



ISSN 2456-3110

Vol 4 · Issue 6

Nov-Dec 2019

Journal of  
**Ayurveda and Integrated  
Medical Sciences**

*www.jaims.in*

# JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



**Charaka**  
Publications

Indexed

## Diagnostic aid in Ayurveda - *Nadi Pariksha*

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### ABSTRACT

*Nadi Pariksha* is the ancient art and science of detecting the existing status of a person's body, mind, soul and spirit. It is used as diagnostic, prognostic tool and determine the *Prakruti* (body constitution), *Vikruti*, status of *Dosha* in each organ and effect on *Dhatu*, *Manas* and *Sukshma Sharir*. It is a non-invasive science that helps to reach root cause of disease and not just the symptoms. There are very few ancient texts which have been completely dedicated to the above topic. Concept of *Nadi Pariksha* found in various ancient *Ayurved Samhitas* like, *Bhavprakash*, *Sharangdhar Samhita*, *Yogratnakara*, *Nadi Pariksha* by *Ravansamhita*, *Nadivigyan* by *Kanad*. Pulse diagnosis was initially identified in the books of *Sharangdhar Samhita* in the 13<sup>th</sup> century highlighting the correlation between *Nadi* and *Tridosha*. Later, in the 16<sup>th</sup> century it was again mentioned in '*Bhavprakash*' scripted by Shri Bhav Mishrji. However, *Nadi Pariksha* gained its significance during the 17<sup>th</sup> century in *Yogratnakara* through 48 shlokas, detailing the science of *Nadi*. The examinations of *Nadi Pariksha* (Pulse examination) are evidence of many diseases as per *Yogratnakara*. In *Charaka* and *Sushruta Samhita* information about *Nadi* is not found separately. *Nadi Parikshan* requires expertise who has long experience and skill of reading the pulses for any disease diagnosis. They were popular diagnostic tools in the past but nowadays not specifically used, so there is need to re-establish their results so that they can be used in future. Several problems that remain undiagnosed even with the aid of sophisticated diagnostic tests can be accurately judged by examining the pulse.

**Key words:** Pulse, *Nadi Pariksha*, *Nadiparikshavidhi*, *Doshaja Nadi*.

### INTRODUCTION

Pulse is referred to as *Nadi* and the artwork or technological know-how of pulse analyzing is known as *Nadivijnanam*. *Nadi* or pulse is that vital flow of energy or life that courses through as a subtle channel all over the body and enables the *Vaidya* to feel the way the blood spurts from the heart. The pulse at wrist signifies the presence of life and physician should recognise health and ill health of a person

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Submission Date: 19/11/2019

Accepted Date: 26/12/2019

#### Access this article online

##### Quick Response Code



Website: [www.jaims.in](http://www.jaims.in)

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from its activities.<sup>[1]</sup>

*Ayurveda* makes use of *Darshana*, *Sparshana* and *Prashna* as the essential clinical barometers and they follow to *Nadivijnanam* as well. *Darshana* means pure observation and indicates ocular perception or inspection. In observation one sees pulsation, whether there is pulsation of the external jugular vein the apex beat of the heart or an epigastric pulsation.

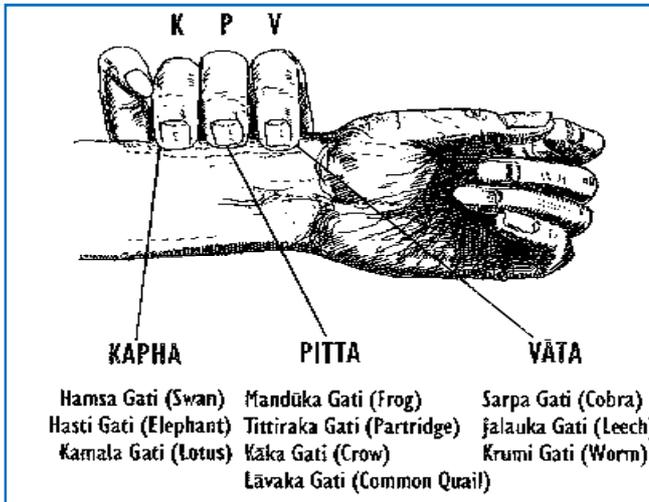
*Prashna* inquire by asking question regarding the imbalance of *Dosha*.

*Sparshana* is the tactile experience of touch. In *Sparshana* one is simply feeling several modifications taking region in the pulse. In *Kapha* individuals, obese people with generalized swelling, the *Nadi* is buried beneath adipose tissue. One can touch the carotid, temporal and femoral pulses as well as radial pulse.

The physician feels the radial artery pulsation on the wrist of the patient and through his experience he can get a clear picture of whole body. It is a non-invasive diagnostic technique whereby the use of three

fingertips only and pulse of the patient a diagnosis can be achieved within no time. This can provide the information about the exact location and nature of the disease.<sup>[2]</sup>

### Technique of Nadi examination



In the process of *Nadi Pariksha* physician should palpate the pulse of patient with the three fingers of the physician placing index, middle and ring finger on *Karangushtamula* (forearm), one finger distance from *Angushtamula* for three times by giving and releasing the pressure alternately on it. Pressure of pulse on finger indicates the *Doshaprabhya*; index: *Vatvahanadi*, Middle: *Pittavahanadi*, Ring: *Kaphavahanadi*.<sup>[3]</sup>

### Nadipariksha Kala

It should be done early morning in first three hours of morning after *Mala-Mutravisarjana*, to *Parikshaswabhavikgati* of the *Nadi*.<sup>[4]</sup> In emergency anytime, day or night *Nadi Pariksha* can be done.<sup>[5]</sup>

### Site for Pariksha

Female - Left hand should be examined

Male-Right hand should be palpated

*Napumsaka*- According to male and female division right or left hand should be examined.<sup>[6]</sup> *Kurma Chakra* lies at the level of *Nabhi*, influences the *Nadi* and this *Chakra* faced upward in women and downward in men.<sup>[7]</sup>

Table 1: Effect of *Dosha* on *Nadi*

<i>Dosha</i>	Characteristic of <i>Nadi</i>	Animal movement correlation	Site
<i>Vata</i>	<i>Vakragati</i>	<i>Jalouka, Sarpa</i>	felt under index finger
<i>Pitta</i>	<i>Chanchal</i>	<i>Manduka, Kak</i>	under middle finger
<i>Kapha</i>	<i>Manda</i>	<i>Hansa, Paravat</i>	under ring finger
<i>Pitta-vata</i>	<i>Vakra, Chanchal</i>	<i>Sarpa, Manduka</i>	below index and middle finger
<i>Vata-kapha</i>	<i>Vakra, Manda</i>	<i>Sarpa, Hansa</i>	below index and ring finger
<i>Pitta-kapha</i>	<i>Manda, Chanchal</i>	<i>Manduka, Mayur</i>	under middle and ring finger
<i>Tridosha</i>	<i>Vakra, Tivra, Manda</i>	<i>Lava, Tittira</i>	felt under all three fingers

Table 2: *Vasavarajiyam* has mentioned 8 sites of *Nadi* for examination.<sup>[8]</sup>

<i>Nadi</i>	No	Location	Physiological and Pathological condition
<i>Hasthadvayagata Nadis</i>	2	Root of thumb of hand	<i>Ajeerna (indigestion)</i> <i>Amadosha</i> <i>Jwaraagamana (Arrival of fever)</i> <i>Kshudham (Appetite)</i> <i>DushtaVata, Pitta and Kapha</i> <i>Jeevaniryam (death)</i>

<i>Padadvayagata Nadis</i>	2	At ankle joint	Lifespan (Ayu) <i>Laghutva</i> (lightness) <i>Swasthya</i> (healthy) <i>Jwara Vimochana</i> (coming free from fever)
<i>Kanthaparswa Nadis</i>	2	Root of neck	<i>Aganuthuka Jwara</i> <i>Thrishna</i> (thrishna) <i>Ayasa</i> (dyspnoea) <i>Maithusankalamana</i> (fatigue due to copulation) <i>Bhaya</i> (Fear) <i>Shoka</i> (Sorrow) <i>Kopa</i> (anger)
<i>Nasamulagata Nadis</i>	2	Root of nose	<i>Mrityu</i> (death) <i>Kama</i> (desire) <i>Netraroga</i> (eye disorder) <i>Sirovyatha</i> <i>Sravana and Mukharogas</i> (mouth)

**Table 3: Laxanas of Nadi in certain physiological conditions.**<sup>[9]</sup>

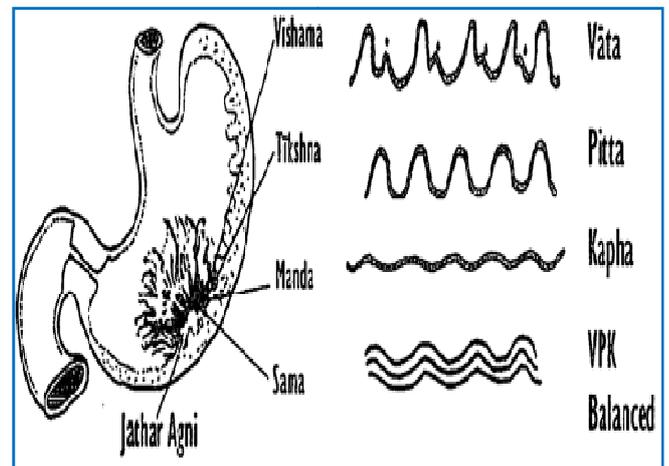
Physiological condition	Nadilaxana (signs)
<i>Deepthagnisukhi</i> (good digestive fire)	<i>Sthira</i> (stable), <i>Balavathi</i> (good strength)
<i>Kshudhitha</i> (during hunger)	<i>Chapala</i> (unsteady)
<i>Truptha</i> (after meal)	<i>Sthira</i> (stable)
<i>Garbhini</i> (pregnant woman)	<i>Guru</i> (heavy), <i>vatavaha</i> (carries vata)
<i>Nidralu</i> (sleepy person)	<i>Balavathi</i> , <i>mandagathi</i> (feeble pulse)
<i>Nadipuranaabhava vishayas</i> (factors hindering in pulse elicitation)	<i>Vyayama</i> (exercise), <i>Attahasa</i> , <i>Traasa / Bhaya</i> (fear), <i>Prahaara</i>

Person desiring for intercourse	<i>Vakragathi</i> (not straight)
<i>Vegadharana</i> (suppression of natural urges), <i>baala</i> (children) and <i>Shalyavidha</i> (afflicted with foreign body) person	resembles <i>Paittikanadi</i>
<i>Nidralu</i> and <i>Medura</i> (obese) person	slow and like <i>Shlaishmikanadi</i>

**Table 4: Correlation of Ritu and Nadi**<sup>[10]</sup>

Ritu	Features
<i>Sisira</i>	Leech/elephant
<i>Vasanta</i>	Swan/peacock
<i>Grishma</i>	Swan/serpent
<i>Varsha</i>	Rabbit/fish
<i>Sharada</i>	Swan
<i>Hemanta</i>	Frog/leech/crow

**Table 5: Relationship between Nadi and Agni**<sup>[11]</sup>



Agni	Nadi
<i>Vishamaagni</i>	Resembles <i>Vatikanadi</i> (Cold, fast & light)
<i>Tikshnaagni</i>	Like <i>Paittikanadi</i> (Hot, sharp and light to touch)
<i>Mandaagni</i>	Like <i>Shlaishmikanadi</i>
<i>Samaagni</i>	<i>Samanyagati</i> (VPK balanced)

**Table 6: Interrelation of Diet and Nadi<sup>[12]</sup>**

Diet	Nadi
Mansa (Meat)	Lagudakriti (Like Rod Steady)
Oil and Molasses	Pushta (Strong)
Parched Grain, Flattened Rice	Sthira (Steady) and Mandatar (Slow)
Kushmanda (Gourd), Mulak (Radish)	Manda (Slow)
Shaka-Kanda (Green Leaves & Stem Roots)	Resembles the movement of pulse filled with blood
Madhura taste	Like movement of peacock
Amla taste	Slightly hot and jumping
Lavana taste	Straight and rapid
Katu taste	Moves like earthworm
Tikta taste	Resembles movement of sparrow
Kashaya taste	Kathinya and Mlana (hard)

**Table 7: Interconnection between Nadi and pathological conditions.<sup>[13]</sup>**

Pathological condition	Nadi
Jawra (fever)	Ushna (hot) and Veagavatti (fast)
Mandagni and Dhatusheenta	Manda (slow)
Deeptagni	Tikshna and Vegavatti
Ajeerna	Kathin (hard) and Manda (slow)
Pandu (anaemia) and Kamala (jaundice)	Chanchal and Tikshna
Rakta-dosha	Dirgh (long) and Kathin (hard)

Grahani	Like dead snake quite, slow & feeble
Diarrhea	Weak, feeble, slow
Leprosy	Kathin (hard) and Sthir (steady)
Asthma	Tivra (fast)
Sannipatika disease	Moves very fast for certain beats and stops suddenly and repeats the same process again and again
Asadhya disease	Weak, mild, feeble stops in between, very minute and sometime observable and sometimes not

**Table 8: Nadi in Gynaecological Disorders.<sup>[14]</sup>**

Disease	Features of Nadi
Upsargaj Roga	Feverish pulse, faster, thicker in touch, Harder
leucorrhoea	Nodes, empty, faster, weak, different than heart beats
Yoniroga	Slower, thicker in touch, harder
Yonikanda	Sometimes faster/slower
Garbhini	Heavy, Vata character, Vakrta

**Nadipariksha Nishedha Kala (contraindication)**

**For Vadiya:** Madhyapeeta (After alcohol Consumption), Malamootravegayukta (Having urged for defecation and urine), Chanchal Atmaj (Unstable mind), Loobhakranta (Full of desires)

**For Atura:** Sadhyasana Nasya, Buktasya: After meal, Vyayamaapranta: After exercise, Shutaartasya: During hunger and thirst, the Nadi should not be examined.<sup>[15]</sup>

Vyayama, Trishna, Bubhuksha (hunger), Bokthavata (after meal), Abhyanga, Snana, Sthrisambhogita, Madhya (alcohol), Bhanga (Cannabis sativa) Sevita, Sarpa, Kukkuta, Sasa (rabbit), Mandukamamsa (Frog's flesh), Bhakshita, Nadi should not be examined.<sup>[16]</sup>

According to the concept of *Ayurveda* each organ is related with the pulse signals obtained in the superficial and deep layer of artery on both the hands.

Each cell in our body possesses its own intelligence. It is the communication of this intelligence in the form of vibrations that is studied in *Nadi Pariksha*. *Nadi Pariksha* understands the vibratory frequency of the Pulse at various levels on the Radial artery.

**Table 9: Nadi indicating parlous prognosis.**<sup>[17]</sup>

Periods indicating death	Characteristics of the pulse
Death within three hours	Pulse moves like Fringe of shawl, coinciding with respiration and cold
Death within a hour	Pulse appears and disappears alternately, moves like drum which is <i>Damaru</i> shape.
Death within two hours	Cold to touch
Death within three days	Pulse not felt at proximal end, cold in the middle and tired at the terminal part
Death within seven days	Speedy at the proximal end, cold and sweaty
Death within fifteen days	Pulse is hot, fast, body is cold, patient take mouth breath
Patient nearly dead	Pulse extremely weak, fast and cold.

### **Nadi Pariksha Yantra**

Technology is spreading ubiquitously to make human life easier. In sight of the escalating popularity of traditional and alternative medicine worldwide, researchers have explored pulse sensing and analysis, but due to the conflict of research goals, methodologies and statistical tools applied, the effect of studies till date is not focused in one direction. Biomedical engineering institute formed instrument to capture the signals from the radial artery i.e. '*Nadi-Yantra*' which uses piezoelectric based pressure. Sensors to capture the signals from the waveforms

obtained from our system concur with standard physiological arterial signals to obtain features such as- amplitude; power spectral density, band power and spectral centroid to reflect variation in signals and percussion peaks were identified.<sup>[18]</sup>

Different sensors and methods in the recent years several devices were designed to read the *Tri-Dosha* signal which helped in disease diagnosis, a survey on *Nadi Pariksha* for Early Detection of Several Diseases and Computational Models Using *Nadi* Patterns. In this study the quantitative measure of the *Tridosha* level (for *Vata*, *Pitta*, and *Kapha*) using the pressure sensors which was placed on the wrist with Velcro tape which is further connected to three data acquisition channels through coaxial cables. The pulse data is observed on the computer screen to read the *Nadi* patterns.<sup>[19]</sup>

*Nadi Aridhal* is the software using three identical piezo-electric pulse sensors to capture the *Tridosha* signals and plot the graph according to the pulse Signals. This software is the algorithm applied to the waveform to differentiate types of *Nadi* and has potential to measure, demonstrate and order the probable disease.<sup>[20]</sup>

Another development *Nadi Tarangini* - In this instrument, the basic mechanism used serves the purpose of converting mechanical wave, generated due to the movement of blood stream in radial artery, into electrical wave. The main sensors used in this system were: Microphone, to pick up mechanical vibrations and Optical sensor to obtain the pulse waveform. The main drawback in this system is that there is no mechanism to generate external pressure on the radial artery, as done by *Nadi Vigyans* to study different organs.<sup>[21]</sup>

There are only very few researches done in traditional medical field due to lack of experts, domain knowledge, and generation gap. Within those limited researches up to now there are no workable commercial products available in the world market. So, there is a need to extend these techniques and devices to the studies of *Ayurveda* with a view to

bring the physiological significance of *Nadi Pariksha* to limelight.

## CONCLUSION

Ayurvedic pulse diagnosis uses the approach that perfect health is our birthright and it should be enjoyed throughout our lives. *Nadi Pariksha* is undertaken to understand the following aspects in an individual: Helps to ascertain "One's Original Constitution at the time of Conception (*Prakruti*). This forms the basis of deciding the basis and structure of the individualized healing process. Helps to understand "One's Current Constitution as against the Original Constitution" (*Vikruti*). The diagnosis ascertains the deviation that the body and mind have taken as compared to its original constitution. Also, it enables one to understand the prognosis of ailments that have arisen during the transition from *Prakruti* to *Vikruti*. *Acharyas* have described various movements of pulse related to gait of certain birds, amphibians and reptiles based on their observations. The one who is studying the text must apply his *Yukti* (intelligence) while interpreting these *Laxanas* in practice. The purpose of this article is to teach simplified techniques to readers and to provide deep comprehensive information as well.

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**How to cite this article:** Ritika Khajuria, Tapsy Sharma, Ruchi Gupta, Vasundhra Parihar. Diagnostic aid in Ayurveda - Nadi Pariksha. J Ayurveda Integr Med Sci 2019;6:75-81.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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