

# AYUSCRIPT

International Journal for Empirical Research in Ayurveda

[www.ayuscript.com](http://www.ayuscript.com)

१॥ विश्वकर्मो एमाहूयपुरीहाटकनि  
 र्मेता॥ तत्रयोडशसाहस्रस्त्रीरुग्णैश्चब्रह्मधिकम्॥११॥ भवनानि मनोज्ञानि  
 योमध्यकल्पयन्॥ परिजातनरं चैवतासंभोगायकल्पयन्॥१२॥ या  
 तानां गृहास्तनयदृपेचाशतकोटयः॥ अल्पिवरुवोलाकावसेनिविगत  
 राः॥१३॥ यन्त्रिविधेषु लोकेषु सुंदरं नवदृश्यते॥ सवाजिनप्रज्ञेनाप्योप  
 नुयस्यविक्रुते॥१४॥ अमोघनीरमासाद्यतन्मनस्कतयावसः॥ सनाडि  
 स्तपस्तेपस्वर्यं बुद्धिश्च बुद्धिमात्रं॥१५॥ अतनिरसनेमहस्यस्यैवदुल्लेख  
 नः प्रसन्नो भगवान्मनाजितपुरं स्थितः॥१६॥ सत्रात्रितोषितुष्टावदृष्टादिबेदि  
 तकरश्चानि नोराशानमस्तिरुक्त्तमस्ति सर्वतो मुखः॥१७॥ विश्वव्यापिनमस्तिरु  
 मस्ति विश्वरूपिणः॥ कल्पयेयमस्तिरुक्त्त हरिदश्वनमोक्त्तते॥१८॥ गृहराजन्म  
 त्स्त्तनमस्ति वेदरोचिषः॥ वेदत्रयन्मस्तिरुक्त्त सर्वदेवमोक्त्तते॥१९॥ पृथ्वीद  
 िद्वेवा सुदृष्टीमादिवाकरः॥ अथैकं यमानोसादवदेवादिवाकरः॥२०॥  
 अथानोभीरमभरंयक जिनमवावे॥ अथैकं यमानोसादवदेवादिवाकरः॥२०॥





## Ayurvedic Understanding and Management of Hypothyroidism

Dr. Prashant Shinde<sup>[1]</sup> Dr. Ashish Thatere<sup>[2]</sup> Dr. Mahendra Agrawal<sup>[3]</sup> Dr. Shweta Deolekar<sup>[4]</sup>  
Dr. Priyanka Dorage<sup>[5]</sup> Dr. Madhuri Yawalkar<sup>[6]</sup>

1. Asst. Prof., Goraksha Ayurved Medical College, Aurangabad

2. Asst. Prof. & PhD (Sch) 3. Professor 4, 5 & 6. P.G. (Sch)

1. SGAMC, Phulambri 2, 4, 5 & 6 GAC, Nagpur 3 BMAM, Nagpur

---

### Abstract:

**Introduction:** In the past, thyroid issues arise when people hit their 40s-50s. Now many in the younger generation are diagnosed in their 20s with the higher rate of autoimmune disorders we see today. *Vishuddha Chakra* located at the pit of the throat is often associated with the thyroid gland which on malfunctioned affects physical and mental development and dysregulates metabolism. **Aim:** To restore the proper functioning of thyroid gland under normal circumstances by maintaining *Prakrit Agni*, stimulating *Vishuddha Chakra* and avoiding/minimizing the risks factors affecting the thyroid gland. **Observation & Results:** Faulty lifestyle habits impairs *Agni* thereby metabolism. Impaired *Jatharagni* leads to impaired *Dhatwagni*. Therefore, the core *Jatharagni* should be assessed and protected well for the proper functioning of thyroid gland. *Vishuddha Chakra* can be activated by performing *Yogabhyasa* described in classics. **Discussion:** In any kind of thyroid disorder, prime attention should be given to the exacerbating factors affecting the thyroid gland than the thyroid gland itself. This help thyroid gland to recover swiftly and prevent further potential damage. Well maintained *Agni* helps to avoid/lessen the exacerbating factors affecting the thyroid gland. Since thyroid disorders tends to become aggressive with poor status of *Agni* due to faulty lifestyle practices, utmost importance should be given to assess and treat it. **Conclusion:** Thyroid disorders in chronic stage are difficult to treat and can be managed mild to moderately through integrative intervention. Therefore, its early detection and customized management should be done for the normal functioning of thyroid gland.

**Keywords:** Thyroid Disorders, *Anukta Vyadhi*, *Vishuddha Chakra*, *Agni*.

---

**How to cite article:** Dr. Prashant Shinde, Dr. Ashish Thatere, Dr. Mahendra Agrawal, Dr. Shweta Deolekar, Dr. Priyanka Dorage, Dr. Madhuri Yawalkar . Ayurvedic Understanding and Management of Hypothyroidism. AYUSCRIPT 2022;1(3):9-18

**Introduction:**

Thyroid disease is one of the most prevalent endocrine disorders worldwide. Hypothyroidism can result from any of a variety of abnormalities that lead to insufficient synthesis of thyroid hormones. [1] Thyroid dysfunction prevalence is rising at an alarming rate in Indian population which is around 11% [2], more prevalent among the females.[3] In the past, thyroid issues arise when people hit their 40s-50s. Now many in the younger generation are diagnosed in their 20s with the higher rate of autoimmune disorders we see today. [4] [5]

According to Ayurved, hormones and metabolism fall under the category of *Pitta Dosha*. [6] The thyroid's function of metabolism is synonymous with the Ayurvedic concept of *Agni*. [7] Vagbhat also stated that *Mandagni* is the root cause of all disease and thus the exacerbating factor. [8] Treatment of all the diseases is not mentioned in the ayurvedic classics due to its countless names of diseases and its innumerable clinical features. Thus, it makes impossible to put down the treatment protocol for all the diseases. Since hypothyroidism and its management is not mentioned directly in Ayurvedic classic, it is

considered as an *Anukta Vyadhi* and its management is dependent under the criteria of *Dosha, Bhesaja, Desha, Kala, Bala, Sharira, Ahara, Satmya, Sattva, Prakriti* and *Vaya*. [9]

There is a wide variation of gastrointestinal manifestations from these thyroid disorders associated with autoimmunity suggesting interconnection between them. An imbalance in lifestyle and disobeying the principles of Ayurveda which includes *Dinacharya, Ratricharya, Ritucharya, Bramhacharya*, etc. leads to auto-immune disorders. [10] Hypothyroidism is majorly managed by therapeutic interventions like *Shodhana* and *Shamana Chikitsa* with *Yoga Shastra* being insufficient. *Vishuddha Chakra* located at the pit of the throat is often associated with the thyroid gland which on malfunctioned affects physical and mental development and dysregulates metabolism. It is observed that stimulating the *Vishuddha Chakra* by following the Ayurvedic principles mentioned in classics helps in preventing thyroid disorder and achieving euthyroid state. [11]

**Methodology:**

A search was undertaken in MEDLINE ([www.pubmed.com](http://www.pubmed.com)) or the PubMed database. The search was limited to

only English literature including those studies which were published. Also, Ayurvedic literatures like Charak Samhita, Vagbhat Samhita, Sushruta Samhita, textbook of Dravya Guna, Swasthavritta, Preventive and Social Medicine, etc. were used for this study.

### **Observations and Results:**

Clinically, hypothyroidism is a clinical syndrome resulting from deficiency of thyroid hormones due to their insufficient synthesis which in turn results in a generalized slowing down of metabolic processes. It is characterized by a broad clinical spectrum ranging from an asymptomatic to subclinical condition with normal level of thyroxine (T<sub>4</sub>) and Tri-iodothyronine (T<sub>3</sub>) and mildly elevated levels of serum TSH to an overt state of myxoedema, end organ effects and multi system failure. They are influenced by the age of the patient, the rate at which the hypothyroidism develops and the presence of other disorders. Weight-gain, tiredness, anaemia, swelling over face, hands and feet, menstrual abnormalities, cold intolerance and dry rough skin, thin-brittle hair, hair fall, muscle stiffness and pain, weakness in the extremities, constipation, decreased appetite, mood disturbances, forgetfulness, inability to concentrate, goitre are the major presentations of

hypothyroidism. In due course of time, untreated hypothyroidism may lead to number of health problems such as obesity, arthritis, heart disease, infertility etc. [12]

It is sometimes referred as “Silent Disease” as the symptoms of hypothyroidism are notorious for their unspecific nature and for the way in which they mimic many symptoms of other diseases. So, it often remains undiagnosed or misdiagnosed. [13]

The conventional treatment of hypothyroidism is thyroid hormone replacement therapy i.e., Levothyroxine. But it has certain side effects on long term use like angina, cardiac arrhythmia, palpitations, tachycardia, muscle cramps, weakness, restlessness, osteoporosis etc. on the other hand, undertreatment with levothyroxine can lead to dyslipidaemia and progression of cardiovascular disease. [14]

So, there is a great need to find out a safe and effective remedy which not only relieve the symptoms but also increase in sense of well-being leading to more acceptability and better compliance. Ayurved is a science of life with sole aim of providing health to the mankind. It can offer new dimensions towards understanding the aetiopathogenesis and successful

management of hypothyroidism. As far as the name of disease is concerned, no specific term is found for hypothyroidism in Ayurvedic classics. It can be correlated with *Galaganda*, *Gandamala*, *Bhasmaka* etc but the concept of hormone overproduction and underproduction is not clear. Though many diseases of current era do not find mentioned in Ayurvedic texts, yet they can be successfully treated due to deep insight provided by the Ayurvedic principles. [15]

Along with the Ayurvedic therapeutic interventions in hypothyroidism, Yoga Shastra have great impact in achieving normal functioning of the thyroid gland by performing various *Pranayamas* like *Bhramari*, *Omkar Chanting*, *Anuloma-Viloma* etc and *Asanas* which has impact on the neck region thereby helps in stimulation of thyroid gland function like *Parvatasana*, *Gomukhasana*, *Matsyendrasana* etc. Also there has been great impact found on thyroid gland function by chanting the 16 vowels and Sanskrit Shlokas of *Vishuddha Chakra* along with their precise meanings to achieve its optimum health benefits. [16]

### Discussion:

#### Ayurved and Thyroid Gland

There is no direct mention of thyroid gland in Ayurvedic classics, but a

disease by the name *Galaganda*, characterized by neck swelling, is well known. *Galaganda* is due to vitiation of mainly *Kapha Dosha* but also of *Vata* and *Medo Dhatu*. *Rasa Dhatu* plays a major role in pathogenesis of *Rasaja Vikara* are similar to the clinical features of hypothyroidism. [17] Hormonal disturbances are the dysfunction of *Agni*. *Rasa Dhatwagnimandya* leads to underproduction of *Avipakva Rasa Dhatu* and over-production of *Mala* of *Rasa Dhatu* i.e., *Mala Kapha Vriddhi*. *Dhatwagnimandya* is also the major features of the disease and all these features contribute with the modern concept of metabolism i.e., “decreased Basal Metabolic Rate”. [18]

#### Thyroxine and Agni

The principal function of thyroxine is to stimulate basal metabolic rate. It acts as a catalyst for the maintenance of cellular oxidative process throughout the body. Hence it has profound influence on tissue metabolism all over the body. These functions have striking similarity with the description of *Agni* in Ayurved. Like thyroxine hormone, all the metabolic processes of the body are under the control of normal functioning of *Jatharagni* and *Dhatwagnis*. [19] *Jatharagni* contribute part of itself to *Sapta Dhatus*. *Jatharagni* present in

*Dhatu* (*Dhatwagni*) when hyperactive leads to wasting and when hypoactive leads to hypertrophy of respective *Dhatu*. This can be illustrated with hyper and hypo metabolism associated with hyper and hypo functioning of thyroid gland.<sup>[20]</sup>

### **Samprapti of Hypothyroidism**

After analysing the clinical features hypothyroidism, it is found that pathogenesis and clinical manifestations are due to dysfunction of *Agni*. It all starts with faulty dietary and lifestyle habits resulting in aggravation of *Mala Kapha Dosha*. This increased *Kapha Dosha* impairs the *Jatharagni* with the formation of *Ama Dosha*. As *Dhatwagni* is dependant on *Jatharagni*, so *Dhatwagni* impairment occurs in due course of time. This *Dhatwagni* vitiation causes improper formation of *Sapta Dhatu* starting from *Rasa* to *Shukra* resulting in improper nourishment to the body leading to hypothyroidism.<sup>[21]</sup>

Analysis of hypothyroidism with the help of Ayurvedic principles shows the involvement of *Agnimandya* (*Jatharagnimandya*, *Dhatwagnimandya*), production of *Ama Dosha*, overproduction of *Mala Kapha Dosha* and *Rasa Dhatu Dushti* as prominent pathological features in

this condition. Majority of *Nanatmaj Rogas* of *Kapha Dosha* can be included as clinical features of hypothyroidism like *Tandra* (Drowsiness), *Atinidra* (Excessive sleep), *Staimitya* (Timidness), *Gurugatrata* (feeling of heaviness in the body), *Alasya* (laziness), *Balasaka* (loss of strength), *Apachana* (indigestion), *Hridayopalepa* (feeling of heaviness over chest), *Galaganda* (goitre), *Atisthoulya* (obesity) and *Shwetavabhasata* (pallor).<sup>[22]</sup> Also, many of the *Rasaja Vikaras* which shows similarity to signs and symptoms of hypothyroidism are *Ashraddha* (loss of desire for food), *Aruchi* (anorexia), *Gaurava* (feeling of heaviness), *Tandra* (drowsiness), *Angamarda* (malaise), *Panduroga* (anaemia), *Klaibya* (impotency), *Strotorodha* (obstruction of microcirculatory channels), *Agnimandya* (hypo metabolic state), etc.<sup>[23]</sup> According to Ayurved, hypothyroidism can be considered as *Krichhrasadhya* as vitiation of *Dhatwagni* once created is difficult to treat and takes time to reverse the pathological changes takes place due to hypothyroidism. This vitiation of *Dhatwagni* if not treaty early may vitiate *Shukra* and *Aartava* resulting in congenital hypothyroidism.

## Ayurvedic Management of Hypothyroidism

From above mentioned discussion, the medicines which stimulate the Agni and possess *Kapha-Vatahara* properties should be used for treating hypothyroidism. The dietary rules and proper lifestyle practices (*Dinacharya*, *Ritucharya*) as described in Ayurvedic texts should be followed for proper control of hypothyroidism. Ayurved has advised three fundamental modalities to manage every disease i.e., *Nidana Parivarjana*, *Samshodhana Chikitsa* and *Samshamana Chikitsa*.

*Nidana-Parivarjana*<sup>[24]</sup>: It is the first line treatment of all the disease. It means the avoidance of various causative factors of the disease. Hypothyroidism manifest as *Kapha-Vata Vriddhi*, *Agnimandya*, *Ama Dosha* and *Rasa Dhatu Dushti*. Therefore, all the *Kapha-Vata Dosha* aggravating factors and *Agnimandyakara Ahara-Vihara* <sup>[25]</sup> should be avoided in hypothyroidism.

### **Samshodhana Chikitsa**

Hypothyroidism is considered as a chronic disease where involved Doshas are at peak level. For *Pravriddha*, *Bahu Dosha* and *Jirna Vyadhi*, Ayurved always suggest *Shodhana* therapy (body detoxification).<sup>[26]</sup> Due to dominance of *Kapha Dosha* in the

pathogenesis of hypothyroidism, *Vamana* (medicated emesis therapy) and *Virechana* (therapeutic purgation) *Karma* can be performed due to its effect of clearance of vitiated *Kapha* and *Pitta* from *Urdhwa* (emesis) and *Adho* (purgation) *Marga* respectively.<sup>[27]</sup> For proper evacuation of bowel and to regularize *Agni*, *Niruha Basti* (therapeutic enema therapy) should be administered. In *Medo Vriddhi* (obesity, dyslipidaemia), *Lekhana Basti* can be given in this condition. <sup>[28]</sup>

### **Samshamana Chikitsa**

*Rasa Dhatu Dushti* being one of the pathological features of hypothyroidism can be treated by *Langhana Chikitsa* <sup>[29]</sup> which includes intermittent fasting, intake of easily digestible food items, avoidance of junk food along with balanced lifestyle modifications. Similarly, *Ama Dosha* is managed by intervention of *Jwara Chikitsa* which includes *Deepana* (appetizers), *Pachana* (digestives), *Langhana* (fasting), *Svedana* (sudation), *Tikta Rasa Pradhana Dravya* like *Guduchi*, *Vasa*, *Kantakari*, etc

### **Yoga and Hypothyroidism**

*Sarvangasana* (shoulder stand) is the most suitable and effective *Asana* for the thyroid gland. Enormous pressure



is placed on the thyroid gland by this powerful posture. As the thyroid gland has the large blood supply, pressure has a dramatic effect on its function, improving circulation and squeezing out stagnant secretions. *Matsyasana* (Fish pose) and *Halasana* (plough pose) have the similar effectiveness as that of *Sarvangasana*. Other effective *Asanas* includes *Suryanamaskara* (sun salutation), *Pavanmuktasana* (wind relieving pose) with emphasis on neck and head exercise, *Suptavajrasana* and *Trikonasana*.

The most effective *Pranayama* is *Ujjayi*. It acts on throat and its relaxing and stimulating effects are most probably due to stimulation of the throat area which are controlled by the brain stem and hypothalamus. *Bhramari Pranayama* also found helpful. *Surya, Chandra Nadi Shodhana Pranayama* (right, left and alternate nostril breathing) is useful in balancing metabolism. [30]

Understanding of *Vishuddha Chakra* and Hypothyroidism

*Vishuddha Chakra* is the 5<sup>th</sup> Chakra (energy) of the human body located at the pit of throat. It is also known as throat *Chakra*. The word *Vishuddha* means pure or filtered. *Shlokas* 28-31 of *Shata-Chakra Nirupanam* describes all the different attributes of *Vishuddha*

*Chakra*. Its descriptions go like, in the throat, lies the lotus called *Vishuddha* in the smoky purple colour. All the sixteen *Swaras* (vowels) along the sixteen petals of this *Chakra*. This sounds start from “Am” and end with “Aham”. Chanting all the *shlokas* related to the *Vishuddha Chakra* helps in activating the *Vishuddha Chakra* thereby helping to eliminate the disease associated with neck region. Thyroid gland is located in the front of neck i.e., it lies posterior to the sternothyroid and sternohyoid muscles, wrapping around the cricoid cartilage and tracheal rings. Thus, due to similar location of thyroid gland and *Vishuddha Chakra*, activation of *Vishuddha Chakra* helps in purifying the thyroid gland by increasing blood circulation to thyroid gland. This helps in attaining normal secretions of thyroid hormones and euthyroid state.

### Conclusion:

While treating hypothyroidism, many Ayurvedic therapeutic interventions mentioned in Ayurved classics should be implemented along with regular practice of Yoga Shastra. Performing *Yoga Abhyasa* in daily regimen along with favourable dietary and lifestyle modifications helps to protect *Agni*. Similarly, following rules of *Dinacharya, Ratricharya* and



*Ritucharya* should be implemented. Remembering hypothyroidism as silent disease, functioning of thyroid gland should be tested at routine check-up to avoid chronicity and earliest diagnosis with accurate treatment. Since thyroid disorders are tends to become aggressive with poor status of *Agni* due to faulty lifestyle practices, utmost importance should be given to assess and treat it. Thyroid disorders in chronic stage are difficult to treat and can be managed mild to moderately through integrative intervention. Therefore, its early detection and customized management should be done for the normal functioning of thyroid gland.

### References:

1. Tandon N. (2009): API Textbook of Medicine, 8<sup>th</sup> edition, edited by Shah S. N.; Vol. 2, Endocrinology, Chapter 6, Page no. 1007.
2. Bagcchi S. (2004): "Hypothyroidism in India: More to be done"; Lancet Diabetes and Endocrinology, Vol. 2, page no. 778.
3. Stuart H.R. et all (2018): Davidson's Principle and Practice of Medicine, 23<sup>rd</sup> edition, chapter 18, page no. 639.
4. Unnikrishnan A. G. (2011): "Thyroid Disease in Kerala, new data on thyroid autoimmunity", Kerala Medicine Journal, Vol. 4. Pg no. 39/4
5. Kasper D.L. et all: (2014): Harrison's principles of Internal Medicine, 19<sup>th</sup> edition. Volume 2, chapter page no. 2289.
6. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 18/50, page number 290.
7. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Chikitsasthana Adhyaya 15/04, page number 353.
8. Vagbhat: (2015): A Textbook entitled Sartha Vagbhat, edited by Garade G.K., Chaukhamba Surbharti Publication, Varanasi. Nidanasthana Adhyaya 12/1, page no. 68
9. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Chikitsasthana Adhyaya 30/291, page number 772.
10. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 11/35, page number 178.

11. Sugarman A. (2022): The throat Chakra or Vishuddha, ekhartyoga.com.  
<https://www.ekhartyoga.com/articles/practice/throat-chakra-or-vishuddha>
12. Tandon N. (2009): API Textbook of Medicine, 8<sup>th</sup> edition, edited by Shah S. N.; Vol. 2, Endocrinology, Chapter 6, Page no. 1008-1009.
13. Rai Ak. (2010): Hypothyroidism: A Silent Phenomenon, WJPR, Vol.4, Issue 6;664-676.
14. Stuart H.R. et al (2018): Davidson's Principle and Practice of Medicine, 23<sup>rd</sup> edition, chapter 20, page no. 752.
15. Rohila R. et. al. (2015): An Overview of Galaganda in Ayurved W.S.R to Hypothyroidism; Unique Journal of Ayurvedic and Herbal Medicines; 3 (01), page no. 4-7.
16. Kumar D. et.al. (2020): Location of Shatachakras and co-relation with endocrine gland in the human body. World Journal of Pharmaceutical and Medical Research.
17. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 28/25, page number 434.
18. Tripathi B. (2011): Ashtanga Hridaya, Hindi Comm., Part-1, Chaukhamba Sanskrit Pratishthan, Delhi. Nidanasthana, Chapter 12/1, page no. 65.
19. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Chikitsasthana Adhyaya 15/3, page number 353.
20. Vagbhat:(2015): A Textbook entitled Sartha Vagbhat, edited by Garade G.K., Chaukhamba Surbharti Publication, Varanasi. Sutrasthana Adhyaya 11/39, page no. 90
21. Vagbhat:(2015): A Textbook entitled Sartha Vagbhat, edited by Garade G.K., Chaukhamba Surbharti Publication, Varanasi. Sutrasthana Adhyaya 11/34, pg no. 89
22. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 20/17, page number 304.
23. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 28/8, page number 433.
24. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication,

- Delhi. Vimanasthana Adhyaya 7/14, page number 607.
25. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Chikitsasthana Adhyaya 15/42,43, page number 362.
26. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Vimanasthana Adhyaya 3/44, page number 578
27. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 20/19, page number 304
28. Ramachandra N. (2012): The Effect of Lekhana Basti in the management of Sthaulya, International Journal of Ayurvedic Medicine,3(2), page no. 104-112.
29. Charak: (2014): A Textbook entitled Charak Samhita, edited by Kale V.S, Chaukhamba Sanskrit Publication, Delhi. Sutrasthana Adhyaya 28/25, page number 434.
30. Bhavanani et. al. (2011): Effect of Yoga on Subclinical Hypothyroidism: A Case Report; Yoga Mimamsa, Vol. XLIII No. 2, page no. 102-107
- 
- Source of Support : None declared  
Conflict of interest : Nil