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## ***Naadi Pareeksha: An Ancient Method of Diagnosis***

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### **ABSTRACT**

*Naadi pareeksha* is the technique of diagnosis through pulse examination. It is the science that helps to reach the root cause of disease. The pulse when examined helps to reveal the physical and mental characteristics of the patients. A physician must be aware about the time and physical conditions of the patient. Before examination of *Naadi* a physician should take precautions. Subtle vibrations are read at seven different levels vertically downward that help in ascertaining various functions of the body. There is variation of pulse seen in aggravation of *vata*, *pitta* or *kapha* which is the basis for manifestation of diseases. In this article an attempt has been made to focus on *Naadi Pareeksha* both anatomically and physiologically.

### **KEYWORDS**

*Naadi Pareeksha, Vata, Pitta, Kapha*



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## INTRODUCTION

Ayurveda is the ancient system of medicine whose aim is to maintain the health of healthy and cure the disease of diseased. Health is a state where *dosha*, *agni*, all the body tissue and components, all the physiological process are in balanced state and soul, sense organ and mind are in a state of total wellbeing. The presence of disease in our body indicates the imbalance of *dosha*. There are various procedures for *Pareeksha* (examinations) like *roga* and *rogi pareeksha*. In *roga pareeksha* *nidan panchaka* is used and in *rogi pareeksha trividha, astavidha* and *dashaveedha pareeksha* are used. *Astavidha pareeksha* (eight fold examination) includes examination of our eight bodily component i.e. *naadi* (pulse), *mutra* (urine), *mala* (fecal matters), *jihwa* (tongue), *sabdam* (voice of patient), *sparsham* (touch), *drik* (eye and vision), and *akriti*<sup>1</sup>. In *Ayurveda* it is one of the important key to find out the cause of disease. Out of which *naadi pareeksha* plays a unique role in *Ayurved Chikitsa*. In *Brihatrayi* and later up to 12<sup>th</sup> century A.D. The *naadi Pareeksha* is not referred. *Sarngadhara samhita* is the first to mention about *naadi pareeksha*. *Naadi pareeksha* refers to examination of pulse to diagnose equilibrium and disequilibrium

of doshas and also to diagnose certain diseases. Similar to the *tantries*, wires of *veena* (lyre or Indian lute) that produce all the ragas of music, the *naadi* of hand explain all the diseases<sup>2</sup>. By the examination of *naadi* an experienced physician can understand the status of both physiological and pathological state of the body and mind.

## What is Naadi?

The term *Naadi* is polysemantic word. The synonyms of *naadi* are *snayu, hamsi, dhamani, dhaarani, dhara, tantuki, and jivanajnana*<sup>3</sup>. It literally means a tube or channel through which something moves (*naadi sveda*). In *Ayurveda* it has been used to nominate all the tubular structures of the body like *dhamanis, siras, srotas, nabhi naadi* (umbilical cord), and in some context it refers to function of nerves, which is a controversy for a particular structure for this term *naadi*. In the present topic of *naadi pareeksha* this term is used for *dhamani* or pulsating blood vessel.

The root of *naadi chakra* is called *kurma*. *Kurma* means tortoise, which is said to be situated at *nabhi*. *Nabhi* usually indicates umbilicus. In male and female it faces downward and upward respectively. *Naadis* are tied in the region of umbilicus from where they spread obliquely, downward and upward<sup>4</sup>.



## Anatomy and Physiology of Naadi:

*Dhamanis* (arteries) are the main structures involved in *naadi vigyana*. The *naadi* which is commonly examined at the *angustha mula* is the radial artery which is a branch of brachial artery. Activity of heart is influenced by physiological, pathological and psychological factors of the body. The *dhamani gati* depends upon *hridaya spandan*. The nature of *dhamani spandan* can be appreciated by the examination of *dhamani* where it is easily accessible. That's why radial artery is mostly used because of easily accessible. Acharya Sharngadhara has clearly mentioned that *dhamani* at the base of thumb of hand is called *jeevasankhini dhamani* i.e. impulse that indicates presence of life and through observations of which experts can evaluate *sukha* and *dukha* of the body<sup>5</sup>. This activity of *dhamani* depends upon three factors.

- Intermittent inflow of blood from the heart,
- Resistance of outflow of the blood from the arterioles into capillaries and
- Elasticity of arterial wall.

In *Ayurveda* the ancient life science, normal and abnormal status of various *doshas*, *agni* and *prakriti* have the potential to alter the status of pulse. In modern science the normal physiology of

pulse can be affected by various variables such as stroke volume, heart rate, status of aortic valves, elasticity of arterioles, status of arterioles in relation to capillaries, anatomy of arteries and arterioles. Further heart and blood volume can be affected by various factors in blood which have potential to change nature of pulse physiology such as status of sympathetic and parasympathetic system, body temperature, and rhythm of heart.

The arterial pulse wave is formed when due to contraction, blood from the left ventricle enters aorta. The aorta expands to accommodate the stroke volume of blood. It returns to its normal condition when blood propagates to further direction. The pulse wave formed due to alternate expansion and returning to normal condition by the wall of aorta, travels throughout the arterial system. This wave can be felt by compression at places where any superficial artery passes against bone. Carotid artery, femoral artery, and the peripheral arteries including radial, brachial, popliteal, posterior tibial and dorsalis pedis are examined to study rate, rhythm, volume and character of the pulse. Generally the pulse travels at the rate of 10 m/sec, so a wave of pulse takes very little time to pass under the three fingers during examination of radial artery palpation.



## Effect of Physical Movements on Naadi:

Pulse rate is an objective parameter of heart beat in unit time, whereas *naadi* is entirely a subjective phenomenon. Whenever a person does some exercise, the demand of tissues for oxygen is increased and hence the pulse rate increases to fulfill the demand. In athletic individuals, the body gets adjusted and increase in BMR. The demand of oxygen at tissue level does not occur and hence the pulse rate remains low. This is mostly seen in athletes.

During heavy exercise the total muscle blood flow in healthy young adult can increase from normal level of less than 1litre/min to as high as 20lt/min. This increase is sufficient enough to increase the cardiac output to 4-5 times normal in non athletes.

**Table1** A Comparison of Stroke Volume Per Minute and Heart Rate per Minute between Non Athletes and Marathoners

Comparison between non athletes and marathoners		
State	Stroke volume (min)	Heart rate (beats/min)
Resting a. non athletes	75	75
b. marathoners	105	50
Maximum a. non athlete	110	195
b. marathoners	162	185

Exercise or running beyond one's capacity causes *vata prakopa* and results in *naadi gati* similar to *vata naadi* in which rate of the *naadi* is increased. But people who are *oaksaatmya* (habitual) to perform exercise like running and walking no *vata prakopa*

Marathoners can achieve maximal cardiac output by approximately 40 % greater than achieved by untrained person. This results mainly from the fact that the heart chambers of the marathoners enlarge about 40%, along with this enlargement of chamber the heart mass also increases 40 % or more. However heart enlargement and increased pumping capacity occur almost entirely in the endurance types not in the sprint types. Even though the heart of marathoners is considerably larger than that of normal person, resting cardiac output is exactly same as that in normal person. However this normal cardiac output is achieved by large stroke volume at a reduced heart rate<sup>6</sup>. A comparison of stroke volume per minute and heart rate per minute between non athletes and marathoners is shown in Table No-1<sup>7</sup>.

can occur. So there may not be any changes in *gati* of *naadi*.

## Naadi Pareeksha on Modern Parameters:

*Naadi pareeksha* is more subtle than examination of pulse rate. The pulse is



mainly the expression of cardiac functioning but skilled *naadi* specialist can judge the function of all body organs with the help of *naadi*. Modern parameters of rate, rhythm, character can be correlated with *naadi pareeksha*. Rate could be understood as *naadi gati* for example *vata* increases that means pulse rate increases. Tension as *rakta chapa*, force as *naadi bala*, and rhythm as *naadi taal*. The character of *naadi* in *Ayurveda* mainly pertains to the site of *naadi* where it is felt more prominently and similarity is equated with the movement of birds and reptiles which cannot be assessed basing on modern parameters. The Japanese medical scientist kazoo uebeba has developed a device to give objectivity to the *naadi*. Dattatraya k. et.al (2015) proposed a model that indicates the logical relation among bio- impedance, bio-reactance, and phase angle infers the modulation of PEP (pulsating energy profile) with EPP (energy pulsating pathway), which is the very basis of examining *naadi pareeksha*. The model suggested that bio-electrical variables could be suitable parameters to assess the *tridosha* in terms of different energy modes with specific functions such as bio-energy expenditure, distribution and storage capacity<sup>8</sup>.

### Influence of *Doshas* on *Naadi*:

*Aadi, madhya* and *anta naadi* are considered as the beginning, middle and end of the pulse wave and are due to *vata*, *pitta* and *kapha*, respectively<sup>9</sup>.

During *vata prakopa* (increase of *vata*) the movement of pulse resembles the movement of *jalauka* (leech) and *sarpa* (snake); during the *prakopa* of *pitta* it will be like the movement of *kulinga* (sparrow), *kaka* (crow), and *manduka* (frog); during *kapha prakopa* it resembles the movement of *hamsa* (swan), *paravat* (pigeon); in *sannipata* (increase of all the three *doshas* together) it will be like movement of *lava* (bustard quail), *tittira* (grey partridge), and *varataka* (button quail) bird. In case of increase in any two *doshas* it will be sometimes very slow and sometimes very quick<sup>10</sup>.

Influence of abnormal *doshas* on *naadi* is explained through function of other normal *dosha* on *naadi*. *Naadi* would have more *gati* of *vata* if *kapha* is reduced (normal feature of *vata naadi* are *soumya*, *suskhma*, *sthira* and *manda gati*), *naadi* would have less *gati* if *vata* and *kapha* are reduced, and *pitta* is more very much reduced<sup>11</sup>.

If the pulse moves with one speed and volume up to thirty beats, the person survives in all probabilities. The pulse that moves with pauses should be known to be life taking. If the pulse beat vary too much like sometimes it is slow sluggish,



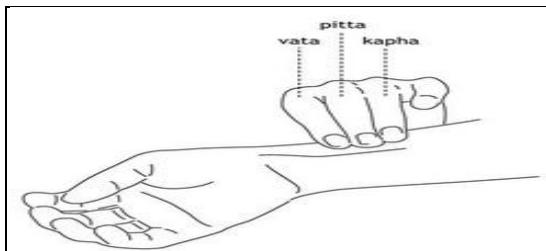
flickering, with pauses or thin, it is due to *sannipata* and is incurable. If the pulse moves like that of *pitta*, then like that of *vata* and then *kapha* and which suddenly takes a circular course like being ridden on wheel, which becomes terrible, loses its normal movement and becomes thin is incurable. If the pulse sounds deep then *naadi* carries *mamsa* (*dhaatu*) then it is incurable. In high temperature the pulse is hot and beats faster. During passion and anger the pulse beats faster and in a condition of worry or fear it is thin. The one whose digestive fire is subdued has depleted *dhaatus* his pulse beats slowly. If the vessel is filled with blood then the pulse is hot and heavy, if it is with *aam*, then the pulse is deep and pulse have those who have good digestive fire is light and fast. A hungry man's pulse is flickering whereas the pulse of well fed man is smooth. If the patient's pulse moves like *damuru* (hourglass shaped small drum) i.e. first throbbing then lost then again throbbing, he is to die in a day. If a patient's pulse flickers, throbs and then is felt with fingers, the disease should be thought to be incurable. If a patient's pulse first moves smoothly then suddenly beats like lightening, his life should be thought to be of one day. If a patient's pulse moves first due to aggravation of *doshas* or feels cold then his death will happen on next

day. If the first beat of the pulse is fast and sometimes cold associated with slimy sweating then the patient does not leave for seven days. If a patient's body is cold he breaths with mouth and pulse is fast or hot or has burning sensation then he lives for fortnight. If the first beat is not found, the middle one is cold and the last beat is sluggish and it moves very slowly then the patient does not live for three days. If the pulse beats very thin and fast and feels cold, his life is no more. If a patient's pulse is irregular like lightening as it appears and then disappears then the patient dies. The patient whose pulse move obliquely or like a snake, is hot and very fast and whose throat is filled with phlegm hardly survives. The pulse that moves like fluttering cloth, which beats in accordance with the patient's breadth and feels cold, is indicative of the patient's death<sup>12</sup>.

Experience about pulse is just like knowledge about gems (precious stone) which comes only though practices. The three Gods are said to be present in the pulse. Brahma is there in *Vata Naadi* , Shankara in the *Pitta Naadi* , Vishnu is there in *Sleshma Naadi*<sup>13</sup>.

### **Method of Palpation of Naadi shown in fig-1**

*Naadi pareeksha* is a method of *doshik* evaluation. Diagnosis of *naadi pareeksha*



**Fig.1** Method of Palpation of *Naadi*

is kind of examination results. As far as possible the patient should be relaxed before such examination. In order to diagnose a physician should feel the pulse with his right hand at the lower joint of the patient's right thumb having steady temperament and composed mood<sup>14</sup>.

Generally pulse of female is clearer in left hand and in males it is clearer in right hand. A physician should examine the pulse in the morning during first quarter of the day. Because in the 1<sup>st</sup> *prahar* of the day the person will usually be in his happiest mood, both physically and mentally, because of appropriate night sleep, the food taken in the previous night is well digested and due to proper elimination of *vegas*. The atmosphere in the morning is usually calm and peaceful. While examining the pulse the patients hand should be a little bent (at elbow and wrist) fingers expanded and arms should be extended (from shoulder) so that the patient does not feel any trouble. His elbow should be slightly tilted towards left and joints of his fingers should be expanded and the physician should feel

pulse in the middle part of the lower joint of the thumb.

The physician should examine the pulse thrice by holding and leaving the pulse and thus applying his reason he should determine the diagnosis. The physician should feel the pulse with his three fingers in order to observe the disorders caused by respective three *doshas* (*vata*, *pitta*, *kapha*) by noticing its slow, medium and fast movement.

Pulse indicates every feature i.e. whether the disease is caused by *vata*, *pitta*, *kapha* or by the combination of two *doshas* or all the three *doshas* i.e. *sannipatika* and also whether it is curable or incurable<sup>15</sup>.

The pressure applied should be moderate. It should not be either too much to interfere with the appreciation of pulse properly or too low to feel the pulse.

There are fourteen types of *naadi* which are following

1. *Sushumna* : this *naadi* runs up in the spine till the *brahma randhra*
2. *Pingala* : this *naadi* runs up the right if *sukshma* and ends in the right nostril
3. *Ida*: it runs upon the left *sushumna* and ends in the left nostril.
4. *Hastijihva*: it runs down in the left and ends in the big toe.
5. *Yashasvini*: the trunk in the leg ends in the right big toe.



6. *Kuhu* : the naadi that has its sphere of influence terminating in the vagina.
7. *Alambusha*: it is terminated at the end of anus.
8. *Gandhara*: it ends in the left eye.
9. *Pusha* : it ends in the right eye.
10. *Sankhini* : it terminates in the left ear.
11. *Payavaini*: it terminates in the right ear.
12. *Saraswati* : it terminates in the tongue.
13. *Vishwodara*: it terminates in the face.
14. *Varuna*: it has its influence spreading all parts of the body.

Apart from this five different sensory nerves and five motor nerves are there which carry impulses. Sensory nerves are *shabda*, *sparsha*, *roopa*, *rasa* and *gandha*. Motor nerves are *vaak*, *pani*, *pada*, *payu*, *upastha*<sup>16</sup>.

#### **Variation of Pulse:**

Pulse has the tendency to change its activities due to some environmental factors mentioned below<sup>17</sup>:

- *Kshuda* (hunger)
- *Pipasa* (thirst)
- *Nidra* (sleep)
- *Guru ahara* (heavy meals)
- *Ratri bhramana* (walking in night)
- Comfortable lifestyle
- Sitting and standing postures
- *Bhramana* (walking)
- Physical activities

- Exposure to sun
- Mental activities such as sexual excitement
- Time like morning, mid day and evening
- Seasons like *grishma ritu*
- Environments and habits to which a human being is subjected.

#### **Contraindications of Naadi Pareeksha:**

Pulse of following patients cannot be noticed properly thus should not be examined. Who has just taken bath, just taken food, just anointed oil, hungry, thirsty, or in a sleep (just gotten up from sleep) because in these conditions *naadi gati* is not in natural state. It may be difficult to get the correct diagnosis. These conditions also affect the Autonomic Nervous System especially the parasympathetic system changing the rate and rhythm and character of the pulse.

The probable effect of above conditions may influence the result of *naadi pareeksha* as follows. Immediately after taking bath and immediately after getting up from the bed the person feels drowsy, lazy, inactive, both mentally and physically. Thirst causes dryness of throat and mouth, deafness, exhaustion, weakness, *hrishtula*, hunger causes *karshya*, *dourvalya*, malaise, anorexia and



giddiness. Weeping causes *pratishyaya*, anorexia, *vata prakopa*. So *naadi pareeksha* should be avoided in such conditions. Therefore to get the exact diagnosis through *naadi pareeksha* it is

mandatory to avoid these conditions otherwise it will affect the neuroendocrine system.

## Diseases and their Effect Upon Character of Naadi. Table No. 2<sup>18</sup>

**Table2** Diseases and their Effect Upon Character of *Naadi*

Disease Condition	Character of Naadi
Healthy person	Stable, strong
Mandagni, dhaatu kshyaya	Feeble, low
Samavastha	Hard, tense
Hungry	Unstable
Trupta	Stable
Jvara	Warm, increased rate
Vataja jvara	Curved, unstable, cold
Pittaja jvara	Straight, long, increased rate
Shlesmaja jvara	Slow, very stable, cold, pichhila
Intake of curd rice in jvara	Hot, irregular
Intake of acidic substance in jvara	Mandhara (churning)
Sexual intercourse in jvara	Slow, vikala (irregular), fearful
Atisara	Similar to the movement of leech in winter
Amatisara	Pruthula (divided)
Grahani	Similar to the movement of dead snake
Arshas	Stable, curved, slow, occasionally straight
Ajirna	Hard, jada
Chhardi	Vimarga (trespassing), parusha
Trishna	Dry
Gulma	Trembling
Anaha	Dridha (hard), divided
Udavarta	Kathina (hard)
Shoola	Persistently curved
Amlapitta	Trembling, stout, slow
Plihodara	Vishirna, lean, dry
Jalodara	Full, weak, vishirna, cold
Pandu	Unstable, sharp, alternately feeble and perceivable
Kasa	Lean, stable, slow
Svasa	Increased rate
Rajayakshma	Similar to the movement of snake
Hridroga	Very hard, churning, lean, increased rate, felt below middle and small finger

### Seven Level of Pulse:

It is convenient to divide the reading of the radial pulse into seven levels. According to the Ayurvedic system of medicine, there are seven *dhatus*. If we take a cross section of any extremity, from the superficial layer to the inner core, the seven *dhaatus* are

present. For instance, the superficial layer is *rasa*, the capillary layer is *rakta*, and so forth. Likewise, in the pulse, the superficial level can be called the first level, and if we go to the deepest level, after which the pulse is obliterated, we feel the seventh level. In between the superficial and deep pulse there are



another five levels, to make seven in total. As we press down on the radial artery, we can feel the spikes of the pulse change as we move deeper or shallower from one level to another. These seven levels are not explained in *Ayurvedic* texts. In modern medicine pulse only relates to cardiovascular system where as in ancient *Ayurveda* science the pulse has wide range of perception. These seven levels can elaborate in a great detail about the *prakriti-vikriti* paradigm, the state of each subtype of *doshas*, the state of *prana*, *tejas*, and *ojas* and the condition of seven bodily tissues<sup>19</sup>.

## DISCUSSION

The basic cause of all the diseases is aggravation of *doshas* and cause of the aggravation is indulgence in various improper diet and activities. In case of all kind of diseases a physician should first examine the patient's pulse, urine and tongue etc and he should know about the feature of pulse, urine and tongue etc. *Tridosha* (*vata*, *pitta* and *kapha*) move in the blood through *rasa* and *rakta dhaatu* and *doshas* are best felt under specific fingers. We feel the qualities of *vata* best under index fingers because fingertip that contains large numbers of meissner's corpuscles and expanded tip tactile

receptors which can detect low frequency vibrations from 2 up to 80 cycles/sec which are less rapidly adapting than pacinian corpuscles<sup>20</sup>. The same is felt for *pitta* and *kapha* under middle and ring finger. The three *doshas* do not circulate separately in the blood and hence we cannot palpate three *doshas* separately under index, middle and ring finger. It is the influence of these *doshas* on the pulse wave as far as beginning, middle and termination of *naadi* are concerned. Various attempts have previously made by use of modern technical device to assess *naadi pareeksha* but have not been successful. Critical evaluation of locomotion of various birds and animals in relation to pulse wave is required to understand various *gatis* of *naadi*. There are many such points which require critical study. All this can be done with the help of modern tools and physiology laboratory. So we need to be put efforts on it.

## CONCLUSION

*Naadi pareeksha* is very useful tool for the analysis of various diseases. It gives a new direction to detect the diseases in early stages as a result people who are suffering from various disorder are diagnosed early and cured in early stages. But there is no specific modern parameter to assess the



*naadi*. Now a days it is going to obsolete.  
So there should be more research in *naadi*  
*pareeksha* in relation to modern  
parameters.



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