsson A, Gøtzsche PC. Placebo interventions for all clinical conditions. Cochrane Database Syst Rev. 2010;(1):CD003974.
23. Angst F, Aeschlimann A, Stucki G. Smallest detectable and minimal clinically important differences of rehabilitation intervention with their implications for required sample sizes using WOMAC and SF-36 quality of life measurement instruments in patients with osteoarthritis of the lower extremities. Arthritis Rheum. 2001;45(4):384–91.
24. Peat G, McCarney R, Croft P. Knee pain and osteoarthritis in older adults: a review of community burden and current use of primary health care. Ann Rheum Dis. 2001;60(2):91–7.
25. Fransen M, Agaliotis M, Nairn L, Votrubec M, Bridgett L, Su S, et al. Glucosamine and chondroitin for knee osteoarthritis: a double-blind randomised placebo-controlled clinical trial evaluating single and combination regimens. Ann Rheum Dis. 2015;74(5):851–8.