TITLE OF THE DISSERTATION

Immediate Effect of Vaman Dhauti on Tridosa (As Measured by Nadi Tarangini) — A Pre-Post Control Study

TOWARDS
Partial fulfillment of Master degree in Yoga Therapy (M. Sc. YT)

SUBMITTED BY
FU WENYI

Under the Guidance of

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STANDARD INTERNATIONAL TRANSLITERATION CODE

USED TO TRANSLITERATE SANSKRIT WORDS

अ	आ	इ	ई	उ	ऊ	ऋ
a	ā	i	ī	u	ū	ṛ
ॠ	ए	ऐ	ओ	औ	अं	अः
ṝ	e	ai	o	au	aṁ	aḥ

क	ख	ग	घ	ङ
ka	kha	ga	gha	ṅa
च	छ	ज	झ	ञ
ca	cha	ja	jha	ña
ट	ठ	ड	ढ	ण
ṭa	ṭha	ḍa	ḍha	ṇa
त	थ	द	ध	न
ta	tha	da	dha	na
प	फ	ब	भ	म
pa	pha	ba	bha	ma

य	र	ल	व	श	ष	स	ह
ya	ra	la	va	śa	ṣa	sa	ha

DECLARATION

I hereby declare that this study was conducted by me at S-VYASA yoga university bangalore, Karnataka, under the guidance of Ms. Padmasri Gudapti and Dr. P. Venkata Giri Kumar.

I also declare that the subject matter of my dissertation entitled " Immediate Effect of Vaman Dhauti on Tridosa (As Measured by Nadi Tarangini) — A Pre-Post Control Study " has not previously formed the basis of the award of any degree, diploma, fellowship or similar titles.

Place

Date

FU WENYI

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Abstract

Background and Introduction: When Vata, pitta and kapha is in balance condition then we called this individual is in health condition (R.Vidyanath, 2012). Vata dosha formed by the combination of ether and air element, Pitta dosha formed by the combination of fire and water element, Kapha dosha formed by the combination of ether and water element (Vidyanath, 2012).Tridosha also play as an important role in producing the natural urges of individuals (Lad, 1984). Similarly, tridosha has relation with individual's psychological aspect such as emotions like forgiveness, passion, fear, love, and so on. The main place for Vata is below umbilical and all the cavities inside body, including large intestine, thigh, pelvic cavity, bone, ears. The main place for Pitta is below the chest and above the umbilical, including stomach and small intestine, and pitta also stays in eyes, sweating glands, skin, blood. The main place for Kapha is chest and above region, including lungs, bronchitis, heart, and it also appears in throat, nose, and head region (Lad, 2002).These three dosha – Vata, Pitta, Kapha – govern all the biological, psychological and psychopathological functions of the body (Lad, 1984). Tridosha are the fundamental elements of the body that help to maintain body functioning well in our daily routine when it is in the balance condition. If they are out of the balance, diseases will start appearing in the body. Tridoshas have their respective characters and functions. Perfect balance of Tridosha lead to health (R.Vidyanath, 2012). These three dosha – Vata, Pitta, Kapha – govern all the biological, psychological and psychopathological functions of the body (Lad, 1984). Tridosha are the fundamental elements of the body that help to maintain body functioning well in our daily routine when it is in the balance condition. If they are out of balance, diseases will start appearing in the body. Tridoshas has their respective characters and functions. Perfect balance of Tridosha lead to health (R.Vidyanath, 2012). Nadi Tarangini is a pulse based ayurvedic diagnosis system through the electronic device equipped with a strain gauge, a transmitter with amplifier, and the digitizer to quantify analog signal (Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007). So there is no subjective bias while feeling the pulse. Also using machine can save the time and money (Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007). This study is to quantify the dosha changes before and after performing vaman dhauti.

The objective of this study is to find the statistical changes in imbalance in Tridosha level before and after Vaman Dhauti practice though Nadi Tarangini. The hypothesis is that Vaman Dhauti practice may reduce participant's imbalance in tridosha level.

Methods: The experiment is conducted on Long-term residential students of SVYASA yoga university Bangalore, Karnataka. Sample size is 34. Both male and female healthy persons are taken. Age range 20 to 40 years. Self as control Pre-post design.

Results: Experimental group bala decreased statistically significantly. Pitta level increased statistically significantly in control group whereas the decrease in pitta in experimental group is not statistically significant. The decrease in imbalance in tridosha in control group is 4.28% whereas that in experimental group is 29%. This is showing a positive change of a better moving towards balance of Tridosha in experimental group as compared to the control group. However, none of these changes are statistically significant.

Conclusion: The imbalance in tridoshas decreased in control as well as experimental group. The decrease in control group is 4.28% whereas that in experimental group is 29%. This indicates that the practice of vaman dhouti reduces the imbalances and makes the person move towards better health.

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CHAPTER 1
INTRODUCTION

1.1 TRIDOSHA AND HEALTH

Tridosha means three doshas which are Vata, Pitta and Kapha. They are the fundamental aspect of human constitution. When Vata, pitta and kapha is in balance condition then we called this individual is in health condition (R.Vidyanath, 2012).

1.1.1 CONCEPT OF TRIDOSHA

There are five basic elements manifest in the human body which are ether, air, fire, water and earth. And combination of these five elements formed three doshas or humors in the body which are well known as tridosha—Vata, Pitta, Kapha. Vata dosha formed by the combination of ether and air element, Pitta dosha formed by the combination of fire and water element, Kapha dosha formed by the combination of ether and water element (Vidyanath, 2012).

The tridosha is in charge of individual's preferences in diet, for example, the flavors of the food, temperature of the food while consuming, quantity and quality of the food consuming, which further has great influence on the formation of the seven dhatus or tissues of the body and then malas or waste products of the body. Also, it also plays as an important role in producing the natural urges of individuals (Lad, 1984). Similarly, tridosha has relation with individual's psychological aspect such as emotions like forgiveness, passion, fear, love, and so on.

The constitution is called prakruti a term meaning "nature", "first creation" or "creativity" (Lad, 1984). It is derived from Sanskrit word, pra means beginning, kru is a root word for kruti, means manifestation or form. It is the first interpretation of the basic five elements. Each individual has a different constitution which is called as prakruti. The reason why each individual is different in physiological appearance and psychological aspect is because of this difference in constitution, which is based on the predominance of five great elements called panchamahabhuta, tridoshas and triguna. At the time of the conception, prakruti was established. The following aspects will contribute to individual's prakruti formation, including the quality of father's sperm and mother's ovum, environment of the mother's womb, season and weather at the time of conception, and so on. Once the prakruti is formed, means predominance is formed, all the cells, tissues and systems will function accordingly. Certain types of diseases occur if by any chance there is a slightly change in predominance.

Vata is commonly translated as air, which is formed from the combination of the ether and air elements. It is responsible for the movement of the body, such as physical activities like running and jumping, eating, heartbeat, blinking of the eyes, transportation of the food, inhalation and exhalation, secretions, excretions, sensory and motor functions, transformation of the tissues. It is also related with the fear, anxiety and emptiness. Pitta is translated as fire, which is formed from the combination of the water and fire elements. It is responsible for metabolism and digestion, assimilation and elimination of the food. It is also in charge of body heat, temperature, hunger, thirst. Regarding emotional aspect, it is related with jealousy, anger, hate, intelligence. Kapha is translated as liquid or water in the body, which is formed from the combination of the ether and water elements. It is responsible for maintaining moisture of the skin, lubrication of the joints, helps in secreting liquid like mucus in the body to make internal organs to function well without harming each other. Meanwhile, this mucus can prevent some organs like nose, sinus, mouth, throat from germs and bacterial infection. It brings stability to the body. In relation with the emotional aspect it is like greed, attachment, holding, accumulation, possessiveness and forgiveness (Lad, 2002).

Vata, Pitta and Kapha are pervading everywhere of the body. But each of them has their specific place. When there is excessive accumulation of tridosha, they have tendency to store in those places. The main place for Vata is below umbilical and all the cavities inside body, including large intestine, thigh, pelvic cavity, bone, ears. The main place for Pitta is below the chest and above the umbilical, including stomach and small intestine, and pitta also stays in eyes, sweating glands, skin, blood. The main place for Kapha is chest and above region, including lungs, bronchitis, heart, and it also appears in throat, nose, and head region (Lad, 2002).

1.1.2 TRIDOSHA AND HEALTH

These three dosha – Vata, Pitta, Kapha – govern all the biological, psychological and psychopathological functions of the body (Lad, 1984). Tridosha are the fundamental elements of the body, that help to maintain body functioning well in our daily routine when it is in the balance condition. If they are out of the balance, diseases will start appearing in the body. Tridoshas has their respective characters and functions. Perfect balance of Tridosha lead to health (R.Vidyanath, 2012).

1.2 VAMAN DHAUTI

1.2.1 TECHNIQUE OF VAMAN DHAUTI

According to Hatha Yoga Pradipika, Vaman dhauti, which is also known as vyaghra kriya, comes under the second practice off hrid dhauti. The word vaman means “to vomit”, vyaghra means “tiger”. The practice is to vomit the food three hours after the meal from stomach as the tiger regurgitates food few hours after meal. Practitioner can first drink one or two glass of lukewarm saline water, after this, try to tickle the backside of the throat (small tongue) with index finger and middle finger to produce vomiting sensation. According to the texts, one should eat a pudding made of sweet milk rice after practice is finished. Another type of Vaman dhauti is called as kunjal kriya, which is almost same as vyaghra kriya, only difference with vyaghra kriya is that kunjal kriya is performed with empty stomach. (Muktibodhananda, 1993) According to the slokas mentioned in Gheranda Samhita, practitioner need to drink lukewarm water up to one’s throat, then looking upward for a while, after that vomiting out the water. This practice can remove the disorders caused by kapha and pitta. This text also mentioned the two types of vaman dhauti which are kunjal kriya and vyaghra kriya. Kunjal kriya is supposed to be performed with empty stomach condition and it can be performed when practitioner is healthy and normal health status. Vyaghra kriya is supposed to be performed after few hours of meal when one feels discomfortable or there is the disorder in the stomach. (Saraswati, 2012) Before performing kunjal kriya, one should well trim the nails and properly wash both hands. Take two teaspoons of salt and dissolve it into hot water and then mix enough cold water to make this saline water up to two liters. It should be lukewarm or as body temperature. After finished preparation of saline water, one can start performance. Practitioner should stand up straight and drink more than six glasses of prepared water quickly, one after another, till one feels that the stomach is fully filled and cannot drink anymore. It is very necessary to fully fill the stomach; the urge of vomiting will automatically occur when the stomach is fully filled. Lean the upper trunk forward and parallel to the ground. Inserting the index finger and middle finger of right hand through opened mouth and try to place them on the tongue as far back as possible till it tickles the small tongue. Gently press and rub small tongue and simultaneously give pressure on the abdomen with hand. Generally, water will flush out after all above steps. If not, either two fingers do not press the tongue with enough force or they are still far from the backside of the tongue or throat. Relax the body and let the water freely come out, do not exert. Practitioner can take out the fingers for a moment if it is needed and again place back when water stops flushing out, repeat this steps until emptied the stomach. Mucus may be

released into practitioner's nose, practice of jala neti should be done after kunjal kriya. (Saraswati, 2012)

One should practice kunjal kriya once a week except there is specific advice and suggestions from skilled yoga teachers. Early morning before taking breakfast is the ideal time for practice. As the stomach will increase sensitivity towards cold while practicing kunjal kriya, one should not perform it outside if the weather is too cold. (Saraswati, 2012)

1.2.2 PHYSIOLOGY OF VAMAN DHAUTI

Chewing and mixing the food enter the mouth with saliva which is full of enzymes shows the beginning of the digestion. A small soft mass with round shape named as bolus have been formed during this process. Bolus will travel downward through throat, oropharynx, esophagus and further goes into stomach. Stomach is J-shaped sac organ, located in epigastric and left hypochondria region which is in the upper abdomen and below the diaphragm, the capacity of stomach is around 1.5 liters and it can have ability to expand while eating food. Stomach plays a role of connection between esophagus and small intestine. It is divided into three parts. Upper part called as fundus, middle part called as body and pylorus as lower part. There are two curvatures of stomach which are medial with less curvature and lateral with great curvature. And there are two orifices which are cardiac orifice and pyloric orifice. There are about 35,000,000 gastric glands secreting mucus and juices for digestion attaching on the muscular wall of stomach. There are nearly half million cells produced on the lining of the wall and they will be renewed once in three days. The main function of stomach is breaking down food into proper particles and well mixing them with digestive juices before passing them to small intestine. Every day there are more than two liters' digestive juice, especially hydrochloric acid for digesting protein, has been produced by stomach. In order to protect stomach from acid, mucus is created. The imbalance in production quantity of mucus and acid will result in peptic ulcers and hyperacidity. There is four hours gap before food goes to small intestine. Final process of digestion is to excrete solid water materials out of body through anus after all the water and nutrients get absorbed by small intestine and large intestine. (Scanlon & Sanders, 2007)

In Vaman dhauti, or kunjal kriya, lukewarm saline water has been taken, which is called as lukewarm isotonic solution according to western medicine, this solution helps to maintain the health of the upper part of gastrointestinal tract. This practice involves vomiting which can exercise sphincter and help it to open up, it can remove the excessive gastric juices and reduce

the secretion of it, stimulates peristalsis movement, and so on. Basically, all these activities of digestive system are related to vagus nerve. Functions of upper gastrointestinal tract can work well is due to vagus nerve activation by the practice of vaman dhauti. (Patra, 2017) The major moderator of vomiting is vagus which works in nucleus tracts solitaries in strict co-ordination with the area of brainstem's vestibular centers, emotional and sensory arears and postrema. The sign of the vomiting is contraction of thoracic muscles and abdominal muscles, excessive saliva secretion, normal gastric motility decreased, retention of breath, sweating, and so on. (Balakrishnan, Nanjundaiah, & Manjunath, 2018)

The lukewarm water added with a little salt will not be easily absorbed by the body, and it will flush out with the help of kunjal kriya practice. Whatever remains after practice, will be absorbed or through skin pores in the form of sweating or excreted through kidney in the form of urination. (Saraswati, 2012)

1.2.3 BENEFIT OF VAMAN DHAUTI

Kunjal kriya is beneficial for healthy people to maintain the health. It can clean the upper tract of digestive system which is from stomach to mouth, disease caused by accumulation of impurities and toxins in this region can be removed and prevented. It is useful to remove the excessive acidity from stomach, relieve digestive disorders, cures bad smell while breath, sore throat and throat phlegm, so it is especially beneficial for those who has pitta and kapha disorders. It gives profound influence to one's nervous system. Saline water helps to reduce the acid secretions from stomach glands which further help to improve the efficiency of digestion. It is also an effective practice for asthmatics. Practice of kunjal kriya when there is asthma attack can give immediate great relief due the relaxation of contracted and tightened airways get relaxed. (Saraswati, 2012)

1.2.4 LIMITATION OF VAMAN DHAUTI

One should not perform vaman dhauti, or kunjal kriya within four hours after meals in order to practice with empty stomach. And it is advisable to have a light breakfast half an hour after practice as this practice will temporarily remove some lining of stomach. One who has high blood blood pressure should kindly avoid this practice as it will increase blood pressure. Those who have disease like diabetes with complication of eye problems, high intracranial pressure, hernia, peptic ulcer, and all kinds of heart problems should avoid this practice. (Saraswati, 2012)

Though this practice helps to remove the excessive acid from stomach, it is not suggested for people have hyperacidity to practice frequently as it has more risk of side effect than benefits. (Saraswati, 2012)

1.3 NADITARANGINI

1.3.1 NADI PARIKSHA AND NADITARANGINI

Ayurveda is the indian traditional medical system which is practical and clinical. According to ayurveda, nadi means pulse, it is a subtle existence of universal consciousness which manifested in human's constitution through pulsating. (V. Lad, 2006) Nadi pariksha is the ancient diagnosis technique in ayurveda through the pulse, which generally refer to radial artery, though pulse, disorders of prakruti, vikruti or doshas can be detected and prognosis by the experienced ayurvedic physician. In the time of 13th century, this pulse diagnosis technique has been initiated in the book named Sharangdhar Samhita which highlight the correlation between dosha and nadi. (Srikanthamurthy, 2016) And during 17th century , the book named Yogratnakar has detailed elaborated the science of nadi, like the rules for ayuvedic doctor or Vaidya, right checking time for nadi pariksha, and so on. (Babu, 2005) Vata, pitta, kapha are considered as three basic pulse according to ayurveda. Generally, ayurveda physicians will place the fingers on the radial side wrist, left wrist for woman and right wrist for man, starting from the wrist bone on thumb side, placing index finger, middle finger and ring fingers in outward sequence which related to vata pulse, pitta pulse, kapha pulse respectively. Movement of the pulse called gati, if we compare the movement with animals, sarpa gati which means cobra pulse is related to vata pulse, manduka gati which means frog pulse is related to pitta pulse, hamsa gati which is swan pulse is related to kapha pulse. (V. Lad, 2006)

Nadi Tarangini is a pulse based ayurvedic diagnosis system through the electronic device equipped with a strain gauge, a transmitter with amplifier, and the digitizer to quantify analog signal. (Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007)

1.3.2 ADVANTAGES OF NADITARANGINI

The skill of accurately detecting pulse and prognosis of disease need years' practices which is time-costly and challengeable. And there may be minor differences in feeling of the pulse. With the help of modern technique, pressure sensors and pulse diagnosis system can show the visual form of "feeling" which often used in Ayurveda and Chinese Traditional Medicine. Sensor has same standard to everyone. So there is no subjective bias while feeling the pulse.

Also using machine can save the time and money. (Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007)

1.3.3 PROCESS OF NADITARANGINI

First is to install the the software for naditarangini both old version in windows computer system. Second is to connect the sensor device with computer through the USB connector and wait the starting signal is seen in the computer. After this, hold the sensor with proper fingers and place this sensor on participant's waist, man on the right wrist and woman on the left wrist. After collecting the proper waveform data, stop and save the data. A detailed analyzed report will come out immediately with variables like prakruti, vata, pitta and kapha component on gati which is movement, bala which is force, agni, tikshnata, and wellness parameters based on pulse rate variability. (Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007)

1.4 NEED OF THE STUDY

As we all know from the texts that vaman dhauti can reduce the pitta and kapha, but no one knows exactly how much changes it will be, how long the effect will last, how long ones should practice if it's done for treatment purpose and whether these benefits will apply for everyone or not. This study is to quantify the dosha changes before and after performing vaman dhauti. For further guidance while giving instructions to healthy person and ill person like how western medicine doing research and set up the standard and guideline for various medicine to diseases.

CHAPTER 2
LITERATURE RESEARCH FROM CLASSICAL TEXTS

2.1 VAMAN DHAUTI ACCORDING TO HATHA YOGA

भोजनान्ते पिबेद्वारि चाकन्थम् पूरितम् सुधीः। ||38||

उर्ध्वा द्रिश्तिम् क्शनम् क्रित्वा तज्जलम् वमयेत्पुनः।

नित्यमभ्यासयोगेन कफपित्तम् निवारयेत्। ||39||

bhojanānte pibedvāri cākantham pūritam sudhīḥ। ||38||

urdhvā driśtim kśanam kritvā tajjalam vamayetpunaḥ।

nityamabhyāsayogena kaphapittam nivārayet। ||39||

(Gheranda Samhita 1/38-39)

Meaning:

Practitioner should drink water up to the throat after meal and then vomit out the water after looking upwards for a while. This practice can remove kapha and pitta disorders.

2.2 DOSHAS ACCORDING TO AYURVEDA

2.2.1 TRIDOSHAS

वायुः पित्तं कफश्चेति त्रयो दोषाः समासतः॥

विकृताऽविकृता देहं घ्नन्ति ते वर्त्तयन्ति च।

vayuh pittam kaphashcheti trayo doshah samasatah||

vikrita'vikrita deham ghnanti te varttayanti cha|

(Astanga Hridaya 1/6)

Meaning:

Vata, Pitta, Kapha are the three Doshas of the body. Perfect balance of the three Doshas leads to health, imbalance in Tridoshas leads to diseases.

ते व्यापिनोऽपि हृन्नाभ्योरधोमध्योर्ध्व संश्रया: ॥

वयोऽहोरात्रिभुक्तानां तेऽन्तमध्यादिगा: क्रमात् ।

te vyāpino'pi hṛnnābhyoradhomadhyordhva saṃśrayā: ||

vayo'horātribhuktānāṃ te'ntamadhyādigā: kramāt |

(Astanga Hridaya 1/7)

Meaning:

The Tridosha are existing all over the body, but also their existence can be particularly seen in specific parts. If you divide the body into three parts, the top part which above the chest is dominated by Kapha Dosha, between chest and umbilicus is dominated by Pitta, below umbilicus part is dominated by Vata.

Vata, Pitta and Kapha are predominantly present in the last, middle, and first stages of age, day, night and diet respectively.

It means Vata is predominant in the old age of life, evening hours, ending hours of the night, and end of the digestion. Pitta is predominant in the middle age of life, midday, midnight, and during the process of digestion. Kapha is predominant in the childhood, morning hours, starting of night hours and beginning of the digestion. (R.Vidyanath, 2012)

2.2.2 VATA

तत्र रूक्षो लघुः शीतः खरः सूक्ष्मश्चलोऽनिलः॥

tatra rūkṣo laghuḥ śītaḥ kharaḥ sūkṣmaścalo'nilaḥ॥

(Astanga Hridaya 1/11)

Meaning:

The qualities of Vata are dry, light, cold, rough, minute, mobile.

2.2.3 PITTA

पित्तं सस्नेह तीक्ष्णोष्णं लघु विस्रं सरं द्रवम्।

pittaṁ sasneha tīkṣṇoṣṇaṁ laghu visraṁ saraṁ dravam।

(Astanga Hridaya 1/11)

Meaning:

The qualities of Pitta are unctuous, sharp, hot, light, putrefied smell, mobile, liquid.

2.2.4 KAPHA

स्निग्धः शीतो गुरुर्मन्दः श्लक्ष्णो मृत्स्नः स्थिरः कफः

snigdhaḥ śīto gururmandaḥ ślakṣṇo mr̥tsnaḥ sthiraḥ kaphaḥ

(Astanga Hridaya 1/11)

Meaning:

The qualities of Kapha are unctuous, cold, heavy, dull, smooth, shining, immobile.

2.3 HEALTH ACCORDING TO AYURVEDA

समदोषः समाग्निश्च समधातुमलक्रियः।

प्रसन्नात्मेन्द्रियमनाः स्वस्थ्य इत्यभिधीयते॥

samadoṣaḥ samāgniśca samadhātumalakriyaḥ।

prasannātmendriyamanāḥ svasthya ityabhidhīyate॥

(Sushruta Samhita 15/48)

Meaning:

Doshas must be in equilibrium, the digestive fire must be in a balanced state and the tissues and physiological functions of excretions and whose soul, senses organs and mind are all in happy state, this individual can consider as a healthy person.

Definition of Prakruti

जन्ममरणान्तरालभाविनी अविकारणी दोषास्थिती प्रकृतिः।

janmamaraṇāntarālabhāvinī avikāraṇī doṣāsthitī prakr̥tiḥ।

(Rasavaisheshika)

Meaning:

Prakruti is the qualitative, quantitative and unchangeable predominance of dosha throughout

the life span.

How prakruti is formed

शुक्रशोणितसंयोगे यो भवेद् दोष उत्कटः।

प्रकृतिर्जायते तेन॥

śukraśoṇitasaṁyoge yo bhaved doṣa utkaṭaḥ।

prakr̥tirjāyate tena॥

(Sushruta Samhita 4/63)

Meaning:

The predominance of the doshika has been decided when the gameting of male and femal happen and that is Prakruti.

Prakruti and vrikriti

सर्व शरीरचरास्तु वातपित्तश्लेष्माणः सर्वस्मिञ्छरिरे कुपिताकुपिताः शुभाशुभानि कुर्वन्ति

sarva śarīracarāstu vātapittaśleṣmāṇaḥ sarvasmiñcharire kupitākupitāḥ śubhāśubhāni kurvanti

(Caraka Samhita 20/9)

Meaning:

Vata, pitta and kapha travel inside the entire body and produce positive and negative influences to the body systems based on which states they are, normal or activated. If they are in normal state then we called them as prakruti, orelse we called the abnormal state as vikruti.

2.4 NADI PARIKSHA ACCORDING TO AYURVEDA

Nadi Vijnanam

प्रकृतिं पश्यति पुरुषः प्रेक्षकवदवस्थित स्वस्थः।

prakr̥tiṁ paśyati puruṣaḥ prekṣakavadavasthita svasthaḥ।

(Sankhya Karika 65)

Meaning:

Maintain stable in the individual's being, the Purusha (pure consciousness) sees the Prakruti (the nature) as a witness.

Nadi prediction

वातं पित्तं कफं द्वन्द्वं त्रितयं सान्निपातिकम्।

साध्यासाध्यविवेकं च सर्व नदी प्रकाशयेत

vātaṁ pittaṁ kaphaṁ dvandvaṁ tritayaṁ sānnipātikam।

sādhyāsādhyavivekaṁ ca sarva nadī prakāśayeta

(Yoga Ratnakar 1/7)

Meaning:

Pulse reveals the dual or triple disorder of vata, pitta and kapha and it can express diseases prognosis.

Sub type of dosa through the pulse

संचयं च प्रकोपं च प्रंसरं स्थानसंश्रयम्।

व्यक्तिं भेदं च यो वेत्ति दोषाणां स भवेद्भिषक्॥

saṁcayaṁ ca prakopaṁ ca praṁsaraṁ sthānasaṁśrayam।

vyaktiṁ bhedaṁ ca yo vetti doṣāṇāṁ sa bhavedbhiṣak॥

(Sushruta Samhita 21/36)

Meaning:

Those who know the different pathogenesis stages – accumulation, provocation, diffusion, localization, occurance and termination – can be named as a physician.

Pulse

अग्ने वातवहा नाडी मध्ये वहति पित्तला।

अन्ते श्लेष्मविकारेण नाडी ज्ञेयाबुधैः सदा॥

agne vātavahā nāḍī madhye vahati pittalā।

ante śleṣmavikāreṇa nāḍī jñeyābudhaiḥ sadā॥

(Yoga Ratnakar 1/13)

Meaning:

Vata nadi appears under the index finger, pitta nadi appears under the middle finger, and kapha nadi occurs under the ring finger. The bright person should be always aware of the basic characteristic of pulse.

CHAPTER 3
SCIENTIFIC LITERATURE REVIEW

3.1 EFFECT OF VAMANA DHAUTI

Sl. No.	Author & Title	Method	Assessment	Conclusion & Results
1	(Jain et al., 1991)	**Sample:** Total 46 subject including 28 males and 18 females who were admitted into hospital for 40 days with mean age between 11 to 18 years old. **Intervention:** Daily 90 minutes training with a specified set of yoga practice for asthma treatment including kriyas like kunjal kriya, bahi, jalaneti, kapalabhati, shankh-prakshalan; asanas like padmasana, Gomukhasana, Uttanmandukasana, matsyasana, ardh-matsyendrasana, yogasana, vajrasana, shavasana,	1.A 12-minute walking test (12MD test); 2.A modified Harvard steps test named as Physical Fitness Index (PFI); 3. Exercise Lability Index(ELI). All three tested were repeated in last 3 days of training session before discharge from hospital	**Conclusion:** 1.Brochoconstriction during exercise is decreased by yoga training due to the increased tolerance in mechanism. 2. Yoga training is an economical and easy way which is good for asthmatic adolescent. **Results:** 1.Significant improvement in pulmonary functioning and exercise capacity due to yoga training. 2. Two year follow up shows a good result in reducing symptom score and medication need.

		makrasana, simhasana; and pranayama like bhastrika and ujjayi.		
2	(Kumar1, 2016)	**Sample:** Single group including 25 females. **Intervention:** 45 minutes daily yoga practice for 6 weeks including kunjal kriya, agnisara, sheetali, bhastrika, nadi-shodhana pranayama and diet management.	1.Skin fold thickness; 2.cholesterol level; 3.body weight	**Conclusion**: Obesity woman has decrease in Skin fold thickness, cholesterol level and body weight after 6 weeks' program. So some risks can be posed by intensive yoga program and diet changes. **Results**: There is decrease in Skin fold thickness, cholesterol level and body weight.
3	(Farashah, Dehghanpoor, Emtiazi, & Adl, 2015)	Review article from source of Iran medicine book and yoga therapy materials	Review article from source of Iran medicine book and yoga therapy materials	**Conclusion**: 1.Phlegm produced by food and waste materials from lack of activities need to be cleaned. 2.Kunjal kriya can be a useful way to an individual under the moisture environment. **Results**: Kunjal kriya is same as a kind of vomiting mentioned in Iran

				medicine system to remove excess of phlegm.
4	(Gupta, 2017)	**Sample:** Single group including 38 obsess man. **Intervention**: 39 minutes daily yoga practice for 4 weeks including kunjal kriya, agnisara, sheetali, bhastrika, nadi-shodhana pranayama.	1.Skin fold thickness; 2.cholesterol level; 3.body weight	**Conclusion**: Obesity man has decrease in Skin fold thickness, cholesterol level and body weight after 6 weeks' program. So some risks can be posed by intensive yoga program and diet changes. **Results**: There is decrease in Skin fold thickness, cholesterol level and body weight.
5	(chowdhury & Chundawat, 2014)	**Sample:** 30 patients. **Intervention**: 3 groups with different method:1. Kunjal kriya and rohitaka sharapunkha churna; 2. Rohitaka sharapunkha churna alone;3. medicine and kunjal kriya.	1.haematological value; 2.hormonal values.	1. Mukhadushik has more relieves through Kunjal kriya and rohitaka sharapunkha churna; 2. Rohitaka sharapunkha churna also can relieve Mukhadushik; 3.No change in medicine and kunjal kriya group.

6	(Chowdhury, Datta, & Rao, 2013)	Review article	Review article	Kunjal kriya can decrease the kapha dosha and increase medo dhatu in obese person and Sthaulya get controlled.
7	(Halder et al., 2012)	**Sample:** Randomly draw 60 healthy male participants from BSF with age group from 21 to 23. **Intervention:** Daily two hours yoga program for 5 days per week for 3 months.	1.Lung function test: Force Vital Capacity(FVC); Force Expiratory Volume in 1st second(FEV1); Maximum Voluntary Ventilation(MVV); Tiffeneau Index(TI); 2. weight; 3. height;	**Conclusion:** Yoga practice can improve capacity of pulmonary as MVV increased. **Results:** 1.No change in weight; 2.No significant change in FVC, FEV1, TI; 3.P-value <0.01 in MVV
8	(Tiwari & Verma, 2016)	**Sample**:45 subjects from Hardwar urban area as experimental group with only obesity and joint problem; control group is whoever want to take part in and no illness or medication. **Intervention:** 19 minutes daily group of yoga practices for 30 days	Body Mass Index(BMI)	**Conclusion:** Practice Kunjal kriya and surya namaskar regularly help to deal with the level of obese. **Results:** 1. Corraltion=0.78; 2. SEd=0.200; 3.t-value=7.941;

		including OM chanting, Kunjal kriya, surya namaskar, shanti path.		
9	(Bhagat & Singh, 2017)	Review Article	Review Article	A group of yogic practices including specific asana like Supta Matsyendrasana, Dhanurasana, Paschimottanasana, Ardhya Matsyendrasana, Shavasana, Kati chakra asana, Pawan mukat asana, Trikon asana, Vajar asana, Mandukasana, Gomukh asana, Ardha matsyendrasana & Shavasanaand Kriyas as Neti, Kapalbhati, Kunjal Kriya, Agnisara and Om Chanting are useful for diabetic patients.
10	(Balakrishnan, Nanjundaiah, & Manjuna	**Sample**: 18 healthy participants and 9 of them had done kunjal kriya before.	Pulmonary Function test including Slow Vital Capacity, Forced Inspiratory Volume in 1st Rare,	**Conclusion:** Regularly practice of Voluntarily induced vomiting help to increase the durability of respiratory muscles

	th, 2018b)	**Intervention:** Voluntarily Induce Vomiting—Kunjal kriya	Expiratory Reserve Volume, Respiratory Rate.	and reduce the resistance of airway. **Results:** Compare to novice group, Experienced group: 1. Slow Vital Capacity increased. 2.Expiratory Reserve Volume increased when it significantly decreased in novices; 3.Respiratory Rate decrease in both group but More in experienced group; 4.Forced Inspiratory Volume in first second has increase significantly.
11	(Nagendra & Nagarathna, 1986)	**Sample**: 570 bronchial asthmatics which meet Shivpuri's Crofton and Douglas's clinical criteria. **Intervention:** Practice a group of yoga practice daily 2.5 hours for 2 weeks or daily 1.25 hours for 4 weeks including asana,	Various parameters as below: 1. Number of attacks per week; 2. Duration of attacks; 3. Number of months; 4. Nasal allergy; 5. Severity of attacks: mild, moderate, severe; 6. Medication per week; 7. Cortisone; 8. Injections;	**Conclusion**: Integrated approach of yoga therapy has profound efficacy in managing bronchial asthma. **Results:** 1.Peak Expiratory Flow Rate (PFR) towards normal condition; 2. 72% patients stopped parenteral medication, 69% stopped oral

		pranayama, meditation and kriya including neti and vaman dhauti.	9. Peak expiratory flow rate (PFR); 10. Wheezing; 11.Dust; 12. Smoke, vapors, strong scents, incense sticks, etc.; 13. Emotion; 14.Weather; 15.Food; 16.Exercise; 17.Cough; 18.Sputum; 19.Fever; 20.Sore throat; 21.Breathlessness in exertion; 22.other symptoms which is not included in this study like past ailments history; 23.Pulse Rate; 24.Respiratory Rate; 25.Systolic and Diastolic Blood Pressure; 26.Chest expansion; 27.Breathing-Hold time(BHT).	medication, 66% stopped cortisone medicine.

12	(Pokhariyal & Kumar, 2013)	**Sample**: 70 participants from south Delhi, Gurgaon, Noida area with only obesity, diabetes, joint problems and hypertension as experimental group; Whoever want to take part in for both mental and physical healthy will be as control group. **Intervention:** Practice Shatkarma including kapalabhati, neti and dhauti for 90 days excluding holidays and Sundays.	1.Serum glucose level; 2.Serum cholesterol level;	**Conclusion**: Yogic practices are helpful in managing as well as preventing disorders of body system. **Results**: Serum glucose level and Serum cholesterol level decreased.
13	(Telles, Nagarathna, Nagendra, & Desiraju, 1993)	**Sample**: 40 male teachers in physical education who has about 8.9 years physical training with age group between 25 to 48 years. **Intervention:** 3 months' yoga training program which will practice	1.Body weight; 2.Blood pressure; 3.Systolic and diastolic blood pressure; 4.FEV1; 5.FVC; 6.PFR; 7.Breath holding time; 8.Heart rate; 9.Respiratory rate; 10.GSR(Kilohms); 11.Steadiness test	**Conclusion**: 1. General health has improved significantly; 2.automic arousal has decrease and physio-psychological relaxation increase; 3.volar GSR changes depend on the baseline value. **Results:**

		asanas, pranayama, OM meditation and kriya including jala neti, sutra neti and vaman dhauti;	(number of "errors")	60% increase in PFR; 18% change in FEV1, FVC; 40% change in breath holding time; decrease in heart rate, respiratory rate, systolic and diastolic BP, body weight; GSR has a tendency to increase;
14	(Patra, 2017b)	Review Article	Review Article	Vaman dhauti can help to maintain upper gastrointestinal tract in healthy condition

3.2 SCIENTIFIC LITERATURE REIVEW ON NADITARANGINI

Sl. No.	Author & Title	Method	Assessment	Conclusion & Results
1	(R. R. Joshi, 2004)	**Subjects:** 280 subjects who is visitors, trainee and residents from Brahmvarchas Research center and Hardwar, shantikuj, India. 117 healthy subjects' data has been selected for validation	A questionnaire related to prakrati	**Conclusion:** The quantitative way of computationally model the pattern of nadi is beneficial and this give the essential base for biostatistically analyze dosha according to Ayurveda. **Results:** Only 6% unpredictable and wrong prakrati characterization.
2	(Kalange, Mahale, Aghav, & Gangal, 2012)			**Conclusion:** It is can be feasible to use laboratory tool for nadi checking **Results:** In all three combinations,

				significant difference has been observed.
3	(A. Joshi, Kulkarni, Chandran, Jayaraman, & Kulkarni, 2007b)			Pressure sensing based method and pulse acquisition system can apply on large number of people
4	(P. Venkata Giri Kumar, Deshpande, & Nagendra, 2018)	Review article	Review article	Parameters like artery hardness, pulse rate variability and pulse wave velocity according to modern science is very close connected with ancient parameters like kathinya, capala, sthira, vega and gati.
5	(Balagalla, 2018)			Device for non-invasive diagnosis is based on the concept of pulse reading in

				ayurveda and it can protect the declining ayurveda techniques.
6	(Bhat et al., 2010)			Nadi Tarangini as a non-invasive device is useful in quantitative detecting arterial pulse wavement, or nadi wavement.
7	(A. J. Joshi, Chandran, Jayaraman, & Kulkarni, 2008)	16 volunteers		Individual's multifractal spectrum is mainly managed by neuro system, multifractality tends to monofractality with age growing.

8	(Goyal & Gupta, 2016)	1.Strain gauge sensor; 2. Piezoelectric sensor; 3. Optical Sensor; 4. Force Sensitive Resistor Sensor;		Pulse waveforms obtained through different sensor is resemble with literature.
9	(A. Joshi & Kulkarni , 2017, pp. 1–3)	Review article	Review article	Effort to make Nadi Pariksha standardized through instruments has been developed and acquired data has been proved by researches.
10	(A. Joshi & 6, 2019)	25437 subjects		Conclusion: Follow jatharagni according to rutucharya can avoided lifestyle oriented disorders. Results: Jatharagni is low in the monsoon, winter get higher, dominant with

				vishamagni for vata, tikshnagni for pitta, mandagni for kapha.

CHAPTER 4
AIM AND OBJECTIVES

4.1 AIM OF THE STUDY

To study the immediate effect of Vaman Dhauti in reducing the imbalance of Tridoshas.

4.2 OBJECTIVES

To explore the effectiveness of assessing Tridosha imbalances using sensor based pulse acquisition system.

4.3 NULL HYPOTHESIS

There may not be significant reduction in imbalance of Tridoshas immediately after Vaman Dhauti practice.

4.4 ALTERNATIVE HYPOTHESIS

There may be a significant reduction in imbalance of Tridoshas immediately after Vaman Dhauti practice.

CHAPTER 5
METHODOLOGY

5.1 SUBJECTS

The participants for the study were chosen from long-term residential students of Svyasa yoga university bangalore, Karnataka. 36 participants between 20 to 40 years old were screened according to inclusion criteria and exclusion criteria. Every participant will attend the study for 2 times as member of control and experimental groups.

5.1.1 SOURCE OF SUBJECTS

Long-term residential students of S-VYASA yoga university bangalore, Karnataka.

5.1.2 SAMPLE SIZE

The convenience sampling methods was used for the data collection.
A total of 34 Long-term residential students were recruited for the study.

5.1.3 INCLUSION CRITERIA

Both male and female students of age group 20 to 40 were included as part of the study.

5.1.4 EXCLUSION CRITERIA

i) Woman during menstruation or pregnancy.
ii) Any psychological disorder people.
iii) Anyone who has heart disease, hypertension, peptic ulcer, during illness or weak body state.
iiii) People who undergo any kind of surgery within 6 months.

5.1.5 DESIGN

The study used pre post design with self as control to investigate the immediate effect of Vaman Dhauti. The study was conducted in two phases and students were divided into control and experimental groups with 18 students each. On the day 1 students were randomly allocated to both control and experimental groups. During the phase 1 intervention was given to

experimental group and control group did not receive any intervention. During phase 2 which started after one week wash out period to eliminate the effect of intervention control group students have become experimental and vice versa. The reason behind such phased approach of taking data is to eliminate any effects of sequencing the groups such experimental first and control later or the other way where control is first and later experimental.

5.1.6 INTERVENTION

Vaman Dhauti followed by 15 min Deep Relaxation Technique (DRT) was used as intervention in the study and the details of intervention are explained in Table 1. The students belonging to experimental group were taken to a common place and were asked to perform Vaman Dhauti. After the intervention students of experimental group were asked to go for DRT. During this time control group did not receive any intervention.

Steps of Vaman Dhauti	Duration (min)
Drink lukewarm saline water	10 min
Exercise	2 min
Vomit	3 min
DRT (listen the record of instruction)	15 min
Total	30 min

(Table 1)

5.1.7 ASSESSMENT TOOLS

Nadi Tarangini (Fig 1), a cost-effective and easy to operate tool based on non-invasive pulse acquisition system was used for the study. It has three pressure transducers which are linearly placed to collect the data of pulse (Fig 2), a 16-bit multifunction data acquisition card NI USB-6210 (National Instruments, TX, USA)

Fig.1 Nadi Tarangini Tool new version

Fig.2 How to place the sensor of the tool

5.1.8 PROCEDURES

Pre-post test

Participants are tested for their tridosha level before and after Vaman Dhauti with Nadi Tarangini.

Before experiment

Participants are tested their tridosha level before Vaman Dhauti with Nadi Tarangini.

After experiment

Participants are tested their tridosha level after Vaman Dhauti with Nadi Tarangini.

5.1.9 ETHICS

ⅰ) All participants will be informed about the experiment and an online informed consent has been taken.

ⅱ) Protection of personal information- Present author do not use participants' information except the aim of this research.

CHAPTER 6

DATA EXTRACTION AND ANALYSIS

6.1 DATA COLLECTION

Morning 6am to 9am is the timing for data collection. Other factors like height, gender, have been recorded at the beginning of the study.

It takes one minute to sense the proper location of the vata, pitta and kapha, after that properly placed sensor on the sensed place and place on it for another one minute. Results were analyzed by the system itself and there was a report showing immediately after nadi checkup.

6.1.1 PARAMETERS

As per Ayurveda Bala represents the strength of doshas, dhatus and ojas and we have selected Bala for the present study which can be measured using Nadi Tarangini. The levels of Bala are assessed from the Nadi Tarangini report as shown in Figure 3.

Explanations of the terms indicated in the report are as follows:

- *Bala*: It represents the strength of doshas, dhatus and ojas.

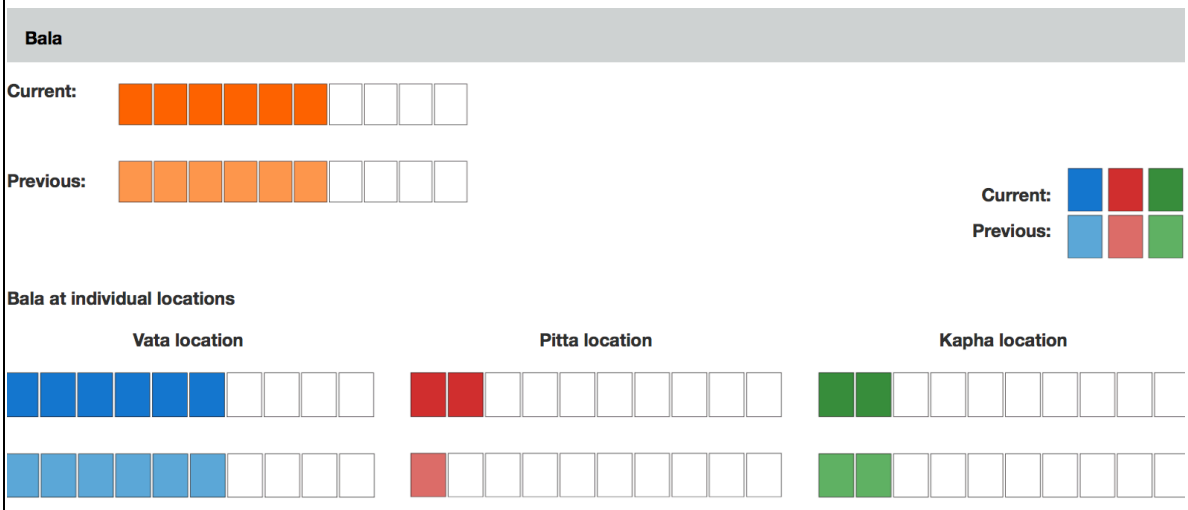

Fig. 3. Bala from the report

6.1.2 DATA ANALYSIS

All the data has been analyzed through SPSS Statistics Version 10 and R studio. The data was displayed with mean ± standard deviation. Kolmogorov-Smirnov test and Shapiro Wilk's test are used for normality assessment. Bala was not normally distributed and hence Wilcoxon matched rank test, a non parametric test is used for testing the difference between each matched pairs.

CHAPTER 7
RESULTS

The summary of levels of Bala as measured using Nadi Tarangini are reported in Table 2, 3, 4.

Table 2. Changes in Bala difference

Group	Control		Experimental	
	Pre	Post	Pre	Post
Bala	3.7	3.67	4.5	3.24
Bala_Vata	2.48	2.24	3.44	2.53
Bala_Pitta	1.15	1.76	1.09	0.67
Bala_Kapha	0.61	0.45	0.82	0.76
Imbalance	1.87	1.79	2.62	1.86

Table 3. Descriptive statistics of bala imbalance

Group	Control		Experimental	
	Imbalance_ Post_Bala	Imbalance_ Pre_Bala	Imbalance_ Post_Bala	Imbalance_ Pre_Bala
n	34	34	35	35
mean	3.65	4.29	3.17	3.71
sd	2.76	2.70	2.24	2.52
median	3	4	3	4
trimmed	3.29	4.18	2.97	3.52
Mad	2.97	3.71	1.48	4.45
Min	1	1	0	1
Max	10	9	10	10
Range	9	8	10	9
Skew	1.00	0.28	0.92	0.48
kurtosis	-0.12	-1.30	0.76	-0.78

Table 4. P value for within group & between group

Group	Control	Experimental

	Within Group	Within Group	Between Group
P value	0.2582	0.3793	0.6832

From Table 2, 3, 4, it shows that in Nadi Tarangini new version machine results, the imbalance in tridoshas decreased in control as well as experimental group.

Though there is no results shows significant, but there is decrease in control group is 4.28% whereas that in experimental group is 29%.

CHAPTER 8
DISSUSION

8.1 DISCUSSION

The immediately effect of Vaman Dhauti on Tridosha imbalance was studied. There was a statistically significant decrease in bala of experimental group whereas it increased in control group. Bala at Pitta location increased statistically significantly in control group whereas the decrease in Bala pitta in experimental group is not significant. This indicates the change in pitta level with respect to the time of the day has influenced the pitta levels that are measured.

Mean Bala Vata and Mean Bala Kapha levels decreased in control and in experimental groups. Mean Bala Pitta in control group increased whereas mean Bala pitta in experimental group decreased.

The imbalance in tridosha decreased in control as well as experimental group. The decrease in imbalance in tridosha in control group is 4.28% whereas that in experimental group is 29%. This is showing a positive change of a better moving towards balance of Tridosha in experimental group as compared to the control group. However the changes are statistically not significant.

CHAPTER 9
SUMMARY AND CONCLUSION

9.1 SUMMARY

As the time of starting the experiment to closing the experiment is changing from early morning to latter part of morning, control group's pitta levels increased. Experimental groups pitta levels also must have increased by that level if intervention is not there. Because of intervention, the natural increase of pitta by the time of the day is arrested and also there is a decrease in the pitta compared to pre value. This indicates that pitta has been influenced highly by the experiment.

The mean Kapha level decreased in both the experimental group and the control group. As the time of the day is changing, the kapha levels reduce as per ayurveda. Hence in both groups kapha levels showed a decrease.

9.2 CONCLUSION

In Nadi Tarangini machine, the imbalance in tridoshas decreased in control as well as experimental group. The decrease in control group is 4.28% whereas that in experimental group is 29%. This indicates that the practice of vaman dhouti reduces the imbalances and makes the person move towards better health.

CHAPTER 10
APPRISAL

10.1 STRENGTH OF THE STUDY

i) Self as control pre-post design
ii) Through Nadi Tarangini we can actually see the degree of changes happen in vata, pitta and kapha dosha.

10.2 LIMITATION OF THE STUDY

i) Change in the time of the day from early morning to latter part of morning.
ii) Bigger sample size to get more significant p values.

10.3 SUGGESTION FOR FUTURE STUDIE

i) Long term effect of vamana dhauti can be more valuable research as body needs time to get change.
ii) Choosing proper time of the day so that natural influences of Time of the day on Tridosha will be minimized.
iii) More Sample size.

10.4 IMPLICATION OF THE STUDY

The imbalance in tridoshas decreased in control as well as experimental group. The decrease in control group is 4.28% whereas that in experimental group is 29%. This indicates that the practice of vaman dhouti reduces the imbalances and makes the person move towards better health.

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CHAPTER 11
APPENDICES

11.1 RAW DATA

SubjectName	Gender	Height(cm)	Group	Post_PulseRate
Abhishek	Male	180	Control	79
Annie	Female	152	Control	72
Chaitanya	Male	167	Control	81
Parichiti	Female	150	Experimental	86
Pooja K	Female	163	Experimental	81
Pooja Verma	Female	152	Experimental	70
Amandip	Male	182	Experimental	74
Jagjeet	Male	175	Experimental	53
Lakshmi	Female	152	Control	67
Prahlad Pramanik	Male	174	Experimental	77
Rooba Ganesan	Female	171	Control	59
Sreya Nandy	Female	157	Control	80
Arvind Kumar	Male	175	Control	64
Dileep Kumar	Male	165	Control	68
Kaviyarasan G	Male	167	Control	65
Krupa Thakar	Female	168	Experimental	76
Rishu	Female	162	Experimental	82
Sangmoon	Male	180	Experimental	75
Avanu	Female	163	Experimental	64
Chandrashekar	Male	166	Control	62
Deki Derma	Female	149	Control	67
Pranav	Male	169	Experimental	66
Renuka	Female	144	Experimental	58
Siddharth Singh	Male	171	Control	56
Amit Pandey	Male	161	Control	77
Ananta Gopal	Male	170	Control	63
Prakash	Male	162	Experimental	74
Sridha Ravi	Male	178	Control	70
Srihari Maiti	Male	172	Experimental	61
Bibesh	Male	177	Control	64
Dayananda	Male	166	Control	75
Diviyansh	Male	170	Control	79
Ganesh	Male	155	Experimental	61
Megha C	Female	162	Experimental	82
Sagar	Male	176	Experimental	75
Abhishek	Male	180	Experimental	71
Annie	Female	152	Experimental	82
Parichiti	Female	150	Control	84

Pooja K	Female	163	Control	66
Pooja Verma	Female	152	Control	68
Amamdip	Male	182	Control	79
Jagjeet	Male	175	Control	50
Lakshmi	Female	152	Experimental	71
Prahlad Pramanik	Male	174	Control	67
Rooba Ganesan	Female	171	Experimental	77
Sreya Nandy	Female	157	Experimental	74
Arvind Kumar	Male	175	Experimental	63
Avanu	Female	163	Control	68
Chaitanya	Male	167	Experimental	81
Dileep Kumar	Male	165	Experimental	71
Kaviyarasan G	Male	167	Experimental	63
Krupa Thakar	Female	168	Control	101
Rishu	Female	162	Control	99
Sangmoon	Male	180	Control	80
Chandrashekar	Male	166	Experimental	66
Deki Derma	Female	149	Experimental	65
Renuka	Female	144	Control	61
Siddharth Singh	Male	171	Experimental	61
Amit Pandey	Male	161	Experimental	67
Ananta Gopal	Male	170	Experimental	70
Prakash	Male	162	Control	70
Sridha Ravi	Male	178	Experimental	70
Srihari Maiti	Male	172	Control	66
Dayananda	Male	166	Experimental	75
Diviyansh	Male	170	Experimental	90
Ganesh	Male	155	Control	64
Megha C	Female	162	Control	72
Sagar	Male	176	Control	67
Bibesh	Male	177	Experimental	68

Series 1

Post_Sarpa Gati_VATA	Post_Sarpa Gati_PITTA	Post_Sarpa Gati_KAPHA	Post_Manduk aGati_VATA	Post_Manduk aGati_PITTA	Post_Manduk aGati_KAPHA
3	4	0	9	1	0
0	4	0	0	7	0
3	0	0	3	0	0
0	0	3	0	0	3
0	3	0	0	9	0
5	4	0	9	7	0
5	0	0	1	0	0
5	0	5	9	0	1
0	5	0	0	9	0
4	0	0	7	0	0

0	4	0	0	9	0
4	0	0	7	0	0
0	4	0	0	1	0
5	0	4	9	0	7
5	0	0	1	0	0
4	0	0	3	0	0
4	0	0	3	0	0
4	0	0	1	0	0
5	0	0	9	0	0
0	5	5	0	1	3
0	0	4	0	0	3
4	4	4	7	9	9
0	0	5	0	0	7
5	0	0	1	0	0
4	0	0	9	0	0
0	0	5	0	0	9
0	4	0	0	9	0
4	0	0	7	0	0
5	5	5	9	1	9
5	5	4	9	9	9
2	4	0	3	3	0
0	0	4	0	0	7
4	0	5	3	0	9
0	3	0	0	3	0
4	0	0	1	0	0
4	0	0	1	0	0
4	0	0	3	0	0
3	2	0	9	9	0
0	4	0	0	7	0
0	2	0	0	3	0
4	1	0	9	3	0
5	5	0	1	1	0
5	0	0	9	0	0
5	0	0	7	0	0
0	3	0	0	7	0
4	0	0	1	0	0
5	5	0	1	1	0
3	0	0	3	0	0
3	0	0	3	0	0
4	4	4	9	9	9
5	0	4	9	0	9
3	0	0	3	0	0
3	3	0	9	9	0
5	0	0	1	0	0
3	0	4	7	0	3
4	0	5	7	0	1

0	0	5	0	0	9
5	0	0	1	0	0
3	0	4	9	0	3
4	0	4	9	0	1
3	0	0	7	0	0
2	0	0	3	0	0
2	4	0	7	9	0
0	4	4	0	9	9
0	3	0	0	3	0
0	5	0	0	9	0
0	4	0	0	1	0
0	3	4	0	9	9
0	0	5	0	0	9

Series 2

Post_Hansa Gati_VATA	Post_Hansa Gati_PITTA	Post_Hansa Gati_KAPHA	Post_ Bala	Post_Bal a_VATA	Post_Bal a_PITTA	Post_Bal a_KAPHA
2	2	0	2	2	1	0
0	5	0	1	0	1	0
2	0	0	5	5	0	0
0	0	2	2	0	0	2
0	2	0	2	0	2	0
2	2	0	4	4	1	0
4	0	0	4	4	0	0
2	0	2	1	1	0	1
0	1	0	1	0	1	0
5	0	0	3	3	0	0
0	2	0	5	0	5	0
2	0	0	3	3	0	0
0	2	0	1	0	1	0
2	0	2	1	2	0	1
2	0	0	2	2	0	0
4	0	0	3	3	0	0
4	0	0	3	3	0	0
2	0	0	1	1	0	0
2	0	0	4	4	0	0
0	2	5	1	0	0	1
0	0	2	2	0	0	2
2	2	2	6	6	2	2
0	0	5	3	0	0	3
1	0	0	1	1	0	0
2	0	0	3	3	0	0
0	0	2	1	0	0	1
0	2	0	1	0	1	0
2	0	0	4	4	0	0

2	2	2	1	1	1	1
2	2	2	2	2	2	4
4	4	0	9	9	2	0
0	0	4	1	0	0	1
2	0	2	8	8	0	2
0	4	0	2	0	2	0
2	0	0	4	4	0	0
2	0	0	1	1	0	0
4	0	0	6	6	0	0
2	2	0	3	3	1	0
0	4	0	7	0	7	0
0	4	0	10	0	10	0
1	1	0	9	1	9	0
2	2	0	1	1	1	0
2	0	0	1	1	0	0
5	0	0	4	4	0	0
0	2	0	4	0	4	0
2	0	0	1	1	0	0
2	1	0	1	1	1	0
2	0	0	7	7	0	0
2	0	0	6	6	0	0
1	1	2	3	4	2	4
2	0	2	1	1	0	1
2	0	0	3	3	0	0
2	2	0	3	3	4	0
2	0	0	3	3	0	0
4	0	4	5	5	0	1
5	0	2	3	3	0	1
0	0	2	1	0	0	1
2	0	0	4	4	0	0
2	0	2	6	6	0	1
2	0	2	1	1		1
1	0	0	10	10	0	0
1	0	0	10	10	0	0
2	2	0	6	6	4	0
0	2	2	2	0	1	2
0	4	0	5	0	5	0
0	2	0	4	0	4	0
0	4	0	2	0	2	0
0	2	2	4	0	4	4
0	0	2	4	0	0	4

Series 3

Post_Agni	Post_Agni_VATA	Post_Agni_PITTA	Post_Agni_KAPHA	Post_Tikshnata	Post_Tikshnata_VATA	Post_Tikshnata_PITTA	Post_Tikshnata_KAPHA
6	6	1	1	6	6	5	0
6	1	6	1	2	0	2	0
3	3	1	1	2	2	0	0
3	1	1	3	1	0	0	1
8	1	8	1	7	0	7	0
6	6	6	1	9	9	1	0
2	2	1	1	3	3	0	0
6	6	1	1	10	10	0	10
8	1	8	1	9	0	9	0
6	6	1	1	2	2	0	0
8	1	8	1	3	0	3	0
6	6	1	1	3	3	0	0
2	1	2	1	9	0	9	0
6	6	1	6	5	9	0	2
2	2	1	1	9	9	0	0
2	2	1	1	2	2	0	0
2	2	1	1	2	2	0	0
2	2	1	1	2	2	0	0
6	6	1	1	10	10	0	0
2	1	2	2	7	0	10	2
3	1	1	3	2	0	0	2
6	6	8	4	3	3	9	9
6	1	1	6	2	0	0	2
2	2	1	1	10	10	0	0
6	6	1	1	8	8	0	0
6	1	1	6	4	0	0	4
8	1	8	1	2	0	2	0
6	6	1	1	2	2	0	0
6	6	1	4	10	10	8	10
6	6	8	6	9	10	9	7
3	3	1	1	1	1	1	0
6	1	1	6	2	0	0	2
3	3	1	4	2	2	0	9
3	1	3	1	1	0	1	0
2	2	1	1	9	9	0	0
2	2	1	1	8	8	0	0
2	2	1	1	1	1	0	0
6	6	8	1	3	3	2	0
6	1	6	1	8	0	8	0
3	1	3	1	1	0	1	0
4	4	4	1	2	10	2	0
2	2	1	1	10	10	10	0
6	6	1	1	10	10	0	0

6	6	1	1	3	3	0	0
6	1	6	1	3	1	3	1
2	2	1	1	10	10	0	0
2	1	2	1	8	9	8	0
3	3	1	1	1	1	0	0
3	3	1	1	9	9	0	0
6	6	8	6	10	10	10	8
6	6	1	4	10	10	0	10
3	3	1	1	6	6	0	0
7	6	8	1	8	8	8	0
2	2	1	1	2	2	0	0
6	6	1	1	1	1	0	2
6	6	1	1	2	2	0	1
6	1	1	6	8	0	0	8
2	2	1	1	9	9	0	0
6	6	1	1	9	9	0	1
6	6	1	1	9	9	0	10
6	6	1	1	4	4	0	0
3	3	1	1	3	3	0	0
6	6	8	1	3	3	10	0
6	1	8	6	10	0	10	10
3	1	3	1	2	0	2	0
8	1	8	1	8	0	8	0
2	1	2	1	8	0	8	0
7	1	8	6	6	0	4	8
6	1	1	6	10	0	0	10

Series 4

Pre_PulseRate	Pre_SarpaGati_VATA	Pre_SarpaGati_PITTA	Pre_SarpaGati_KAPHA	Pre_MandukaGati_VATA	Pre_MandukaGati_PITTA	Pre_MandukaGati_KAPHA
71	0	0	4	0	0	9
71	0	0	4	0	0	9
73	3	0	0	3	0	0
92	0	3	0	0	3	0
84	0	3	0	0	9	0
72	0	0	4	0	0	3
69	0	4	0	0	3	0
55	5	0	0	3	0	0
76	0	4	0	0	1	0
74	4	0	0	1	0	0
72	0	3	0	0	9	0
84	3	0	0	9	0	0
64	0	0	4	0	0	1
74	4	0	0	3	0	0

66	5	0	0	1	0	0
74	2	0	0	3	0	0
83	4	4	4	9	1	7
79	4	4	0	1	3	0
73	3	0	0	3	0	0
64	0	0	5	0	0	9
74	0	4	0	0	9	0
75	3	4	4	7	7	7
58	5	0	0	9	0	0
52	5	0	5	9	0	1
78	3	0	0	3	0	0
71	0	0	5	0	0	1
75	4	4	0	1	9	0
83	3	0	0	3	0	0
56	5	0	0	9	0	0
65	4	0	4	9	0	9
80	4	0	0	9	0	0
81	4	4	0	1	3	0
62	0	4	0	0	7	0
85	0	3	0	0	3	0
70	4	4	0	3	1	0
71	4	0	0	9	0	0
79	4	0	0	9	0	0
94	3	0	2	9	0	3
94	0	3	0	0	9	0
72	0	1	0	0	3	0
75	3	0	0	3	0	0
50	5	0	0	9	0	0
78	4	4	0	9	1	0
72	5		3	1	0	9
74	4	4	0	3	9	0
69	4	0	0	3	0	0
65	0	3	0	0	3	0
76	3	0	0	3	0	0
73	5	4	5	9	3	7
72	3	0	4	9	0	7
63	4	0	0	9	0	0
67	5	5	0	1	1	0
74	0	4	0	0	9	0
76	1	0	4	3	0	1
57	5	0	0	1	0	0
70	1	3	5	3	3	1
66	0	0	5	0	0	9
62	4	0	0	9	0	0
62	4	0	4	7	0	3
67	4	0	4	7	0	9

66	5	0	5	1	0	1
69	3	0	5	3	0	1
59	5	0	4	1	0	3
75	0	0	4	0	0	7
88	0	0	3	0	0	9
57	0	5	0	0	9	0
73	0	4	0	0	7	0
66	0	4	0	0	9	0
77	0	4	0	0	1	0

Series 5

Pre_HansaGati_VATA	Pre_HansaGati_PITTA	Pre_HansaGati_KAPHA	Pre_Bala	Pre_Bala_VATA	Pre_Bala_PITTA	Pre_Bala_KAPHA
0	0	2	1	0	0	1
0	0	2	1	0	0	1
2	0	0	9	9	0	0
0	4	0	1	0	1	0
0	2	0	1	0	1	0
0	0	2	1	0	0	1
0	2	0	6	0	6	0
4	0	0	3	3	0	0
0	2	0	1	0	1	0
4	0	0	4	4	0	0
0	2	0	4	0	4	0
2	0	0	4	4	0	0
0	0	2	1	0	0	1
2	0	0	5	5	0	0
2	0	0	2	2	0	0
5	0	0	5	5	0	0
2	5	4	5	5	1	1
5	2	0	1	1	1	0
1	0	0	8	8	0	0
0	0	2	1	0	0	1
0	2	0	1	0	1	0
2	4	1	6	6	1	2
2	0	0	4	4	0	0
2	0	2	1	1	0	1
4	0	0	4	4	0	0
0	0	4	1	0	0	1
2	2	0	4	4	1	0
4	0	0	5	5	0	0
2	0	0	1	1	0	0
1	0	2	8	8	0	1
2	0	0	1	1	0	0
5	4	0	5	5	1	0

0	2	0	7	0	7	0
0	4	0	3	0	3	0
5	2	0	7	7	1	0
2	0	0	2	2	0	0
2	0	0	2	2	0	0
2	0	5	1	2	0	1
0	2	0	7	0	7	0
0	4	0	9	0	9	0
2	0	0	10	10	0	0
2	0	0	1	1	0	0
2	2	0	1	1	1	0
2	0	2	1	1	0	1
2	2	0	4	4	1	0
4	0	0	7	7	0	0
0	2	0	6	0	6	0
2	0	0	4	4	0	0
2	5	2	9	9	4	3
2	0	5	3	4	0	3
2	0	0	6	6	0	0
5	5	0	4	4	4	0
0	1	0	1	0	1	0
1	0	2	8	8	0	2
5	0	0	8	8	0	0
4	4	5	9	9	1	1
0	0	2	4	0	0	4
2	0	0	1	1	0	0
1	0	5	6	6	0	3
2	0	2	4	4	0	1
2	0	5	1	1	0	3
2	0	1	8	8	0	2
2	0	4	7	7	0	3
0	0	2	4	0	0	4
0	0	2	7	0	0	7
0	2	0	3	0	3	0
0	4	0	4	0	4	0
0	2	0	3	0	3	0
0	2	0	1	0	1	0

Series 6

Pre_Agni	Pre_Agni_VATA	Pre_Agni_PITTA	Pre_Agni_KAPHA	Pre_Tikshnata	Pre_Tikshnata_VATA	Pre_Tikshnata_PITTA	Post_Tikshnata_KAPHA
6	1	1	6	10	0	0	10
6	1	1	6	3	0	0	3
3	3	1	1	1	1	0	0
3	1	3	1	0	0	0	0

8	1	8	1	7	0	7	0
3	1	1	3	5	0	0	5
3	1	3	1	1	0	1	0
2	2	1	1	4	4	0	0
2	1	2	1	8	0	8	0
2	2	1	1	2	2	0	0
8	1	8	1	2	0	2	0
6	6	1	1	9	9	0	0
2	1	1	2	8	0	0	8
3	3	2	2	1	1	0	0
2	2	1	1	10	10	0	0
3	3	1	1	0	0	0	0
6	6	1	3	5	5	2	2
2	2	1	1	7	7	3	0
3	3	1	1	2	2	0	0
6	1	1	6	8	0	0	8
8	1	8	1	3	0	3	0
6	6	6	3	9	9	9	3
6	6	1	1	8	8	0	0
6	6	1	1	10	10	0	10
3	3	1	1	1	1	0	0
2	1	1	2	3	0	0	3
2	2	8	1	10	10	10	0
3	3	1	1	1	1	0	0
6	6	1	1	9	9	0	0
6	6	1	4	8	8	0	10
6	6	1	1	7	7	0	0
2	2	1	1	1	1	2	0
6	1	6	1	8	0	8	0
3	1	3	1	1	0	1	0
2	2	1	1	2	2	8	0
6	6	1	1	10	10	0	0
6	6	1	1	1	1	0	0
4	6	1	3	8	8	0	0
8	1	8	1	8	0	8	0
3	1	3	1	0	0	0	0
3	3	1	1	2	2	0	0
6	6	1	1	10	10	0	0
4	6	2	1	8	10	5	0
4	2	1	6	10	10	0	9
3	3	8	1	2	2	3	0
2	2	1	1	2	2	0	0
4	1	4	1	1	0	1	0
3	3	1	1	2	2	0	0
6	6	1	3	7	7	1	4
6	6	1	6	5	7	0	3

6	6	1	1	10	10	0	0
2	2	2	1	2	2	3	0
8	1	8	1	10	0	10	0
3	3	1	1	2	2	0	2
2	2	1	1	3	3	0	0
3	3	1	1	1	1	5	1
6	1	1	6	8	0	0	8
6	6	1	1	10	10	0	0
6	6	1	1	9	9	0	1
6	6	1	4	6	6	0	9
2	2	1	1	10	10	0	3
3	3	1	1	2	2	0	10
2	2	1	1	2	2	0	8
6	1	1	6	1	0	0	1
6	1	1	6	2	0	0	2
8	1	8	1	9	0	9	0
6	1	6	1	2	0	2	0
8	1	8	1	3	0	3	0
2	1	2	1	10	0	10	0

Series 7

**Due to the length of the data from excel, comple data has been divided into 7 series.*

11.2 NEW NADI TARANGINI REPORT

There are complete report from Nadi Tarangini new version are as follows (apart from Fig. 3)

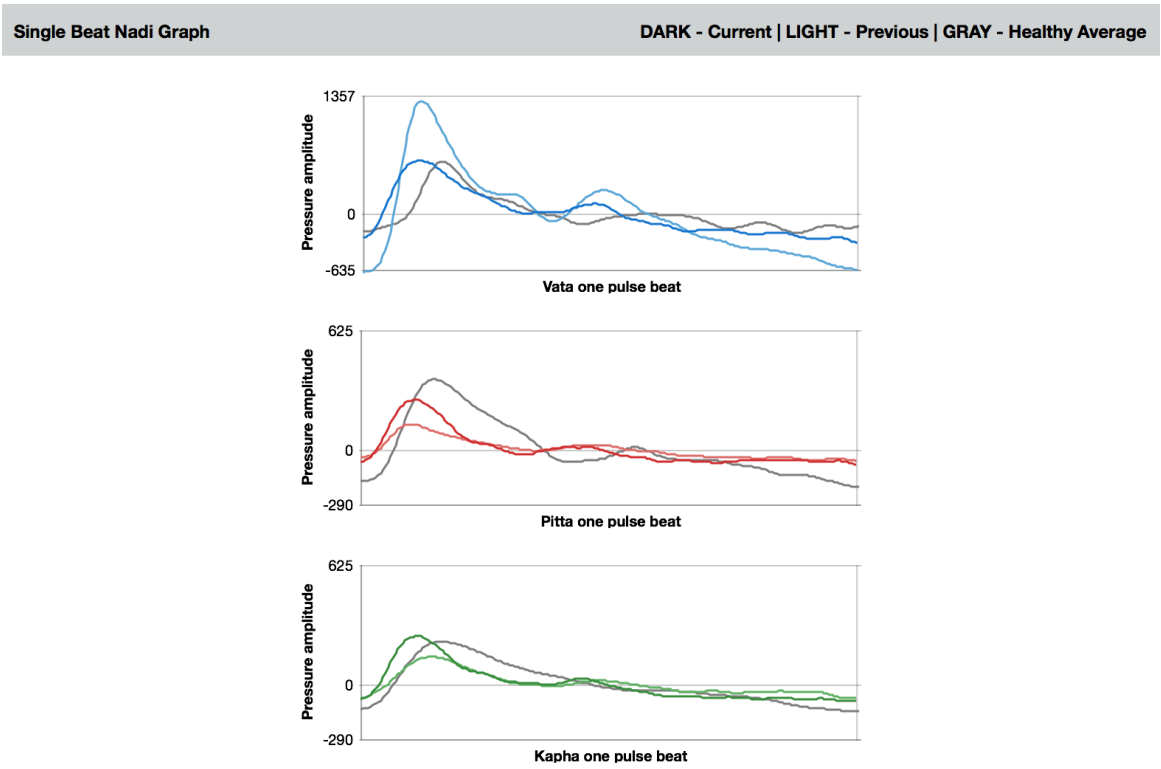

Fig. 3a Single Beat Nadi Graph

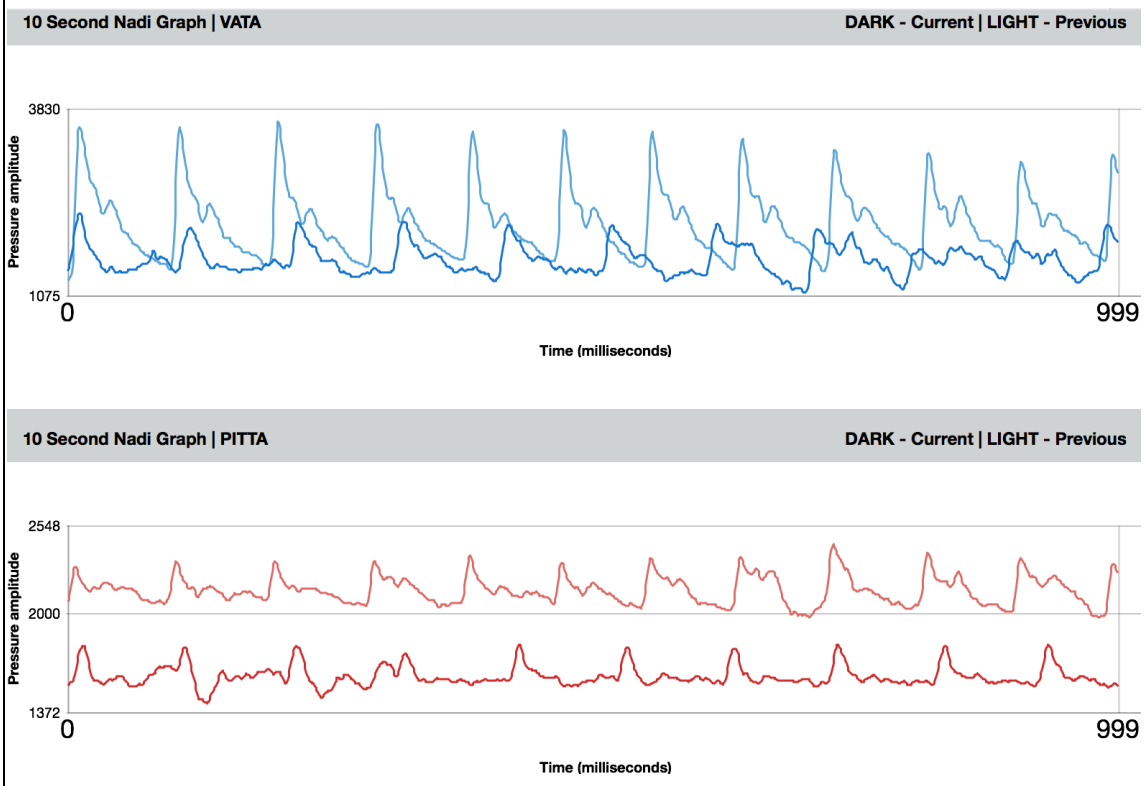

Fig. 3b 10 second Nadi Graph related to Vata and Pitta

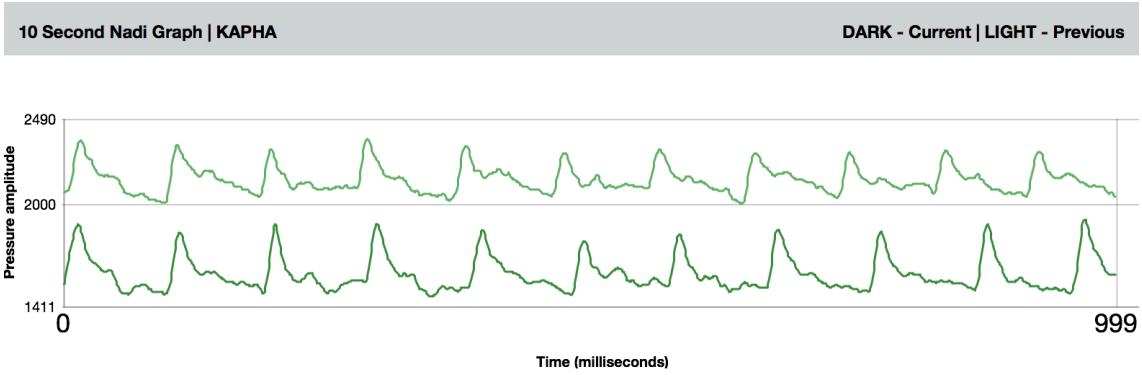

Fig. 3c 10 second Nadi Graph related to Kapha

Pulse Rate (per minute)	
Current	66
Previous	75

Rhythm	
Current	Irregular
Previous	Regular

Rhythm at individual locations

	Vata	Pitta	Kapha
Current	Irregular	Regular	Irregular
Previous	Regular	Irregular	Regular

Fig. 3d. Pulse Rate & Rhythm

Nadi Properties	
Current	Manda
Previous	Vegawati

Nadi Properties at individual locations

	Vata	Pitta	Kapha
Current	Manda	Vegawati Nirama	Manda
Previous	Vegawati Nirama	Manda	Vegawati Nirama

Fig. 3e. Nadi Properties

Sparsha Based Vikruti	
Current	Vata
Previous	Vata

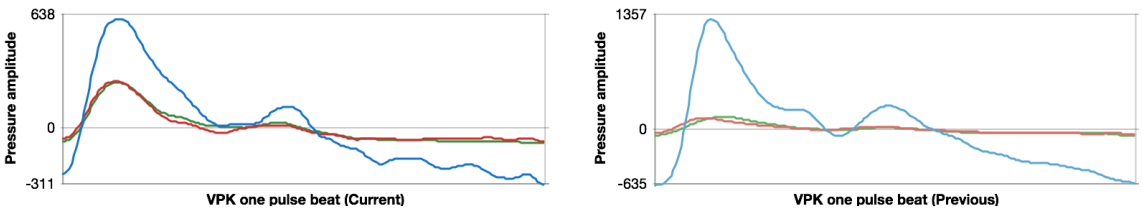

Fig. 3f. Sparsha Based Vikruti

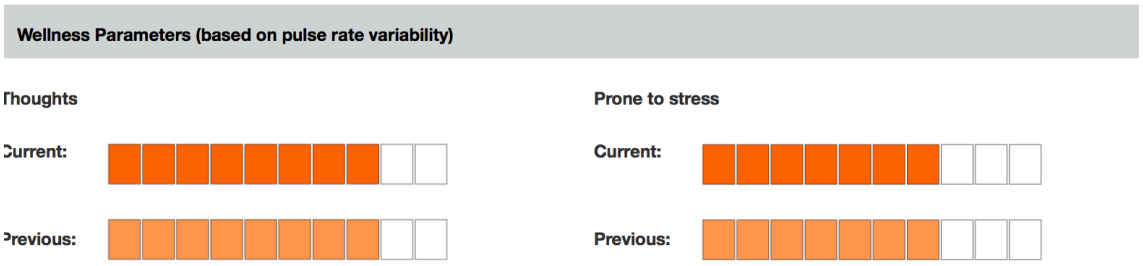

Fig. 3g. Wellness Parameters

DIET & LIFESTYLE RECOMMENDATIONS

Based on the dominant dosha given in the Gati-based Vikruti

GRAIN	DO's	☐ Bajra - Pearl Millet ☐ Barley ☐ Basmati Rice ☐ Benjad ☐ Chana - Bengal Gram ☐ Corn - Maize ☑ Jawar - Large Millets ☑ Oats ☑ Old Rice ☐ Old Wheat ☑ Ragi - Millets ☑ Sattu ☑ Wheat
	DONT's	☑ Bajara ☐ Barley ☐ Basmati Rice ☐ Benjad ☐ Chole - Chickpeas ☑ Corn - Maize ☐ Freshly Harvested Rice And Grains ☐ Oats ☐ Wheat
LEGUME	DO's	☑ Tuvar Dal - Split red gram ☐ Urad Dal - Split black gram ☑ Harbara - Bengal Gram ☐ Whole Moong - Green Gram ☐ Kulatha- Horse Gram ☑ Masoor Dal - Split Red Lentil ☑ Moong Dal - Split Green gram ☑ Matki - Moth Beans ☑ Matar - Green Peas
	DONT's	☐ Harbara - Bengal Gram ☐ Matar - Green Peas ☑ Rajma - Kidney Beans ☑ Urad Dal - Split black gram
VEG	DO's	☑ Amla ☐ Asparagus ☑ Beans ☐ Beetroot ☑ Beets ☑ Bhindi - Okra ☑ Karela - Bitter Gourd ☑ Lauki - Bottle Gourd ☐ Brinjal ☑ Cabbage ☑ Carrot ☑ Cauliflower ☑ Chavli - Cow Pea ☑ Cucumber ☐ Shevga - Drumstick ☐ French Beans ☐ Garlic ☐ Gavarfali - Cluster Beans ☐ Ginger ☐ Suran - Jimikand ☑ Kaddu - Pumpkin ☐ Kamal Kand ☐ Green Peas ☑ Khira ☐ Lemon ☐ Lisoda ☐ Lisoda Onion ☑ Tindli - Little Gourd ☐ Mint ☐ Onion ☑ Parval ☐ Potato ☐ Radish ☐ Rataloo - Sweet Potato ☑ Dodka - Ridge Gourd ☐ Shalgam - Turnip ☐ Padaval - Snake Gourd ☑ Tamarind ☐ Tinda ☑ Tomato
	DONT's	☐ Arbi ☐ Beans ☐ Bhindi - Okra ☑ Brinjal ☐ Carrot ☐ Cucumber ☑ Garlic ☑ Ginger ☐ Suran - Jimikand ☐ Kamalkand ☑ Onion ☐ Potatoes ☐ Raw Salads ☐ Salgam ☐ Rataloo - Sweet Potato ☑ Tamarind And Raw Tomato
SPICES	DO's	☐ Hingu - Asafoetida ☑ Bay Leaf ☐ Bell Pepper ☐ Black Pepper ☑ Black Salt ☐ Cardamom ☐ Chilli ☐ Cinnamon ☐ Clove ☐ Coriander ☑ Corriander Seeds ☑ Cumin ☐ Curcuma - Fresh Turmeric ☑ Dry Ginger ☑ Fennel ☐ Fenugreek ☐ Fresh Ginger ☐ Garam Masala ☐ Garlic ☐ Ginger ☐ Green Chilli ☐ Kalonji ☑ Kokam ☑ Mint ☐ Mustard ☐ Onion ☐ Raw Garlic ☐ Red Chilli ☐ Saffron ☐ Saindhav ☑ Sea Salt ☑ Turmeric
	DONT's	☑ Bell Pepper ☑ Black Pepper ☑ Cinnamon ☑ Fenugreek ☑ Fresh Ginger ☑ Garam Masala

Fig. 3h. Diet & lifestyle guideline

11.3 BALA RAW DATA

E/C	Imbalance_Post_Bala	Imbalance_Pre_Bala
Control	2	1
Control	9	9
Control	3	1
Control	1	6
Control	1	1
Control	1	4
Control	7	5
Control	2	2
Control	5	4
Control	1	8
Control	9	1
Control	2	4
Control	2	4
Control	1	4
Control	4	8
Control	1	5
Control	2	7
Control	3	2
Control	1	2
Control	2	9
Control	3	1
Control	7	1
Control	10	7
Control	4	4
Control	10	4
Control	1	1
Control	4	8
Control	5	8
Control	4	6
Control	3	3
Control	1	8
Control	3	4
Control	4	3
Control	6	1
Experimental	1	1
Experimental	4	1
Experimental	6	1
Experimental	0	3
Experimental	6	4
Experimental	1	4
Experimental	4	1
Experimental	4	5
Experimental	6	1

Experimental	5	1
Experimental	2	5
Experimental	3	1
Experimental	2	1
Experimental	5	5
Experimental	8	1
Experimental	1	1
Experimental	1	3
Experimental	3	7
Experimental	1	2
Experimental	2	7
Experimental	2	10
Experimental	2	1
Experimental	4	4
Experimental	3	6
Experimental	1	6
Experimental	4	6
Experimental	3	4
Experimental	3	8
Experimental	4	4
Experimental	4	1
Experimental	1	4
Experimental	4	7
Experimental	1	7
Experimental	10	4
Experimental	0	3

Mean_control_post_bala = 3.6471

Mean_control_pre _bala = 4.2941

Difference = 0.647059

Mean_Experience_post_bala = 3.171429

Mean_Experience_post_bala = 3.7143

Difference = 0.542857