



Short Communication

Short term escalating administration of large amount of *sneha* does not increase blood lipids

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ABSTRACT

Vardhamana snehapana or *shodhana sneha* is classical Ayurvedic treatment in which escalating dose of *sneha* or *ghee* is administered for *utkleshana* (precipitation and dilution) of morbid *doshas* in body. Due to *snehana* and *swedana*, *doshas* get separated from *dhatu*s, channelized towards *koshtha*, from where they can be easily and safely removed by appropriate cleansing therapy or *shodhana* like *vamana* (emesis) or *virechana* (purgation). Since this type of *snehana* requires administration of large amount of *sneha* or *ghee* there is fear that patients may experience increase in harmful lipids. The present study examined the effect of *vardhamana snehapana* on relevant physical and physiological parameters in normal individuals before and after *samyak snehana* and *shodhana*. *Vardhamana snehapana* was administered in healthy individuals according to *agni* and *koshtha* to achieve *samyak snigdha lakshanas* (symptoms of proper oleation). We assessed parameters of *vardhamana snehapana* in all individuals including *samyak snigdha lakshanas*, *jeeryamana lakshanas*, total quantity of *sneha* consumed. Effect of *vardhamana snehapana* on weight, abdominal circumference and lipid profile were measured before and after *vardhamana snehapana*. Statistical significance of results were quantitated by paired t test. After *vardhamana snehapana*, 16 out of 29 volunteers showed a significant weight loss of > 2 kg ($p < 0.0001$). The remaining 13 volunteers showed less but significant weight loss <2 kg ($p < 0.0001$). Notably, all 29 volunteers showed a significant reduction in abdominal circumference ($p \leq 0.0006$) after *vardhamana snehapana*. Although *vardhamana snehapana* did not significantly alter levels of total cholesterol, HDL, and LDL, it did cause a significant reduction in triglycerides ($p = 0.009$) and VLDL ($p = 0.005$) in all 29 volunteers. *Vardhamana snehapana* is responsible for precipitation of *doshas* and does not cause *brumhana* (Nourishment of *dhatu*s or body elements). Importantly, this treatment did not negatively affect health of any of the volunteers. Notably, *Vardhamana snehapana* caused different degrees of statistically significant reduction in body weight, abdominal circumference, and levels of specific lipids (triglycerides and VLDL) in these 29 volunteers. These encouraging results could be due to the composition and metabolism of the pure cow's ghee used for *vardhamana snehapana* treatment in this study.

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1. Introduction

Ayurveda has the unique treatment modality of *snehana* (oleation). Four types of *sneha* (fat) can be used in a versatile manner for prevention and cure of diseases [1, sootrasthana, snehadhyaya 13/13]. *Ghrita* or clarified butter is one of them. For *shodhana* (purification/cleansing) therapy in Ayurveda, pre-procedure like

snehana and *swedana* (fomentation) are necessary [1, sootrasthana, apamargatanduliya 2/15].

Snehana or *Snehapana* (oleation) is an important pre procedure in *shodhana* (purification/cleansing). For this procedure, ghee or oil is used in increasing dose pattern. This causes *utkleshana* (precipitation or separation) of *doshas* from all body channels. In this *vardhamana snehapana* method (escalating dose pattern) *sneha* pervades in all *srotasas* (body channels). The pathological bonds between *dhatu* and morbid *doshic* matter are rendered and become loose by *sneha*. This *sneha* counteracts *vayu* attributes and make the body environment supple. Owing to laxity of *dhatu*s they do not harbor *doshas*. So when *snehana* and *swedana* is administered,

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doshas leave their anchorite *dhatu* (body tissues) easily without damaging the delicate *dhatu*s [1, siddhithana Kalpa, nasiddhi 1/7] This requires 3–7 days duration. During this period a person can consume approximately 300–1000 ml of ghee. So there is fear that patient may experience an increase in harmful lipids due to large amount of ghee consumption.

Secondly cow's ghee available in the market has various origins and different preparation techniques. So this type of ghee may have different impact on lipid profile. Hence with these objectives, the study-the evaluation of the "effect of *vardhamana snehapana* (cow's ghee) on lipid profile in healthy individual especially after *snehana* and after *shodhana*" was done. During the study the physical and physiological parameters like weight, abdominal circumference, *samyak snigdha lakshanas*, *jeeryamana lakshanas* and lipid profile were assessed.

2. Materials and methods

Cow's ghee was selected for the study as it is superior among all four *snehas*. *Ghrita* has the capacity to transform itself so as to imbibe the qualities of substances added to it, keeping its own qualities intact (*Sanskaranuvartana*). To oleate is the innate quality of ghee, it pacifies vata, pitta and does not increase kapha [1, sootrasthana, annapanavidhi 27/4].

Cow's ghee from Katraj dairy, Pune (Maharashtra) was used. Analysis of ghee was carried out at NAFARI, Pune. It reported 88.40 g/100 g amount of saturated fats (Report- Supplementary material Appendix A).

A special Case Record Form was prepared including systemic examination of volunteers including *agni* (digestive capacity), *koshtha* (bowel habit including consistency, frequency of stools), *udara parikshana* (abdominal examination), food habit and *snehapana* details. After permission of institutional ethics committee, work was started.

An open label observational perspective clinical study was carried out in Seth Tarachand Ramnath Charitable Hospital, Rasta Peth, Pune, 411011, Maharashtra, India. Candidates accompanying patients, staff were informed about the work and asked them to enroll. There was no control group in this study.

2.1. Inclusion criteria

The candidates who were not suffering from any major illness since two years and no minor illness in previous six months were recruited. Age limit was 20–60 years in this study.

2.2. Exclusion criteria

The candidates with lean or thin body (*krusha*) were excluded. Normal lipid range considered here was HDL >40 mg/dL, LDL 85–150 mg/dL, VLDL 50–150 mg/dL, triglycerides < 150 mg/dL, cholesterol < 200 mg/dL.

Forty one volunteers were screened, among these 30 were selected. One volunteer did not completed lipid profile on time. Total 29 volunteers were enrolled.

2.3. Administration of snehapana

The examination of volunteers were done as per record form. The increasing dose of ghee was decided according to *Agni* (digestive capacity) and *koshtha* [1, sootrasthana, snehadhyaya 13/65]. Purpose of giving this *sneha* was to observe the efficacy of *shodhana sneha*. The dose pattern was supported by previous study in the hospital.

Before starting *snehapana*, *pachana* drug (*shunthi* – *Zingibar-officinale* 1 gm thrice a day) for 7 days was administered in all volunteers. The next day lipid profile was performed in the laboratory of "Seth Tarachand Ramnath Charitable Hospital". Volunteers were asked to come early morning for *snehapana* with empty stomach. *Snehapana* was administered in the morning 6.30–6.45 am. Ghee is given in increasing dose order for 4–6 days till *samyaksnigdha lakshanas* (proper oleation symptoms) were observed. These are described by Sushruta as *glani*, *angasada* or *gourava*, *adhatat snehadarshana* (actual fat in fecal matter) and *snehodvega* (repulsion for intake of *sneha*) [2].

Snehapana pattern was fixed increased dose pattern i.e. 40 mL, 80 mL, 120 mL, 160 mL, 200 mL, 240 mL, etc. On the first day, each volunteer received a dose of 40 ml *Sneha*. A daily increase of additional 40 ml was given for up to 4, 5 or 6 days. Total amount of *Sneha* consumed daily per volunteer ranged from 400 mL to 1050 mL.

Regular habitual diet was taken by candidates after observing *jeerna sneha lakshanas* (symptoms after digestion of *sneha*) like *shirashoola*, *daha*, *klama*, etc. [3] After completion of *snehapana* the next day morning lipid profile was performed.

Weight and abdominal circumference were recorded before and after *snehapana*. Total dose of *snehapana* and last day dose was calculated to record *snehamatra*.

Appropriate *shodhana* (*vamana* or *virechana*) was administered according to *doshagati*. Out of 29 candidates, *virechana* was administered in 27 candidates and *vamana* was administered in 2 candidates. Post *shodhana*, *sansarjana krama* (special diet regime to regain *agni*) was advised according to type of *shuddhi* (type of purification-mild, moderate, etc.). After 15 days of *shodhana* lipid profile was performed.

2.4. Assessments

Different independent variables like age, *agni*, *koshtha*, *prakruti* (basic body constitution), etc. were assessed to observe proper oleation symptoms. A separate proforma for *prakruti*, *agni* and *koshtha* were used [1, vimanasthana, rogameekam vimanam, 6/12; rogabhishagjiteeya vimanam, 8/ 96-98]. Dependent variables like weight, abdominal circumference, lipid profile, *samyaksnigdha lakshanas*, *jeeryamana lakshanas* were assessed. *Samyaksnigdha lakshana* were assessed with gradation system, *jeeryamana lakshanas* were assessed everyday by yes, no pattern.

2.5. Statistical analysis

Paired t-test was used to analyze before and after *snehapana* and after *shodhana* lipid observation. For pre and post *snehana* weight and abdominal circumference, paired t test was used.

3. Results

Snehapana was administered in 29 volunteers to achieve *samyak snigdha lakshanas* in 4, 5 or 6 days. These symptoms were achieved on different days and with different quantities of *sneha* in volunteers because of different types of *agni* and *koshtha*. The range of *snehamatra* is 400 ml–1050 mL.

After *snehavirama kala* (resting period after *snehapana*) appropriate *shodhana* was administered. Out of 29 candidates, *virechana* was administered in 27 candidates as they showed *adhoga utklesha* like *adhodara gourava* (heaviness in lower abdomen). *Vamana* was administered in 2 candidates as they showed *urdhva utklesha* symptoms like *hrullasa*, *amashaya gourava*, *shirashoola* etc. Though the volunteers were healthy, *shodhana sneha* caused *utkleshana* of *doshas* in the body. Post *shodhana*, *sansarjana krama* (special diet

regime to regain *agni*) was advised according to type of *shuddhi* (type of purification-mild, moderate, etc.).

During the study two subgroups were considered-

Group 1- Candidates showed weight loss ≥ 2 kg.

Group 2- Candidates showed weight loss ≤ 2 kg.

They were assessed for weight and abdominal circumference.

Candidates were classified on the basis of *agni*, *koshtha* and *prakruti* in these 2 groups.

After collecting data on dependent and independent variables, we performed statistical tests to assess whether there was any correlation between the status of *agni*, *koshtha*, or *prakruti* of each patient, and their observed weight loss". Association of *agni*, *koshtha*, *prakruti* with lipids and lipid variation was not assessed.

Lipid profile before and after *snehana* and after *shodhana* were performed and recorded significant reduction in triglycerides and VLDL. (Table 4)

This study observed 5 interesting results. First, in spite of consuming large amount of ghee no weight gain was observed in any of the 29 volunteers. This important finding is consistent with the *Ayurvedic* claim that this type of *sneha* is not absorbed for the nourishment of *dhatu*s-as it is given in escalating dose pattern. It gets saturated in different body channels and causes separation of *doshas*. Hence it will not nourish *dhatu*s. Second, it is notable that our *shodhana* treatment resulted in a statistically significant decrease in triglycerides and VLDL levels in these 29 volunteers (Table 1). Third, we observed that 16 of the 29 volunteers experienced a weight loss of ≥ 2 kg and 13 patients showed a significant weight loss < 2 kg ($p < 0.0001$) after *vardhamana snehapana*. (Tables 2 and 3). Notably, all 29 patients showed a significant reduction in abdominal circumference. This weight loss and change in abdominal circumference were statistically significant (Table 3). Fourth, the weight loss and decreased waist circumference in these 16 individuals was not affected by their *Prakriti*, *Agni*, or *Koshtha* status (Figs. 1–3). Fifth, the last two points suggest that a subset of healthy volunteers with certain characteristics may particularly benefit from this *shodhana* treatment. Additional studies are needed to explain this observation.

4. Discussion

Vardhamana snehapana is classical *Ayurvedic* treatment in which *sneha* or fat is administered in increasing dose pattern. The period required to achieve the proper symptoms of *snehapana Samyak snigdha lakshanas* is 3–7 days according to *koshtha*.

During this period morbid *doshas* get separated from *dhatu*s. This special type of *snehapana* is responsible for *utkleshana* or precipitation of *doshas* [4]. According to *Ayurveda* this type of *sneha* is not absorbed for the nourishment of *dhatu*s. As it is given in escalating dose pattern it gets saturated in different body channels and causes separation of *doshas*. Consumption of *sneha* resulted in reduction of food intake. As the quantity of *sneha* increases, time required for the digestion of *sneha* also increases. During last 2–3 days of *snehapana* single meal is sufficient. In some persons, during *snehapana*, a small amount of *doshas* get eliminated through *mala/purisha* (feces). Hence there is significant reduction in weight after *snehapana* and abdominal circumference in one sub-group of patients.

During this study lipid values were found stable after *snehapana* though large amount of *sneha* has been administered. In critical review of *snehapana* by Dr Patil, he mentioned two studies where stable lipids were observed after *snehapana* [5]. But in another study where Jane et al. found slight increase in triglycerides after *snehapana* but no considerable rise was noted in other types of lipids [6].

Table 1

Weight and abdominal circumference before and after *snehapana* in 29 candidates.

Candidates	Variable	Before <i>snehapana</i>	After <i>snehapana</i>	P value ^a
N = 29	Weight (Kg)	60.25 \pm 12.16	58.65 \pm 11.19	P < 0.0001
N = 29	Abdominal circumference(Cm)	80.91 \pm 10.51	78.74 \pm 10.16	P < 0.0001

^a Paired t test.

Table 2

Group 1-Weight loss after *snehapana* ≥ 2 kg in 16 candidates.

Variable	Before <i>snehapana</i>	After <i>snehapana</i>	P value*
Weight (Kg)	63.46 \pm 10.60	61.21 \pm 10.66	P < 0.0001
Abdominal circumference(Cm)	84.87 \pm 10.22	82.40 \pm 10.10	P < 0.0001

Table 3

Group 2 Weight loss < 2 kg after *snehapana* in 13 candidates.

Variable	Before <i>snehapana</i>	After <i>snehapana</i>	P value*
Weight (Kg)	56.30 \pm 13.56	55.5 \pm 13.39	P < 0.0001
Abdominal circumference(Cm)	76.88 \pm 10.65	75.07 \pm 10.14	P = 0.0006

Also Dr Patil in his own study reported significant increase in triglycerides and VLDL but within normal range. These levels came to normal after purification. This increase in triglycerides was contrasted with our study. This difference in findings in these studies and in our study may be due to pattern of administration of *sneha* and source of ghee used. Patil et al. reported unfixed dose pattern according to *agni* and he used commercial dairy product ie buffalo ghee from Amul Dairy.

Extra fat which was not digested by *agni*, was eliminated through faecal matter. In our study we have not monitored this amount of fat. Ramteke et al. reported high fat globules in stool examination during *snehapana* and after *snehapana* ($p < 0.01$). They found that there were no significant changes in blood parameters due to *snehapana* including cholesterol [7]. Hence excretion of fat in faecal matter should be considered in explaining lipid mechanism or decrease in lipids after *snehapana*.

After *shodhana* we found significant reduction in triglycerides and VLDL. Dr. Bagul has proved similar finding that there is decrease in lipids after *shodhana* and *sansarjana krama* [8].

While following *sansarjana krama* (diet regime) after *shodhana*, *laghu ahara* (light diet, diet without ghee) is advised which may be responsible for reduction in calorie intake and it may cause reduction in lipids. Afrasiabi et al. showed effect of low calorie diet in Ramadan month on lipids ie it leads to plasma lipid reduction in 28 hyperlipidemic men. Larger sample size is necessary to confirm this finding [9]. Still this study supported the work done by the author.

Hence this may be theory of stable lipids in our study.

The effect of ghee on serum lipid levels and microsomal lipid peroxidation was observed by Vd. Hari Sharma et al. in rat models (2 groups of 5 animals). He concluded that 10% dietary ghee may increase triglyceride level [10]. However, Chinnadurai et al. concluded that ghee has short chain saturated fatty acids and hence easier to digest. It increases excretion of dietary cholesterol and bile acids from gastrointestinal tract in rats model (16 animals fed with ghee). So there is decrease in cholesterol and LDL. Decrease in plasma triglycerides could be due to anti-atherogenic effect of conjugated linoleic acid in ghee. As low as 0.05% CLA is found to reduce total triglycerides by 28% [11]. These two results contrast with our study because these works were done for long period like

Table 4
Lipid profile before *snehapana* and after *snehapana* and after *shodhana*.

Sr. No.	Lipid	Baseline (Before <i>snehapana</i>) mg/dl	After <i>snehapana</i> mg/dl	Completion (after <i>shodhana</i>) mg/dl	P value (from baseline to completion)
1	Cholesterol	156.31+ ₋ 25.67	155.81+ ₋ 23.95	159.11+ ₋ 28.24	
2	Triglycerides	126.41+ ₋ 9.21	114.86+ ₋ 28.86	103.83+ ₋ 35.64	p = 0.009
3	HDL	44.38+ ₋ 13.66	43.31+ ₋ 07.71	42.46+ ₋ 08.81	
4	LDL	86.96+ ₋ 24.68	91.89+ ₋ 27.95	95.52+ ₋ 26.12	
5	VLDL	26.13+ ₋ 06.96	22.89+ ₋ 05.86	21.00+ ₋ 07.68	p = 0.005

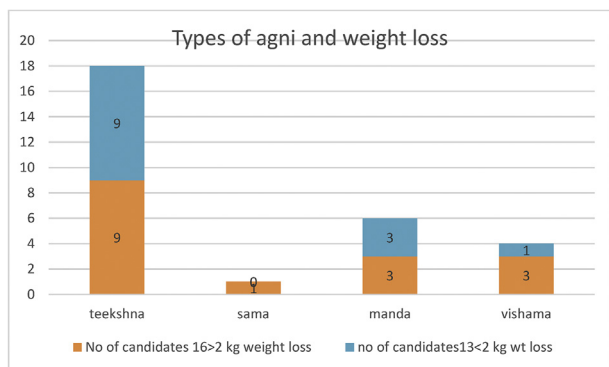


Fig. 1. Types of *agni* and weight loss. Weight loss was not correlated with any particular *agni* type.

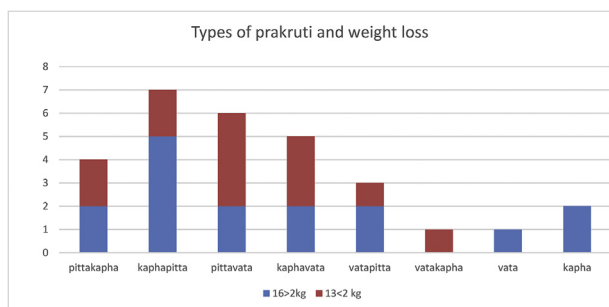


Fig. 2. Types of *prakruti* and weight loss. Weight loss was not related with types of *prakruti*.

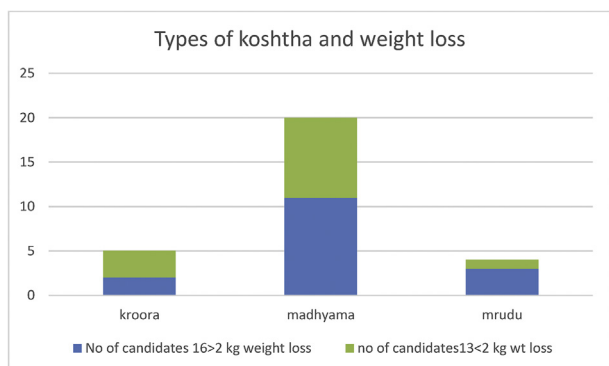


Fig. 3. Types of *koshttha* and weight loss. Weight loss was not correlated with type of *koshttha*.

4 weeks. Both studies reported dietary ghee pattern (small amount of ghee) in rat model. Dietary lipid and use of only lipids as *snehapana* have different mechanism.

Joshi concluded that *ghrita* prepared by traditional method contains higher amount of DHA, Omega 3 long chain

polyunsaturated fatty acids and is important for prevention of various diseases [12]. Thus the method of processing of ghee is important for the precise composition of ghee.

Hence the special composition of ghee and its metabolism in body, light diet after *shodhana* may be responsible for reduction in triglycerides and VLDL levels after *shodhana* procedure.

5. Limitations

There was no control group in this study. Standardised and validated formats of proforma of *agni*, *koshttha* and *prakruti* were not used.

6. Conclusion

In conclusion, the published literature on humans and rats suggests that administration of ghee can sometimes decrease levels of serum cholesterol and LDL. Notably, our study found that the use of *vardhamana snehapana* in 29 healthy volunteers for 4–6 days, caused a statistically significant reduction in abdominal circumference and weight, serum TG, and serum VLDL. Furthermore, 16 out of 29 volunteers showed a significant weight loss of > 2 kg. More studies are needed to fully explain this phenomenon.

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Conflict of interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jaim.2020.05.004>.

References

- [1] Yadavji T, editor. Charaka samhita of agnivesha. New Delhi: Munshilal Manoharlal publishers Pvt Ltd; 1992.
- [2] Yadavji T, editor. Sushruta samhita of Sushruta, chikitsasthana; snehopayogik chikitsita: chapter 31, verse 52. 2nd ed. Varanasi: Choukhamba Surbharati Prakashana; 1994. p. 416.

- [3] Sharma S, editor. Ashtanga sangraha, sutrasthana; snehavidhi: chapter 25, verse 28. 1st ed. Varanasi: Choukhamba Shrikrishnadas Academy; 2006. p. 192.
- [4] Paradkar H, editor. Commentaries sarvangasunder of arundatta and Ayurveda rasayani for hemadri on ashtanga hridaya by vagbhata, sootrasthana; doshopakramaniya: chapter 6, verse 29. 2nd ed. Varanasi: Krishnadas Academy; 1982. p. 217.
- [5] Patil VC, Baghel MS, Thakara B. Effect of snehapana on lipids- a critical review. *Ancient Sci Life* 2009 Oct;29(2):32–9.
- [6] Jane PU, Pardhi GM. Effect of snehapana (internal oleation) on lipids and haematological parameters. *wjpr* 2017;6(3):1077–83.
- [7] Ramteke R, Vinodkumar G, Meharjan T. An open clinical trial to analyze samyak snigdha lakshana of shodhananang snehapana with Mahatiktaka ghritam in Psoriasis. *Ayu* 2011;32:519–25. Oct-Dec.
- [8] Bagul A. Effect of shodhanartha vardhamana snehapana on lipid profile. *Wjpmr* 2017;3(5):150–5.
- [9] Afrasiabi A, Hassanzadeh H, Nouri M, Mahbood S, Sattarivand R. Effects of low fat and low calorie diet on plasma lipid levels in fasting months of Ramadan. *Saudi Med J* 2003 Feb;24(2):184–8.
- [10] Sharma H, Zhang X, Dwivedi C. The effect of ghee on serum lipid levels and microsomal lipid peroxidation. *Ayu* 2010;(2):134–40. Apr- June 31; [PMCID] [PMC3215354].
- [11] Chinnadurai K, Kanwal HK, Tyagi AK, Stanton C, Ross P. High conjugated linoleic acid enriched ghee (clarified butter) increases the antioxidants and anti-atherogenic potency in female wistar rats. *Lipids Health Dis* 2013;12:121. AUG 7.
- [12] Joshi KS. Docosahexanoic acid (DHA) content is significantly higher in ghrita prepared by traditional ayurvedic method. *J Ayurveda Integr Med* 2014;5(2): 85–8.