

PART –I
**CONCEPT OF *VAMANA DHAUTI* ACCORDING TO SCRIPTURES
AND *YOGA* TEXTS**

PART –II
**SAFETY OF YOGIC VOMITING (*VAMANA DHAUTI*) IN UNCOMPLICATED TYPE
II DIABETICS.**

Dissertation submitted by

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Under the guidance of

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Towards the Partial fulfillment of

Masters of Science in Yoga [M Sc (Yoga)]

To

Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA)

(Declared as Deemed to be University under section 3 of the UGC Act,1956)

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C E R T I F I C A T E

This is to certify that Shishupal Kumar who has been given M.Sc. registration with effect from August 1, 2008 by the Swami Vivekananda Yoga Anusandhana Samsthana, under the Division of Yoga – Life Sciences has successfully completed the required ‘training’ in acquiring the relevant background knowledge in understanding the “ Diabetes and Effectiveness of Yoga” in diabetic patients. This thesis entitled “**SAFETY OF YOGIC VOMITING (VAMANA DHAUTI) IN UNCOMPLICATED TYPE II DIABETICS.**” as per the regulations of the University.

We also declare that the subject matter of my thesis entitled “**SAFETY OF YOGIC VOMITING (VAMANA DHAUTI) IN UNCOMPLICATED TYPE II DIABETICS.**” has not previously formed the basis of the award of any degree, diploma, associate ship, fellowship or similar titles.

Guide:

Dr. Sudheer Deshpande

DECLARATION

I, hereby declare that this report was written by me at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, under the guidance of Dr. Sudheer Deshpande, Swami Vivekananda Yoga Anusandhana Samsthana Bangalore.

I also declare that the subject matter of my thesis entitled "**SAFETY OF YOGIC VOMITING (VAMANA DHAUTI) IN UNCOMPLICATED TYPE II DIABETICS.**" has not previously formed the basis of the award of any degree, diploma, associate ship, fellowship or similar titles.

Place: Bangalore

SHISHUPAL KUMAR

Date:

(Candidate)

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Place: Bangalore

Dated:

SHISHUPAL KUMAR

STANDARD INTERNATIONAL TRANSLITERATION CODE USED TO
TRANSLITERATE SAṂSKṚTA WORDS.

a	=	अ	ña	=	ढ	pa	=	प
ā	=	आ	ca	=	च	pha	=	फ
i	=	इ	cha	=	छ	ba	=	ब
ī	=	ई	ja	=	ज	bha	=	भ
u	=	उ	jha	=	झ	ma	=	म
ū	=	ऊ	ñ	=	ञ	ya	=	य

e = ए	ṭa = ट	ra = र
ai = ऐ	ṭha = ठ	la = ल
o = आ	ḍa = ढ	va = व
au = औ	ḍha = ढ	sa = स
m = अं	ṇa = ण	śa = श
ḥ = अः	ta = त	ṣa = ष
ka = क	tha = थ	ha = ह
ka = क	tha = थ	ha = ह
kha = ख	da = द	kṣa = क्ष
ga = ग	dha = ध	tra = त्र
gha = घ	na = न	jña = ज्ञ

ABSTRACT

Background

Integrated approach of yoga therapy has been found to be effective in type 2 diabetics which includes *vamana Dhauti* (yogic vomiting). This study was designed to find out whether this vigorous practice causes unacceptable degree of hypoglycemia.

Methods

This randomized self as control study included thirty uncomplicated type 2 diabetics (13 females & 17 Males) between 30 to 70 years, undergoing a weeklong residential yoga program. Blood glucose was recorded immediately before and after the practice of two sessions (experimental and control) on 5th or 6th day. Allocation to these sessions was done using a random number table.

Intervention

The daily routine of integrated yoga included cleansing techniques (Kriya), Asanas, Pranayama, meditations, lectures and yogic diet. *Vamana Dhauti* (VD) involves drinking 1 to 2 liters of luke-warm saline water quickly on empty stomach in the morning, followed by 4 specific physical postures and induction of vomiting by touching the posterior wall of the pharynx with the middle finger of the right hand. This is followed by deep relaxation (DRT) for ten minutes. Walking for 20minutes followed by DRT (10mins) was selected as the control session.

Results

FBS before and after VD was 141.13 ± 27.27 and 140.83 ± 30.08 ($p=0.910$ Paired samples t test) respectively. FBS before and after the control session was 143.63 ± 35.47 and 140.87 ± 29.83 ($p=0.469$) respectively. There was no significant difference between the sessions- Yoga & Control ($p=0.993$ post VD vs. post control).

Conclusion

Vamana Dhauti (yogic vomiting) is a safe practice for diabetics as it does not cause significant hypoglycemia.

Keywords: Type II diabetes, yoga, *Vamana Dhauti*, blood glucose level, control study.

PART-I

CHAPTER	SUB-CHAPTER	CONTENTS	PAGE NUMBER
1		INTRODUCTION & BACKGROUND	1
	1.1	ŚAṬAKARMĀ ACCORDING TO YOGA TEXTS	2
2		DHAUTI & THEIR TYPES ACCORDING TO YOGA TEXT	6
	2.1	ANTAR DHAUTI & TYPES	6
	2.2	VĀTASARA DHAUTI	7
	2.3	VĀRISARA DHAUTI	7
	2.4	VAHNISĀRA DHAUTI	8
	2.5	BAHIṢKĀRĪTA DHAUTI	9
	2.6	DANTA DHAUTI & THEIR TYPES	9
	2.7	HṚD DHAUTI & THEIR TYPES	10
	2.8	VAMANA DHAUTI ACCORDING TO YOGA & KRIYA	12
	2.9	VAMAN DHAUTI ACCORDING TO ĀYURVEDĀ TEXT	13
3		BENEFITS OF DHAUTI	16
4		AIM OF THE STUDY	17
5		CONCLUSION	18
		REFERENCES	19

CHAPTER – 1

INTRODUCTION & BACKGROUND

The training of the body is the first step to the training of the mind. A healthy mind can exist only in a healthy body. Hence the Hatha Yoga or the training of the body is the first step to the training of the mind or *Rājayogā*. Hatha may be translated as “hard” or the training of hardness. Raja in this connection may be translated as royal or softness, or training in royal graces or mental discipline. (1)

In *Yogic* literature we have a number of reliable texts on *Yoga*. All these texts are considered to have been written between the 6th and 15th century A.D. This gives us a glimpse of the historical aspect of *Yoga* for centuries. *Yoga* guides spiritual aspirants. Many sects were also formed in India, Nepal & Tibet on the basis of *Yoga*. *Yoga* maintains youthful body, or to obtain psychic powers (*siddhis*) or it is to develop the capacity to awaken the potential energy (*Kundalini*) and attaining the super consciousness (Samadhi). (2)

In order to purify the mind, it is necessary for the body as a whole to undergo a process of absolute perfection. *Haṭhayoga* is also known as the science of purification, not just one type of purification but six types. The body has to be cleaned in six different ways (*Ṣaṭakarma*) for six different impurities, the *nadis* function and energy blocks are released. Then the energy move like wave frequencies throughout the channels within the physical structure, moving right up to the brain.

In ancient time *Yoga* was practiced as many years as a preparation for higher state of consciousness. The *Yoga* practices were designed by the sages. In the *Yoga* first thing we see is that self control and self discipline in the form of *yamas* and *niyamas*. The order here is different. *Yoga* begins by saying that one should first purify the whole body- the stomach, intestine, nervous system and other system.

Since there are three humours in the body: *kapha* ‘mucus’, *pitta* ‘bile’, and *vāta* ‘wind’.

In *Yoga* and *Āyurvedā* they are called as *Tridosha*. If there is balanced proportion of three humours, the body functions effectively but if there is any excess of one and a shortage of another, ailments develop due to overheating or not enough heat in the body.

1.1 ṢAṬAKARMA ACCORDING TO YOGA TEXT:

➤ ACCORDING TO *GHERAṆḌSAMHITĀ*

धौतिर्बस्तिस्तथा नेतिलौलिकी त्राटकं तथा ।

कपालभातिश्चैतानि षट्कर्माणि समाचरेत् ॥ घे० स० (१.१२) ॥

Dhautirbastistathā Netirlaulikī Trāṭakam Tathā

Kapālabhātīśacaitāni Ṣaṭkarmāṇi Samācaret

(Gher. 1.12)

(1) *Dhauti* (2) *Basti* (3) *Neti* (4) *Lauliki* (5) *Trāṭakā* (6) *Kapālbhāti* are the six practices known as *Ṣaṭakarma* (1).

➤ ACCORDING TO *HAṬHAYOGAPRADIPIKĀ*

धौतिर्बस्तिस्तथा नेत्राटकं नौलिकं तथा ।

कपालभातिश्चैतानि षट् कर्माणि प्रचक्षते ॥ ह० यो० प्र० (२.२२) ॥

Dhautirbastistathā Netitrāṭakam Naulikam Tathā

Kapālabhātīśacaitāni Ṣaṭ Karmāṇi Pracakṣate

(HYP. 2.22)

Dhauti, Basti, Neti, Trataka, Nauli, and Kapālbhāti; these are known as *Ṣaṭakarma* or six cleaning process.

Haṭhayoga is famous for these six cleansing techniques. Although only six in number, each has a variety of practices.

➤ **ACCORDING TO HAṬHAYOGAPRAPIKĀ**

मेदश्लेष्माधिकः पूर्वं षट्कर्माणि समाचरेत् ।

अन्यस्तु नाचरेत्तानि दोषाणां समभावतः ॥ ह० यो० प्र० (२.२१) ॥

Medaśleṣmādhikāḥ Pūroam Ṣaṭkarmāṇi Samācaret

Anyastu Nācarettāni Doṣāṇām Samabhāvataḥ

(HYP.2.21)

When fat or mucus is excessive, *Ṣaṭakarma*: six cleansing techniques, should be practised before *Prāṇāyama*. Others in whom *doshas*, i.e. phlegm, wind, and bile, are balanced may not do them.

Before commencing pranayama, any imbalance in the *doshas* should be removed – excess body fat should be reduced, mucus blocking the respiratory tract should be removed. Gas in the stomach and intestines should be eliminated, etc. In hatha yoga there are six particular practices which were specifically designed for this purpose. This is also known as *Ṣaṭakarma* i.e. *Neti, Dhauti, Basti, Kapālbhāti, Trataka* and *Nauli*. These techniques regulate the production of the *Doshas*. (2)

Yoga begins with these practices. Among these *Dhauti* is such a internal cleansing process which has significant effect on the physical health. As a result of performing *Dhauti*, Asthma, disease of the spleen and the skin, and the twenty varieties of diseases caused by phlegm undoubtedly get cured. *Ṣaṭakarma* alone does not constitute the whole of *Yoga* After *Ṣaṭakarma* one should practice *āsana* and *Prāṇāyama* Self Control & Self discipline should start with body. (3)

DHAUTI

Antar Dhauti is divided into four practices:

- *Vātasāra Dhauti* - expelling air through
- *Vārisāra Dhauti* - evacuating a larger amount of water through the bowels,
- *Vahnīsāra Dhauti* - rapid expansion/contraction of the abdomen,
- *Bahiṣkṛita Dhauti* - washing the rectum in the hands.

Hṛdh Dhauti is divided into three practices:

- *Danda Dhauti*- Inserting a soft banana stem into the stomach.
- *Vastra Dhauti* - swallowing a long thin strip of cloth,
- *Vamana Dhauti* - Regurgitating the contents of the stomach.

Moola shodhna can be performed in two ways. It is done either by inserting a turmeric root or the middle finger into the anus.

BASTI

It is divided into two parts : *jala* (water) *basti*, *sthala* (dry) *basti*. In *jala basti* suck water into the large intestine through the anus and then expel it. In *Sthala basti* suck air into the large intestine.

NETI:

It has four practices: *jala* (water) *neti*- Passing warm saline water through the nose, *Sutra* (thread) *neti*, Passing a soft thread through the nose, *Ghrīta* (ghee) *neti*, passing clarified butter through the nose, *Dugdha*(milk) *neti*- Passing milk through the nose.

TRĀṬAKĀ:

Trataka is steady and continuous gazing at a point of concentration. It has two practices: *antar* (internal) and *bahir* (external) *Trāṭakā*.

NAULI:

In nauli one isolates and churns the abdominal muscles, it has three practices.

- *Dakshina Nauli*- When the muscles are isolated to the right.
- *Vama Nauli*- When the muscles are isolated to the left.
- *Madhyama Nauli*- When the muscles are isolated in the middle.

KAPĀLBHĀTI:

It has three practices:

- *Vātakrama kapālbhāti*- which is similar to Bhastrika Pranayama.
- *Vyutkrama kapālbhāti*- sucking water in through the nose and expelling out from the mouth.
- *Sheetkrama kapālbhāti*- sucking water in through the mouth.

These six fundamental cleansing techniques are the most important aspects of *Haṭhayoga* and are the original *Haṭhayoga* practices. However, today *āsana* and *Prāṇāyamā* are more widely known and few people are now proficient in the *Ṣaṭakarma*.

➤ **ACCORDING TO HAṬHARATNĀVALI**

चक्रिनौलिधौतिर्नीतिर्बास्तिर्गजकरिणी ।

त्रोटनं मस्तकभातिः कर्माण्यष्टौ प्रचक्षते ॥ ह० र० (१.२५) ॥

Cakrinalidhaurtirnetirbastirgajakariṇī

Troṭanam Mastakabhātiḥ Karmānyaṣṭau Pracakṣate

(H.Ratnāvali. 1.25)

Cakri (2) *Nauli* (3) *Dhauti* (4) *Neti* (5) *Basti* (6) *Gajakarni* (7) *Trotanam* and (8) *Mastakbhati* are the eight practices known as purificatory processes (3).

CHAPTER – 2

DHAUTI & THEIR TYPES ACCORDING TO YOGA TEXT

Dhauti is cleansing of Gastro- intestinal tract.

अन्तर्धौतिर्दन्तधौतिर्हृद्धौतिर्मूलशोधनम् ।

धौतिं चतुर्विधां कृत्वा घटं कुर्वन्तु निर्मलम् ॥ घे० स०(१.१३) ॥

Antardhautirdantadhautirhṛddhautirmūlaśodhanam

Dhautim Caturvidhām Kṛtvā Ghaṭam Kurvantu Nirmalam

(Gher. 1.13)

The dhautis are of four kinds, they are – 1. **Antar dhauti** (internal washing); 2. **Danta dhauti** (cleaning of the teeth); 3. **Hṛd dhauti** (cleaning of the heart); 4. **Mūlāsodhana** (cleaning the rectum). (1)

2.1 ANTAR DHAUTI

वातसारं वारिसारं वह्निसारं बहिष्कृतम् ।

घटस्य निर्मलार्थाय अन्तर्घोतिश्चतुर्विधा ॥ घे० स०(१.१४) ॥

Vātasāraṁ Vārisāraṁ Vahnisāraṁ Bahiṣkṛtam

Ghaṭasya nirmalārthāya Antardhautiścaturvidhā

(Gher. 1.14)

Antardhauti is again subdivided into four parts:

2.1.1 *Vātasāra dhauti* (wind purification),

2.1.2 *Vārisāra dhauti* (water purification),

2.1.3 *Vahnisāra dhauti* (fire purification) and

2.1.4 *Bahiṣkṛta dhauti* (rectal cleansing) (1)

2.2 *VĀTASĀRA DHAUTI*

काकचञ्चूवदास्येन पिबेद्वायुं शनैः शनैः ।

चालयेदुदरं पञ्चाद्वत्मना रेचयेच्छनैः ॥घे० र०(१.१५) ॥

Kākacañcūvadāsyena Pibedvāyuni Śanaiḥ Śanaiḥ

Cālayedudaram Pañcārdvatmanā Recayecchanaiḥ

(Gher. 1.15)

Contract the mouth like the beak of a crow and drink air slowly with it, move it inside, and then slowly force it out through the lower passage.

It is performed by breathing in slowly through the mouth in kaki mudra, and then swallowing the air into the stomach while expanding the abdomen. It can be done ten times or until the stomach is fully expanded. Then the air should be passed through the large intestine to do. It is helpful to assume an inverted posture. The air should then pass through the anus easily.

2.3 *VĀRISĀRA DHAUTI*

It is more commonly known today as Sankha Prakshalana. In this practice total of 16 glasses of warm saline water has to be taken and evacuated through the bowels. Two glass of water are to be drunk with intervals and a series of five specific *Asanas* to be performed. *Asanas* are *Tadāsana*, *Tiryaka Tadāsana*, *Kati Cakrāsana*, *Bhujangāsana*, *Udarakarahana Āsana*. After every two glasses of water, *Asanas* should be performed

until the water starts flowing out through the anus. Once clear water comes out, then it is inferred that the stomach and intestines are cleaned.

There is a shorter technique called *laghuśankhprakṣālanā*, where six glasses of warm saline water are taken. After every two glasses of water, Asanas are to be repeated. The Haṭharatnāvalī mentions to use of jaggery water or milk water instead of saline water. There is also various other herbs and juices which can be used like few drops of lemon, onion or garlic juice. Sometimes it can also be advised to use carrot or celery juice.

DIET AFTER DHAUTI

Forty five minutes after completing the practice of *śankhprakṣālanā*, a saltless liquid mixture of cooked rice, Mung daal and ghee has to be eaten to fill the stomach completely.

2.4 VAHNISĀRA DHAUTI

It is also known as *Agnisāra kriya* which involves moving the fire in the body. Fire is related to the essence of fire located in the naval region. Fire is stimulated by the movement of abdominal muscles and organs. This can be felt by increase in the internal heat.

नाभि ग्रन्थिं मेरुपृष्ठे शतवारञ्च कारयेत् ।

अग्निसारमेषा धौतियोगिनां योगसिद्धिद ॥ घे० स०(१.२०) ॥

Agnisārameṣā Dhautiryoginām Yogasiddhida

Nābhi Granthim Merupṛṣṭhe Śatavārañca Kārayet

(*Gheraṇḍasamhitā.1.20*)

The naval should be pushed against the spine 100 times (1).

The practice can be done in standing or sitting in *Bhadrāsana*. *jālandhar bandha* is performed first and then the abdomen is pushed out and in rapidly while the breath is held. It can be done while breathing through the mouth with the tongue extended and moving the abdomen in the rhythm with the breath.

2.5 *BAHIṢKṚTA DHAUTI*

It is very difficult to practice as it involves pushing the rectum out and washing it with the hands standing naval – deep water.

2.6 *DANTA DHAUTI*

Danta Dhauti is cleansing of teeth with the special stick, i.e. with Neem or Babul.

दन्तमूलं जिह्वामूलं रन्ध्रञ्च कर्णयुग्मयोः ।

कपालरन्ध्रं पञ्चैते दन्तधौतिविधीयते ॥ घे० स० (१.२६) ॥

Dantamūlaṁ Jihvāmūlaṁ Randhraṅca Karṇayugmayoḥ

Kapālarandhraṁ Pañcaite Dantadhautimvidhīyate

(*Gheraṇḍasamhitā .1.26*)

Danta Dhauti is of five kinds: purification of teeth, of the root of the tongue, of the two holes of the ear, and of the frontal-sinuses.

2.6.1 *Danta Dhauti* includes *jihvā* Dhauti – cleaning the tongue, by rubbing it with the joined first finger and thumb in a downward motion and then squeezing it,

2.6.2 *Karṇadhauti* – cleaning the ears, with the middle finger and nothing smaller.

2.6.3 *Kapālarandhra dhauti* – cleaning the upper back portion of the palate.

2.6.4 *Chaksu dhauti* – bathing the eyes, with taped saline water or with urine.

2.7 *HRD DHAUTI*

Hṛd dhauti is purification of heart (or rather throat).

हृद्दौतिं त्रिविद्यां कुर्याद्दण्वमनवाससा ॥ घे० स० (१.३६) ॥

Rhraddhautim Trividyām Kuryāddaṇvamanvāsasā

(Gher. 1.36)

hṛd dhauti, or purification of heart (or rather throat) is of three kinds, viz. *danda* (a stick), (b) *vamana* (vomiting) and by (c) *vastra* (cloth). (1)

2.7.1 *DANDA DHAUTI*

The first practice is *Danda Dhauti* i.e. practicing with stick. Although a soft banana stem is traditionally used, Gheranda advises the use of sugar cane or turmeric roots.

2.7.2 *VAMANA DHAUTI*

It is second practice of *Hrd dhauti*. *Vamana* is to vomit. In this practice food is vomited out from the stomach three hours after the meal. Vomiting can be practiced after drinking warm saline water and tickling the back of throat.

भोजनान्ते पिबेद्द्वारि चाकण्ठपूरितं सुधीः ।

उध्वा^१ दृष्टिं क्षणं कृत्वा तज्जलं वमयेत्पुनः ।

नित्यमभ्यासयोगेन कफ पित्तं निवारयेत् ॥ घे० स०(१.३९) ॥

Bhojanānte Pibedvāri Cākaṅṭhapūritam Sudhīh

Urdhāvām Dṛṣṭim Kṣaṇam Kṛtvā Tajjalam Vamayetpunaḥ

Nityambhyāsayogena Kapha Pittam Nivārayet

(Gher. 1.39)

After meal, let the practitioner drink water full up to throat, then looking for a short while upwards, vomit out . By daily practising this , disorders of phlegm and bile are cured (1).

Kunjal Kriya is almost identical to Vyaghra kriya except it is performed on empty stomach. After vyaghra Kriya diet is restricted to sweetmilk rice pudding. There is no restriction in diet in Kunjal kriya(2).

2.7.3 VASTRA DHAUTI

चतुरंगुलविस्तारं हस्तपंचदशायतम् ।

गुरुपदिष्टमार्गेण् सिक्तं वस्त्रं शनैर्ग्रसेत् ।

पुनः प्रत्याहारेच्चैतदुदितं धौति कर्म तत् ॥ ह० यो० प्र०(२.२४) ॥

Caturāṅgulavistāram Hastapañcadaśāyatam

Gurupadiṣṭamārgēṅ Siktam Vastram Śanairgraset

Punaḥ Pratyāhārecyāitaduditam Dhauti Karma Tat

(HYP 2.24)

A strip of wet cloth, four angulas wide (i.e. seven to eight meters) and 15 hand spans (i.e. one and half meters) in length is swallowed and then taken out slowly.

Haṭharatnāvali and *Gheraṇḍasamhitā* also describe the similar procedures for *vastra dhauti*.

विंशद्धस्तप्रमाणेन धौतिर्वस्त्रसुदिर्धितम् ।

चतुरंगुलविस्तारं सिक्तं चैव शनैर्ग्रसेत् ॥ ह० र० (१.३५) ॥

Vimśaddhastapramāṇena Dhautiroastrasudirdhitam

Caturaṅgularvistāraṁ Siktam Caiva Śanaigraset

(*Haṭharatnāvali*, 1.35)

one should swallow slowly a long wet cloth four fingers (approx three inches) in breadth and twenty cubits (long) Then the swallowed cloth should be drawn out slowly. This process is known as *dhauti*.(1&3)

चतुरङ्गुलविस्तारं सुक्ष्मवस्त्रं शनैर्ग्रसेत् ।

पुनः प्रत्याहारेदेतत्प्रोच्यते धौतिकर्मकम् ॥ घे० स०(१.४०) ॥

Caturaṅgulavistāraṁ Sukṣmvastraṁ Śanaigraset

Punaḥ Pratyāhāredetatprocyate Dhautikarmakam

(*Gher. 1.40*)

Vastra Dhauti is swallowing the thin cloth and drew it again.(1)

2.8 VAMAN DHAUTI ACCORDING TO YOGA AND KRIYA

Vamana dhauti is a technique for cleaning the digestive tract from the stomach to the mouth. It involves drinking warm salty water until the stomach is full and voluntarily expelling it through

the mouth. This may seem a little repulsive to some people, especially if done intentionally, but actually Vamana Dhauti is simple practice and all that is vomited is salty water containing impurities of the stomach.

Vomiting is normally the last resort of the stomach to throw out impure, excessively rich or heavy food. It is a natural physical process but only as a last resort.

2.9 VAMANA DHAUTI ACCORDING TO ĀYURVEDĀ

Suṣrutā begins pancakarma procedures by vamana karma. The emesis therapy should be practised after *Snehna* and *Svedana* where person shows signs of internal and external oleation.

These *Snehna* and *Svedana* help the movement of mucilaginous fluid into the stomach for their easy expulsion.

उपस्थिते श्लेष्म पित्ते व्याधवामाशयाश्रये ।

वमनार्ते प्रयुज्जित भिषमदेहमदूषयन् ॥ च० स०(२.८)

Upasthite Śleṣm Pitte Vyādhavāmāśayāśrye

Vamanārtee Prayujjita Bhiṣamdehamadūṣayan

(*caraka samhitā* 2.8)

When vitiated pitta comes to the site of kapha i.e. upper part of stomach, the emesis is induced.

(5)

The night before *Vamana* is administered; *Kapha* stimulating food should given like sweet heavy, cool, sticky, slimy and oily foods.

Vamana should be given in the morning when it is neither too hot nor cold. Emetic drugs can be given in the form of powder, paste, decoction, medicated oil or in the ghee form.

2.9.1 METHOD OF ADMINISTRATING

The procedure begins by giving the patient approximately one and half glass of a thin, sweet – tasting Porridge made from wheat and milk. This promotes watery secretions and again increases the volume of the stomach contents. The Porridge pleasant and soothing in the taste and reduces the anxiety of the person undergoing treatment.

After eating the Porridge emesis stimulating herb like *madan phal* (*Randia dumetorum*), is administered. There are 255 emetics named in *Caraka Samhitā* To ensure that the emesis is effortless and as warm licorice tea should be given. Licorice (*yasti madhu*) provides an excellent medium for moving sticky, heavy, oily, impurities out from the tissues. In case of aversion to licorice, sugar cane juice or saline solution is used.

Fill the stomach completely to facilitate the emesis process. After the emesis has been administered, the body of the person should be gently fomented for a short period of time with warmup palms of the hands. When there is tendency to vomit, the finger or the stem of a castor plant or of lotus should be inserted down his throat and made to vomit and continued vomiting until there is a bitter , sour or burning taste in the mouth . The amounts of porridge and licorice tea that are ingested and the vomitus that is expelled should be collected. Color, consistency, and odour give the information on the effectiveness of treatment.

2.9.2 PROPER ADMINISTRATION OF VAMANA KARMA IS CHARACTERIZED BY

1. Manifestation of vomiting urges in time.
2. Absence of too much pain.
3. Elimination of too much pain.
4. Automatic stoppage of the vomiting urge.
5. Post – emesis management
6. Hands and feet of the person should be well washed.
7. Avoid speaking aloud and too much of eating and standing for a long time.

8. The heavy diet and deficient in nutritive value should be avoided.
9. Regimen of dietetics should be followed i.e. same evening or the next day after the patients has taken the bath in lukewarm water, diet should be given when the power of digestion has been revived.(7)

2.9.3 INDICATIONS

कासोपलेपस्वरभेद निद्रा तन्दास्यदौर्गन्धविषोपसर्गाः ।

कफप्रसेक ग्रहणी प्रदोषा न सन्ति जन्तोर्वमतः कदाचित् ॥ सु० स०.३३.१२ ॥

Kāsopalepasvarabheda Nidrā Tandāsyadaurgandhaviṣopasargāḥ

Kaphapraseka Grahaṇī Pradoṣā na Santi Jantorvamataḥ Kadācit

(suśrutā samhītā cikitsāsthānā.33.12)

It is indicated in poisoning, wasting diseases, sluggish appetite, hysteric convulsions, asthma, inflammations of lips, throat and mouth.

Person performing *Vamana* will not suffer from cough, impurities in bodily channels, change in voice, excessive sleep, laziness, foul smell in breath and worm infestation.(6)

2.9.4 CONTRAINDICATIONS

Cataract, abdominal dropsy, enlargement of spleen, worms in the intestines, urinary complaints, haemoptysis and obstinate constipation, old and emaciated persons.

CHAPTER-3

BENEFITS OF DHAUTI

As a result of performing Kriyas, asthma, disease of the Spleen and the skin disease can be cured (2).

The combination of all the practices of dhauti cleanses the entire digestive tract and respiratory tract. It removes excess and all bile, mucus and toxins and restores the natural balance of the body's chemical composition, thus alleviating ailments caused by such imbalances. The various practices/ kriyas help to remove infectious bacteria from the mouth, nose, eyes, ears, throat, stomach, intestine, and anus.

गुल्मज्वरप्लीहकुष्ठ कफ पितं विनश्यति

आरोग्यं बलपुष्टिश्च भवेत्तस्य दिनेदिने ॥ घे० स०(१.४१) ॥

Gulmajvarapliḥakuṣṭha Kapha Pitam Vinaśyati

Ārogyam Balapuṣṭiśca Bhavettasya Dinedine

Gheraṇḍsamhitā (1.41)

Gheraṇḍsamhitā states that *Dhauti* can cure ailments pertaining to *kapha*, *pitta* and also disease of liver and spleen and other skin disease and disorders of phlegm and bile, and day by day the practitioner gets health, strength, and cheerfulness (1).

कासश्वासप्लीहकुष्ठं कफरोगाश्च विंशतिः ।

धौतिकर्मप्रभावेण प्रयान्त्येव न संशयः ॥ ह० यो० प्र० (२.२५)

Kāsaṣvāsaplīhakuṣṭhāṁ Kapharogāśaca Viṁśatiḥ

Dhautikarmaprabhāveṇa Prayāntyeva Na Saṁśayaḥ

(HYP 2.25)

CONTRAINDICATION

Stomach ulcers, hernia, heart disease and high blood prssure, acute fever, visceral infection.

CHAPTER – 4

AIM OF THE STUDY

To compile and understand the concept of “*Vamana Dhauti*” according to ancient Indian scriptures such as,

- (i) *Haṭha Yoga Pradīpikā,*
- (ii) *Haṭha Ratnavali,*
- (iii) *Gheranda Saṁhitā,*
- (iv) *Yoga and Kriya,*
- (v) *Caraka Saṁhitā,*
- (vi) *Suśrutā Saṁhitā,*

CHAPTER – 5

CONCLUSION:

By going through all the information and knowledge, we found that *Vamana Dhauti* is very effective in maintaining a good health as well as in curing the disease.

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PART -II

SAFETY OF YOGIC VOMITING

(VAMANA DHAUTI) IN

UNCOMPLICATED TYPE II

DIABETICS.

PART-II

CHAPTER		CONTENTS	PAGE NUMBER
1		INTRODUCTION & BACKGROUND	1
	1.1	COMPLICATIONS OF DIABETES	3
	1.2	MANAGEMENT	5
2		LITERATURE REVIEW	10
3		AIM AND OBJECTIVES	14
	3.1	HYPOTHESIS	14
4		METHODS	15
	4.1	SUBJECTS	15
	4.2	INCLUSION CRITERIA	15
	4.3	EXCLUSION CRITERIA	15
	4.4	SOURCE OF SUBJECTS	15
	4.5	DESIGN OF THE STUDY	16
	4.6.	INTERVENTION	17
	4.7	PROCEDURE	17

	4.8	DATA EXTRACTION AND ANALYSIS	18
5		RESULTS	19
6		DISCUSSION	21
7		SUMMARY AND CONCLUSIONS	23
		REFERENCES	24
		APPENDIX I	28
		APPENDIX II	31
		APPENDIX III	32
		APPENDIX IV	34

CHAPTER – 1

INTRODUCTION

Diabetes affects approximately 300 million people throughout the world and is on an increasing trend because of change in life style, with excessive calorie intake, reduced physical activity and increased stress. Obesity is the most common nutritional disease in developed countries^[1]. It is often associated with type 2 diabetes mellitus which increases the mortality rate. However, the death rate can be reduced by proper management of obesity^[2]. Obesity is particularly responsible for insulin resistance and glucose intolerance^[3]. Regular exercise and physical training can enhance insulin sensitivity^[4]. Poor glycemic control is associated with higher levels of stress in both adolescents as

well as in adults^[5]. Different studies have clearly demonstrated that the changes in life style chiefly dietary modification, physical exercise and stress relaxation have an important role in the management of diabetes. Exercise training increases the proportion of insulin sensitive fibers in muscle as also increases fat oxidative enzyme activity, and both these changes favor the utilization of fat as the fuel. Physical training increases muscle GLUT-4 content^[6] and insulin sensitivity in subject with type 2 diabetes mellitus and HbA_{1c} may fall by 1.0-1.5% after 6 weeks of training ^[7].

Cross sectional and prospective data suggest that regular exercise can reduce the probability of development of type 2 diabetes mellitus. Population studies have clearly demonstrated that the glucose tolerance is better in physically active persons than in inactive persons. ^[8]

The International Diabetes Federation estimates that the number of diabetic patients in India more than doubled from 19 million in 1995 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025. Currently, up to 11 per cent of India's urban population and 3 per cent of rural population above the age of 15 has diabetes. Diabetes affects all people in the society, not just those who live with it. The World Health Organization estimates that mortality from diabetes and heart disease cost India about \$210 billion every year and is expected to increase to \$335 billion in the next ten years. These estimates are based on lost productivity, resulting primarily from premature death ^[9]

Diabetes mellitus often simply referred to as **diabetes**—is a condition in which a person has a high blood sugar (glucose) level, either because the body doesn't produce enough insulin, or because body cells don't properly respond to the insulin that is produced. Insulin is a hormone produced in the pancreas which enables body cells to absorb glucose, to turn into energy. If the body cells do not absorb the glucose, the glucose accumulates in the blood (hyperglycemia), leading to vascular, nerve, and other complications. ^[10-11]

There are many types of diabetes, ^[12] the most common of which are:

- Type 1 diabetes: results from the body's failure to produce insulin, and presently requires the person to inject insulin.
- Type 2 diabetes: results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency.
- Gestational diabetes: is when pregnant women, who have never had diabetes before, have a high blood glucose level during pregnancy. It may precede development of type 2 DM.

Other forms of diabetes mellitus include congenital diabetes, which is due to genetic defects of insulin secretion, cystic fibrosis-related diabetes, steroid diabetes induced by high doses of glucocorticoids, and several forms of monogenic diabetes. All forms of diabetes have been treatable since insulin became medically available in 1921, and type 2 diabetes can be controlled with tablets, but it is chronic condition that usually cannot be cured. Pancreas transplants have been tried with limited success in type 1 DM; gastric bypass surgery has been successful in many with morbid obesity and type 2 DM; and gestational diabetes usually resolves after delivery. Diabetes without proper treatments can cause many complications. Acute complications include hypoglycemia, diabetic ketoacidosis, or nonketotic hyperosmolar coma. Serious long-term complications include cardiovascular disease, chronic renal failure, retinal damage. Adequate treatment of diabetes is thus important, as well as blood pressure control and lifestyle factors such as smoking cessation and maintaining a healthy body weight.

As of 2008 at least 171 million people worldwide suffer from diabetes, or 2.8% of the population. ^[11] Type 2 diabetes is by far the most common, affecting 90 to 95% of the U.S. diabetes population. ^[13]

1.1 COMPLICATIONS OF DIABETES

After many years, diabetes can lead to serious problems throughout your body, including your eyes, kidneys, and nerves. Almost all of the complications of diabetes are caused by having too much glucose in the blood. A major problem – and the cause of many health problems associated with diabetes – is that the small blood vessels that carry blood

throughout the body get clogged up. Blood can't get to where it needs to be. This causes problems with circulation and leads to eye disease (retinopathy) and kidney damage([nephropathy](#)) .Too much glucose can speed up the normal hardening of the arteries (atherosclerosis) . This decreases blood flow to the heart, which can cause a heart attack, and to the brain, which can cause a stroke. Too much glucose can also damage nerve cells and delay, change or halt the electrical messages that the nerve cells send throughout the body, especially to the feet. ^[41]

➤ **EYE PROBLEMS**

Diabetes can also damage blood vessels in the eyes, causing vision problems or blindness. Conditions may include:

- [Cataracts](#)
- [Diabetic retinopathy](#)
- [Glaucoma](#)
- Macular edema

➤ **FOOT AND SKIN PROBLEMS**

People with diabetes are more likely to have foot problems because of nerve and blood vessel damage. Small sores or breaks in the skin may turn into deep skin ulcers if not treated properly. If these skin ulcers do not improve, or become larger or go deeper, amputation of the affected limb may be needed.

➤ **HEART AND BLOOD VESSELS**

If you have diabetes, your risk of a [heart attack](#) is the same as someone who has already had a heart attack. Both women and men with diabetes are at risk. You may not even have the typical signs of a heart attack. Other problem with the heart and blood vessels include:

- Damage to blood vessels that supply the legs and feet ([peripheral vascular disease](#))
- High blood pressure ([hypertension](#))
- [High cholesterol](#)
- [Stroke](#)

➤ **NERVE PROBLEMS**

Diabetes can damage nerves, which means you may not feel an injury until a large sore or infection develops. Nerve damage causes pain and numbness in the feet, as well as a number of other problems with the stomach and intestines, heart, and other organs. (See: [Diabetic neuropathy](#).)

➤ **OTHER COMPLICATIONS**

- Infections of the female genital tract, the skin, or the urinary tract
- Kidney disease and kidney failure ([diabetic nephropathy](#))
- Problems attaining or maintaining an erection ([impotence](#))

➤ **SYMPTOMS**

- Numbness, tingling, or pain in your feet or legs
- Problems with your eyesight
- Sores or infections on your feet
- Symptoms of high blood sugar (being very thirsty, having blurry vision, having dry skin, feeling weak or tired, needing to urinate a lot)
- Symptoms of low blood sugar (weakness or tiredness, trembling, sweating, feeling irritable, unclear thinking, fast heartbeat, double or blurry vision, feeling uneasy.^[14])

1.2 MANAGEMENT

Diabetes mellitus is a [chronic disease](#) which is difficult to cure. Management concentrates on keeping blood sugar levels as close to normal ("euglycemia") as possible without presenting undue patient danger. This can usually be with close dietary management, exercise, and use of appropriate medications (insulin only in the case of type 1 diabetes mellitus. Oral medications may be used in the case of type 2 diabetes, as well as insulin). Of particular interest in this regard is *Yoga*, an ancient mind–body discipline that has been widely used in India for the management of diabetes, hypertension and related chronic insulin resistance conditions ^[15-19] Originating in India over 4000 years ago, the practice of *Yoga* has been rising steadily in the United States and other industrialized countries during recent decades ^[20-22]. *Haṭhayoga*, the branch of yoga most widely practiced in the Western industrialized world, approaches self-realization and healing through the physical body and its energetic (*Pranic/etheric*) template, with a focus on breath control (*Prāṇāyama*) and specific postures (*asanas*), including both active and relaxation poses. ^[23] *Haṭhayoga* also incorporates mental concentration (*Dharana*), and meditation (*Dhyana*), mantras or chants, cleansing exercises (*Kriyas*), and specific hand gestures (*Mudras*) ^[24] *Yoga* appears safe, is simple to learn, and can be practiced by even ill, elderly or disabled individuals ^[25]. In this paper, we want to study the immediate effect of *Vamana Dhauti* on diabetes patients. *Gheraṇḍasamhitā* states that *Dhauti* can cure ailments pertaining to *kapha*, *pitta* and also disease of liver and spleen and other skin disease and disorders of phlegm and bile, and day by day the practitioner gets health, strength, and cheerfulness. ^[26]

Dhauti is a *śudhdhīkriyā* which means the act of cleaning. It specifically cleans the stomach. Since is one of the main organ in the human body and the health of the human being is dependent on the condition of the stomach. Hence it becomes very important for you to clean your stomach. Dhauti is the useful activity for this cleansing. ^[27]

Prescribed Yogic exercises and their justification

A specific set of *Yogic* exercises was prescribed beginning with *suryānamaskāra* (dynamic stretching of the muscles of the abdomen, back, neck, hands and legs), *śavāsana* (muscle relaxation), *Tadāsana* (leg muscles stretching), *Konāsana* (twisting and stretch of the spine), *Pavanmuktāsana* (hip and back muscles stretching), *Naukāsana* (abdominal muscles stretch), *Bhujangāsana* (exercises the lower back muscles), *Sarpāsana* (exercises the lower back muscles by twisting), *Dhanurāsana* (exercises the whole back and muscles), *Ardhamastyendrāsana* (twisting the spine), *Paschimottanāsana* (hamstring stretch), *Yogamudra* (pressure on the lower abdomen and back stretch), *Brahmamudra* (neck muscles stretch), *Anulom-Vilom* and *Ujjayi Pranayama* (breathing exercises) and *recitation of the word 'OM'* respectively.^[25] All of these *Yogic* exercises have been selected on the basis of the following mechanisms: *Yogic* exercises have a direct influence on pancreatic secretion by rejuvenation of the pancreatic cells through alternate abdominal contractions and relaxation.^[29] Reduction in blood glucose levels due to muscular exercise involved in the asanas.^[29] The management of diabetes cannot be achieved by giving medicines alone. In fact more than 50% of diabetics do not need any medication. The mainstay in the management is the life style change, as we have seen that the cause of diabetes is wrong habits of living. Hence, it is important to understand the details about how to manage diabetes yourself. Hence, all good diabetic centers. The four areas which one should understand are (i) Exercise, (ii) Diet, (iii) Stress reduction and then comes, the medicines.^[30]

➤ **EXERCISE:**

Physical activity and exercise is an important factor in maintaining your overall health, as well as controlling diabetes. Exercise preserves and increases your muscle tone and strength, provides exercise for your heart and blood vessels and increases your lung efficiency. For the person with diabetes, exercise has additional benefits. The sensitivity of your body cells to the action of insulin increases when you participate in a regular exercise program. Fat plumpy cells are resistant to the action of insulin and hence

demands greater quantities of insulin to keep the blood sugar under control. This increased sensitivity make it possible for the cells of your body to use glucose more easily. Exercise also has immense psychological benefits – they help to cope up better with stress and work out frustrations. The best exercise for a person with diabetes is an activity, which uses large amounts of energy over a period of time, such as brisk walking, running, jogging, bicycling, tennis, skipping. These activities help in maintaining good blood glucose control. An exercise period each day is ideal. The best time to exercise is 2 hours after a meal. One can start the exercise programme with 10 -20 minute duration, which can be gradually increased to at least 60 minute per day. No exercise should be performed if your blood glucose levels are out of control; especially if urine ketones are present and blood glucose levels are over 300mg/dl. Under these circumstances exercise will only send the blood glucose levels soaring or worsen the ketosis. Because exercise lowers the blood glucose levels- food and insulin. For any exercise after two hours of a meal, a snack is necessary. For a short period of intense exercise, a fast acting carbohydrate like a fruit or milk is good.

Good exercise programme have four characteristics-

- The type of activity
- The intensity
- The duration of each session
- The frequency of the sessions.

Consider each of these in planning exercise program. ^[29]

➤ **DIET:**

Diet therapy of diabetes is as old as that of diabetes itself. Several thousand years ago śuśrutā and caraka recognized the value of dietary therapy for diabetes. They recommend a reduction in the total quantity of food consumed and the avoidance of animal fats. Many of the principles recommended by them are accepted even today by the

modern day diabetologists. Diet therapy is one of the pillar stones for the management of diabetes and the foods you can eat will include most of the things you normally enjoy, except for a strict limitation on foods high in sugar content. What is important is that you need to plan timely balanced meals to suit your life style and personal preferences. Your dietician can help you work out a meal plan they best suits you. A diabetic diet is actually a healthy diet for the whole family. Eating healthy foods is one of the basic and important tools of management. The right food choices can help control blood sugar and protect long term health. Diabetes increases risk for heart and blood vessel disease. This risk can be reduced by keeping blood fat levels, especially cholesterol, near normal. Eating less animal fat and avoiding high cholesterol food help control blood fats. High blood pressure is more common in people with diabetes. An eating plan to loose excess weight and reduce salt intake is an important part of plan to control blood pressure. High fiber foods, such as dried beans and peas, fresh fruits and vegetables, and whole grains, can help lower blood sugar and blood fat levels.

➤ **FOODS TO AVOID:**

Under usual circumstances avoid: Sugar, Glucose, jam, Honey, Syrup, Chocolates, Sweets, Candies. Indian sweets like Jelebies, mysore pak, Jamoons. Bakery items containing sugar like cake, Biscuits, Sweet bun, Sweet bread. Soft drinks like Pepsi, Miranda, 7-up, frooti, Coke. Free food group: The following foods contain very few calories and may be used freely in your meal plan. Clear soups, thin buttermilk, unsweetened coffee and tea with milk only to change color, unsweetened lime juice, Salads and Gelatin (unsweetened).

Eat more fiber: Choose bran or whole grain chapattis instead of white bread. Eat the edible skin and peels of fresh fruits and vegetables. Eat dried beans and peas.

➤ **LIFE STYLE:**

The wrong life style that aggravates the diabetic state includes excessive indulgence in

1. Eating heavy spicy, oily foods and sweets;

2. Cigarette smoking, alcohol, non-vegetarian foods, fizzy cool drinks;
3. Sedentary life style with no physical activity;
4. Excessive sleeping or loss of sleep;
5. Emotional upsurges such as aggressive behavior, anger, fear, tension, worry etc. Stress is both the cause and the result of an erratic life style. Stress is a psychological state of emotional reactivity in which the person has no control over the mind in general. We can see that all these situations of life style mentioned above are due to lack of mastery over one's craving or desires or emotional reactions. Thus stress is the cause and the result of all the life style related erratic behaviors. ^[30] Clearly, there is a need to identify cost-effective prevention and management strategies for DM 2 that address the multiple interrelated factors underlying this complex, devastating and increasingly common disorder. In light of the strong influence of psychosocial factors on the development of IRS and DM 2, the role of sympathetic activation in the pathogenesis of insulin resistant states, and the bi-directional relationships of these and other IRS-related risk factors, mind–body therapies may hold particular promise for both the prevention and treatment of DM 2.

CHAPTER- 2

LITERATURE SURVEY

1. Malhotra V, Singh S, Tandon OP, Sharma SB. **The beneficial effect of yoga in diabetes.** 2005 Dec. ^[31]

A study was conducted to investigate the beneficial effect of yoga in diabetes. Twenty NIDDM subjects (mild to moderate diabetics) in the age group of 30-60 years were selected from the outpatient clinic of G.T.B. hospital. They were on a 40 days yoga asana regime under the supervision of a yoga expert. 13 specific *Yoga āsana* done by Type 2 Diabetes Patients included. *Suryānamaskāra, Trikonāsana, Taḍāsana, Sukhāsana, Padmāsana, Bhastrika Prāṇāyāmā, Pashimottanāsana, Ardhamatsyendrāsana, Pawanmuktāsana, Bhujangāsana, Vajrāsana, Dhanurāsana* and *Śavāsana* are beneficial for diabetes mellitus. Serum insulin, plasma fasting and one hour postprandial blood glucose levels and anthropometric parameters were measured before and after *Yoga āsana*. The results indicate that there was significant decrease in fasting glucose levels. A significant decrease in waist-hip ratio and changes in insulin levels were also observed, suggesting a positive effect of *Yoga āsanān* glucose utilisation and fat redistribution in NIDDM. *Yoga āsana* may be used as an adjunct with diet and drugs in the management of Type 2 diabetes.

2. Kosuri M, Sridhar GR. **Yoga practice in diabetes improves physical and psychological outcomes.** 2009 Dec. ^[32]

There was study to examine the effect of *Yoga* practice on clinical and psychological outcomes in subjects with type 2 diabetes mellitus (T2DM). METHODS: In a 40-day *Yoga* camp at the Institute of *Yoga* and Consciousness, ambulatory subjects with T2DM not having significant complications (n = 35) participated in a 40-day *Yoga* camp, where yogic practices were overseen by trained *Yoga* teachers. Clinical, biochemical, and psychological well-being were studied at baseline and at the end of the camp. Participation of subjects with T2DM in *Yoga* practice for 40 days resulted in reduced BMI, improved well-being, and reduced anxiety.

3. **Yoga Practice for the Management of Type II Diabetes Mellitus in Adults: A systematic review.** Aljasir B, Bryson M, Al-Shehri B, 2008 May 7. ^[33]

The effect of practicing *Yoga* for the management of type II Diabetes was assessed in this systematic review through searching related electronic databases. All randomized controlled clinical trials (RCTs) comparing *Yoga* practice with other type of intervention was included. Each study was assessed for quality by two independent reviewers. Five trials with 363 participants met the inclusion criteria with medium to high risk of bias and different intervention characteristics. The studies' results show improvement in outcomes among patients with diabetes type II. These improvements were mainly among short term or immediate diabetes outcomes and not all were statistically significant. A definitive recommendation for physicians to encourage their patients to practice *Yoga* cannot be reached at present.

4. Amita S, Prabhakar S, Manoj I, Harminder S, Pavan T. **Effect of *Yoga-nidra* on blood glucose level in diabetic patients.** 2009 Jan-Mar ^[34].

In India the prevalence of diabetes is rising rapidly especially in the urban population because of increasing obesity and reduced physical activity. An objective of this study is to evaluate the effect of *Yoga-nidra* on blood glucose level in diabetic patients. This study was conducted on 41, middle aged, type-2 diabetic patients, who were on oral hypoglycaemic. These patients were divided in to two groups: (a) 20 patients on oral hypoglycaemic with *Yoga-nidra*, and (b) 21 were on oral hypoglycaemic alone. *Yoga-nidra* practiced for 30 minutes daily up to 90 days, parameters were recorded every 30th day. Results of this study suggest that subjects on *Yoga-nidra* with drug regimen had better control in their fluctuating blood glucose and symptoms associated with diabetes, compared to those were on oral hypoglycaemics alone.

5. Sahay BK. **Role of *Yoga* in diabetes.** 2007 Feb. ^[35]

A well designed study was carried out to detect the role of *Yoga* in diabetes in normal individuals and those with diabetes to assess the role of yogic practices on glycaemic control, insulin kinetics, body composition exercise tolerance and various co-morbidities like hypertension and dyslipidemia. These studies were both short term and long-term. These studies have confirmed the useful role of *Yoga* in the control of diabetes mellitus. Fasting and postprandial blood glucose levels came down significantly. Good glycaemic status can be maintained for long periods of time. There

was a lowering of drug requirement and the incidence of acute complications like infection and ketosis was significantly reduced. There were significant changes in the insulin kinetics and those of counter-regulatory hormones like cortisol. There was a decrease in free fatty acids. There was an increase in lean body mass and decrease in body fat percentage. The number of insulin receptors was also increased. There was an improvement in insulin sensitivity and decline in insulin resistance. All these suggest that yogic practices have a role even in the prevention of diabetes. There is a beneficial effect on the co-morbid conditions like hypertension and dyslipidemia.

6. Bhuyan B. **Integrated approach of yoga therapy and *Kunjala kriya* in Asthamatics**, 2002 .^[36]

An article was published his study in which he studied *vaman dhauti* on 30 patients, with established diagnosis of bronchial asthma in the range of 14-55 years. All the subjects practiced an integrated approach of yoga therapy which included *Yogasanas*, Breathing exercises, loosening exercises *Pranayama*, Meditation, Lectures, Bhajans, *Satsang*, Relaxation, *vamana Dhauti* etc. Lung functions including forced vital capacity (FVC), forced expiratory volume in first second (FEVI), peak exhalation flow, ratio of FEVI/FVC by using a Standard Spirometer and PFR by Wright's peak flow meter were recorded on first day (baseline) and just before and after the control session on 6th day and *vaman Dhauti* on session on 7th day. Results showed that there was significant improvement in all the variables on 7th day. The addition of *vaman Dhauti* contributes to speedy recovery in bronchial asthmatics. Daily practice of *vaman Dhauti* for one week showed increase in peak flow rate. There was significant improvement seen in FEVI when measured through Schillar's spirometer.

7. Dr. Sujata KJ, **Changes in Heart Rate Variability After *Kunjala Kriya***. 2005^[37]

The present study was conducted to have a comprehensive view of the concepts of two basic purificatory processes in Yoga and Ayurveda. The two groups of healthy subjects (38 & 32) were studied. The experienced group (Ex) had practised *kunjala kriya* at least four times before, the novices (Nv) practiced *kunjala kriya* for the first time. The HRV recorded for five minutes immediately before and after the *kriya*. Design was matched case control. As data was normally found to be distributed (Shapiro- Wilk test), paired

t-test was done for analysis. The result showed decrease in the HRV spectrum in experienced subjects rather than novices. There was more increase in heart rate in novices subjects rather than exposed subjects. The gender wise comparison (Independent t- test) between experienced and novices showed that there is significant change in the males of the novices group and there was no significant difference in between the females of two groups. The result of this study can be summarized that the sympathetic stimulation as shown by heart rate variability spectrum is less in the subjects who are experienced to *kunjala kriya* earlier when compared to those who are novices.

8. Oak, J.P., Bhole, M.V. **learning of *vaman Dhauti* some observations.** 1982, ^[38]

The study of Oak J.P., and Bhole, M.V. (1983) on learning process of *vaman Dhauti* in 29 males and 11 females, showed that eight subjects vomited 60% of water at a single attempt. The average water amount taken in was more than one liter in $\frac{3}{4}$ of the subjects in first observation. The average volume ingested was 1160 +_ 110 ml. There was wide variation observed in 20% of students in the volume of water vomited. The amount of water vomits in comparison with the volume of water drank which were measured in different attempts showed that the amount increases from 20 to 60% in successive attempts (9 attempts) gradually.

9. Oak ,J.P., Bhole, M.V., **Feeling and reactions of healthy individuals,** 1982-1983 ^[39].

They also studied the feelings and the reactions while learning *vaman Dhauti* by healthy subjects on 40 subjects, 29 males and 11 females of 15 to 45 years of age group in 1983. The onset of headaches, giddiness, and redness of the eyes, flushing of the face, a feeling of relief or gone away feeling were recorded using a questionnaire. The result showed that people looking to *vamana* as an unnatural act could develop nausea, excessive lacrimation and running nose. Inability to bring the water out ha resulted in feeling of discomfort with bloating of abdomen.

CHAPTER - 3

AIM AND OBJECTIVES

1. To examine the immediate effect of *Vamana Dhauti* on diabetes mellitus patients.
2. To compare the changes in Blood sugar level variability spectrum in the diabetic people experienced with *vamana Dhauti* and easy walk.

3.1 HYPOTHESIS

Vamana Dhauti helps in reducing the blood sugar level in patient with diabetes mellitus Type II. *Dhauti Kriya* cleanses the inner cavities and passages like stomach and esophagus. *Dhauti* also increase digestive fire, improve kidney functioning and invigorate the liver by extricating parasites from within the system. This will greatly reduce the intensity of hunger, which is one of the major difficulties of diabetics. Over a period of about 6 to 12 months, through the regular practice of *vamana Dhauti*, type-2 diabetics can learn to consume food only twice a day instead of 3 to 4 session of eating. With this pancreas can get enough rest to recoup its vitality in the 8 to 10 hours gap between meals. This also helps in reducing the weight in overweight persons.^[30]

METHODS

4.1 SUBJECTS

There were 30 subjects in the experiments. They had come to Arogyadhama – A hospital in Prashanti Kutiram, Bangalore, India. Their ages ranged from 30-70 years and group-mean age $SD \pm 57.63$. The design was explained to the subjects.

4.2 INCLUSION CRITERIA

1. Type II (NIDDM) Only
2. Age range 30 to 70 years Diabetic Patients
3. Male & female patients.
4. Willing to participate

4.3 EXCLUSION CRITERIA

1. Patients suffering from other diseases –Type I, Hypertension, Ischemic heart disease.
2. Secondary complications of diabetes – Cardiac, Stroke, Retinal, Renal, Peripheral Vascular disease.

4.4 SOURCE OF SUBJECTS

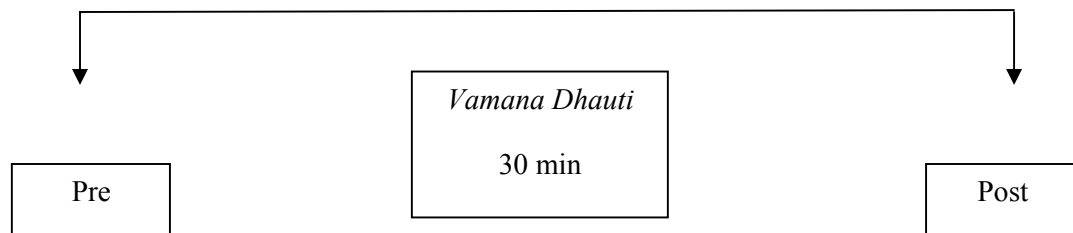
Diabetic Patients who came for yogic treatment in Arogyadhama in Prashanti kutiram. Participants were from all over India but most of them were from southern part of India i.e. Bangalore and Tamilnadu.

4.5 DESIGN OF THE STUDY:

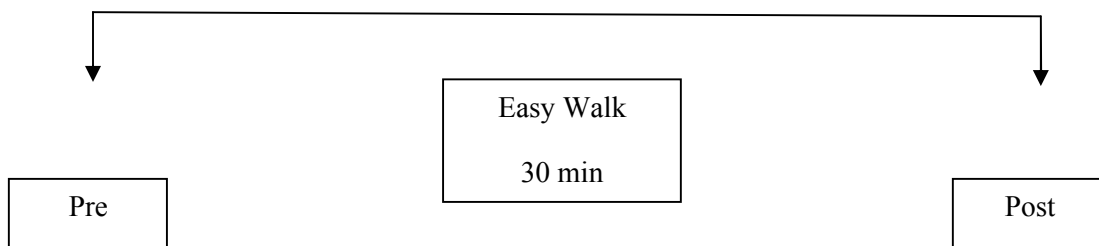
There were 30 Subjects selected for the purpose of study in the experiment. All these subjects were categorized for two Session i.e. *Yoga* session as well Control Session. In *Yoga* session *Vamana Dhauti* and Deep relaxation was given as intervention and the blood samples were collected before and after the intervention at the interval of 30 min. In Control Session Easy walk was introduced as intervention and the blood samples were collected before and after the intervention at the interval of 30 min.

Schematic representation of the Self as control design

Yoga intervention:



Control intervention:



4.6. INTERVENTION

Vamana Dhauti is a cleaning process. This is the second practice of *hrid Dhauti*. 'Vamana' is 'to vomit' 'vyaghra' means 'tiger'. Just as a tiger regurgitates its food a couple of hours after eating; in this practice you vomit the food from the stomach three hours after a meal. If it is difficult you can drink a glass or two of warm saline water and then tickle the back of the throat with the first two fingers to induce vomiting. Traditionally, after performing this practice, a sweet milk rice pudding should be eaten.

The '*Haṭhayoga pradīpikā*' states, "There is no doubt that cough, asthma, diseases of the spleen, leprosy and twenty kinds of diseases caused by excess mucus are destroyed through the effect of *Dhauti karma*.' The combination of all the practices of Dhauti cleans the entire digestive tract and respiratory tract. It removes excess and old bile, mucus and toxins, and restores the natural balance of the body's chemical composition, thus alleviating ailments caused by such imbalances^[27]

Easy walk is a type of physical exercise reduces the blood sugar levels in diabetics. When you do a physical work the muscle cells use up more and more glucose as its source of energy and this creates a greater gradient between the glucose levels in the blood and muscle cells. Thus when you go on with steady moderate physical strain glucose goes on moving out of the blood into the cells slowly and steadily because of this gradient. Therefore exercise reduces blood glucose levels without extra demand for insulin. This is the reason why it is said that moderate exercise is the only good friend for insulin.^[30]

4.7 PROCEDURE

Following assessment was recorded for all the patients on two occasions: 1st follow-up, before the Easy walk & after half an hour of easy walk and 2nd follow-up, before the *vamana Dhauti* and after *vamana Dhauti*. FBS was assessed before the intervention & after the intervention.

4.7.1 ASSESSMENTS

Two Assessments were made for the following parameter before and after intervention. The blood samples were collected for the analysis of Fasting blood glucose level.

4.7.2 VARIABLE

Fasting blood glucose: A method for learning how much glucose (sugar) there is in a blood sample taken after an overnight fast. The fasting blood glucose test is commonly used in the detection of [diabetes mellitus](#). A blood sample is taken in a lab, doctor's office, or hospital. The test is done in the morning before the person has eaten. The normal, nondiabetic range for blood glucose is from 70 to 110 mg/dl, depending on the type of blood being tested. If the level is over 140 mg/dl, it usually means the person has diabetes (except for newborns and some pregnant women).^[40]

4.7.3 BRIEF DESCRIPTION OF THE INSTRUMENTS USED

Glucometer: A **glucose meter** (or **glucometer**) is a [medical device](#) for determining the approximate concentration of [glucose](#) in the [blood](#). It is a key element of home [blood glucose monitoring](#) (HBGM) by people with [diabetes mellitus](#) or [hypoglycemia](#). A small drop of blood, obtained by pricking the skin with a [lancet](#), is placed on a disposable test strip that the meter reads and uses to calculate the blood glucose level. The meter then displays the level in mg/dl or mmol/l.^[41]

4.7.4 SOCIO-DEMOGRAPHIC DATA SHEET:

A Proforma developed to record the age, sex, address, education.

4.8 DATA EXTRACTION AND ANALYSIS

Data were analyzed using a statistical package (SPSS version, 16.0). The data were normally distributed and parametric test were done for compare means.

CHAPTER- 5

RESULTS

All thirty patients (mean age 58.43 years) were on oral hypoglycemic drugs and their baseline fasting and 2 hour post prandial venous blood glucose on first day were 141.2 ± 54.670 and 217.142 ± 82.740 respectively.

The mean of pre VD session was 141.13 ± 27.27 and mean of the pre control session was 143.63 ± 35.47 The mean of the post VD session was 140.83 ± 30.08 while the mean of the post walking session was 140.87 ± 29.83 There was no significant difference within or between groups ($p > 0.05$). There was significant reduction in FBS and PPBS after the weeklong intervention by integrated yoga therapy program. The groups mean values of venous blood glucose on day 6 were 125.971 ± 52.116 and 198.714 ± 97.240 for FBS and PPBS respectively.

Table 1: Details of patients (n=30)

Variables	Details	
Age(years)	Range	32-70yrs
	Mean \pm SD	57.63 ± 9.65
Sex	Female	13
	Male	17
Occupation	Housewives	10
	Employees	12
	Business	8
Duration of diabetes	Range	4 to 13 years
	Average in months	12

Table2: Results of blood glucose after the sessions (n=30)

Session	Pre Mean±SD	LB	UB	Post Mean±SD	LB	UB	p-values	
							within	between
FBS (VD)	141.13 ± 27.27	130.95	151.32	140.83 ± 30.08	129.60	152.07	0.91	0.66
FBS (W)	143.63 ± 35.47	130.29	156.88	140.87 ± 29.83	129.60	152.01	0.48	0.99

Abbreviations: VD== Vamana Dhauti, w= Walking There is no significant difference within or between sessions of Vamana Dhauti and easy walking.

Calculate the % change s in blood glucose in that group of N in each column.

Table 3: The changes in blood glucose after the two sessions

Sessions	No. of patients					
	Decreased		No change		Increased	
	N	% chang	N	% chang	N	% chang
VD	16	53.35	2	6.66	12	40.00
W	15	50.00	3	10.00	12	40.00

CHAPTER- 6

DISCUSSION

This study has shown that there was no significant decrease in blood glucose levels after the practice of *Vamana Dhauti* or easy walking sessions in patients with uncomplicated type two diabetes mellitus undergoing a weeklong residential integrated yoga therapy program.

This is the first study that has looked at the immediate effect of Vamana dhouti on blood glucose levels in diabetics. Many RCTs have shown that integrated approach of yoga therapy is beneficial in patients with DM2 in reducing their blood glucose and HbA1c. The specific module of integrated yoga therapy for diabetes used in our earlier studies^[42], has been developed by the yoga experts and is based on yoga texts^[43] that describe the origin and progression of life style diseases and the techniques of their reversal. The module includes many cleansing techniques such as *Vamana Dhauti*, *kapālabhāti*, and *Agnisāra kriyas*. We included the practice of VD although it is a very dynamic practice and may be expected to result in hypoglycemia comparable to short duration severe exercise which has been shown to decrease the blood glucose levels in exercise studies.

MECHANISM

Yoga texts describe that *kriyas* are meant to cleanse the toxins that have accumulated in the tissues of internal organs that has resulted in disturbed function of the cells. Today's science has been able to detect many substances such as free radicals or adipoleptins that are supposed to cellular toxins when they are produced in abnormal quantities in patients with increased insulin resistance. The texts go on to say that deep alertful rest after activating the internal organs through such stimulating practices (*kriyas*) provides deep rest to the cells; and it is this rest that sets right the imbalances at the molecular level created by wrong habits of indiscriminate life style .Some of our studies have looked at the degree of rest as measured by metabolic rate and sympathetic arousal after a yoga practice called cyclic meditation (in normal volunteers) that uses this principle portrayed in the yoga texts. The results showed that this technique produces deeper degree of metabolic rest,^[44] and autonomic stability^[45] than simple relaxation technique.

Hence we may offer this hypothesis that VD an activating vigorous practice when followed by a session of DRT does not cause hypoglycemia and is comparable to easy walk.

LIMITATIONS OF THE STUDY

This is the first study that has tried to look at the safety and hence needs more studies to confirm the results in a bigger population and in different ethnic groups.

STRENGTHS OF THE STUDY

This study provides evidence for the safety of VD in diabetics which clears the doubt amongst clinical practitioners who come across patients who are already doing integrated *Yoga*. Based on our physiological knowledge one tends to discourage patients from doing this and hence this study is an important evidence to allay the anxiety of general practitioners.

CHAPTER- 7

SUMMARY AND CONCLUSIONS

The self as control study was aimed to determine the effect of *vamana Dhauti Kriya* on blood glucose level in diabetes mellitus type II. One group of type II diabetic patient (30) which was treated as two groups was studied. *Yoga* group had practiced *vamana Dhauti Kriya* 2 times and controlled group practiced easy walk. Fasting blood glucose level was recorded immediately before and after the intervention. Design was self as control. As data was normally found to be distributed (Shapiro-wilk test) and paired sample t-test was done for analysis. The result showed variation in FBG, in some cases increased in some cases decreased but overall the present study suggests that blood glucose level in DMT2 was slightly towards decreasing trend indicating positive impact of *Vamana Dhauti*. Our result is in line with the report of Dr. Sujatha KJ, 2005.^[37]

This effect was shown by one time practice of *Vamana Dhauti*. Long continuous practice under expert guidance may show fascinating changes.

Therefore the result can be summarized that *Vamana Dhauti* can play an important role in the management of T2DM.

Vamana Dhauti, a yogic cleansing technique used as a component of integrated *Yoga* practice does not produce hypoglycemia immediately after the practice and hence is a safe practice that can be recommended for type 2 diabetics.

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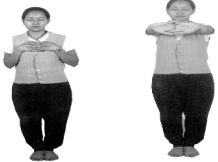
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APPENDIX I

THE FOLLOWING PRACTICES WERE PERFORMED BY THE PARTICIPANTS

Neck Movements		Loosening of Fingers & wrist	
Loosening of elbow & shoulder		Forward backward bending	
Twisting and Side bending		Waist rotation	
Toe Bending		Ankle Bending & Rotation	
Butterfly		Cycling	
St.leg Raising		Pavanamuktāsāna kriya	

Hand in & out breathing		Hand Stretch Breathing	
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Ankle stretch Breathing		Ardha Kati cakrāsana	
Sasnkasana Breathing		Tiger Breathing	
Dog Breathing		Ustrasana	
vakrāsana		suryānamaskāra	3 – 5 rounds
Bhujangaāsana breathing		Navaāsana	
Folded leg lumbar strech		Setubandhāsana	
suryānamaskāra	3 rounds	DRT with Chanting of AUM	

Additionally, participants attend *Prāṇāyāma* from 11am to 12noon; and *Trataka* from 8.30pm to 9.15pm. Supplementing these are also relaxation technique including: Simple exercises and *āsanas* from 3.45pm to 4.45pm; and walking or yogic games from 6pm to 7pm.

Time Table	
Time	Session
4.30 to 5.00 AM	Wake up and Ablution
5.00 to 5.30 AM	Om Meditation
5.30 to 6.30 AM	Special Technique
6.30 to 7.00 AM	<i>Yogic Kriyas</i>
7.15 to 8.00 AM	<i>Maitrimilana</i>
8.00 to 10.55 AM	Juice, <i>Āyurvedā</i> , Naturopathy and Acupressure treatments, Counselling.
11.00 to 11.55 AM	Lunch and rest, DRT ¹
12.00 to 12.55 PM	Parameters
1.00 to 1.55 PM	CM
2.00 to 3.00 PM	Lecture
3.00 to 3.40 PM	Juice, Exercise therapy, Acupuncture/Acupressure.
3.45 to 5.00 PM	Special Technique and <i>Prāṇāyama</i>
5.00 to 5.55 PM	Tuning to nature
6.00 to 6.25 PM	Bhajan.
6.30 to 7.25 PM	Dinner
7.30 to 8.10 PM	<i>Trāṭakā</i> (3 days), MSRT ³ (3 days)
8.15 to 9.25 PM	Happy Assembly (2 days), Satsang (3 Days), Q&A(1day)
9.30 PM	Juice/Special Drinks.

1. *DRT – Deep Relaxation Technique*
2. *CM – Cyclic Meditation*
3. *MSRT – Mind Sound Resonance Technique*