

A case study on healthy weight loss in a diabetic male by an integrative approach of diet, yoga asana, and *Dhauti*

Raghavendra Patil^{1*}, Anurag Jayswal², Umesh Ghate³, Ramesh C Deka^{1,4}, Suvendra Kumar Ray¹, Vivek Bhosale³

¹ Centre for Multidisciplinary Research, Tezpur University, Tezpur, Assam, 784028, India.

² Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur, Assam, 784028, India.

³ Ayurvedic College, Bharatiya Vidyapeeth, Pune, Maharashtra, India.

⁴ Department of Chemical Sciences, Tezpur University, Tezpur, Assam, 784028, India.

* Correspondence: raghavendrapatil@gmail.com;

Scopus Author ID 8347695700

Received: 22 March 2025; Accepted: 7 April 2025; Published: 28 April 2025

Abstract: Obesity is a lifestyle challenge, and over a period of time, it gets tagged by other diseases, e.g., blood pressure, diabetes, etc. This case study is of a 41-year-old male suffering from obesity and diabetes having high blood sugar level (Fasting -160 mg/dL, PP-420 mg/dL) as well as high glycated hemoglobin (HbA1c – 9 %). As suggested by an endocrinologist, the person approached the health consultant to reduce weight without any specific medicine. After going through the history of the health aspirant, a detailed approach was recommended with a combination of high fiber, low calorie, low-fat diet, yoga san, and *Dhauti* called an integrative approach. *Dhauti* is a yogic cleansing technique that includes ViV (Voluntary induced vomiting) after drinking enough water in the early morning on an empty stomach. Interesting results were found, with a reduction of 22 kg of weight in 12 months from 87 (body mass index; BMI: 29) to 65 kg (BMI: 22) (Height 1.727 m). *Dhauti* seems to have considerable intervention to reduce cravings for food during this rejuvenation. Further, along with the weight loss reduction of blood sugar levels was also observed without medication (HbA1c – 5.2 %, Fasting 92 mg/dL and PP 100 mg/dL). There was a positive change in psychological factors such as increased positivity, feeling light and cleanliness of the stomach, rejuvenation, increased enthusiasm, and reasonable control over food craving and consumption. We believe an integrative approach might play a potential role in healthy weight loss among people.

Keywords: Kunjal; Overweight; ViV; *Dhauti*; Weight loss; Reduced Craving; Rejuvenation

1. Introduction

Modernization and technical facilitation allow for an easy lifestyle and reduced physical activity. A sedentary lifestyle, high consumption of fast food, and irregular lifestyle resulted in challenges in metabolism, fat deposition, and further obesity. Obese people develop restrictions in physical activities, develop low confidence, increased anger [1], and mood disorders [1]. By improving lifestyle, obesity/excess weight might be reduced, and healthy weight loss can be achieved in individuals. One of the approaches that individuals follow is reducing their daily food intake against their cravings. But craving causes uneasiness, like increased stomach acidity, headaches, anger, and the development of irritating behavior. Adopting heavy physical exercises to burn out excess fat is another approach, but it demands more food for the body. Also, it becomes challenging for an obese person to control his or her body weight without any medication. Barometric Surgery or medication are alternatives but have challenges of its complete process and side effects.

Dhauti is also a driver for weight loss [2] [3] [4]. Reducing cravings, which can lead to decreased quantity of food consumption, is a healthy approach to reducing weight in the body. *Dhauti* is a cleaning technique [2] out of six (*Shatkarma*) (*Shatkarma* is six cleaning techniques (*Dhauti, Basti, Neti, Nauli, Tratak, Kapalbhathi*) described in yogic science. The yogic method of *Dhauti* can be an easy process (*kriya*) for interested people to practice for the same. However, adopting it and being sustainable are significant challenges. The integrative approach of *Dhauti, Yogasana* (Yoga positions), and diet has been used in the current case study. The person practicing it does not suffer from headaches after craving, weakness, and restlessness. This is a unique case study as the subject's sugar was found to be in the diabetic range, which shows the results of the multiprong approach described here with an example of weight loss without medication.

2. Case Presentation

Following the advise from an endocrinologist, a health aspirant approached the health consultant - a certified yoga teacher and evaluator, for healthy weight loss. The clinical data of the health aspirant regarding blood pressure, blood glucose, and other parameters such as height, weight, and lipid profile was already captured and prepared by a physician. The subject does not have any genetic disorder and no psychological complexities but has diabetes mellitus detected recently. The person has a higher body mass index (BMI 29.40) than usual. The key history, details, and demographic details are in Table 1.

Table 1. Details of health aspirants

Demographic parameter	Details
Profession	Manager (Marketing and Sales)
Education	BE (Prod), MBA (Finance & Mktg)
Age	41 years
Marital Status	Married
Food	Vegetarian
Weight	Weight 87 kg
Working schedule	Mostly average working hours and sometimes, 24 by seven as and when needed, sometimes on weekends too
Place	Pune, India
Height	172 cm
Waist	39 inches
BMI (Body Mass Index)	29.40

2.1. Complaints

The individual presented with significant concerns regarding weight gain, escalating to 87 kg, and alarming blood sugar levels, exacerbated by an imbalanced lifestyle. This lifestyle has contributed to feelings of depression. Despite these challenges, he possesses a resolute desire to manage his health without medication, aiming to prevent complications associated with diabetes and the side effects of allopathic treatments.

2.2. Weight History

He has been above 85 kg for the last ten years and ranges from 85 to 88 kg. During counseling, it was revealed that the health aspirant was involved in extensive traveling, irregular food habits, eating late at night, and lack of proper/enough physical activities. He has detected his PP (Post Prandal) sugar 420 mg/dL.

2.3. Food intake habits

Breakfast: Most of the intake was medium to high glycemic index (GI) carbohydrates such as 200 to 400 gm of (puff rice, Upma, Idli, Dosa, Uttapam these are south Indian breakfast items), leftover crushed wheat chapati); lunch/Dinner: (wheat chapati 2, Dal 100 gm, 100 gm Subjee (cooked vegetables), 200-300 gm rice, sweet dish or ice cream). there is a tendency to indulge in junk food outside instead of home-cooked meals, which may contribute to an imbalanced lifestyle and health concerns.

2.4. Previous intervention

Health aspirant tried heavy gym and some network-marketed protein products diets, but could not lose much weight; instead, it was added afterward and was further challenging to sustain.

2.5. The feeling of Health Aspirant

Because of his routine travel to work, the health aspirant thought his high weight was mainly the result of heavy cravings, a luxury and sedentary lifestyle, and a total lack of exercise. The consumption of too much rice (or foods with high glycemic index) and a non-vegetarian diet may cause food cravings. According to his clinical report, he had no other diseases, such as high blood pressure, ulcers, or hernias, and he had not undergone any surgery. Physician's opinion: He consulted some of the leading endocrinologists in Pune & Ludhiana for blood sugar issues. Some endocrinologists believe that medication can be stopped and in 30% of cases, even diabetes reversal is observed, subject to early detection and proper lifestyle management. Considering young age and other factors, no one was sure whether it was diabetes or insulin resistance; the physician suggested taking a chance by reducing weight below 70 kg so that BMI is in comfortable ranges. There was a diabetic history in the family, but detailed discussions revealed that the risk of developing diabetes related to genetic factors is very low, whereas the remaining is related to a healthy lifestyle with minimum stress. The health aspirant realized that the sugar issue is related to the aging of body cells and weight gained, so the option of rejuvenating the body with yoga and ancient balanced food habits needs to be tried. During change in life style medication intake or discontinuation was as per supervision and consultancy of the health aspirant's family doctor.

2.6. The feeling of Health Aspirant

- *Dhauti/Kunjla Kriya/Dhauti/ViV* (Voluntarily Induced Vomiting) is a yogic cleansing technique given in (*Prathamodhyaya, Shlok 39,40*) [3] and *Hathyogpradipika* (yogic scripture written by Swami Swatmaramji) (*Dvitiyopadesh*(second chapter) *Shlok 22,25*). It helps in reducing cravings. It is *Hridhdhauti* (one of the cleaning techniques). Classifying *Hridhdhauti*, there are three types (*Danda Dhauti* (cleaning tongue Using banana peel), *Vaman Dhauti*(Cleaning stomach using water), *Vastra Dhauti*(Cleaning stomach with eating 4 inch wide and 24 inch long clothe). This is *Vaman Dhauti*, prescribed to the health aspirants.

- A high-fiber, low-energy, low-fat diet was one potential driver of weight reduction [4].

- *Yogasana* was recommended to increase body parts' flexibility and metabolism, as well as body parts for body harmonization [5].

3. Materials and Methods

3.1. Intervention to Health Aspirant

Intervention to Health Aspirant: *Dhauti* [7] is an ancient ayurvedic yogic stomach-cleaning technique. This process is divided into a) *Purva karma* (preprocess) b) *Pradhan Karma* (main process) c) *Paschat Karma* (after process) [8].

Purva karma is performed in the early morning with an empty stomach after emptying the bowel.

Pradhan karma- The process of *Dhauti* includes the following: Plenty of normal-temperature water is consumed in high quantities to the extent that there should be a nauseating feeling. In a standing position or *malasan* (Garland Yoga pose) position, stand or sit and lean forward over a wash basin bowl, keeping the trunk horizontal [9] [10] [11] [12] [13]. The mouth should be opened wide, and breathing should be done through the mouth. Slowly and gently slide the fingers along the tongue's surface towards the throat while touching the tongue's root. This induced the water to gush out from the stomach quickly, suddenly, and effortlessly. Continue may be two to four times in this way until there is no more water in the stomach. This is indicated when tickling the back of the throat does not bring up more water. A person needs to rest after *Dhauti* so that the gut will be soothed and further work, as usual, can be started.

Paschat karma- After the stomach is empty, wash the mouth and face and take some rest. There should not be any consumption of food immediately is advised [8].

Dhauti [7] is an ancient Ayurvedic stomach-cleaning technique. It is performed as explained in [6] [9] [10] [11] [12] [13]. The schedule and frequency of *Dhauti* prescribed to health aspirants are as follows. Further, it was modified to reduce cravings and acidity. Similarly, *Dhauti* is same as Voluntary induced Vomiting (ViV) which is used for weight loss in research paper of Taiwan [14] [15].

Frequency of *Dhauti* Recommendation:

- (a) For the first 15 days: Daily
- (b) For the Next 15 days: Alternate day
- (c) For the next 30 days: Twice a week
- (d) Further: Weekly once or as per sense of craving

3.2. Hunger Scale

A ten-point Katie Hake scale [16], collecting self-reports based on the extent of hunger was applied for data collection. This depends on how much hunger the person has, for, e.g., whether the health aspirant is uncomfortable, very uneasy, or has a full stomach like that as defined on the scale (1-Revenous, 2-Uncomfortably hungry, 7-full, 8-Full, etc. up to level of 10) as given in Table 07.

As per the age and strength of the health aspirant. The role of yoga in diabetes is also crucial [17] [18] [19]. he has been prescribed a series of *Sukshma yoga Asanas*, *Dhyan*, and *Kriya*; these are given in (Table 3).

Table 2. The suggested yoga practices to the aspirant

Yoga/Workout	Recommendation
<i>Dhyana</i>	<i>Dhyan</i> (Meditation), Either morning or evening, 10 minutes, to increase internalization
<i>Sukshma Yoga</i>	Sukshma Yoga (Micro Yoga or stretching exercises to free up the muscles) 15 15-minute Video is provided [20] to warm up and free up the joints
<i>Asanas Recommended</i>	<i>Asanas</i> [21] (Yoga positions) suggested increasing metabolism, The Fact is kept in mind that the twist given to the trunk will impart better digestion [22] and activates pancreas, clearing the bowel, <i>Asanas</i> were (<i>Markatasan, Kandarasan, Pavanmuktasan, Namanmudra -3, Shalabhasan, Naukasan, Sarvangasan, Ardha Sarvangasan, Bhujangasan</i> Leg movement in Supine position, Planks, Army crawling, <i>Merudandasan, Matsyasan</i> , Sun Salutations. Total <i>yogasan</i> was to be done for 30 minutes.
<i>Kriya</i>	At least one <i>Kriya</i> was suggested daily (<i>Agnisar, Kapalbhati</i>). If not, the health aspirant is advised to carry out <i>Uddiyan Bandha</i>. This is to reduce hyperacidity [23] and to give movement to the tummy
Individualistic approach	workout The health aspirant has a farm; we suggested he work on the farm as much as possible during the pandemic time

There was no compromise on vitamins and ions consumed. However, there were restrictions on oil, fat, and type of high GI carbohydrate intake. A detailed diet recommendation is given in Table 03: Diet Suggestion. It includes breakfast, dinner, and lunch, including what to avoid or to be consumed

3.3. Timing and Time of Yogasana

Yoga started with *Sukshma Yoga* after *Dhauti*. *Dhauti* is to be done early in the morning, and *Yoga* will be done after that with a gap of 10 to 20 min. This is an empty stomach. If it is not possible because of daily work, then yoga should be performed after office hours, when the earlier meal is more than 3 hours. Author (RP), a certified Yoga Teacher and Evaluator by the Ministry of Ayush's examination has provided relevant YouTube *Asanas* and sessions. *Asanas* are to be performed every day. *Asanas* could be performed with acceptable variations as per capacity (*YathaShakti*). It is recommended that the overall *yoga* time should be around 40 minutes every day for health aspirants.

3.4. Gut Cleaning Fiber Suggestion, One of Them Each Day, at 6 PM, and Then Repeat

An important factor in weight loss is a clean stomach. To keep his stomach clean, there are roughage agents prescribed to him. The list of these roughage agents or very mild laxatives is given below:

Day 1: One spoon of *Ispaghula* (Psyllium husk, '*Plantago ovata*' [38] [39] flocculated in water.

Day 2: *Triphala* [40] [41] half a spoon along with water

Day 3: castor oil [42] 1 spoon

Day 4: Two Dates [43] smashed in water

Day 5: 20 Raisins [44] [45] smashed in water

Day 6: 200 gm ripened papaya[46] [47]

Day 7: Roasted/Barbequed vegetables for dinner

Table 3. Diet Suggestion

Serving	Edible Content Meal/Breakfast	Reason
Breakfast (for 7 days) repeat	<ul style="list-style-type: none"> Day 1: Apple (2), Salad (Cucumber, Carrot), Chili flakes, two walnuts Day 2: Two apples and 1 Banana Day 3: Soup with less corn flour + Fruit or one egg [24]. Day 4: Decanted <i>Daal</i>(Pulses), Cornflakes with milk (Once in a week), Day 5: Eat-Oats. Any vegetables except potato+ lemon water without sugar Day 6: Sprouts, puffed rice, cucumber(to reduce acidity and increase fiber) [25], onion, Beet+ hot lemon water without sugar [26]. Day 7: Sprout 1 small bowl and Butter Milk with ginger/curry leaves/ Jeera/Ajowan 	<ul style="list-style-type: none"> Cucumber (to reduce acidity and increase fiber) [25] 1 Egg(to provide proteins albumen and globulin and vitamins (fat soluble) [24] To provide a source of good fat/unsaturated fat, 2 to 3 walnuts daily were advised [27] Recommended to consume Lemon water(Vit C source) without sugar and salt twice a day 1 glass [28] Buttermilk was used as filler and a source of a precursor of melatonin[29]. Ginger gives a partial antiseptic effect [30]
Lunch	<ul style="list-style-type: none"> 1. Soup [26] (With Very less Corn Flour) - Unlimited with more vegetables, High garlic, and black paper 2.Salad Unlimited, 3. Vegetables at least 3 small bowl with Half <i>jowar roti</i> 4. Decanted <i>Daal</i> -1 small bowl, Pulses (3 spoons) 5. <i>Jowar roti</i> (Half to 1 with a diameter of 8 inches and thickness of not more than 2 mm) 6. Butter Milk with Ginger/ Garlic 	<ul style="list-style-type: none"> <i>Daal</i>(Pulses) water contains soluble proteins and fewer carbs <i>Jowar</i>/'Sorghum Bicolor' (gluten-free millet[31] and also includes fibers; the restriction was kept on <i>jowar roti</i> quantity because it can also trigger lipogenesis from pyruvate/Acetyl COA [32]. Cooked Vegetables contain very few carbohydrates and are high in fiber. It provides roughage and keeps the gut clean and defecation easy [4]. Potato is avoided as per [33].
Dinner	<ul style="list-style-type: none"> Dinner should be the same as lunch except for a reduced amount of <i>jowar roti</i> than in lunch should be as early before 8 pm 	<ul style="list-style-type: none"> In the night, as there is less activity and hence metabolism and carbs should be reduced, early dinner is prescribed
Before 1 hour of sleep	<ul style="list-style-type: none"> Advised to take milk with turmeric [34]: 1 cup around 50 ml daily without sugar 	<ul style="list-style-type: none"> Milk contains tyrosine, the precursor of melatonin (sleep hormone) [35]. will help you to get better sleep. Turmeric has partial antibiotic/antiviral and an anti-obesity effect.
Daily	<ul style="list-style-type: none"> Two Fruits (source of antioxidants and fibers) are advised to be taken mandatorily, e.g., pare, apple, banana, guava 	<ul style="list-style-type: none"> Avoid Sapota [36], Grapes (7), and Custard Apple [37] to avoid extra fruit sugar consumption
Avoid	<ul style="list-style-type: none"> Sweet bakery product, Chana <i>Daal/Besan</i>, other milk products except buttermilk, potato, white flour 	<ul style="list-style-type: none"> To avoid glucose load

Urgency	<ul style="list-style-type: none"> In case the health aspirant feels low in energy, 3 to 4 dates could be consumed This will provide fiber and some good carbs to bring energy, as this could avoid the subject being diabetic hypoglycemia
----------------	---

3.5. Anger Scale

Various anger scales were referred which includes The State-Trait Anger Expression Inventory (STAXI), The Anger Rumination Scale (ARS), The Buss-Perry Aggression Questionnaire (BPAQ), facial expression analysis, The Anger Expression Scale (AES). Further, based on discussion with various health aspirants and their answers, an expressional scale was designed; the following scale was referred.

Table 6. This table indicates the level of anger and its expression

Level	Anger
1	Smiling Always, Feel happy
2	I smile sometimes, occasionally
3	No Smile but thoughtful, furious
4	I feel irritated in between, depressed sometimes, and the extent is less
5	I am not able to concentrate because of anger and sometimes eat a lot
6	I feel dejected, curse people, and sometimes aggressive
7	I shout at times and then calm down, then feel bad, and anger reoccurs
8	I tremble because of anger shout and can't control sometimes
9	I frequently get angry, shout, curse, and feel I am increasing my BP
10	I throw things and always want to find someone to bite every time; I am violent during anger

3.6. Hunger Scale

The hunger or satiety scale was referred from the uhs.berkeley.edu site, www.health.qld.gov.au site, <https://uca.edu> and discussed with health aspirants further scale was designed as below [48] [49]:

Table 7. Table with hunger expression and level of hunger

Level	Hunger
1	Heavy stomach belching, sometimes gases and Hates eating anything, nauseous
2	Feel stomach satisfied, uncomfortable feeling
3	No food is needed, but if I eat, that is fine
4	Feeling that can stretch some more time without food but drink water
5	Feeling that if I get food, then I am good
6	Will think of food frequently, feeling hungry
7	My face can tell I am hungry; my stomach is growling, and my face is dull and down, thinking of food
8	My hands and legs are shaking, I have no energy feeling, trying to eat whatever comes in front, and I am uncomfortable feeling
9	Thinking of eating only, searching for anything, food in the head
10	Pit in the stomach, stomach depleted, headache sometimes

4. Results

4.1. The Case's Uniqueness

A health aspirant has contacted an author for weight loss. He has undergone weight loss recommendations and found that he could control his sugar to a very high extent even though he missed his antidiabetic tablet. Further, he contacted the physician and adjusted the dosage of the antidiabetic drug, and eventually, the physician recommended he stop. Anger [50], Digestion problems, Bloating, and black skin spots were measured on a 10 highest and zero lowest scale.

Table 4. This chart indicates weight loss and other parameters

Time	Weight (in Kg.)	Weight loss (%)	BMI	Anger (10)	Black Skin Spots (10)	Digestion problems (10)	Bloating (10)	Waist (inch)
End of six months	87 to 76	12.6%	29.40 to 23.66	9 to 7	9 to 7	9 to 5	9 to 6	39 to 36
End of nine months	76 to 70	9.0%	36.4 to 32.9	7 to 5	7 to 6	5 to 2	6 to 3	36 to 34
End of One Year	70 to 65	7.0%	32.9 to 28.1	5	6 to 3	2 to 1	3 to 2	34 to 33

Table 5. This chart indicates weight loss and time lines in month

Age (Yrs)	M/F	Month-0	Month-1	Month-2	Month-3	Month-4	Month-5	Month-6	Month-7	Month-8	Month-9	Month-10	Month-11	Month-12
41	Male	87	85.6	82.0	80.2	78.4	77.3	76.4	74.6	72.5	70.1	68.2	66.5	65.2

The weight loss during the first trimester was the maximum compared to the subsequent trimesters. Similar results were found in our previous study [6].

Images of the aspirant taken at two distinct time points demonstrate the differences in his body structure (Figure 1) and conversion from obese to a lean personality, resulting in weight reduction by 22 Kg.

The rate of change in weight reduction in the initial days was also drastic. Also, it was coupled with diabetic medication recommended by the physician. Still, the significant achievement is keeping his weight constant between 65-70 kgs for the last 1 year without any medication.

4.2. Tongue Color and Taste [51]

Previously, a health aspirant's tongue color was white and yellow, and debris of dead white-colored cells accumulated on the tongue. This was checked while cleaning the tongue in the morning and at night. However, this becomes pinkish over some time. The bad breath. (Ref 78 details about tongue color) in the morning was reduced.

4.3. Observation in the Next Dhauti when Overeating Last Night

Whenever more food was consumed than the existing capacity of food, especially taken at the party last night and the following day, *Dhauti* was performed, and the observation was that some remnants and pieces of food were expelled out in *Dhauti*. This is undigested food in *Dhauti*, e.g., onion pieces and tomato epicarp. Also, many times, bitter liquid comes out, especially after eating oily and acidic contents



Figure 1. This figure indicates the picture of Health Aspirant After and Before weight loss

4.4. Effect on Defaecation

After following the integrated approach, the defaecation process became smooth, easy, and sufficient for a single time in the morning. Previously, defaecation remained incomplete, and he had to visit the toilet several times in a day.

4.5. Effects on Hunger Observed [48] [49] [52].

Earlier, there was uncontrollable hunger. After practicing *Dhauti*, the person realized that the craving for food was reduced. As per the subject's subjective response, hunger was reduced from 9 to 3 per Katie Hake's scale of 10. He felt a positive mood and elevated energy after losing weight through the Integrative Approach.

- When *Dhauti* was stopped, control over limited eating was lost, and weight increased.

4.6. Patient's Perspective

- Earlier, if the food was not consumed, there was a headache, low energy feeling, and weakness; however, after an integrative approach, the hunger was reduced, and the headache substantially decreased.
- Craving shoots up when '*Dhauti*' is not done for 7 to 10 days when the health aspirant is away from home or traveling. There was overeating, which resulted in an increase in bloating and gases when *Dhauti* was not done.
- After losing weight, health aspirants reported better sleep, less anxiety and unnecessary aggressiveness, and better enthusiasm.

5. Discussion

In this study we have reported regarding the healthy weight loss by an health aspirant using an integrated approach such as *Dhauti*, *yogasana* and diet regulation. *Dhauti* helped in reducing the cravings and helping in the weight loss process. The lowering of craving might be due to a reduction in the level of Ghrelin in the morning because of its expulsion during *Dhauti*. Reduced craving might have controlled diet intake and yoga might have increased metabolism and this might have led to weight loss.

Further, when weight reduces considerably over time, the stomach's internal size might be reduced, which is responsible for the reduced Ghrelin secretion (by enteroendocrine cells of the stomach) in the stomach automatically as the internal surface area also reduces. Performing *yogasana* with deep breathing helps stretch body parts and increase body flexibility, stimulating proper blood flow and increasing body metabolism. Physical movement favors excess fat burning in the body. Diet has high fiber, uncompromised vitamins, and minerals but limited lipids and carbohydrates. Diet fiber is low in calories, brings a feeling of stomach fulfillment, and supports bowel movement, hence cleaning the gastro-intestinal (GI) tract. This may reduce uneasiness and anger. The health aspirant has also improved his daily life activities, such as interacting with people, having better social relations, enjoying social activities, etc., which adds to his enthusiasm. A significant contribution has come from the participants who diligently performed the healthy weight management approach. Reduced sugar levels were due to rejuvenation, proper metabolism, and controlled sugar and high GI carb intake.

6. Future Prospective

Ghrelin is considered as a craving hormone [53]. Further research is needed specifically focused on the exact relation between ghrelin concentration, *Dhauti*, and stomach internal size with weight loss. Research is required to check the ghrelin concentration in the blood and stomach after *Dhauti*.

7. Conclusions

It was observed that the integrative approach (*Dhauti*, *yogasana*, and diet) might be a very good combination for healthy weight loss even in diabetic health aspirant. *Dhauti*

(*Shuddhi Kriya*) cleans the stomach, reducing cravings and easing bowel movements. The challenge is that there should be an internal sense developed when *Dhauti* is performed to control food cravings and acidity. There should be a regular practice of ‘*Dhauti*’ depending on the extent of the craving. Adjusting diet quantity depending on the practical workout, *yoga*, and craving is really a challenge. The task of motivating health aspirants to lose the first few kgs of weight is another challenge.

Multidisciplinary Domains

This research covers the domains: (a) Health, (b) Indigenous Knowledge.

Funding

This research received no external funding.

Acknowledgments

RP thanks Dr. Jyoti Shinde, An Ayurvedic doctor, for fruitful discussions and suggestions. RP also extends thanks to Mr. Aniket Kolee, Dr. Minto Moni Sarma, and Mr. Anand Pratap Singh for their support and encouragement.

I am grateful to the anonymous reviewer of this paper, who has not only advised me to think over several aspects of the paper but also encouraged me to deep-dive into the subject, which has enhanced the quality of this paper.

Conflicts of Interest

“The authors declare no conflict of interest.”

Authors declare that no personal circumstances or interests may be perceived as inappropriately influencing the representation or interpretation of reported research results. There is no role of the funders in the study's design, in the collection, analysis, or interpretation of data, in the writing of the manuscript, or in the decision to publish the results.

Declaration on AI Usage

The authors declare that “Artificial Intelligence (AI) tools were used in the preparation of this manuscript as follows: ChatGPT, developed by OpenAI was utilized for language editing, to know appropriate words, grammar for the drafting of the introduction, small part of material and method and discussed and with all outputs reviewed and edited by the authors. The authors remain responsible for the content's integrity and originality.”

References

- [1] Talen, M.R.; Mann, M.M. Obesity and Mental Health. *Prim Care* **2009**, *36*, 287–305, doi:10.1016/j.pop.2009.01.012.

- [2] Yadav, S.K.; Joshi, N. An Ayurvedic Perspective of Hrid Dhauti in Shatkarmas and Its Impact upon Human Physiology. *Dev Sanskriti Interdis Internat J* **2021**, *17*, 36–42, doi:10.36018/dsij.v17i.181.
- [3] Parmhans Swami Anant Bharti *Gherand Samhita*; Chaukhamba Orientalia, Delhi;
- [4] Kelly, R.K.; Calhoun, J.; Hanus, A.; Payne-Foster, P.; Stout, R.; Sherman, B.W. Increased Dietary Fiber Is Associated with Weight Loss among Full Plate Living Program Participants. *Front Nutr* **2023**, *10*, 1110748, doi:10.3389/fnut.2023.1110748.
- [5] Varsha; Sharma, A.; Tripathy, S. A REVIEW ON EFFECT OF YOGA ON OBESITY. *IAMJ* **2020**, *8*, 5310–5314, doi:10.46607/iamj1708122020.
- [6] Patil, R. Study On Weight Loss Using A Combinatorial Approach Of (Diet, Yoga, And Dhauti). *AFJBS.6.13.2024.7700-7737* **2024**, *6*, doi:10.48047/AFJBS.6.13.2024.7700-7737.
- [7] Dr Agrawal, S.K. *Hatha Yoga Pradipika*; Chaukhamba Orientalia, Varanasi;
- [8] Renuka Chaware, S.R. Management of Amlapitta by Kunjal Kriya and Pathya Apathya: A Single Case Study.
- [9] Vd. Gayatri; Halmare, K.; Vd. V. G., P. EFFECT OF JAL DHAUTI ON STHAULYA W.S.R. TO OBESITY: A SYSTEMETIC REVIEW. *WJR* **2019**, *9*.
- [10] Bv, R.; Balvantbhai, C.K. Impact of Vamana Dhauti in Amalapitta: A Critical Review. *IJMEDPH* **2022**, *12*, 08–11, doi:10.5530/ijmedph.2022.1.2.
- [11] Chowdhury, K.; Datta, N.; Rao, M.V. MANAGEMENT OF STHAULYA (OBESITY) THROUGH KUNJAL KRIYA. *Int. J. Res. Ayurveda Pharm.* **2013**, *4*, 599–604, doi:10.7897/2277-4343.04430.
- [12] Dr.Dubey, G.K. Kunjal Kriya: A Magical Procedure Used in GIT Disorders Wsr to Amlapitta- A Review Study. *JETIR Journal of Emerging Technologies and Innovative Research* *6*.
- [13] Yogeshwar, G. Kunjara - the Yogic Stomach Wash. *Anc Sci Life* **1992**, *12*, 261–263.
- [14] Liou, Y.M.; Hsu, Y.; Ho, J.; Lin, C.; Hsu, W.; Liou, T. Prevalence and Correlates of Self-induced Vomiting as Weight-control Strategy among Adolescents in Taiwan. *Journal of Clinical Nursing* **2012**, *21*, 11–20, doi:10.1111/j.1365-2702.2011.03739.x.
- [15] Chai, D.; Jiang, H.; Li, Q. Review Article Induced Vomiting: A Therapeutic Option. *Int J Clin Exp Med* **2016**, *9*.
- [16] HAKE, K. Intuitive Eating Hunger Fullness Scale and How to Use It. *What is the Intuitive Eating Hunger Fullness Scale and How to Use it*.
- [17] Raveendran, A.V.; Deshpandae, A.; Joshi, S.R. Therapeutic Role of Yoga in Type 2 Diabetes. *Endocrinol Metab* **2018**, *33*, 307, doi:10.3803/EnM.2018.33.3.307.
- [18] Thangasami, S.R.; Chandani, A.L. Emphasis of Yoga in the Management of Diabetes. *J Diabetes Metab* **2015**, *6*, doi:10.4172/2155-6156.1000613.
- [19] Patil, K.H.; Wasnik (Thatere), V.; Patrikar, V.G. Effect of Long-Term Yogic Practices in Type 2 Diabetes Mellitus: A Single Case Study. *Journal of Indian System of Medicine* **2021**, *9*, 135–139, doi:10.4103/jism.jism_30_21.
- [20] *Original Sukshma Vyayama by Swami Dharendra Brahmachari Ji and Balmukund Singh Ji*; 2014;
- [21] *Warm up |sukshma Yyog| Health in 14 Min*; 2019;
- [22] Alagumariappan, P.; Jamal, N.; Emmanuel, C.; Bhaskar, K.; Jaisingh, M.; Kannan, R. Analysis of Influence of Yoga-Asana on the Digestive Process Using Electrogastrograms. In; 2021; pp. 423–429 ISBN 978-981-334-083-1.
- [23] Kaswala, D.; Shah, S.; Mishra, A.; Patel, H.; Patel, N.; Sangwan, P.; Chodos, A.; Brelvi, Z. Can Yoga Be Used to Treat Gastroesophageal Reflux Disease? *Int J Yoga* **2013**, *6*, 131–133, doi:10.4103/0973-6131.113416.
- [24] Puglisi, M.J.; Fernandez, M.L. The Health Benefits of Egg Protein. *Nutrients* **2022**, *14*, 2904, doi:10.3390/nu14142904.
- [25] Dr. Parveen Akhtar, Dr.I.A. Energizing Effectiveness of Cucumber (Khayarain) For Health. A Review Article. *JETIR* *7*.
- [26] Flood, J.E.; Rolls, B.J. Soup Preloads in a Variety of Forms Reduce Meal Energy Intake. *Appetite* **2007**, *49*, 626–634, doi:10.1016/j.appet.2007.04.002.
- [27] Rock, C.L.; Flatt, S.W.; Barkai, H.-S.; Pakiz, B.; Heath, D.D. Walnut Consumption in a Weight Reduction Intervention: Effects on Body Weight, Biological Measures, Blood Pressure and Satiety. *Nutr J* **2017**, *16*, 76, doi:10.1186/s12937-017-0304-z.

- [28] Kim, M.J.; Hwang, J.H.; Ko, H.J.; Na, H.B.; Kim, J.H. Lemon Detox Diet Reduced Body Fat, Insulin Resistance, and Serum Hs-CRP Level without Hematological Changes in Overweight Korean Women. *Nutrition Research* **2015**, *35*, 409–420, doi:10.1016/j.nutres.2015.04.001.
- [29] De Freitas Mascarello, A.; Isabel Pinto, G.; Souza De Araújo, I.; Kuller Caragnato, L.; Luís Lopes Da Silva, A.; Freire Dos Santos, L. Technological and Biological Properties of Buttermilk: A Minireview. In *Whey - Biological Properties and Alternative Uses*; Gigli, I., Ed.; IntechOpen, 2019 ISBN 978-1-83880-925-6.
- [30] Mashhadi, N.S.; Ghiasvand, R.; Askari, G.; Hariri, M.; Darvishi, L.; Mofid, M.R. Anti-Oxidative and Anti-Inflammatory Effects of Ginger in Health and Physical Activity: Review of Current Evidence. *Int J Prev Med* **2013**, *4*, S36-42.
- [31] Health Benefits of Gluten-Free Jowar | - Times of India Available online: <https://timesofindia.indiatimes.com/life-style/food-news/is-jowar-gluten-free/articleshow/66847765.cms> (accessed on 19 September 2023).
- [32] Lodhi, I.J.; Wei, X.; Semenkovich, C.F. Lipoexpediency: De Novo Lipogenesis as a Metabolic Signal Transmitter. *Trends Endocrinol Metab* **2011**, *22*, 1–8, doi:10.1016/j.tem.2010.09.002.
- [33] Heidari-Beni, M.; Golshahi, J.; Esmailzadeh, A.; Azadbakht, L. Potato Consumption as High Glycemic Index Food, Blood Pressure, and Body Mass Index among Iranian Adolescent Girls. *ARYA Atheroscler* **2015**, *11*, 81–87.
- [34] Kasprzak-Drozd, K.; Oniszczyk, T.; Gancarz, M.; Kondracka, A.; Rusinek, R.; Oniszczyk, A. Curcumin and Weight Loss: Does It Work? *Int J Mol Sci* **2022**, *23*, 639, doi:10.3390/ijms23020639.
- [35] Thorning, T.K.; Raben, A.; Tholstrup, T.; Soedamah-Muthu, S.S.; Givens, I.; Astrup, A. Milk and Dairy Products: Good or Bad for Human Health? An Assessment of the Totality of Scientific Evidence. *Food Nutr Res* **2016**, *60*, 32527, doi:10.3402/fnr.v60.32527.
- [36] Kulkarni, A.P.; Policegoudra, R.S.; Aradhya, S.M. Chemical Composition and Antioxidant Activity of Sapota (*Achras Sapota*LINN.) Fruit. *J Food Biochemistry* **2007**, *31*, 399–414, doi:10.1111/j.1745-4514.2007.00122.x.
- [37] Vijay Agrawal, R.N. A Review on the Nutritional Quality and Medicinal Value of Custard Apple-An Under Utilised Crop of Madhya Pradesh, India. *Int.J.Curr.Microbiol.App.Sci* **2017**, *6*, 1126–1132, doi:10.20546/ijcmas.2017.609.135.
- [38] Pal, D. A Review of Potential Health Benefits and Therapeutic Applications of Psyllium (*Plantago Ovata*) Husk in Disease Management. *IJSR* **2023**, *12*, 1858–1861, doi:10.21275/SR23517155336.
- [39] Salas-Salvadó, J.; Farrés, X.; Luque, X.; Narejos, S.; Borrell, M.; Basora, J.; Anguera, A.; Torres, F.; Bulló, M.; Balanza, R.; et al. Effect of Two Doses of a Mixture of Soluble Fibres on Body Weight and Metabolic Variables in Overweight or Obese Patients: A Randomised Trial. *Br J Nutr* **2008**, *99*, 1380–1387, doi:10.1017/S0007114507868528.
- [40] Saini, P.; Agrawal, S. A Randomized Controlled Trial to Evaluate the Laxative Effect of Prescribed Diet Compared with Triphala Churna in Vibandha with Special Reference to Constipation. *J Ayurveda* **2022**, *16*, 106, doi:10.4103/joa.joa_163_20.
- [41] Goya-Jorge, E.; Bondue, P.; Gonza, I.; Boutaleb, S.; Douny, C.; Scippo, M.-L.; Pincemail, J.; Chiap, P.; De Ribaucourt, J.C.; Crahay, F.; et al. Levying Evidence of the Impact of Triphala in the Mildly Constipated Human Colon Microbiota. *Journal of Functional Foods* **2025**, *125*, 106698, doi:10.1016/j.jff.2025.106698.
- [42] Azadmard-Damirchi, S.; Fathi-Achachlouei, B.; Alirezalu, K.; Alirezalu, A.; Hesari, J.; Emami, S. Physiological and Medicinal Properties of Castor Oil. In; 2011; pp. 323–337.
- [43] Al-Farsi, M.A.; Lee, C.Y. Nutritional and Functional Properties of Dates: A Review. *Crit Rev Food Sci Nutr* **2008**, *48*, 877–887, doi:10.1080/10408390701724264.
- [44] Alnuwaiser, M.A. Content Of Sugars In Fresh Grapes And Raisins, And Fresh And Dried Apricot: A Comparative Study. **2017**, doi:10.5281/ZENODO.1095050.
- [45] Olmo-Cunillera, A.; Escobar-Avello, D.; Pérez, A.J.; Marhuenda-Muñoz, M.; Lamuela-Raventós, R.M.; Vallverdú-Queralt, A. Is Eating Raisins Healthy? *Nutrients* **2019**, *12*, 54, doi:10.3390/nu12010054.
- [46] Nilawati, S.; Mawar, P. Effectiveness of Consumption of Carica Papaya L, as a Natural Remedy to Treat Constipation. **2022**.
- [47] A Novel Papaya Fruit Preparation Treats Constipation, Diarrhoea, Flatulence, Reflux and Gastritis.

- [48] The Hunger Satiety Scale Available online: <https://uhs.berkeley.edu/sites/default/files/wellness-hungersatiety.pdf>.
- [49] The Hunger Scale Available online: <https://uca.edu/bewell/files/2022/02/The-Hunger-Scale.pdf>.
- [50] Clinical Anger Scale Available online: <https://www.psytoolkit.org/survey-library/anger-cas.html#:~:text=The%20CAS%20score%20is%20simply,CAS%20lies%20around%2010%20points.>
- [51] What Your Tongue Color Can Tell You: Understanding Your Health. *Journal of Chemical Health Risks* **2023**, doi:10.52783/jchr.v13.i5.1028.
- [52] The Hunger Level Scale Available online: https://www.health.qld.gov.au/__data/assets/pdf_file/0019/152812/wtmgt_hungerscale.pdf.
- [53] Cummings, D.E.; Weigle, D.S.; Frayo, R.S.; Breen, P.A.; Ma, M.K.; Dellinger, E.P.; Purnell, J.Q. Plasma Ghrelin Levels after Diet-Induced Weight Loss or Gastric Bypass Surgery. *N Engl J Med* **2002**, *346*, 1623–1630, doi:10.1056/NEJMoa012908.