



## Impact of “*Shodhana Purva Snehapana*” on Lipid Metabolism, A Conceptual Study.

*Dr. Satyapriya Naik<sup>a</sup>, Dr. Surajita Biswal<sup>b</sup>, Dr. Bhuvnesh Kumar Sharma<sup>c</sup>*

<sup>a</sup> PG Scholar, Department of Samhita and Maulika Siddhanta, NIA (De-novo), Jaipur.

<sup>b</sup> PG Scholar, Department of Panchakarma, NIA (De-novo), Jaipur.

<sup>c</sup> Associate Professor, Department of Samhita and Maulika Siddhanta, NIA (De-novo), Jaipur.

Email: [nsatyapriya15@gmail.com](mailto:nsatyapriya15@gmail.com)

### ABSTRACT:

*Snehapana* in Ayurveda and the ketogenic diet, both high in fat, serve distinct purposes. *Snehapana* readies the body for detoxification and dosha balance, employing medicated ghee or oil, reducing appetite, and leading to short-term weight loss. Conversely, a ketogenic diet induces ketosis by cutting carbs, aiding long-term weight loss and insulin sensitivity, making it suitable for diabetes. Cholesterol effects differ: keto diets reduce it indirectly through weight loss, while *snehapana* utilises stored fat, maintaining cholesterol. High ghee intake doesn't necessarily raise cholesterol, but more research is required. Case study can illustrate these unique practices, with differing goals, durations, and effects.

Key Notes—*Snehapana, shodhana, Ayurveda, Keto Diet,*

### INTRODUCTION:

“*Shodhana purva snehapana*” is a term that is related to Ayurveda, a traditional system of medicine in India. In Ayurveda, “*snehapana*” refers to the process of administering medicated ghee or oils to a patient. It is done before certain therapeutic procedures, such as *vamana* and *virechana* in *Panchakarma*.<sup>1</sup> This process is believed to prepare the body for these procedures and facilitate the elimination of toxins.

In the context of lipid metabolism, there is limited scientific research that directly addresses the effects of “*shodhana purva snehapana*,” or pre-therapeutic oil or ghee administration. However, *Ayurveda* has been explored in relation to various health conditions, and there is a broader understanding of the potential effects of certain *Ayurvedic* practices on metabolism.

Here is a conceptual study of how “*shodhana purva snehapana*” might affect lipid metabolism:

1. **Metabolic Changes:** The administration of medicated ghee or oils may influence the metabolic processes in the body. Ghee contains saturated fats and cholesterol, and its consumption might impact lipid metabolism.<sup>2</sup>
2. **Role of Ghee in Ayurveda:** In *Ayurveda*, ghee is considered to have various properties, including “*snigdha*” (unctuous), which can help balance the “*vata*” *dosha* and improve digestion and it is *sanskar anuvartini*.<sup>3</sup> Improving digestion could indirectly impact nutrient absorption, including fats.
3. **Lipid Profile:** It's possible that pre-treatment with ghee or oil could influence the lipid profile of an individual. The lipid profile includes parameters like total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides.<sup>4</sup>
4. **Detoxification:** “*Shodhana*” or purification processes in *Ayurveda* are believed to remove toxins from the body. It is conceivable that the removal of toxins might have an indirect effect on lipid metabolism, as toxins can influence metabolic processes.
5. **Individual Variability:** The effects of “*shodhana purva snehapana*” may vary from person to person. Factors like the individual's constitution (*Prakriti*), the specific type of oil or ghee used, and the underlying health conditions can all play a role in determining duration of *snehapana*. Duration may vary from minimum three days to seven days or till getting *samyak siddhi lakshana*.<sup>5</sup>
6. **Scientific Validation:** To understand the effects more comprehensively, rigorous scientific studies and clinical trials would be necessary. These studies could assess lipid profiles, metabolic changes, and other relevant markers before and after “*snehana*” (oil or ghee administration) as part of *Ayurvedic* treatment.

In summary, "*shodhana purva snehapana*" in the context of *Ayurveda* may have an impact on lipid metabolism through its influence on digestion, detoxification, and metabolic processes. However, more research and clinical studies are needed to establish a clearer understanding of the effects on lipid metabolism and to determine the safety and efficacy of these practices.

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## MATERIAL AND METHODS:

A systematic review was conducted by screening and organising classic *Ayurvedic* texts, modern literature, published articles in peer-reviewed journals, books, and subject-related material available online, focusing on references to *Sodhanapurva snehapana* and its impact on lipid metabolism. This review encompassed research works and studies pertaining to the *snehapana* effect in the context of lipid metabolism. It considered both the *snehapana* and keto diet concepts and their impact on lipid metabolism.

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## DISCUSSION:

*Snehapana* in *Ayurveda* and a ketogenic diet, while both involving high-fat intake, serve distinct purposes and have varying effects on the body. *Snehapana* is a short-term component of *purvakarma* under *Panchakarma* therapy, designed to prepare the body for detoxification and balance *doshas*. It lasts only a few days and employs medicated ghee or oil to oleate the body, facilitating the removal of toxins. On the other hand, a ketogenic diet is a long-term dietary approach that aims to induce ketosis with high fat, low carbohydrate, and moderate protein consumption. It's often used for purposes such as weight loss and managing certain medical conditions. These differences in purpose, duration, and effects make it clear that *Snehapana* and a ketogenic diet are distinct practices with unique objectives. The ketogenic diet induces a metabolic state known as ketosis in the body, where it shifts from using glucose as its primary energy source to burning ketone bodies. Ketone bodies are formed from the breakdown of fat in the liver when carbohydrate stores are depleted. When ketone bodies accumulate in the blood, it signifies that the body is in ketosis. These ketones can be used for energy by various vital organs, including the heart, brain, kidneys, and muscle tissue.

During ketogenesis, due to low blood glucose levels, insulin secretion is also reduced, leading to fewer insulin spikes and improved insulin sensitivity. This can be beneficial for individuals with type 2 diabetes. Additionally, lower insulin levels reduce the stimulus for fat and glucose storage, aiding in weight loss.<sup>6</sup>

Regarding cholesterol, it is a fatty substance essential for various bodily functions. Cholesterol is carried through the bloodstream by lipoproteins, with low-density lipoprotein (LDL) cholesterol considered "bad" because it can accumulate in arteries, potentially leading to cardiovascular issues. High-density lipoprotein (HDL) cholesterol is considered "good" as it helps remove LDL cholesterol from the bloodstream, reducing the risk of cardiovascular complications. High cholesterol levels can result from high LDL cholesterol, low HDL cholesterol, or an unfavourable LDL/HDL ratio, all of which can increase the risk of heart disease, atherosclerosis, heart attacks, and strokes. Managing cholesterol levels is crucial for overall heart health.

### Ketogenic Diets and their Impact on Cholesterol

Some studies suggest that very low-carbohydrate diets, such as the keto diet, can reduce one's appetite by influencing hunger hormones. This is thought to lead to a lower calorie intake, which means that the keto diet may contribute to weight loss and indirectly reduce cholesterol.

The same principles are also followed in the *Sodhana Purva Sneha Pana*. In this case, the subject is allowed to take a high volume of medicated ghee that reduces the appetite. Again, during the course of *snehapana*, the subject is restricted to all types of physical activity and also to avoid mental stress.

Basal metabolic rate indicates the minimum amount of energy required to perform routine physical activities like circulation, respiration, etc. in rest conditions. BMR always depends on the age, height, and weight of the individual. So calculating the BMR of an individual during the entire *snehapana* period, it seems that the person is not getting the desired amount of energy through this high-fat diet like medicated ghee. To compensate for the requirement, the body uses the deposited fat to produce energy through the oxidation of stored fat. Ultimately, that reduces the cholesterol level in the blood. So there is least risk of an increase in cholesterol level. The myth by common people that intake of high doses of ghee may increase the cholesterol level is not scientifically true. Hypolipidemic effects of *Shodhana purva Snehapana* with *Moorchhita* ghee is proved by four clinical studies conducted by Patil et al., Ashwini K. et al. & R.B. Nair et al., Kumar and Kathirvelan which states that oral intake of fats does not lead to increase in the level of cholesterol, in contrast, it induces a reduction in increased level lipids and try to remain at normal level.<sup>7</sup> This effect may be because when fat is consumed in large quantities, there occur inhibition of the essential enzyme required for endogenous synthesis of cholesterol due to an increase in intake of cholesterol-rich diet. It may require more clinical case study for validation of this concept. For illustration purposes, a case may be considered for logical analysis.

For example, a 28-year-old male patient is planned for *virechana* and advised on *snehapana* with medicated ghee. The weight of the patient is 75 kg, and his height is 175 cm. The patient is started with a test dose of 40 ml of ghee, and it is digested in 4 hours. The desired dose is 120 ml, which will be digested in 12 hours. The very next day, the direct required dose should not be given to avoid *sneha satmya*, so 80 ml should be given, and then onwards, 120 ml of ghee is allowed till getting *sneha snigdha lakshana* in the body.<sup>8</sup> It is observed that on test dose day, one can take the desired meal two times, but on the first day to till *snaha snigdha lakshana*, the reduction in appetite effect of ghee is noticed, so the subject skipped one diet of lunch and took only the dinner diet. Accordingly, the following calculation is made in the table: Which suggests a shortage of calories from the start of the taste dose to the completion of *snehapana*.

BMR for male patient is calculated using Haris-Benedict BMR, Formula for Men.<sup>9</sup>

$$\text{BMR} = 66.4730 + 13.7516 \times \text{weight in kg} + 5.0033 \times \text{height in cm} - 6.7550 \times \text{age in years.}$$

The Standard BMR for a 28-year-old male patient having 75 kg weight and 175cm height is calculated using the Harris-Benedict BMR Formula.

$$\text{BMR} = 66.4730 + 13.7516 \times 75 + 5.0033 \times 175 - 6.7550 \times 28 = 2162.56 \text{ kcal}$$

That indicates 2162.56 calories of energy are required for this person per day. During *snehapana*, the patient is advised to avoid all types of physical work and mental stress. Again, without a desire for food, no diet is advisable. So energy produced from the daily use of ghee and followed by one time diet is calculated. The calculation is done on the principle of 1gm ghee will produce around 8 calories<sup>10</sup> and one normal diet advised during the *snehapana* period consist of roti, dal, and vegetable will produce around 350calories energy.<sup>11</sup> Based on this data, the daily energy required and shortfall from the diet are calculated in the below table.

**Table—Energy produced during *snehapana kala***

No. of days	Amount of ghee intake	Calories	Shortage of energy In calories
Test dose	40ml	40X 8kcal==320 kcalories + 2 diet @ 350kcal = 1020kcal	1142.56 kcal
1 <sup>st</sup> day	80ml	80X 8kcal==640 kcalories + 1 diet @ 350kcal= 1340kcal	822.56 kcal
2 <sup>nd</sup> day	120ml	120X8kcal==960 kcalories + 1diet @ 350ml = 1660kcal	502.56 kcal
3 <sup>rd</sup> day	120ml	120X8kcal==960 kcalories + 1diet @ 350ml = 1660kcal	502.56 kcal
4 <sup>th</sup> day	120ml	120X8kcal==960 kcalories + 1diet @ 350ml = 1660kcal	502.56 kcal
5 <sup>th</sup> day	120ml	120X8kcal==960 kcalories + 1diet @ 350ml = 1660kcal	502.56 kcal

From this calculation, it is clear that to compensate for the shortage of energy during *snehapana*, the body uses stored fat to convert energy through the beta-oxidation process. Which ultimately will reduce the cholesterol level in the blood. To maintain the required BMR during *Snehapana* and also during *Samsarjana*, body fat is burned through beta oxidation.

## CONCLUSION:

Concluding the pre-cleansing phase of "*sneha pana*" treatment shares some similarities with the ketogenic diet, suggesting that there may be a limited risk of exacerbating lipid profiles when high doses of medicated ghee are consumed over a short duration as part of the initial purification process. This conclusion implies that individuals with elevated lipid profiles might not face a significant risk from orally ingesting substantial quantities of medicated ghee for a brief period lasting three to seven days. However, more numbers of clinical study may require to validate this concept.

## REFERENCES:

- 1-Yadavji T. Acharya Sutra Sthana Chapter 2 verse 15. Charaka Samhita with Ayurveda Dipika Commentary. Reprint edition. Varanasi: Chaukhamba Orientalia;2020. page no 25
- 2- Sharma H, Zhang X, Dwivedi C. The effect of ghee (clarified butter) on serum [40] lipid levels and microsomal lipid peroxidation. Ayu. 2010;31(2):134-40
- 3- Sharma Prof .Priyavat, editor. Sutra Sthana, Charaka Samhita of Agnivesha, treatise refined and annotated by Charaka and redacted by Dridhbala, English translation , Volume I, reprint edition, Chapter 13 ,Verse 12. Varanasi, India: Chaukhamba Orientalia; 2007.p.86
- 4- Patil VC, Baghel MS, Thakara B. Effect of snehapana on lipids- a critical review. Ancient Sci Life 2009 Oct;29(2):32e9.
- 5-Yadavji T. Acharya Siddhi Sthana Chapter 1 verse 06. Charaka Samhita with Ayurveda Dipika Commentary. Reprint edition. Varanasi: Chaukhamba Orientalia;2020. page no 677
- 6- Jane PU, Pardhi GM. Effect of snehapana (internal oleation) on lipids and haematological parameters. wjpr 2017;6(3):1077e83.
- 7- Patil etal. Effect of snehapana (internal oleation) on lipids,A Critical Review, Ancient science of life, 2009;29(2): 32-39.
- 8- Paradkar H, editor. Commentaries sarvangasunder of arundatta and Ayurveda rasayani for hemadri on ashtanga hridaya by vagbhata, sootrasthana; chapter 16, verse 29. 2nd ed. Varanasi: Krishnadas Academy; 2018. p. 249.
- 9- Sybil Claudine R. Luy, MD Comparison of the Harris-Benedict Equation, Bioelectrical Impedance Analysis, and Indirect Calorimetry for Measurement of Basal Metabolic Rate among Adult Obese Filipino Patients with Prediabetes or Type 2 Diabetes Mellitus. Published online 2018 Sep 10. doi: [10.15605/jafes.033.02.07](https://doi.org/10.15605/jafes.033.02.07).

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10- Mani U, Dr. Shetty P. *Calories in Ghee, Nutrition, Health Benefits, More / Bodywise*. Available from: <https://bebodywise.com/blog/ghee-calories/> [Accessed 27 October 2023].

11- Dietary Guidelines for Indians- A Manual. 2<sup>nd</sup> ed. Hyderabad: National Institute of Nutrition;2011. Pg. 106