IJRAR.ORG E-ISSN: 2348-1269, P-ISSN: 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Impact of Scientific reversal detox process (SRDP) in patients of osteoarthritis Advised TKR Surgery with Special Reference to Koos Score and Radio-logical improvement

[1]Dr. Bhalchandra Mahamuni, [2]Dr. Soniya Mahamuni, [3]Dr.Bhagyashree Dhaskat,

[4]Dr. Anushree Kadukar, [5]Dr. Roshi Sajgotra,

[1]Director, [2]Director, [3]Research Doctor, [4]Consulting Doctor, [5]Consulting Doctor,

[1]Parasnath Speciality Clinic,

[1]Parasnath Speciality Clinic, Mumbai, Maharashtra

Abstract

Background: Osteoarthritis (OA) is a degenerative joint disorder with a high prevalence in India, particularly affecting weight-bearing joints like the knees. Current management strategies are often limited to symptomatic relief, with significant challenges in disease modification. *Ayurveda* offers a holistic approach focusing on detoxification, metabolic correction, and joint regeneration.

Objective: This study evaluates the impact of the *Ayurveda*-based Scientific Reversal Detox Process (SRDP) in the patients who advised TKR Surgery with Koos score and retrospective improvement with specific emphasis on the necessity of the SRDP prior to external therapies.

Material & methods: retrospective study presents analysis of 63 patients with osteoarthritis of knee joint treated with *Ayurveda*-based Scientific Reversal Detox Process (SRDP) . symptoms were assessed by subjective criteria (koos score, pain, stiffness) and objective criteria (xray, swelling by measuring tape, ROM by goniometer)

Results: Statistical analysis demonstrated a significant reduction in pain, swelling, stiffness, restricted range of motion (ROM), and KOOS scores following SRDP treatment. After 60 days of therapy, 55.5% of patients showed excellent improvement, 30.15% exhibited moderate improvement, and 14.28% experienced mild symptomatic relief. So the 85% patients got relief from SRDP treatment

Conclusion: The SRDP therapy, with its emphasis on initial detoxification and strengthening and regeneration, demonstrated a substantial reduction in pain and improvement in joint function among osteoarthritis patients. The sequential detoxification phase may play a crucial role in enhancing the efficacy of subsequent *Ayurvedic* external therapies. This integrative, phase-wise approach warrants further large-scale, controlled clinical studies to establish its long-term benefits and broader applicability.

Keywords: SRDP Treatment, koos score, osteoarthritis

I. INTRODUCTION

Osteoarthritis (OA) is the most prevalent form of arthritis, characterized by the progressive degeneration of articular cartilage, subchondral bone remodelling, synovial inflammation, and the formation of osteophytes, leading to joint pain, stiffness, and functional disability.(1) OA primarily affects weight-bearing joints such as the knees, hips, and spine, but can also involve the hands and other joints. It is a multifactorial disease with contributions from mechanical stress, aging, genetic predisposition, obesity, metabolic alterations, and inflammatory processes.(2) Traditionally considered a "wear and tear" disease, recent research emphasizes the role of low-grade chronic inflammation and metabolic factors in its pathogenesis.(3) OA imposes a significant burden on healthcare systems globally, affecting approximately 7% of the world's population and ranking among the leading causes of disability.(4) Despite its prevalence, disease-modifying therapies remain limited, and current management largely focuses on symptom control and functional improvement.

Osteoarthritis (OA) represents a growing public-health concern in India, with the number of affected individuals rising substantially over recent decades. According to the Global Burden of Disease Study, the estimated number of people living with OA in India increased from **23.46 million in 1990 to 62.35 million in 2019**, representing an age-standardised prevalence rise from approximately **4895 to 5313 per 100000** population.(5) Knee OA remains the most common subtype, particularly burdening women and older adults.(6)

Multiple community-level studies report knee OA prevalence ranging between **28.7% and over 64%** in various regions of India. Pal et al. (multicentric) found a 28.7% prevalence in adults over 40. A rural survey in Haryana among elderly participants estimated a prevalence of 64.3%.[7] Similarly, rural South India studies show community prevalence between **33–35%**, with one reporting 34.6% in those over. [8,9]

These wide-ranging figures highlight considerable regional variation and underscore the substantial burden of OA in India. Key contributing factors include female sex, obesity, metabolic disorders (e.g., diabetes, hypertension), repeated knee trauma, and occupational/lifestyle stresses. Together, these insights indicate that OA affects a significant proportion of the Indian adult population—especially in rural and older cohorts.

The management of osteoarthritis (OA) focuses on alleviating symptoms, improving joint function, and slowing disease progression. Current treatment strategies include non-pharmacological, pharmacological, and surgical interventions. Non-pharmacological approaches such as patient education, weight reduction, physical therapy, and structured exercise programs are considered the first-line interventions and are supported by strong clinical guidelines due to their effectiveness in reducing pain and improving mobility[10]

Pharmacological management typically involves the use of acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), topical analgesics, and intra-articular corticosteroids.[11] Symptomatic slow-acting drugs for osteoarthritis (SYSADOAs), such as glucosamine and chondroitin sulfate, have been used, but their efficacy remains controversial.[12] In cases of severe OA unresponsive to conservative therapy, joint replacement surgery (arthroplasty) is considered the definitive treatment, particularly for knee and hip joints.[13]

However, significant challenges persist in the management of OA. A major limitation is the absence of effective disease-modifying osteoarthritis drugs (DMOADs) that can halt or reverse cartilage degradation.[14] Additionally, polypharmacy, gastrointestinal risks with long-term NSAID use, and limited access to surgical options in low-resource settings complicate treatment.[15] In India and other low- and middle-income countries, factors such as delayed diagnosis, lack of awareness, economic constraints, and limited rehabilitation services further exacerbate disease burden and hinder effective management.[16]

Emerging treatment strategies focus on regenerative therapies, including platelet-rich plasma (PRP) injections, mesenchymal stem cells, and gene therapy, which are under investigation but are not yet widely available or affordable. [17]

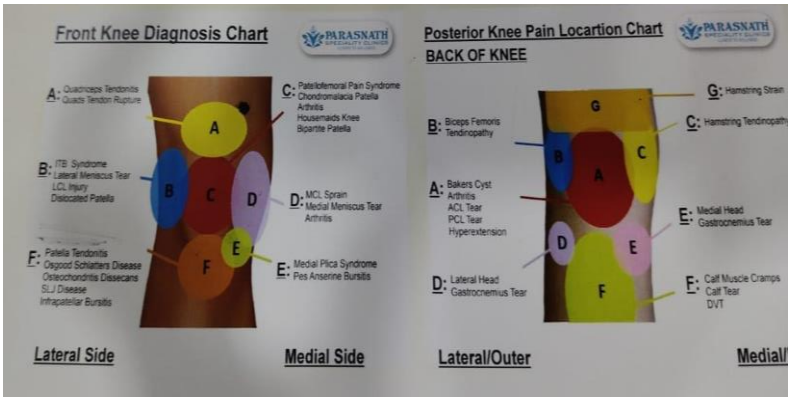


Fig 1: Diagnosis based on pain involvement site

Contrary to popular belief, knee pain is not always caused by "bone-on-bone" arthritis or cartilage damage. As highlighted in the diagnostic charts, there are 36 different potential causes of knee pain, involving tendons, ligaments, muscles, bursae, and other soft tissues.

At Parasnath, before beginning any treatment, we perform a specialized Knee Mapping Test to accurately identify the root cause of the pain — whether it's due to tendonitis, ligament strain, bursitis, meniscus tears, or muscular issues. This test helps us pinpoint the exact source of discomfort on both the front and back of the knee.By diagnosing the true underlying cause, we offer targeted and individualized treatment through our SRDP (Scientific Reversal Detox Process) protocol. This approach:Addresses the specific root cause (not just symptoms), Promotes natural healing and joint regeneration, Often helps patients avoid unnecessary knee surgeries, including Total Knee Replacement (TKR)

Ayurvedic patho physiology of Knee osteoarthritis evolution by parasnath research team

In classical *Ayurvedic* Texts there are very less explained about knee joint osteoarthritis pathology but in Parasnath clinics after Studying thousands of Cases We developed unique Ayurvedic pathology for osteoarthritis patients.

In *Ayurveda*, joint diseases are primarily understood as the outcome of *Dosha* imbalances and their impact on the *Dhatus* (body tissues). The clinical manifestations vary depending on the dominance and interaction of the *Doshas* involved. In disorders of the knee joint, all three *Doshas Vata*, *Pitta*, and *Kapha* can be involved.

- *Vata Dosha* is mainly responsible for pain, stiffness, dryness, cracking sounds, and degeneration. It governs the movement of the joints and is predominantly involved in degenerative and traumatic conditions.
- *Pitta Dosha* causes inflammation, presenting as heat, redness, and burning sensations. It is linked to inflammatory changes and leads to increased catabolic activity.
- *Kapha Dosha* contributes to swelling, heaviness, stiffness, and effusion in the joint. It reflects anabolic excess and fluid accumulation.

The pathology also involves the *Dhatus* in various ways:

- *Rasa Dhatu* (nourishment fluid) corresponds to synovial fluid.
- *Rakta Dhatu* (circulatory element) involves *sira* (blood vessels), especially in inflammation.
- *Mamsa Dhatu* represents muscles, ligaments (*snayu*) and tendons (*kandara*).
- *Meda Dhatu*, or fat tissue, forms the articular cartilage and cushioning surfaces.
- *Asthi Dhatu* includes the three bones forming the joint.
- *Majja Dhatu* refers to marrow and nerve endings essential for joint proprioception.
- *Shukra Dhatu*, while primarily reproductive, is also involved in synovial surface regeneration and repair processes.

Additionally, *Kleda*, a byproduct of *Mala*, symbolizes excess fluid or metabolic waste, clinically manifesting as effusion or oedema in the joint space.

Pathogenesis of Degeneration in *Ayurveda* (*Samprapti*)

1. *Kshaya-Janya Samprapti* (Deficiency/Malnourishment Origin)

Cause: *Dhatu Kshaya* due to excessive physical strain and undernutrition.

Common in: Farmers, laborers, salespersons, and travelers.

Dosha: Vata

Dhatus Affected: *Meda, Asthi, Majja*

2. *Meda-Avritta Vata Samprapti* (Metabolic Origin)

Cause: Metabolic disorders like obesity, diabetes, hypothyroidism, which cause *Ama* formation and obstruction of *Vata*.

Dosha involves *Kapha* blocking *Vata*, sometimes with *Pitta* association.

Leads to diseases like Osteoarthritis, metabolic joint disorders, chronic joint inflammation.

Scientific reversal detox process (SRDP) is a specialized treatment protocol developed by Parasnath speciality clinic which involves integrated diagnostic methods from modern and Ayurved perspectives and standardized Ayurvedic treatment protocol which involves polyherbal tablets, oils, *lepa* as a take home medicines and modified *panchakarma* treatments like *Abhyanga*, steam, *taila dhara*, letting therapy, *pottali sweda* as an inhouse procedure with modern physiotherapy treatments

Entire SRDP treatment can be explained by dividing it in four stages which are as follows

Detoxification: In this phase major Focus is on parts of joint where pathology exists, where local oil massage with different Oils, *Pottali Swedana, Nadi Swedana, Lepa, Basti, Leech* or cupping, *Dhara* is given by which Swelling, Effusion and inflammation in joints is reduced, in this phase to detoxify body *Vardhman* SRDP powder which contains *gud*, *shunthi* and *haritaki*. This helps to get Doshas vitiated from body. This treatment is for 10, 20, 30 sessions depending on disease and metabolism. These medicines help to detox, reduce pain and check digestion and metabolism. Depending on the pathology and prognosis of the disease various medicines are used.

Strengthening: In this phase treatment the aim is to detoxify and strengthen the joint. In these external treatments like gentle massage with oil, *taila dhara* and *lep* application are done and physio-therapy advice are also given to the patients.

Root cause removal: In this phase metabolic corrections are done. By this patient who suffers from metabolic disorders can be prevented from developing metabolic osteoarthritis. Medicines which improve metabolism and lifestyle disorders are used in this phase. We at Parasnath Developed Special medicines to correct metabolism or *dhatwagni*

Regeneration: In this stage regeneration of synovial fluid in joints and increasing inter articular space in case of knee osteoarthritis patients with the help of our research based regenerative Medicines

Methodology

Study design and duration: This is a retrospective clinical observation study conducted between Jan 2022 to Dec 2024 at Parasnath clinics of Thane, Dadar, Vashi and Borivali, Tilak Road Pune.

Eligibility criteria: Patients of either gender with confirmed clinical diagnosis of osteoarthritis of knee aged between 20 to 80 are selected for this study with pain, swelling, stiffness and have been advised Total knee replacements Surgery has been taken and willing to take SRDP external treatment for 30 days daily along with internal medicines for 30 days were included in the study. Patients with developed major joint deformities, joint psoriasis, cancer and unstable heart related diseases were excluded from the study

Study procedure:

Subjective criteria –

1) Known cases of Osteoarthritis with less than 50 by Koos scale were given internal detoxification medication for 30 days and then SRDP external therapies for 30 days. After therapy patients were given internal medications for 30 days with followup every 15th day koos score was noted.
2) Pain:

Score	pain level
0	no pain
1-3	mild pain
4-6	moderate pain
7-9	= severe pain
10	= worst possible pain

3) Stiffness:

Score	Stiffness Description	Duration
0	No stiffness	None
1	Mild stiffness in the morning	<15 minutes
2	Moderate stiffness, occasional during day	15–30 minutes
3	Moderate to severe stiffness, frequent episodes	30–60 minutes
4	Severe stiffness, persistent	>60 minutes or continuous

Objective criteria –

1) For objective criteria X ray knee before and after Was taken in consideration.
2) swelling by measuring tape
3) ROM by goniometer

Study intervention:

Scientific Reversal Detox Process (SRDP) involves various internal and external medication and therapies at different stages of the entire treatment process. In 1st phase of detoxification tab SRDP 2 tablets BD, SRDP granules 2tsp at night, tab Uriflex 2 tablets BD and Syp oedoflex 2 tsf BD were given to the patients. each patient undergone external therapies daily which includes *Abhyanga* with oil for 5min, *pottali* therapy for 20min To 30 min followed by steam therapy for 10min and application of *lepa* for 5min and lastly colon therapy with 40ml SRDP *pottali* Oil which is a kind of *Basti* (*Ayurvedic panchakarma*) was given. The Specialized Kit on therapy Rhumo Kit Was Used in this initial phage to Reduce oedema and Inflammation In between these for application of leech once was also done. This entire external therapy was carried out for 30 days. When Patient gets Reduction in Swelling and Stiffness of joint the therapy Kit was shifted From Rhumo kit to Paino kit Which Aims to pacify Vata to Reduce pain and increase Range of motion of knee joint.

After This for Strengthening process Tero kit has been used to patient Which helps to strengthening the muscles and ligaments Also With this *Dhara* of Tero oil has been used.

Tens and Ultraound physiotherapies were given to patients along with Strengthening exercises.

After joint symptom improvement, metabolic correction was done using *Dhatwangi Vardhak* medicines, along with weight loss, which further supported joint recovery.

In regeneration Phage medicines which are tab Teroflex 2 tablets BD, tablet Ostoflex 2 tablets BD, Synoflex Soft gel capsules, syrup SRDP 20ml BD and Teroflex lep once a day was adviced to all the patients for 30 days.

In this study *trailokya vijaya vati* was used for symptomatic pain management in earlier phages which was stopped after pain relief.

Followup of each patient was taken on every 15th day during entire SRDP therapy of 60 days and koos score noted.

Principle of treatment

The basic principle of treatment was told by *Acharya Sushruta* Father of surgery that "*Sneha upanha agnikarma bandhanonmardananich synausandyasthi samprapte kuryat yavat atandrita*" So according to this *Acharya Sushruta* asks to focus on localized treatments for joint disorders.

Results:

Total 63 patients data was considered for retrospective clinical observational analysis. Out of these 38 patients were female and 25 patients were male. Age group of the patients were observed as, 3 patients in the age group 20yrs to 30yrs were noted, 7 patients found in the age group 31yrs to 40yrs, 10 patients was there in the age group of 41yrs to 50yrs. And 12, 20 and 11 patients were noted in the age group of 51-60, 61-70 and 71-80 respectively.

Occupation wise 25 women were housewives and 13 were service women. 10 patients were observed of doing normal office work whereas 10 patients was doing moderate office work where some kind of physical activities were involved and 5 patients were observed who used to carry out severe physical activity in their daily work.

Considering diet, 35 patients was of purely veg and 28 patients were used to take mixed diet.

Table 1: Baseline and visit wise comparative analysis

Variable	baseline Mean	15th day Mean	30th day Mean	45th day Mean	6oth day Mean	p Value
Weight	58+/- 11.50	57+/- 11.22	57.2+/- 10.58	55+/- 10.21	55.2+/- 10.11	0.77
BMI	26+/- 4.11	25+/- 4.08	24+/- 4.44	24.20+/- 4.00	23.68+/- 4.78	0.61
Hb	11.56+/- 3.11	11.78+/- 3.18	12.66+/- 3.60	12.88+/- 3.86	12.20+/- 3.90	0.66

*Significant difference compared to base values, *** extremely significant difference compared to baseline values

Effect of SRDP therapy on Koos score:

KOOS Score

Table 2: Showing calculation table for KOOS Score

Paired Samples Test							
		Paired Differences			t	df	P value (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	1st day - 15th day	8.24	4.82	0.61	13.571	62	.000
Pair 2	1st day - 30th day	16.00	7.25	0.91	17.514	62	.000
Pair 3	1st day - 45th day	24.57	10.43	1.31	18.695	62	.000
Pair 4	1st day - 60th day	32.67	12.11	1.53	21.411	62	.000

Since p value for all pairs is less than 0.05, level of significance; the result is significant.
The mean values suggest that the values are decreasing significantly along increasing days.

Table 3: Showing the frequency distribution of patients according to Effect on KOOS Score along with its bar graph is as given below.

Effect on KOOS Score	Frequency	%
No Change	0	0.0
Mild	8	12.7
Moderate	7	11.1
Excellent	48	76.2
Total	63	100.0

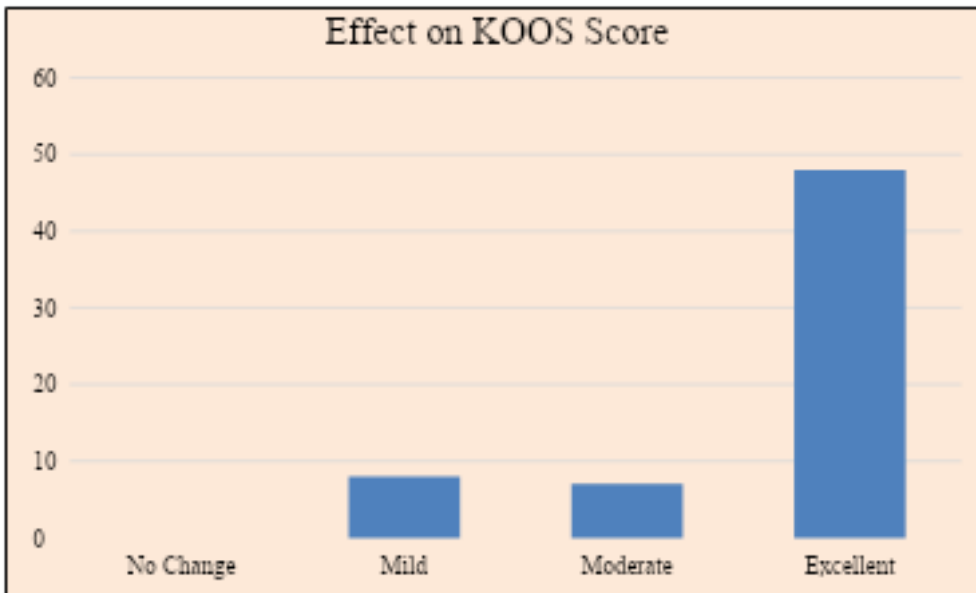


Fig 2 Effect on KOOS Score

Statistical analysis using paired samples t-tests revealed a highly significant reduction in KOOS scores at each follow-up interval when compared to baseline (Day 1). The p-value for all time points (15th, 30th, 45th, and 60th day) was <0.000, indicating extremely significant improvements. On the 15th day, the mean KOOS score decreased from 47.52 to 39.29, showing a relief of 17.34%. By the 30th day, the mean score further reduced to 31.52, reflecting a 33.67% improvement. On the 45th day, the score dropped to

22.95, indicating a 51.70% reduction from baseline. After 60 days of treatment, the KOOS score significantly decreased to 14.86, demonstrating a 68.74% overall improvement. These findings confirm a progressive and statistically significant improvement in symptoms with continued SRDP therapy.

Effect of SRDP therapy on Pain, stiffness, extension

The data type used for assessment of the parameters stated above is gradations that is nonparametric. The aim is to compare the grades of parameters stated above 1st day, 15th day, 30th day, 45th day & 60th day. Hence the appropriate statistical test used for the purpose is Friedman's Test. The results are as follows.

Table 4: Showing calculation table for pain, stiffness and extension of knee joint

Test Statistics[a]				
	Stiffness	Extension - Right	Extension - Left	Pain
N	63	63	63	63
Chi-Square	196.372	98.000	124.457	247.588
df	4	4	4	4
P value	.000	.000	.000	.000
a. Friedman Test				

Since p value for all parameters is less than 0.05, level of significance; the result is significant.

The mean rank values suggest that the grades are reducing significantly for all parameters Stiffness, Extension - Right, Extension – Left, Pain as the days are increasing.

Table 5: Showing the frequency distribution of patients according to Effect on Pain, stiffness,

Effect on Pain	Frequency	%	Effect on Stiffness	Frequency	%
No Change	0	0.0	No Change	1	1.6
Mild	0	0.0	Mild	6	9.5
Moderate	16	25.4	Moderate	4	6.3
Excellent	47	74.6	Excellent	52	82.5
Total	63	100.0	Total	63	100.0

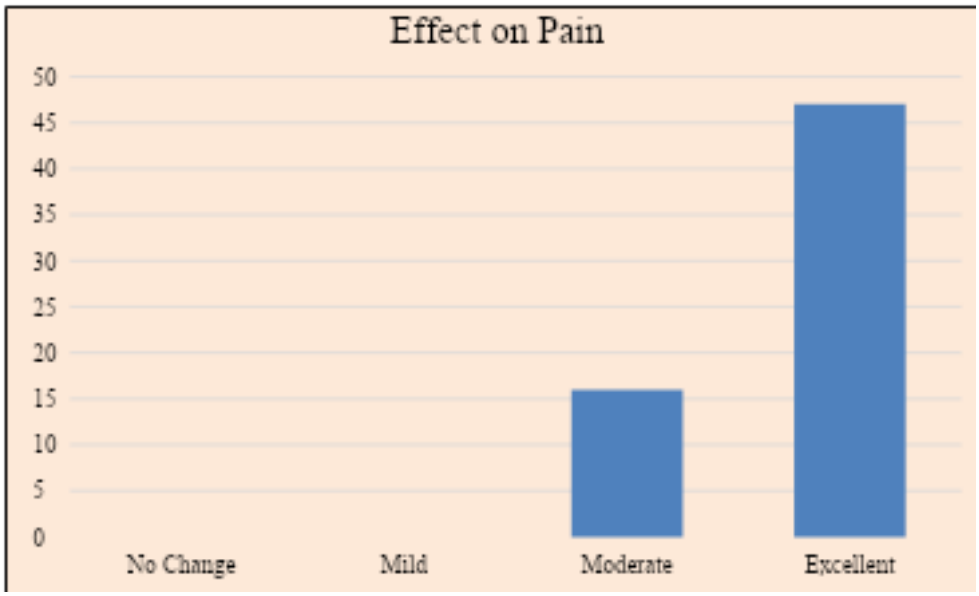


Fig 2: Effect on Pain

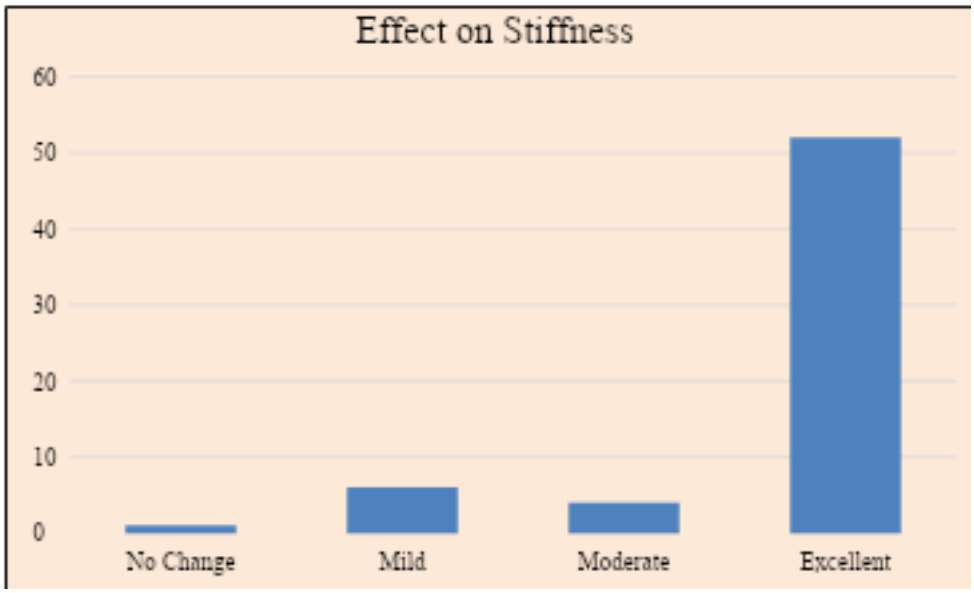


Fig 3: Effect on Stiffness

Table 6: Showing the frequency distribution of patients according to Effect on extension(right, left) along with its bar graph is as given below

Effect on Extension - Right	Frequency	%	Effect on Extension - Left	Frequency	%
No Change	31	49.70	No Change	28	44.44
increase	30	47.63	Increase	34	53.98
decrease	2	3.17	Decrease	1	1.58
Total	63	100.0	Total	63	100.0

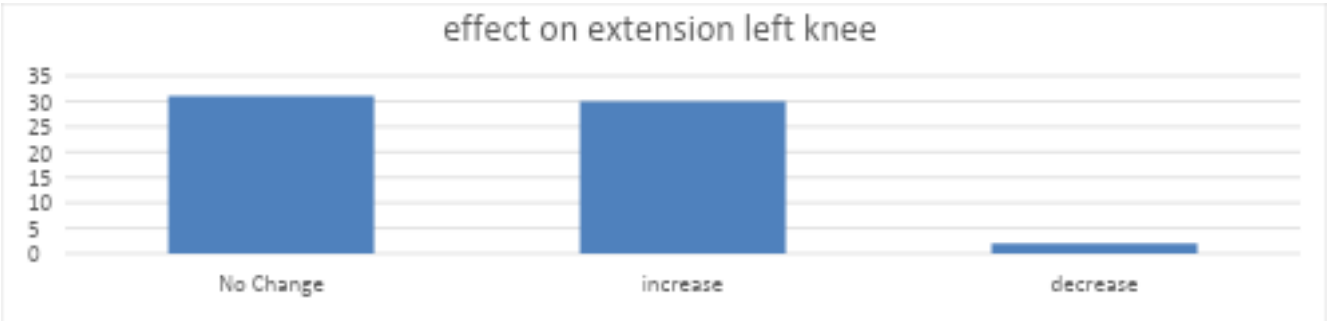


Fig 4 : effect on extension left knee joint

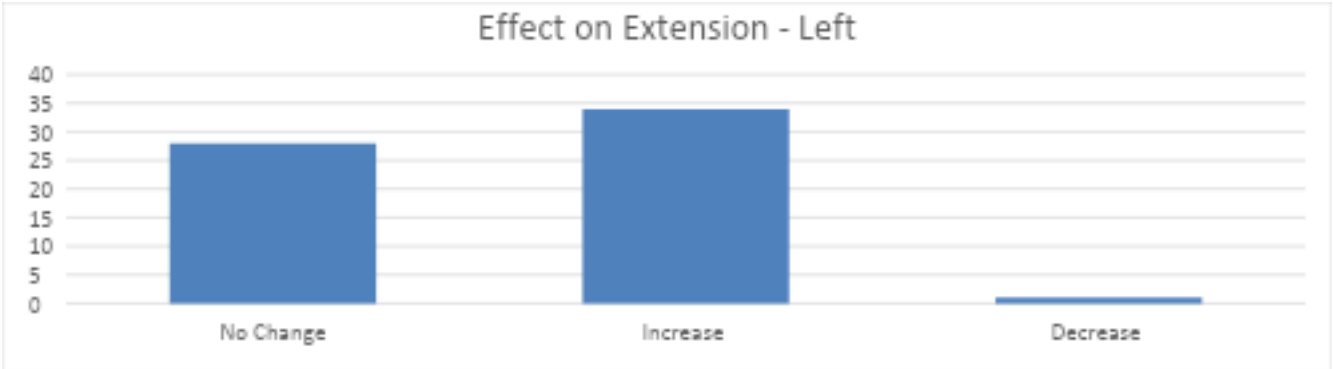


Fig 5 : Effect on Extension – Left knee joint

Statistical analysis of pain, stiffness, and knee joint extension (right and left) across multiple time points using the Friedman Test. The p-values for all parameters (stiffness, extension–right, extension–left, and pain) were <0.000, indicating statistically highly significant differences over time. The decreasing mean scores suggest that pain, stiffness, and limitation in extension reduced consistently as treatment progressed from day 1 to day 60. Effect on Pain Out of 63 patients, 74.6% reported excellent relief from pain, 25.4% showed a moderate improvement, No patients reported mild or no change, indicating a strong analgesic effect of the treatment. Effect on Stiffness, 82.5% of patients experienced excellent improvement in joint stiffness, 6.3% had a moderate response, 9.5% reported mild improvement, and Only 1.6% showed no change. Effect on Extension (Right Knee), 47.63% of patients showed an increase in extension range, 49.70% had no change, and Only 3.17% experienced a decrease. Effect on Extension (Left Knee), 53.98% showed improved extension, 44.44% had no change, and 1.58% showed a reduction in extension.

Effect of SRDP treatment in Swelling and flexion of knee joint

The data type used for assessment of the parameters stated above is Continuous (Interval) that is parametric. The aim is to compare the values of parameters stated above 1st day, 15th day, 30th day, 45th day & 60th day. Hence the appropriate statistical test used for the purpose is Paired t Test. The results are as follows.

A] Swelling knee joint – Right

Table 7: Showing calculation table for Swelling knee joint – Right knee joint

Paired Samples Test							
		Paired Differences			t	df	P value (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	1st day - 15th day	.17	.13	.02	10.346	62	.000
Pair 2	1st day - 30th day	.17	.13	.02	10.346	62	.000
Pair 3	1st day - 45th day	.17	.13	.02	10.346	62	.000
Pair 4	1st day - 60th day	.17	.13	.02	10.346	62	.000

Since p value for all pairs is less than 0.05, level of significance; the result is significant.
The mean values suggest that the values are decreasing significantly along increasing days.

B] Swelling knee joint – Left

Table 8: Showing calculation table for Swelling knee joint – Left knee joint

Paired Samples Test							
		Paired Differences			t	df	P value (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	1st day - 15th day	.18	.13	.02	10.551	62	.000
Pair 2	1st day - 30th day	.18	.13	.02	10.551	62	.000
Pair 3	1st day - 45th day	.18	.13	.02	10.551	62	.000
Pair 4	1st day - 60th day	.18	.13	.02	10.551	62	.000

Since p value for all pairs is less than 0.05, level of significance; the result is significant.
The mean values suggest that the values are decreasing significantly along increasing days.

Table 9: Showing the frequency distribution of patients according to Effect on Swelling knee joint (Right, left), along with its bar graph is as given below.

Effect on Swelling knee joint - Right	Frequency	%	Effect on Swelling knee joint - Left	Frequency	%
No Change	17	26.9	No Change	18	28.5
Increase	00	0.00	Increase	45	71.42
Decrease	46	73.01	Decrease	0	0.0
Total	63	100.0	Total	63	100.0

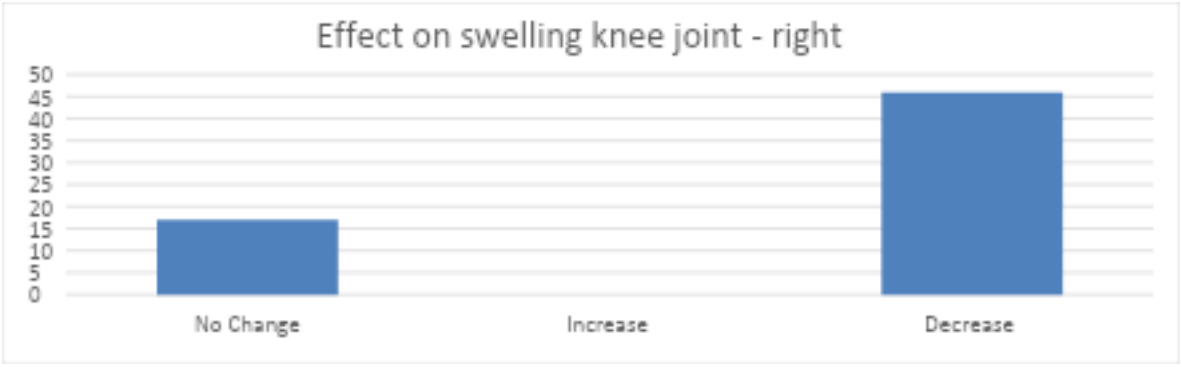


Fig 6: Effect on swelling knee joint - right

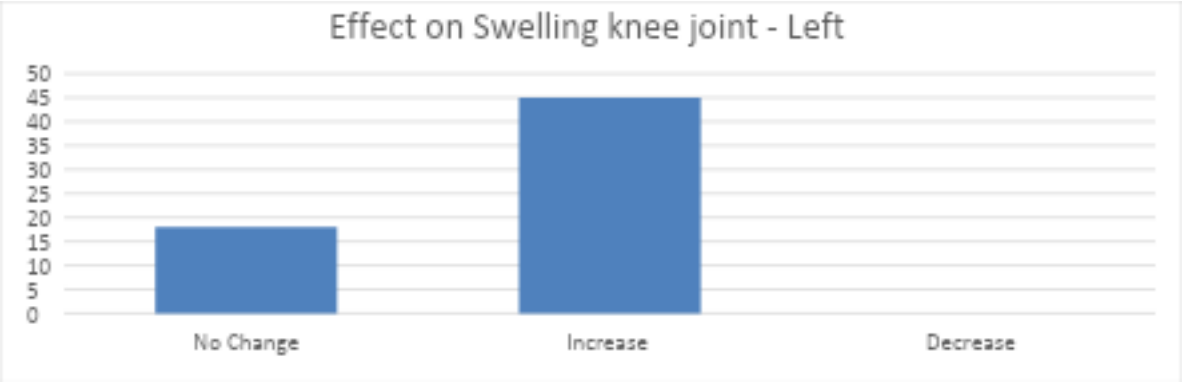


Fig 7 : Effect on Swelling knee joint - Left

C] Flexion – Right

Table 17: Showing calculation table for flexion right knee joint

Paired Samples Test							
		Paired Differences			t	df	P value (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	1st day - 15th day	-8.65	4.42	0.56	-15.541	62	.000
Pair 2	1st day - 30th day	-18.25	8.94	1.13	-16.202	62	.000
Pair 3	1st day - 45th day	-31.51	16.67	2.10	-15.001	62	.000
Pair 4	1st day - 60th day	-42.62	23.98	3.02	-14.109	62	.000

Since p value for all pairs is less than 0.05, level of significance; the result is significant.
The mean values suggest that the values are increasing significantly along increasing days.

D] Flexion – Left

Table 18: Showing calculation table for flexion left knee joint

Paired Samples Test							
		Paired Differences			t	df	P value (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	1st day - 15th day	-8.49	3.98	0.50	-16.939	62	.000
Pair 2	1st day - 30th day	-19.68	10.81	1.36	-14.453	62	.000
Pair 3	1st day - 45th day	-35.79	20.38	2.57	-13.938	62	.000
Pair 4	1st day - 60th day	-44.60	27.36	3.45	-12.939	62	.000

Since p value for all pairs is less than 0.05, level of significance; the result is significant.
The mean values suggest that the values are increasing significantly along increasing days.

Table 9: Showing the frequency distribution of patients according to Effect on flexion(right, left) along with its bar graph is as given below

Effect on Flexion - Right	Frequency	%	Effect on Flexion - Left	Frequency	%
No Change	4	7.9	No Change	3	6.34
Increase	59	92.06	Increase	60	93.65
Decrease	00	0.0	Decrease	00	0.0
Total	63	100.0	Total	63	100.0

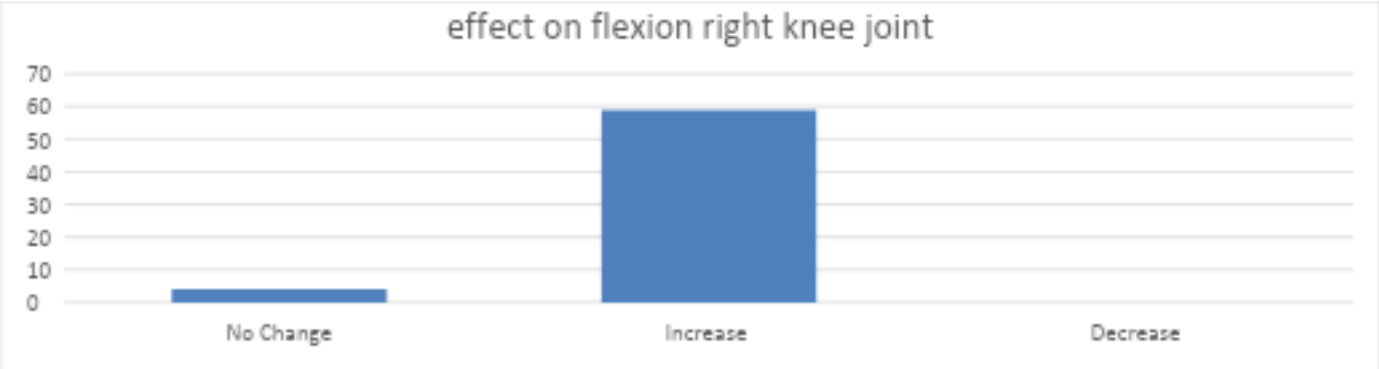


Fig 8: effect on flexion right knee joint

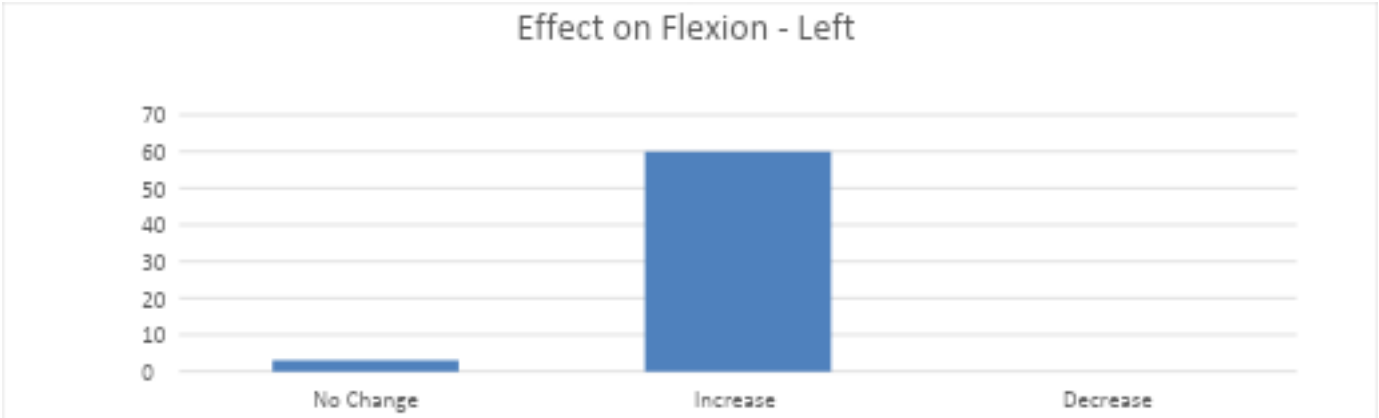


Fig 9 : Effect on Flexion - Left knee joint

The statistical comparison of swelling in the right and left knee joints at baseline and at subsequent intervals (15th, 30th, 45th, and 60th days) using paired samples t-tests. For both right and left knees, the mean swelling values slightly decreased over time, from 38.86 (right) and 38.87 (left) on Day 1 to 38.69 by Day 60. Though the absolute reduction was minimal (0.17–0.18 units), the differences were statistically highly significant ($p < 0.000$) at all intervals, attributed to low variability and large sample size. This indicates a consistent but mild decrease in joint swelling over the treatment duration. Effect on Swelling (Right Knee Joint) Out of 63 patients, 73.01% showed a decrease in swelling, 26.9% had no change, 0% showed no increase in swelling. Effect on Swelling (Left Knee Joint), 71.42% showed an increase in swelling, 28.5% had no change, 0% reported no increase in swelling.

Flexion – Knee Joint (Right and Left)

The paired sample analysis for knee joint flexion (right and left).

The p-value for all comparisons is <0.000, indicating a highly significant increase in joint flexion with time. The mean values show a steady and marked increase in flexion range from Day 1 to Day 60. For the right knee, flexion improved from 61.43° to 104.05°, showing 69.38% improvement. For the left knee, it increased from 62.70° to 107.30°, reflecting a 71.14% improvement.

Effect on Flexion (Right Knee Joint) 92.06% patients showed an increase in flexion, 7.9% patients had no change, 0% reported a decrease. Effect on Flexion (Left Knee Joint), 93.65% patients showed an increase in flexion, 6.34% patients had no change in flexion, 0% reported no decrease in flexion.

Table 11: showing Overall Effect of SRDP Treatment

The frequency distribution of patients.according to Overall Effect along with its bar graph is as given below

Overall Effect	Frequency	%
No Change	0	0.0
Mild	9	14.28
Moderate	19	30.15
Excellent	35	55.5
Total	63	100.0

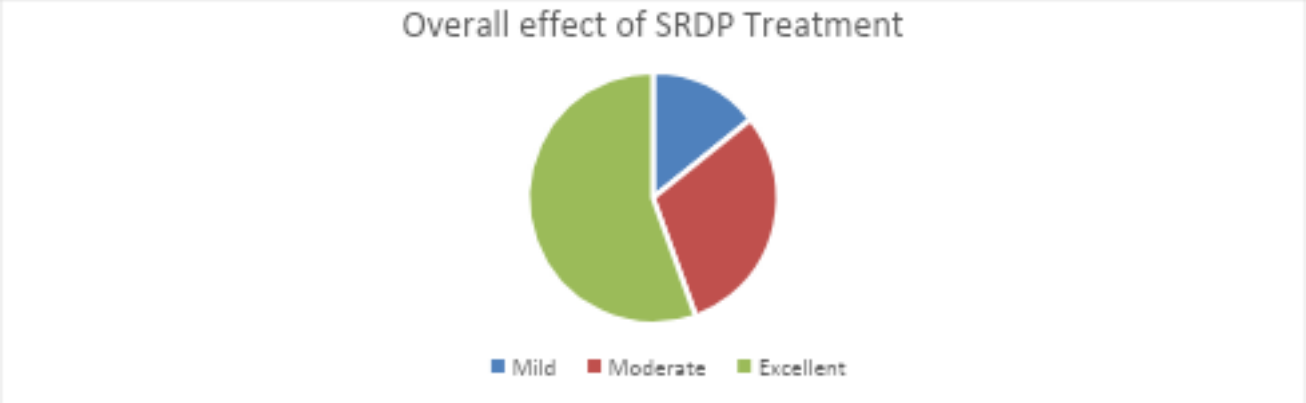


Fig 10: Overall effect of SRDP Treatment

Discussion:

Osteoarthritis (OA) is currently understood as a whole-joint disease involving progressive cartilage degradation, subchondral bone sclerosis, synovial inflammation, and osteophyte formation (Loeser et al., 2012). The primary hallmark is the loss of articular cartilage integrity, which leads to joint space narrowing, pain, stiffness, and functional limitations.[18] Mechanical factors such as joint mallignment and repetitive microtrauma are critical in initiating cartilage breakdown, but biochemical processes, including pro-inflammatory cytokine release (e.g., IL-1β, TNF-α) and increased matrix metalloproteinases (MMPs), accelerate cartilage destruction.[19]

Subchondral bone undergoes remodeling and increased turnover, often leading to bone marrow lesions, which contribute to pain and disease progression.[20] Synovial inflammation, although of low grade, plays a significant role in OA's pathogenesis by perpetuating joint degradation.[21] Furthermore, obesity, aging, metabolic syndrome, and genetic factors are now recognized as key contributors to OA beyond the simplistic "wear and tear" model[22]

Despite advancements in understanding OA's pathophysiology, the absence of disease-modifying osteoarthritis drugs (DMOADs) remains a therapeutic challenge, and current treatments predominantly aim at symptom management. [23]

In *Ayurveda*, Osteoarthritis closely correlates with *Sandhivata*, which is classified as a *Vata Vyadhi* (disorder of *Vata Dosha*). The condition is described as degeneration and dryness (*Rukshata*) in the joints, resulting from aggravation of *Vata Dosha* due to aging, improper diet, lifestyle factors, and excessive physical activity.[24] According to *Ayurvedic* pathogenesis (*Samprapti*), *Vata* aggravation leads to depletion of *Sneha* (natural lubrication) in the joints, causing *Sandhi Shoola* (joint pain), *Sandhi Shotha* (swelling), and reduced range of motion[25]. The *Dhatukshaya* (tissue depletion), especially of *Asthi* (bone tissue) and *Majja* (bone marrow), is considered central to OA progression in *Ayurveda*. The lack of joint nourishment (*Dhatu Poshana*) and the disturbance in *Vata's* normal functions are said to precipitate the clinical manifestations.

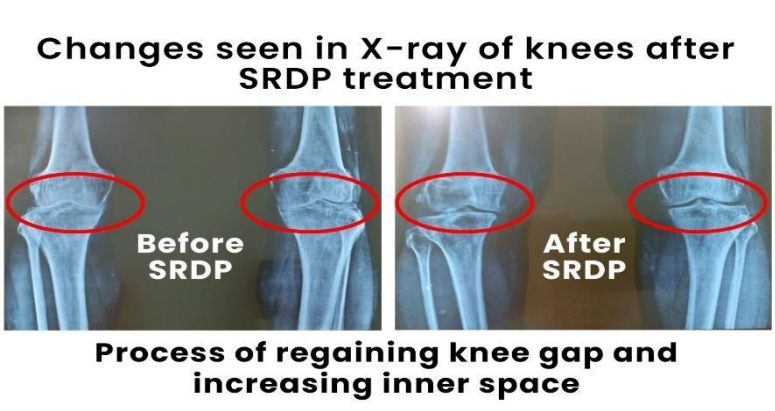
Ayurvedic treatment emphasizes *Vata*-pacifying therapies including *Snehana* (oleation), *Swedana* (sudation), *Basti* (medicated enemas) [26]..

Subjective improvement - Many patients in grade 3 and grand 4 are routinely advised TKR surgeries in modern science So Patient Requires and alternative option for surgery, In Present study all patients underwent SRDP treatment have shown Significant improvement in Pain, swelling, stiiffness, ROM of knee joint, also there is a significant improvement in koos score after 60 days of treatment. The pain gets reduced Significantly, patients Joint gets strengthened and Walking Time and Walking distance Also get improved, The patients average Standing Time was increased from 5 min to 1hr, the walking distance improved from 100 mts to 1 km The patients Up and down stair activites were also improved, The patients start upstairs and downstairs So overall Improvement in Koos score was observed in about 76.2% of total number of patients 23.8% patient have little improvement in current studies,

Objective improvement- in objective improvement We have taken x ray as criteria for improvement analysis out of all patient 48 patients shows Joint space width (JSW) has increased, indicating restoration of normal spacing. The extra bony growths (osteophytes) caused by wear and tear have been removed. The bone ends are now smooth, reducing friction during activities such as walking and climbing stairs. There is a marked improvement in the alignment of the knee joints, indicating correction of the varus deformity. As a result, the patient has experienced a significant reduction in pain, stiffness, and swelling significantly, remaining patient Don't show improvement in joint space but symptomatic relief was present in patients.

Rather Than orthodox Treatments like Janu basti Parasanth clinic developed Unique SRDP is a four-phase treatment model An Evidence based Treatment approach where every treatment approach is considered which is involved in pathophysiology of osteoarthritis. 1st 30 days treatment typically focus on detoxification In this phase swelling is reduced, gut metabolism get improved particularly when Ama (toxins or undigested metabolic waste) is implicated in the disease process [27] after this phase a significant improvement in Swelling and pain is noted along with Specific Treatments to detoxify locally Leech application plays crucial Role to Reduce Swelling and pain Significantly in this patients, In 1st 15 days treatment various external therapies are carried out which are Modified ayurvedic panchakarma therapies arranged in a specific manner. By this joint get detoxify and Swelling, stiffness and pain gets reduced. The pathologies related to knee pain and joint gets corrected and cartilages, tendons are strengthened resulting in reduction in pain. in 2nd phase strengthening of knee joint was done by oil Dhara and physiotherapy by this phase extremely significant result was noted in pain, Walking time and Range of motion compared to baseline score. In 3rd and 4th phase medications and some local applications are advised by which root cause removal is aimed to prevent the patient from developing metabolic osteoarthritis and rejuvenation medications heals and rejuvenate the musculation, Synovial fluid and joint holistically.

Whole SRDP therapy is based on Ayurvedic treatment approach and applies concepts of Ayurvedic medication treatment and panchakarma procedures in standardised manner. All the medicines developed for SRDP are well standardised and contains herbs and minerals having proved empirical evidence.



Conclusion -

The SRDP treatment is a holistic approach towards patients advised Total knee replacement surgeries, Patients shows significant recovery in few days and long term recovery in after stopping medicines and treatments, Increase in Joint Space in is one of the radio logical evidence Which boosts the outcomes of this treatment, So SRDP can be treated as holistic alternative for patients whom advised Total knee replacement surgeries .

Acknowledgement

1) The authors thank the patients and staff at Parasnath speciality clinic for their cooperation and participation in this study. The authors would like to express their sincere gratitude to the clinical and technical staff of Parasnath speciality clinic for their invaluable assistance and cooperation throughout the course of this study. We are especially thankful to the patients who participated in this research for their trust, time, and willingness to contribute to the advancement of medical knowledge. We also extend our appreciation to Dr. monali shah, Consultant Radiologist, for their expert interpretation of radiographic images and valuable input, which significantly enhanced the quality of our analysis.

SOURSE OF SUPPORT – Nil

CONFLICT OF INTEREST - None

References:

1. Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. Lancet. 2019;393(10182):1745-59.
2. Mobasheri A, Rayman MP, Gualillo O, Sellam J, Van Der Kraan P, Henrotin Y. The role of metabolism in the pathogenesis of osteoarthritis. Nat Rev Rheumatol. 2017;13(5):302-11.
3. Loeser RF, Goldring SR, Scanzello CR, Goldring MB. Osteoarthritis: A disease of the joint as an organ. Arthritis Rheum. 2012;64(6):1697-707.
4. Safiri S, Kolahi AA, Smith E, Hill C, Bettampadi D, Mansournia MA, et al. Global, regional and national burden of osteoarthritis 1990–2017: a systematic analysis of the Global Burden of Disease Study 2017. Ann Rheum Dis. 2020;79(6):819-28.
5. Pal CP, Singh P, Chaturvedi S, Pruthi KK, Vij A. Epidemiology of knee osteoarthritis in India and related factors. *J Family Med Prim Care*. (Referenced in multiple studies reporting 28.7%)
6. Burden of osteoarthritis in India and its states, 1990–2019: findings from the Global Burden of Disease Study 2019. *Osteoarthritis Cartilage*. 2022; published analysis.
7. Kandasamy S, Vadivelu R, Shanmugam S, Mahendran BS. Exploring the burden of knee osteoarthritis in rural South India: community prevalence, risk factors and functional assessment among adults aged 40 and above. *Cureus*. 2024 Nov 11;16(11):e73452.
8. Pal CP, Chaturvedi S, et al. Prevalence of knee osteoarthritis and its associated factors in Type 2 diabetes mellitus patients. *J Clin Diagn Res*. 2023 Nov;17(11):OC22–OC25.
9. Community-based study in rural Ballabgarh, Haryana reporting 64.3% prevalence among elderly. *J Family Med Prim Care*. 2021;10(10):... (Ballabgarh study).
10. Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. Lancet. 2019;393(10182):1745-59.
11. Fernandes L, Hagen KB, Bijlsma JW, et al. EULAR recommendations for the non-pharmacological core management of hip and knee osteoarthritis. Ann Rheum Dis. 2013;72(7):1125-35.
12. Zhang W, Moskowitz RW, Nuki G, et al. OARSI recommendations for the management of hip and knee osteoarthritis: Part II: OARSI evidence-based, expert consensus guidelines. Osteoarthritis Cartilage. 2010;18(4):476-99.
13. McAlindon TE, Bannuru RR, Sullivan MC, et al. OARSI guidelines for the non-surgical management of knee osteoarthritis. Osteoarthritis Cartilage. 2014;22(3):363-88.
14. Loeser RF, Goldring SR, Scanzello CR, Goldring MB. Osteoarthritis: a disease of the joint as an organ. Arthritis Rheum. 2012;64(6):1697-707.
15. Glyn-Jones S, Palmer AJR, Agricola R, et al. Osteoarthritis. Lancet. 2015;386(9991):376-87.
16. Pal CP, Singh P, Chaturvedi S, Pruthi KK, Vij A. Epidemiology of knee osteoarthritis in India and related factors. J Family Med Prim Care. 2016;5(3):498-503.
17. Cheng A, Wang L, Zhai G. New developments in the treatment of osteoarthritis – focus on mesenchymal stem cells and gene therapy. Bone Res. 2021;9(1):30.
18. Loeser RF, Goldring SR, Scanzello CR, Goldring MB. Osteoarthritis: A disease of the joint as an organ. Arthritis Rheum. 2012;64(6):1697-707.
19. Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. Lancet. 2019;393(10182):1745-59.
20. Mobasheri A, Rayman MP, Gualillo O, Sellam J, Van Der Kraan P, Henrotin Y. The role of metabolism in the pathogenesis of osteoarthritis. Nat Rev Rheumatol. 2017;13(5):302-11.
21. Scanzello CR, Goldring SR. The role of synovitis in osteoarthritis pathogenesis. Bone. 2012;51(2):249-57.
22. Glyn-Jones S, Palmer AJR, Agricola R, et al. Osteoarthritis. Lancet. 2015;386(9991):376-87.
23. McAlindon TE, Bannuru RR, Sullivan MC, et al. OARSI guidelines for the non-surgical management of knee osteoarthritis. Osteoarthritis Cartilage. 2014;22(3):363-88.
24. Sharma PV. *Chakradatta (Sanskrit text with English translation)*. Varanasi: Chaukhambha Publishers; 1995. Sandhivata Chikitsa.
25. Srikantha Murthy KR. *Ashtanga Hridaya of Vagbhata* (Vol 2). Varanasi: Chaukhambha Krishnadas Academy; 2000. Vatavyadhi Chikitsa.
26. Chopra A, Lavin P, Patwardhan B, et al. Randomized controlled pilot study of an Ayurvedic formulation for rheumatoid arthritis. J Clin Rheumatol. 2010;16(3):133-9.
27. Sharma PV. *Chakradatta (Sanskrit text with English translation)*. Varanasi: Chaukhambha Publishers; 1995. Sandhivata Chikitsa.