

## Management of Shoulder Impingement Pain by Prasarini Taila Pana

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*Abstract: Shoulder impingement syndrome is common problem among the people using their upper arms or at above shoulder level. This problem is prevalent in people of more than 40 years age or with diabetes. This causes disinterest in life, weakness, sleep problems etc. other than affecting daily routine works. Dependency on NSAIDS, steroids, other analgesics and physiotherapists requires alternative medicine with better result. Among the various available formulations, Prasarini taila of Bhavaprakasha gives positive result by reducing pain, weakness and sleeping problems and by providing better flexion, abduction and hyperextension of shoulder too.*

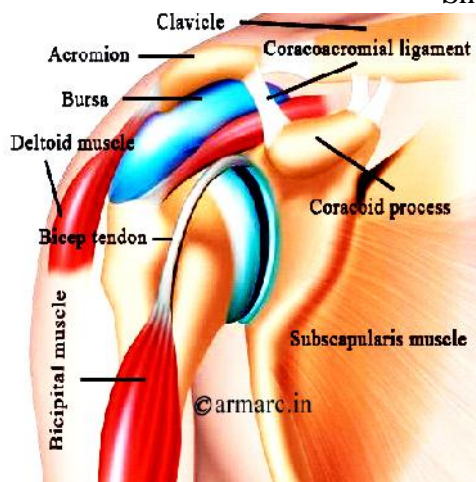
**Keywords:** Prasarini taila, Bhavaprakasha, shoulder impingement, pain, weakness, sleep problems, shoulder flexion, shoulder abduction, shoulder hyperextension.....

Shoulder pain is common problem affecting 7-34% people at a time in their life-span<sup>1</sup>. The pain affects individual's daily activities and work<sup>2</sup>. Tumors, infection, nerve-related problems, tendinitis, arthritis, impingement etc. are various causes for shoulder pain. Among these causes, the commonest cause of shoulder pain in adults is shoulder peri-articular disorders. Subacromial impingement contributes to 90% of these cases<sup>3</sup>. Bhawna et. al. (2016) reported that prevalence of shoulder pain in North India between age group 30-70 years is 22.90%, higher being in middle age between 41-50<sup>4</sup>.

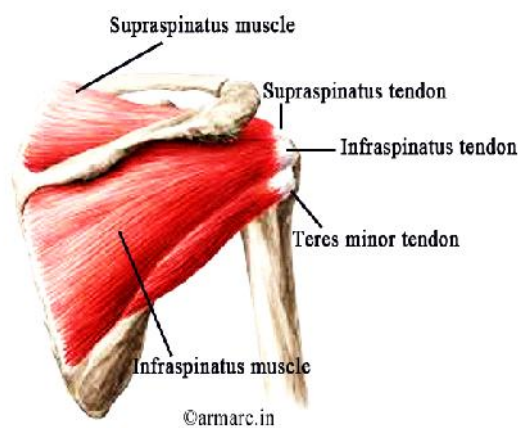
Subacromial impingement is also called as shoulder impingement syndrome, painful arc syndrome, supraspinatus syndrome, swimmer's shoulder and thrower's shoulder. It is a clinical syndrome, occurs when the tendons of the rotator cuff muscle become irritated while passing through the subacromial space, the passage beneath the acromion<sup>5</sup>.

**Figure number: 1**

Shoulder Anatomy



Anterior View

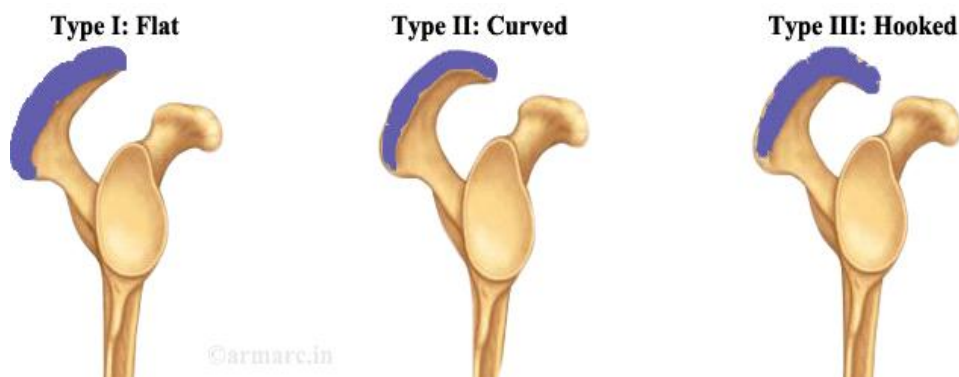


Posterior View

Traumatic or inflammatory lesions of many different shoulder structure and conditions too that result in neuromuscular weakness of the rotator cuff or scapular stabilizers result in impingement pain<sup>6</sup>. Impingement pain is generated by the squashing of subacromial structures between the greater tuberosity of the humeral head and coracoacromial arch during rotation or elevation of humeral head<sup>6</sup>. Balke et. al. (2013) have shown the 50% cases of impingement and cuff tears belong to type II acromion as per Bigliani classification<sup>7</sup>. Symptoms include pain, weakness, loss of motion and difficulty in night sleep<sup>5,6</sup>.

**Figure number: 2**

## Bigliani Classification of Acromion



**Study Design:** Non-randomized clinical trial

**Number of Patients:** 35 patients were taken with diagnosed problems. 4 of them were excluded due to not following routine treatments or as they got aversion from smell of oil.

**Diagnosis:** Subacromial impingement syndrome is not diagnosed sufficiently with single clinical test<sup>8</sup>. Only combination of a number of tests increases the post-test probability of the diagnosis<sup>9</sup>, so in present study clinical diagnosis was done using Neer's test<sup>11</sup> and Hawkins-Kennedy test<sup>10</sup>. Plain radiographs were used in depicting anatomic variants or calcific deposits to rule out calcific tendonitis and predisposing factors such as type III acromion or acromioclavicular joint arthritis. Antero-posterior view with the arm at 30-degree external rotation, the outlet Y view and the axillary view were taken<sup>5</sup>. The outlet Y view showed the subacromial space differentiating the acromion processes while the axillary view exposed visualization of acromion, coracoid process and coracoacromial ligament calcifications. The anteroposterior view recorded the assessment of gleno-humeral joint, subacromial osteophytes and sclerosis of the greater tuberosity<sup>5</sup>. Ultrasonography (USG) and plain magnetic resonance imaging (MRI) were not used as participants were unable to bear the cost. But X-ray was used to confirm the diagnosis.

**Inclusion criteria**

1. Patients aged below 80 years of age and suffering from impingement syndrome were taken.
2. Patients suffering from more than 15 days were taken for the study.
3. Patients assessed positively with Neer's test and Hawkins-Kennedy test were admitted for the study after confirming with X-ray.

**Exclusion criteria**

1. Patients with rotator cuff tear, biceps' tendon rupture, acute calcific tendonitis, adhesive capsulitis, acromioclavicular arthritis, gleno-humeral arthritis, septic arthritis, rheumatoid arthritis, gouty arthritis, lupus erythematosus, spondyloarthropathy, avascular necrosis, cervical radiculopathy, tumour and thoracic outlet syndrome were excluded.
2. Patients who had taken local steroid injection in past 2 months, were kept out of the study.

**Prasarini Taila<sup>11</sup>**

**Method of Preparation:** 4.8 kg of whole plant of Prasarini was taken in 19.2 liters of water. The water was reduced to 1/4<sup>th</sup> using heat. It was filtered and added to murchhita tila taila weighed 4.8 kg. Thereafter, it was added with 4.8 kg of dadhi mastu, 4.8 kg of kanji, 19.2 kg of godugdha and 40 gm fine powder of each of chitraka, pipp-

alimool, madhuka, saindhava lavana, vacha, shapushpa, devadaru, gajapippali, prasarini, jatamansi, raktachaandana, erandamool, balamool and shunthi. Continuous stirring was done while addition of every component one after another. Now heat was applied till madhyama paka of taila was attained. Then, it was filtered, cooled and stored in air-tight amber colored bottle.

### **Indication**

Prasarini taila is indicated to be used for pana, nasya, shirobasti, abhyanga and swedana. As it is mentioned for prasarana of sankuchita anga of ksheena, vriddha, and vatavayadhi peedita mana, so it is called as prasarini taila. It is indicated in all vataja roga specially hanusthambha, jiwasthambha, ardita, gadgadatva, vishwachi, manyasthambha, avabahuka, trika shola, ghridhrasi, khanjata, panguta, kalayakhanja, angasthambha, sankocha, antarayama, bahuyama, dandapatanaka, dhanurvata, kubjata nashaka.

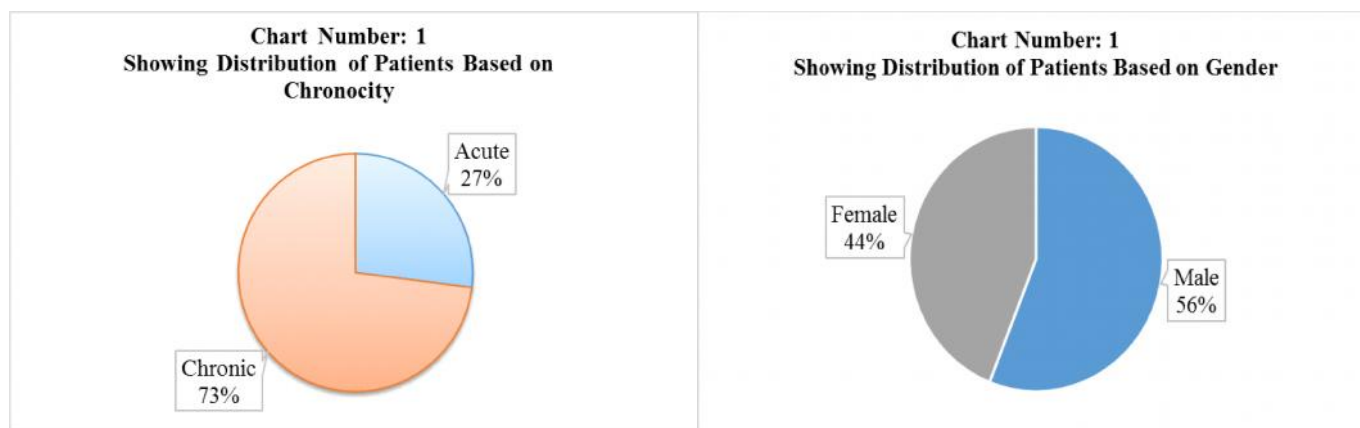
**Intervention:** 10 ml of Prasarini taila with 50 ml hot water thrice a day after food was administered for 30 days. Ajeerna was ruled out before administration. Patients were educated about the taila ajeerna symptoms. They were advised to stop medication in case of ajeerna symptoms and to consult again. Administration was only applied after proper agni deepana by various medicines depending upon symptoms. Patients were asked to stop all other medicines, physiotherapy and exercises 7 days before the treatment started. Assessment was done before treatment and after one-month treatment. The whole work was done in March-April 2017 in Hubballi, Karnataka. The treatment was given in Swami Samrth Hospital, Hubballi.

**Assessment Criteria For Pain, Weakness, Sleep Difficulty, Range of Shoulder Flexion, Range of Shoulder Abduction and Shoulder Hyperextension:** Visual Analog Scale (VAS) was used pain responses in which 0, 2, 4, 6, 8 and 10 grading stood respectively for no pain, mild pain, uncomfortable pain, distressing pain, horrible and unbearable pain. However, scale stood for 0-10. The nearby values indicated similar responses in pain. Action on weakness was also assessed using VAS<sup>13</sup>.

Sleeping difficulty were measured using Pittsburgh Sleep Quality Index. The Pittsburgh Sleep Quality index has 5 questions rated by room partner and 19 self-rated questions. Only self-rated questions are taken for scoring. Sleep is measured in 7 different components like, subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication AND daytime dysfunction. All 7 components are given score from 0 to 3. All the score of seven components is added to get global Pittsburgh Sleep Quality index score. So, total 21 scores were given. 0 indicated about no problem whereas 21 score marked for worst problem in sleep with all 7 components<sup>14</sup>.

Goniometer was used to evaluate range of shoulder flexion and range of shoulder abduction. Average active range of movement in healthy individuals for shoulder flexion, shoulder abduction and shoulder hyperextension are respectively 180°, 180° and 50°. The number degree was measured from starting position to position after range of movement<sup>15</sup>.

**Statistical Analysis:** Wilcoxon signed rank test was used for action on pain, action on weakness and action on difficulty in sleep while range of shoulder flexion, range of shoulder abduction and shoulder hypertension were analyzed statistically by paired t-test.

**Result:****Action on Pain**

	N	Mean	Std. Deviation	Minimum	Maximum
Before Treatment	31	5.8387	1.69503	3.00	8.00
After Treatment	31	2.4516	1.54572	0.00	7.00

Asymptomatic Significance: Less than 0.05

**Action on Weakness**

	N	Mean	Std. Deviation	Minimum	Maximum
Before Treatment	31	5.9032	1.85031	2.00	9.00
After Treatment	31	2.7097	1.95267	0.00	8.00

Asymptomatic Significance: Less than 0.05

**Action on Sleep Difficulty**

	N	Mean	Std. Deviation	Minimum	Maximum
Before Treatment	31	7.3871	4.84202	0.00	15.00
After Treatment	31	1.8710	1.58623	0.00	7.00

Asymptomatic Significance: Less than 0.05

**Action on Range of Shoulder Flexion**

	Mean	N	Std. Deviation	Std. Error Mean
Before Treatment	69.5161	31	17.90507	3.21584
After Treatment	115.8065	31	37.83950	6.79618

Significance: Less than 0.05

**Action on Shoulder Abduction**

	Mean	N	Std. Deviation	Std. Error Mean
Before Treatment	73.8710	31	16.76851	3.01171
After Treatment	119.0323	31	34.77114	6.24508

Significance: Less than 0.05

**Action on Shoulder Hyperextension**

	Mean	N	Std. Deviation	Std. Error Mean
Before Treatment	30.1935	31	5.96333	1.07105
After Treatment	39.3548	31	5.28235	0.94874

Significance: Less than 0.05

**Discussion:** 8 different formulations of Prasarini taila are mentioned in texts. Their ingredients and indications are noted differently. Formulation of this taila by Bhavaprakasha is indicated in various shoulder periarticular disorders

like vishwachi<sup>16</sup> and avabahukal<sup>17</sup>. Despite practically Prasarni taila of other texts did not exhibited result when used, plant *Paederia foetida* Linn. is suggested for all types of rheumatic affections.

Taken Prasarni taila has shown positive actions against pain, weakness and sleep difficulty. The angles of shoulder flexion, shoulder abduction and shoulder hyperextension is also noted increased. What was actions on muscle could not be traced out as electromyography (EMG) and muscle laxity tests were not done before and after treatment.

The Base of oil is sesame oil which is rich in sesamin<sup>19</sup>. Sesamin prevents the diabetes-induced decrease in exercise capacity and impairment of mitochondrial function through the inhibition of NAD(P)H oxidase-dependent oxidative stress in skeletal muscle<sup>20</sup>. Seeds, godugdha and dadhi mastu are rich in protein which helps in healing. *Nardostachys jatamansi* DC. is rich in jatamansone and it is shown to exert tranquilizing effect in mice and monkeys<sup>21</sup>. A detailed study with various compounds present with formulations may exhibit individual actions as well as combined effects on different aspects of shoulder impingement. EMG is important to find the electrical activity on skeletal muscle.

#### References:

1. Reilingh, M.L., Kuijpers, T., Tanja-Harfterkamp, A.M. and, van der Windt, D.A. (2008). Course and prognosis of shoulder symptoms in general practice. *Rheumatology*. 47(5):724–30, 2008.  
(Available on: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4062801/>) (assessed on 15-12-2016)
2. Mitchell, C., Adebajo, A., Hay, E. and Carr, A. (2005). Shoulder pain: diagnosis and management in primary care. *BMJ*. Nov 12; 331 (7725): 1124-1128. 2005. doi: 10.1136/bmj.331.7525.1124.  
(Available on: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1283277/>) (assessed on 15-12-2016)
3. Hakim, A., Clunie, G., Haq, I. (2002). *Oxford Handbook of Rheumatology*. Second Edition, 2006; 2: 24. Oxford University Press, New York.
4. Bhawna, Multani, N.K., and Kundu, Z.S. (2016). Prevalence of Shoulder Pain Among Adults in Northern India. *Asian Journal of Health and Medical Research*. Vol. 2, Issue 2, June, p. 18-22, 2016.
5. Fongemie, A.E., Buss, D.D., and Rolnick, S.J. (1998). Management of Shoulder Impingement Syndrome and Rotator Cuff Tears. *American Family Physician*. 15: 57 (4): 667-674, 1998.  
Available on: <https://www.aafp.org/afp/1998/0215/p667.html> (assessed on 15-12-2016)
6. Hakim, A., Clunie, G., Haq, I. (2002). *Oxford Handbook of Rheumatology*. Second Edition, 2006; 2: 25. Oxford University Press, New York.
7. Balke, M., Schmidt, C., Dedy, N., Benerjee, M. Bouillon and Liem, D. (2013). Correlation of Acromial Morphology with Impingement Syndrome and Rotator cuff Tears. *Acta Orthopædica*. April: 84 (2): 178-183.
8. May, S., Greasley, A., Reeve, S. and Withers, S. (2008). Expert Therapists Use Specific Clinical Reasoning Processes in The Assessment and Management of Patients with Shoulder Pain: A Qualitative Study. *Australian Journal of Physiotherapy*. 54: 261-266.
9. Park, H.B., Yokota, A., Gill, H.S., Rassi, G.E., and McFarland, E.G. (2005). Diagnostic Accuracy of Clinical Tests for The Different Degrees of Subacromial Impingement Syndrom. *The Journal of Bone and Joint Surgery*. 87: 1446-1455, 2005. doi: 10.2166/JBJS.D.02335.
10. Available on: [https://en.wikipedia.org/wiki/Hawkins%E2%80%93Kennedy\\_test](https://en.wikipedia.org/wiki/Hawkins%E2%80%93Kennedy_test) (assessed on 25-02-2017).
11. Available on: [https://en.wikipedia.org/wiki/Impingement\\_syndrome](https://en.wikipedia.org/wiki/Impingement_syndrome) (assessed on 25-02-2017).
12. Mishra, B.S. (Ed.) (Edition: 2013). BhavaPrakasha of Bhavamishra. Edited with The Vidyotini Hindi Commentary. Vol. 2, Vativyadhi Chikitsa Prakarana: 32-41, p.-230. Chaukhamba Sanskrit Bhawan, Varanasi.
13. Price, D.D., Staud, R. and Robinson, M.E. (2012). How Should We Use The Visual Analogue Scale (VAS) In Rehabilitation Outcomes? II: Visual Analogue Scales As Ratio Scales: An Alternative To The View Of Kirsten Et Al. *Journal of Rehabilitation Medicine*. 44 (9): 800-804. doi: 10.2340/16501977-1031. (Available on <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3805376/>)  
Assessed on 25-02-2017.
14. Available on <http://www.opapc.com/uploads/documents/PSQI.pdf> (assessed on 25-02-2017).
15. Available on <https://aokhealth.securestand.com/xq/ASP/ProductID.614/qx/PDF/Using%20a%20Goniometer%20Effectively.pdf> (assessed on 25-02-2017)
16. Upadhyaya, Y. (Ed.) (Edition: 2003). Madhava Nidana of Shri Madhavakara With Madhukosha Sanskrit Commentary By Sudarshana Shastri. Revised and Edited. Part-1/57, p-485. Chaukhamba Sanskrit Bhawan, Varanasi.
17. Upadhyaya, Y. (Ed.) (Edition: 2003). Madhava Nidana of Shri Madhavakara With Madhukosha Sanskrit Commentary By Sudarshana Shastri. Revised and Edited. Part-1/64, p-490. Chaukhamba Sanskrit Bhawan, Varanasi.
18. Khare, C.P. (Ed.) (2007). *Indian Medicinal Plants*. p. 459. Springer Science, Berlin.
19. Khare, C.P. (Ed.) (2007). *Indian Medicinal Plants*. pp. 599-600. Springer Science, Berlin.
20. Takada, S. et. al. (2015). Sesamin Prevents Decline in Exercise Capacity and Impairment of Skeletal Muscle Mitochondrial Function in Mice with High-fat-diet-induced Diabetes. *Experimental Physiology*, November. 100 (11): 1319-30. doi: 10.1113/EP085251.
21. Khare, C.P. (Ed.) (2007). *Indian Medicinal Plants*. pp. 433-434. Springer Science, Berlin.