

**Diagnostic Criteria:**

Otherwise normal Patients with history of inflammatory arthritis at least since 6 months including those fulfilling the American Rheumatoid Arthritis Association criteria for Diagnosis of inflammatory joint disease.

**Inclusion Criteria:**

Patients fulfilling the following conditions were included.

- 1) Patients between 10 yrs to 75 yrs of either sex.
- 2) Otherwise normal Patients presenting with history of inflammatory arthritis, since at least 6 months.
- 3) Patients whose anti-arthritic management has been withdrawn for at least one week before the start of the therapy

**Exclusion Criteria:** The following patients were excluded from the study

- 1) Patients below 10 yrs & above 75 years.
- 2) Patients with secondary infections.
- 3) Patients with any other co-morbidity.
- 4) Patients with history of inflammatory arthritis, for not more than 6 months.
- 5) Patients with any other treatment regimen

**Selection of Patients:**

Total patients registered for the study: 156

Completed: 125

Drop outs (LAMA): 31

**Research Design:** A single blind uncontrolled clinical trial with pre & posttest design

**Investigations:** routine blood and urine investigations were done

**Intervention:** whole body traditional was done with **Nagachampa oil** for seven days, once daily for 30 minutes duration

**Assessment Criteria:** Statistical change in the following symptoms were assessed

(1) Inflammation (redness and swelling)

Absent	-	0
Mild	-	1
Moderate	-	2
Severe	-	3

(2) Pain

Absent	-	0
Mild	-	1
Moderate	-	2
Severe	-	3

(3) range of movements

Full movements-		0
Mild	-	1
Moderate	-	2
Severe	-	3

(4) sleeplessness

Absent	-	0
Mild	-	1
Moderate	-	2
Severe	-	3

(5) Feeling of well being (including absence of fatigue & disinterestedness)

Excellent	-	0
Good	-	1
Satisfactory	-	2
Absent	-	3

## OBSERVATIONS

1. **Age Incidence:** Maximum number of patients studied belonged to the age group of 30-38 years i.e. 32%, followed by 20% each in the age group of 39-47 years and 57-65 years. 16% were aged between 48-56 years and 12% between 66-75 years
2. **Sex Incidence:** Equal incidence of was found in either sex
3. **Incidence of Marital Status:** 92% of the patients were married while 8% were not  
**Incidence of Educational Status:** 41% of the patients were educated up to high school while 29% had completed primary school. 21% were uneducated and 9% had received education up to middle school
4. **Religion Incidence:** 69% of the patients were Hindus while Muslims and Christians formed a minority with 18% and 13% representation
5. **Incidence of Socioeconomic Status:** Maximum number of patients belonged to the middle class i.e. 45% while 25% belonged to poor class, 17% to lower middle, 13% to the upper middle strata of the society
6. **Occupational Incidence:** Most of the patients were moderate workers i.e. 66%. 17% Were accustomed to performing heavy work while the remaining 17% were habituated to a sedentary life style
7. **Incidence of Addictions:** Amongst the populace selected for the study, about 64% were teetotalers, 17% were addicted to Alcohol, 9% to Smoking and 5% each to Tobacco chewing and Inhalation of snuff
8. **Incidence of Dietary Habits:** 90% of the patients were accustomed to mixed type of diet while 10% were Vegetarians
9. **Incidence of Deha Prakruti:** A predominance of Pittakaphala prakruti was observed in the patients with 40% followed by Kaphapittala 21% and 13% each of Vatapittala, Vatakaphala and Kaphavatala prakruti
11. **Incidence of Sara:** 54% of the patients were of Madhyama Sara while 46% were of Avara Sara

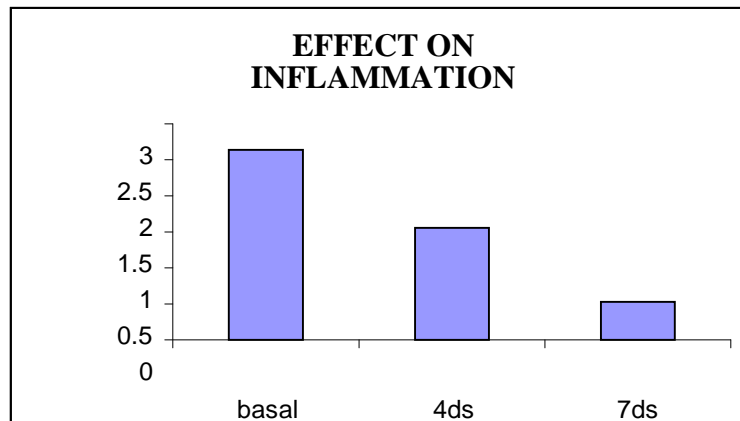
12. **Incidence in Samhanana:** Patients of Madhyama Samhanana were 83% while those of Pravara Samhanana were 17%
13. **Incidence of Satva:** Satva analysis of the patients revealed 82% of Pravara Satva, 18% of Madhyama Satva
14. **Incidence of Rasa Satmya:** 84% of the patients were Sarvarasa Satmya while 16% were Madhyama Rasa Satmya i.e. accustomed to more than one Rasa
15. **Incidence of Agni:** Teekshna Agni was observed in 8% of the patients, Vishama Agni in 27% and Manda Agni in 63%
16. **Incidence of Bala:** 50% of the patients were of Madhyama Bala, 37 % of Avara Bala and 13% of Pravara Bala
17. **Incidence of Family History:** Majority of the patients gave a family history of the Disease in their first & second-degree relatives

## RESULTS

### One Way Analysis of Variance

#### INFLAMMATION (n=125)

Group	Mean	Std Dev	SEM
basal	2.650	0.479	0.0479
4ds	1.550	0.500	0.0500
7ds	0.520	0.541	0.0541



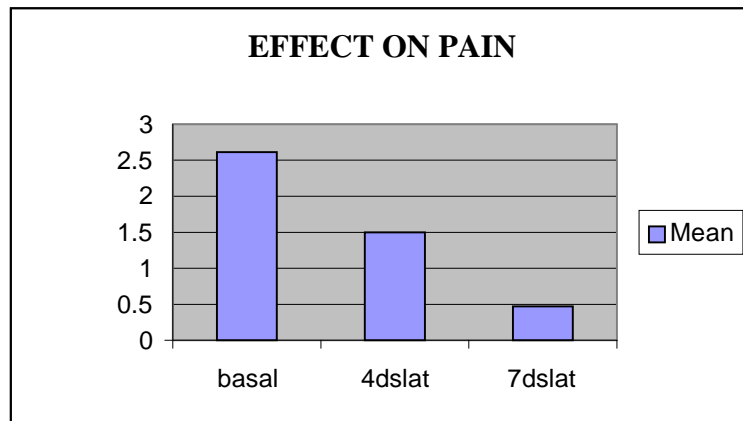
The differences in the mean values among the treatment groups are greater than would be expected by chance; there is a statistically significant difference ( $P = <0.001$ )

#### All Pairwise Multiple Comparison Procedures (Tukey Test): Comparisons for factor:

Comparison	Diff of Means	p	q	P<0.05
basal vs. 7ds	2.130	3	41.980	Yes
basal vs. 4ds	1.100	3	21.680	Yes
4ds vs. 7ds	1.030	3	20.300	Yes

**PAIN (n=100)**

Group	Mean	Std Dev	SEM
basal	2.620	0.488	0.0488
4dslat	1.510	0.577	0.0577
7dslat	0.480	0.541	0.0541



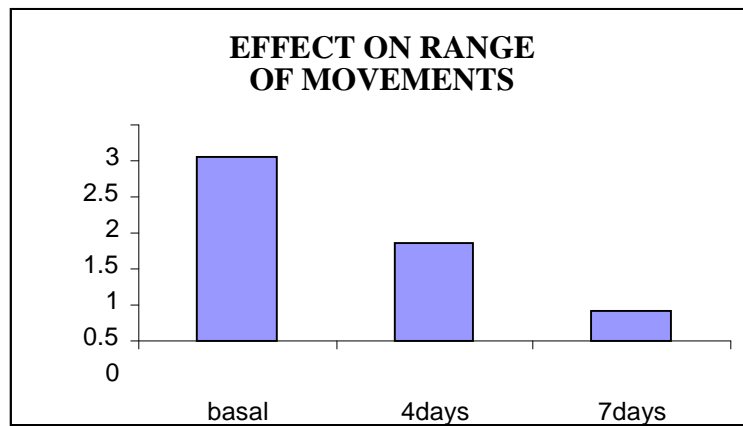
The differences in the mean values among the treatment groups are greater than would be expected by chance; there is a statistically significant difference ( $P = <0.001$ )

**All Pairwise Multiple Comparison Procedures (Tukey Test): Comparisons for factor:**

Comparison	Diff of Means	p	q	P<0.05
basal vs. 7dslat	2.140	3	39.883	Yes
basal vs. 4dslat	1.110	3	20.687	Yes
4dslat vs. 7dslat	1.030	3	19.196	Yes

**RANGE OF MOVEMENTS (n=125)**

Group	Mean	Std Dev	SEM
basal	2.560	0.556	0.0556
4days	1.370	0.677	0.0677
7days	0.430	0.537	0.0537



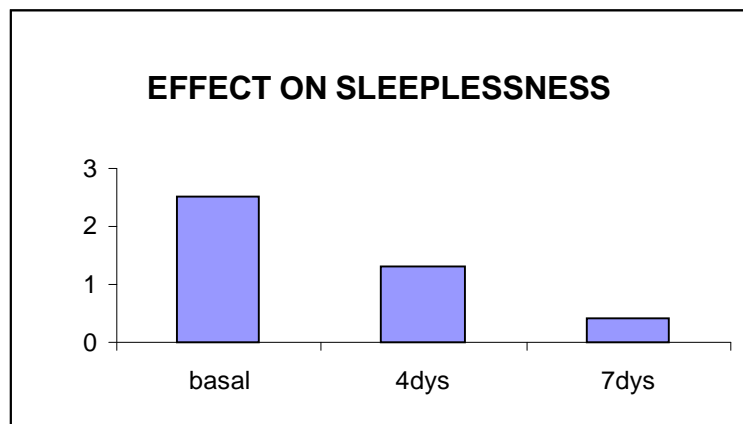
The differences in the mean values among the treatment groups are greater than would be expected by chance; there is a statistically significant difference ( $P = <0.001$ )

**All Pairwise Multiple Comparison Procedures (Tukey Test): Comparisons for factor:**

Comparison	Diff of Means	p	q	P<0.05
basal vs. 7days	2.130	3	35.916	Yes
basal vs. 4days	1.190	3	20.066	Yes
4days vs. 7days	0.940	3	15.850	Yes

**SLEEPLESSNESS (n=125)**

Group	Mean	Std Dev	SEM
basal	2.510	0.502	0.0502
4dys	1.310	0.720	0.0720
7dys	0.430	0.537	0.0537



The differences in the mean values among the treatment groups are greater than would be expected by chance; there is a statistically significant difference ( $P = <0.001$ )

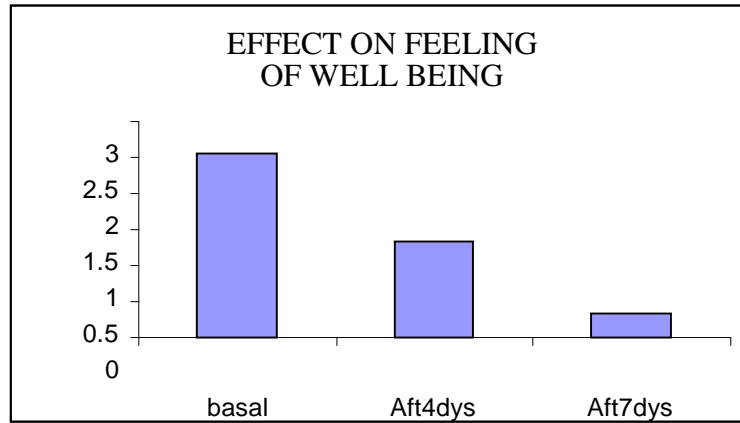
**All Pairwise Multiple Comparison Procedures (Tukey Test): Comparisons for factor:**

Comparison	Diff of Means	p	q	P<0.05
basal vs. 7dys	2.080	3	35.001	Yes
basal vs. 4dys	1.200	3	20.193	Yes
4dys vs. 7dys	0.880	3	14.808	Yes



**FEELING OF WELL BEING(n=100)**

Group	Mean	Std Dev	SEM
basal	2.550	0.500	0.0500
Aft4dys	1.340	0.699	0.0699
Aft7dys	0.320	0.469	0.0469



The differences in the mean values among the treatment groups are greater than would be expected by chance; there is a statistically significant difference (P = <0.001)

**All Pair wise Multiple Comparison Procedures (Tukey Test): Comparisons for factor:**

Comparison	Diff of Means	p	q	P<0.05
basal vs. aft7dys	2.230	3	39.440	Yes
basalvs. aft4dys	1.210	3	21.400	Yes
aft4dys vs. aft7dys	1.020	3	18.040	Yes

## **RESULTS**

### **EFFECT ON INFLAMMATION (Redness and Swelling)**

The mean score for inflammation that was 2.65 before treatment came down to 1.550 after four days and 0.520 after seven days. This difference is highly significant statistically. ( $P < 0.001$ ). The comparison between the improvements was significantly better after seven days than after four days ( $P < 0.05$ )

### **EFFECT ON PAIN**

The mean score for pain that was 2.62 before treatment came down to 1.51 after four days and 0.480 after seven days. This difference is highly significant statistically. ( $P < 0.001$ ). The comparison between the improvements was significantly better after seven days than after four days ( $P < 0.05$ )

### **EFFECT ON RANGE OF MOVEMENTS**

The mean score for range of movements that was 2.56 before treatment came down to 1.37 after four days and 0.43 after seven days. This difference is highly significant statistically. ( $P < 0.001$ ). The comparison between the improvements was significantly better after seven days than after four days ( $P < 0.05$ )

### **EFFECT ON SLEEPLESSNESS**

The mean score for sleeplessness that was 2.51 before treatment came down to 1.31 after four days and 0.43 after seven days. This difference is highly significant statistically. ( $P < 0.001$ ). The comparison between the improvements was significantly better after seven days than after four days ( $P < 0.05$ )

### **EFFECT ON FEELING OF WELL BEING**

The mean score for feeling of well being that was 2.55 before treatment came down to 1.34 after four days and 0.32 after seven days. This difference is highly significant statistically. ( $P < 0.001$ ). The comparison between the improvements was significantly better after seven days than after four days ( $P < 0.05$ )

**Discussion and conclusion:** There was a steady response to Nagachampa oil, by all the patients. Though there was a significant response within four days, it was even better after seven days that is evident from Tukey tests. There was a steady improvement in all symptoms proportionately. Patients also reported improvement in sleeplessness and an elevated general feeling of well being. None of the patients reported intolerance (in the form of dermatological manifestations like hypersensitivity or rashes) to the oil.

Hence clinically **Nagachampa oil** is an effective formulation in patients suffering from inflammatory joint disease and in normal people suffering from mental and physical stress. We recommend its use in such patients and in normal people suffering from mental and physical stress as an effective stress reliever.

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