

# **A Study of the Effect of Yogic intervention on Blood uric acid Level in Gout Patients**

**Kamakhya Kumar\***

\*Dept of Human Consciousness & Yogic Sciences  
School of Yoga and Health  
Dev Sanskriti Vishwavidyalaya, Haridwar, India  
**Email: kamakhya.kumar@gmail.com**

## **Abstract:**

Gout is the result of disturbed metabolism of purine. In this condition uric acid level in blood increases and mix with sodium biurate in joints. Uric acid, a toxic by product of the digestion of protein, is usually excreted in the urine, but in gout it accumulates in the joint fluid also. The foreign substance accumulated in the joint spaces, the immune system sends white blood cells there to wage a violent inflammatory reaction against them. Appending substances can be eliminated fairly readily from these tissues which have a good supply, but in the joint spaces, which are more isolated from the general circulatory system, and their removal becomes more difficult. An experimental study made to observe the various effects of selected Yoga practices in different domains of health problem at Yoga Arogya Polyclinic, Dev Sanskriti Vishwavidyalaya, Shantikunj, Haridwar. In this pre-post study, the subjects were given practice of Yoga for 60 days for the duration of fortyfive minutes per day in the morning time. The study highlighting the effect of Yogic intervention on Uric acid level of Gout Patients.

**Key Words:** Uric Acid, Asana & Pranayama

---

## **Introduction**

An acute attack of gout is started by the precipitation of urate crystals in the synovial fluid. They start an inflammatory response, chemotactic factors are produced granulocyte migration into the joint; they phagocytose urate crystals and release a glycoprotein which aggravates the inflammation firstly by: Increasing lactic acid production from inflammatory cells local pH is reduced more urate crystals are precipitated in the affected joint and secondly through Releasing lysosomal

enzymes which cause joint destruction. (Tripathi, K.D 2003)

Allison Gandey (2005) stated that gout, once considered a problem of the West, is becoming increasingly international in scope as more and more countries. Wallace (2004) found that in 1999 the prevalence of gout and hyperuricaemia in the USA was 41 per 1000, and in the UK the prevalence of gout diagnosis was 14 per 1000. There are signs that incident and prevalent gout rates began to decline in the late 1990s. Two large studies have examined trends in gout prevalence and incidence in the decade of

the 1990s in the USA and in the UK. They have similar results. In USA annual prevalence rates of gout or hyperuricaemia increased over the period, mainly in older persons. This increase was similar in men and women. Men had three times higher prevalence of gout than women. The overall prevalence of gout and hyperuricaemia was 41 per 1000 in 1999. In UK annual incidence rates of gout increased from about 12 cases per 1000 in 1990 to about 18 cases per 1000 in 1994, but then fell over succeeding years to 1990 levels (13 cases per 1000) by 1999. The overall prevalence of gout diagnosis was 1.4%, or 14 per 1000, in 1999. The male:female ratio was 3.6:1. So, from above findings we can see the prevalence of Gout and also can feel the necessity of treatment of Gout by natural therapy like Ayurveda which has negligible side effects with respect of allopathy.

A study by researchers at the University of Pittsburgh School of Medicine (2006) has found people with gout to be at an increased risk of having a heart attack. The study has been published in the August edition of the journal *Arthritis & Rheumatism* and is the first of its kind to show gout is a significant independent risk factor for heart attacks in men with no previous history of coronary heart disease. The ground breaking study analyzed data collected from 12,866 men enrolled for an average six and half years in the Multiple Risk Factor Intervention Trial (MRFIT). Conducted by the National Heart, Lung and Blood Institute MRFIT was a randomized primary cardiovascular disease prevention trial.

The analyses revealed there were 5337 men suffering from hyperuricemia at the start of

the study of which 1123 developed gouty arthritis during the course of the trial. It was also observed there was no major difference between the groups with hyperuricemia and without where cholesterol levels, medicine use, family history of acute MI, or diabetes mellitus were concerned. At the same time the group having gout was found more likely to use diuretics and alcohol.

Through the analyses it was found there were modest but significant increases in blood pressure, age, blood glucose and BMI in the gout patients. On the other hand those with gout were more likely to be non smokers than the ones in the group free from gout. During the trial period there were a total of 1108 events of acute myocardial infarction in the group with gout which was around 10.5% of the total group. On the other hand 990 men without gout suffered an MI event, which was 8.43% of that group. Of the MI events in the gout group 246 turned out to be fatal.

Humeira Badsha, Vishwas Chhabra, Cathy Leibman, Ayman Mofti, Kok Kong (2009) observed in a pilot study over 47 patients suffering with Rheumatoid arthritis that result with yoga practitioner having significant improvement in the RA disease parameters in comparison to the control group. Patients who underwent yoga had statistically significant improvements in DAS28 and HAQ, but not QOL. The study of 12 sessions of yoga for RA was able to demonstrate statistically significant improvements in RA disease parameters. It can be stated that a longer duration of treatment could result in more significant improvements.

Berman, Brian M., R. Barker Bausell, and Wen-Lin Lee (2002) Use and referral patterns for 22 complementary and alternative medical therapies by members of the American college of rheumatology: These results provide potentially important preliminary data regarding rheumatologists' responses to dramatic increases in the use of CAM therapies among their patients.

Dash, M., and S. Telles (2001) Improvement in hand grip strength in normal volunteers and rheumatoid arthritis patients following yoga training yoga practice improves hand grip strength in normal persons and in patients with rheumatoid arthritis, though the magnitude of improvement varies with factors such as gender and age.

Garfinkel, M., and H. R. Schumacher, Rheumatic Diseases Clinics of North America (2000) two limited studies of in osteoarthritis of the hands and carpal tunnel syndrome show greater improvement in pain than in control groups.

Deborah Litman, MD, (1994), a clinical assistant professor in the division of rheumatology at the Georgetown University School of Medicine, is a strong proponent of exercise (though it's not listed as an alternative treatment) in the treatment of arthritis.

I Haslock, R. Monroe, R. Nagarathna, H. R. Nagendra, N. V. Raghuram, (1994) find that people with rheumatoid arthritis who participated in a yoga program over a three-month period had greater handgrip strength compared with those who did not practice yoga. The researchers reported that arthritis sufferers who practiced yoga showed a significant improvement in pain, tenderness,

and finger range of motion for osteoarthritis of the hands.

Haslock I. R. Monroe, R. Nagarathna, H. R. Nagendra, and N. V. Raghuram. (1994) Measuring the effects of yoga in rheumatoid arthritis. Exercises included asanas, pranayama, meditation, lectures on yoga philosophy and sessions to soften the emotions.

Research at various institutes of therapeutic yoga in India, shows that with the regular practice of some selected yoga asana cures this disease within two months when it is of moderate type. In chronic cases it takes four to five months or more to cure and restore normal health.

### **Methodology**

Each subject was tested individually. In the present study single group pre-test post-test design is used. 40 subjects were taken from semi urban area of Haridwar, Uttarakhand, between the age group of 30-55. Among them 36 completed the intervention Course of Yogic practices successfully. The pre-test of all the subjects of group was taken by blood uric acid test at Yoga Arogya Polyclinic, Dev Sanskriti Vishwavidyalaya (Shantikunj), Haridwar. After taking pre-test, subjects were undergone through the practice of Yoga (Sandhi-Sanchalana, Surya Namaskar and Nadi Sodhan Pranayama) for 60 days at Yoga Arogya Polyclinic, Dev Sanskriti Vishwavidyalaya, Shantikunj, Haridwar for the duration of one hour per day in the morning time. After 60 days post-test was administered.

## Result

Table : For Blood Uric-acid Level

	Pre Value	Post Value
Mean	6.71	5.45
Variance	0.08	0.05
Observations	36	36
Pearson Correlation	0.80	
Hypothesized Mean Difference	1	
df	35	
t Stat	8.61	
P(T<=t) one-tail	1.80	
t Critical one-tail	1.68	
P(T<=t) two-tail	3.60	
t Critical two-tail	2.03	

Table shows the mean values are 6.71 for pre test and 5.45 for post test. Whereas t-value is 2.03, at 35 df on 0.01 level. Hence the directional hypotheses “Yoga Package significantly reduces Blood Uric Acid level of gout patients.” got accepted.

## Discussion & Conclusion

Gout is a metabolic disorder characterized by hyperuricaemia (normal plasma urate 1-4 mg/dl). Uric acid is known as mihic acid (Murthy, 2001). Uric acid, a product of purine metabolism, has low water solubility, especially at low pH. When blood levels are high, it precipitates and deposits in joints, kidney and subcutaneous tissue tophus (Tripathi, 2003).

Acute gout manifests as sudden onset of severe inflammation in a small joint (commonest is matatarso-phalangeal joint of great toe) due to precipitation of urate crystals in the joint space. The joint becomes red, swollen and extremely painful (Kasper et al., 2005).

Gout is the result of disturbed metabolism of purine. In this condition uric acid level in blood increases and mix with sodium biurate in joints. Normal person’s serum uric acid is 0.7-3.7 mg/dl. Metabolism of purine rich food generates uric acid (Upadhyaya, 2002). Uric acid is a byproduct of human metabolism that circulates in the bloodstream. When present in normal concentrations, uric acid is believed to have beneficial antioxidant effects in the body. However, when uric acid levels are elevated it may crystallize in joints or other tissues, resulting in the painful arthritic condition known as gout.

Yogic intervention decreased the uric acid level. However, those, who have very high level of blood uric acid than normal could not get its normal level after practice. Whereas, those who have slight raised uric acid level than normal, found their normal blood uric acid level. One

patient got no improvement in uric acid level. It may be due to her hereditary gout problem. Therefore, we can say that heredity influences the effect of practice. Different decrements in the level of uric acid may be also due to differently follow ness of dietary restrictions. Patients, who strictly followed dietary restrictions, got decrement in uric acid. It can also be stated that if the increase in duration may bring better result.

### References:

1. Allison Gandey (2005) Prevalence of gout climbing internationally, Medscape Medical News, June 9, 2005
2. Berman, Brian M., R. Barker Bausell, and Wen-Lin Lee. (2002) Use and referral patterns for 22 complementary and alternative medical therapies by members of the american college of rheumatology: Results of a national survey. *Archives of Internal Medicine*, 162 (7), 766-770.
3. Dash, M., and S. Telles. (2001) Improvement in hand grip strength in normal volunteers and rheumatoid arthritis patients following yoga training. *Indian Journal of Physiology and Pharmacology*, 45(3), 355-360.
4. Nagarathna Dr. R. and Nagendra Dr. H.R.; (2003) *Yoga for Arthritis*, Swamy Vivekananda Yoga Prakashan, #19 Eknath Bhawan, Gavipuram Circle, B'lore.
5. Garfinkel, M., and H. R. Schumacher (2000) *Rheumatic Diseases Clinics of North America*, 26(1), 125-132
6. Haslock, I., R. Monroe, R. Nagarathna, H. R. Nagendra, and N. V. Raghuram. (1994) Measuring the effects of yoga in rheumatoid arthritis. *British Journal of Rheumatology*, 33(8):787-788.
7. Humeira Badsha, Vishwas Chhabra, Cathy Leibman, Ayman Mofti, Kok Kong (2009) The benefits of yoga for rheumatoid arthritis: results of a preliminary, structured 8-week program, *Rheumatology international*. 01/02/2009
8. I Haslock, R Monroe, R Nagarathna, H R Nagendra, N V Raghuram, (1994) *British Journal of Rheumatology*, 33(8):787-788.
9. Kasper, D. L., Braunwald, E., Fauci, A.S., Hauser, S.L., Longo, D. L. & Jameson, J. L. (2005). *Harrison's Principles of internal medicine*, New Delhi: McGraw-Hill Medical Publishing Division, pp (1046).
10. Murthy, K.R.S. (2001). *Madhava nidanam*. Varanasi: Chaukhambha Orientalia.
11. Tripathi, K.D. (2003). *Essentials of Medical Pharmacology* pp(188). New delhi: Jaypee Brothers Medical Publishers (P) Ltd.
12. Upadhyaya, Y. (2002). *Madhavanidanam*. Varanasi: Chaukhambha Sanskrit Bhavan, pp(500-503).
13. Wallace, K.L., Riedel, A.A., Joseph, R.N. & Wortmann R. (2004). Increasing prevalence of gout and hyperuricemia over 10 years among older adult in a managed care population. *J Rheumatol* 31:1582-1587