



## Establishment Of Eco-Friendly Panchakarma Center: A Review

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### ABSTRACT

Panchakarma, the unique and wonderful treatment of Ayurveda is basically designed for the elite class of the society. It is an integral part of Ayurveda. The work is authentic and at the same time gives sufficient knowledge in short about the subject matter to practice. The procedures of Panchakarma therapy constitutes an important part of the entire therapeutic approach. Perhaps looking at how this therapy cleanses inner toxins, there is a need to consider an eco-friendly approach by applying new techniques for Panchakarma. New technology is required to deal with environmental contaminants, especially those that are neither mobile nor volatile in ecosystems. Eco-friendly Panchakarma is an environment friendly way of practicing Ayurveda by using ideas for decrease in pollution, reduction of waste, conserving energy, and to reduce other harmful impacts on the planet Earth. The incorporation of eco-friendly Panchakarma practice is not only effectual from an environmental perspective but is cost-effective for the practitioner too. This report reviews about the availability of solutions to establish environment friendly applications and puts forward extensive steps to start an environment friendly Panchakarma center. Many Ayurveda practitioners must have never thought how much water, electric power, papers and other resources Panchakarma theatres use, or must have not considered where the oils, catheters, plastic bottles of materials used, gloves, residues like blood, powder, cotton etc, paper, waste water and organic waste used in the Panchakarma ends up after disposal. Constructing and running environment friendly-Panchakarma theatres will lead towards a clean, sustainable and non-polluted planet. We need to thoroughly evaluate our Panchakarma practices taking into consideration its effects on planet. Individual Panchakarma Centers generate very little amounts of waste, but the waste that is produced collectively by our profession may not be ecologically sound. Therefore, there is requirement of having an eco-friendly approach for Panchakarma practices.

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**Keywords:** Ecofriendly , Panchakarma theatre, Sustainability.

## INTRODUCTION

Ayurveda is very closely related to the Mother Nature for healing processes so it is much needed for an Ayurveda Practitioner to be conscious about the environment and hence implement the necessary steps for making their Panchakarma practices “Environment friendly”. According to WHO and SEARO, tons of health care waste is produced per year by the eleven south East Asian countries and almost 1000 tons a day. It comprises of both hazardous and nonhazardous waste. In Ayurvedic profession, especially the Panchakarma practice contributes to abundant health care waste. There are plenty of reasons for establishing an sustainable Panchakarma practice because many practices followed in our centers have either direct or an indirect effect on the ecosystem .

## CASE REPORT

They can be listed as follows<sup>2</sup>:

Infrastructure of the Center.

Using oil and powder for therapeutic purposes<sup>10</sup> which causes water pollution.

Use of traditional sources of fuel like kerosene stoves, *chulhas*, LPG for heating oil , kwatha making , boiling water.

Excess use of disposables for infection control.

Air pollution caused by Diesel generator when used for power backup. Wastage of resources like electricity, water, paper, etc.

Biohazardous waste improper disposal.

Thus there is a need to equip measures for these hazards to the ecosystem by implementing sustainable ecofriendly Panchakarma practices at our centers.

Designing and establishing a Panchakarma center:

Every decision making in our practice should be evaluated whether there is a way to do them which will be effective and and less harmful for the earth and accordingly necessary actions should be taken. While designing a Panchakarma center, we must start right from its construction. For construction, few things are needed to be addressed as the building material, it must be abstracted from renewable sources: like Bamboo, Cork, Precast concrete slabs, Reclaimed or recycled wood and metal- fly ash, iron ore tailings, agricultural wastes etc. The materials should not cause air, land and water pollution during or post construction.

Few examples are listed

1) Roof – Traditionally and commonly in practice used roofing materials like cement, iron bars, gravels and sand, they consume too much energy for construction as well as

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transportation and money for labour wages. It wastes a lot of time and causes pollution too. Also, after the demolishment of building, waste of roof doesn't get decomposed but causes pollution again. So, for an ecofriendly approach, and to save energy of transportation and to reduce the time wastage construction there is a solution i.e. Bamboo corrugated sheets. Bamboo mat corrugated sheets are easily installable and so saves time and energy , it consumes no natural resources like as water for construction as compared to a concrete roof<sup>3</sup>.

Sustainability-Experts agree that bamboo is the best eco-friendly building material on the planet. Because of its lightweight, bamboo sheets are less energy intensive to even transport than any other material. The only drawback is it requires treatment for resisting insects and rot. Because untreated bamboo has a starch which attracts insects, and it thus swells and cracks when it water is absorbed.<sup>5</sup>

Also using bamboo mud straw gives an antique look.<sup>6</sup>

2) Cork – Similar to bamboo, cork is a rapidly growing natural resource .Its harvesting ability from living tree makes it more sustainable. The tree continues to grow and reproduces cork. Cork is a tree bark. Cork is resilient as well as flexible i.e after applying pressure on it , cork will revert back into its original shape. It's a common element for flooring tiles because of the properties like resistance and resilience. Its perfect for making insulation sheets because of noise absorption property. Cork when left uncoated, acts as fire resistant naturally and also doesn't release toxic gases while it burns. That's why cork a good thermal insulator. It is also impermeable so it does not absorb water or rot. Cork becomes brittle over a period of time. Cork is found primarily the Mediterranean Sea, and shipping cost ends up being a worrying factor.<sup>1</sup>

3) Flooring- Eco-friendly tiles replace the conventional flooring and also use less energy in their production. Ecofriendly tiles are cost friendly if compared to the regular tiles. These tiles are manufactured on the construction site therefore the transportation charges are reduced.

4) Precast concrete slabs - These concrete slabs are made at a manufacturer's site and the shipped in whole sections to construction site. Outer layer often envelops lightweight filler, as foam insulation. Other versions are made completely of concrete but have large, hollow air spaces, as the concrete blocks. Precast concrete slabs commonly are used for building walls

5) Bricks- Environment-friendly construction bricks from fly ash and hematite tailings. Conventional bricks are made from the mixture of mud and soil with water. After giving proper shape they are baked in high temperature in fire which needs a high quantity of wood. All materials required are costly as well as cause harm to our ecosystem badly. Fly ash and iron ore tailings are waste products from iron industries which are dumped by the industries as their by-product. Now a day's fly ash bricks are readily available in cheap cost and they can be used as alternative for the regularly used conventional bricks. Thus fly ash and iron ore tailings could be used as raw materials for building.<sup>4</sup>

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6) Fabrics for bed sheets and curtains- Fabrics that are produced by Aloe Vera, Jute, Bamboo, Banana, and Cotton can be used. The artificial fabric materials are used by everyone extensively for clothes, curtains, bed sheets etc. in hospitals and many therapeutic centers. The artificial fibers cause allergies to many people and also, they are not good for one's health besides that after their disposal they cause pollution and in return harm the environment. Natural fibers have intrinsic properties like mechanical strength, low weight and are healthier for the wearer that makes them particularly attractive. The fabrics made from eco fibers are safe for every one as they do not have any irritating chemicals in them.

7) Paint- Volatile organic compounds free paint Painting is the coat that's exposed continuously to the patient and the people working in the hospital and in therapeutic center buildings. It emits various chemicals and vapor to the air that we breathe. There are few harmful chemicals present in several paints known as VOC, which is a very harmful substance. VOC components in the work spaces can negatively affect the health. Household things such as chairs, tables, wardrobe paints on wall contains harmful chemicals that contains volatile organic compounds (VOCs) that are toxic in nature. U.S Environmental Protection Agency has declared VOC's as pollutants. In order to be eco-friendly and to make the Panchakarma centers eco-friendly, healthy and environmentally safe alternatives such as low or zero-VOC paints must be used<sup>1</sup>.

8) Practices After the construction of eco-friendly center for Panchakarma, - The practices to run the Panchakarma center should also be environment friendly. The sustainable practices which should be followed in Panchakarma center can be listed as: Save the resources like Electrical energy, water, papers, etc. All the appliances should be switched off while not in use. Low-flow water taps should be installed on all sink faucets for conserving water. Appropriate selection of the appliances so as to reduce power consumption. While choosing any electrical appliance for the center, look for energy saving alternatives of it. Using LED monitors for desktop, can help too as they cut energy consumption in half. Wherever possible one must use a laptop, which is more energy conservative. Always check for star label of the appliances for energy conservation before buying. More the stars mean more energy conserving the appliance does. By implementing above steps 24 % energy can be saved every month.

9. Waste water management: Panchakarma center needs plenty of water for different purposes like preparation of Panchakarma medicaments like Kashaya (decoctions for therapeutic procedures), hot fresh water for bathing, drinking purpose, water for Herbal Garden. So, wherever there is need of fresh water that should be used carefully. The water which becomes waste after bathing and other therapeutic uses needs to be Recycled and then it can be used for irrigation of Herbal garden<sup>8</sup>.

Recycling the waste water- The waste water of Panchakarma centers mainly consist of oil, powder, medicated decoctions<sup>11</sup>, human waste, soil etc., it should be processed and later recycled before disposing to municipal sewage line. Hence for that purpose a center should install oil grease separator primarily then followed by a water treatment plant, then it can be disposed to municipal sewer line or can be used for irrigation and other purposes.

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Wastewater treatment plant- Waste water treatment plants can be constructed for bigger Panchakarma unit or Ayurveda Hospital which will reduce overall water pollution that's caused by the hospital and will facilitate re use of waste water for different purposes. The treatment plant ensures removal of Physical, chemical and biological waste from waste water to produce a waste stream or solid waste suitable for discharge or reuse. Wastewater treatment plants are of various types. Among these types Sewage treatment Plant will be suitable for Panchakarma units. This plant is able to remove contaminants from wastewater and household sewage, both runoffs as well as domestic. It includes physical, chemical, and biological processes that will remove physical, chemical and biological contaminants.

10) Appropriate use of fuels: Panchakarma center needs fuel for heating purposes, power back up source and, preparation of Panchakarma medicaments etc. For all these purposes we can use nonconventional sources of energy like- Solar water heaters instead of Gas or electric geyser or stoves. Diesel generators can be replaced with Solar power backups etc. since they are ecofriendly as well as economical. <sup>1</sup>

11. Go Paperless - Going paperless will truly be a revolutionary approach. Using computers and other devices to maintain records and patient communications will help not only save paper but also will save manpower and time.

12) Use of Detergents-Prime factor for any health care place is to giving proper care alongwith better hygiene. For maintaining proper hygiene, the linen and cloth are to be washed daily which requires usage of lot of detergents. Detergents leave lot of impact on ecosystem by polluting and contaminating and the soil and water. So the center should always use eco-friendly detergents or the less harsh ones for washing purposes. A group of nonionic surfactants are readily available in name of green cleaning or eco-friendly cleaning agents. They are known as APGs, they can be used for household and hospital purposes. They are made up of sugars, usually glucose derivatives with or without fatty alcohols.

12) Bio-medical waste management is of utmost importance in running eco-friendly Panchakarma center. <sup>9</sup>

## RESULT

After agnikarma patient didn't show any complications like burning or discharge. At first follow up after next menstruation total lakshanopshay observed. On per speculum examination neobothian cyst was totally absent. Patient tracked for 6 months and showed no recurrence of symptoms or cyst.

## DISCUSSION

Neobothian cyst of uterine cervix is occlusion cyst. Inside cyst there is dushit rasa rakta. It presents with pain, leucorrhoea, burning and/or itching etc.

It is kaphapradhan vyadhi, grathan of vikrut kapha along with kleda rakta lodges at garbhashaymukha and develops to kaphaj Shophha /granthi.(4)

1. Yonidhavan with panchvalkal and haridra helped for yonishodhan ,stravashophahara leading to kandu and dahahara. Panchavalkal or panchkshiri/kashay(5) vruksha bears pradhantaha shita kashay pittashamak properties. It did shodhan of yonimukha. Having ushna property Haridra did shodhan and shophaharan. Some total it helped for yonishuddhi.
2. Garbhashay mukha is made up of mamsadhatu. Loha shalaka is suitable aid for agnidware dahan karma of mamsa dhatu(6).  
Sukumarta and artavsthan(yoni) are specialities of female; so bindu and rekha swarupa dahan mode was used for dahan karma.  
Agni itself is shodhak, dahak. It destroys shophahara via burning of vikrut tissues (like cyst). It helps for elimination of grathit dushta dhatu as well as infective foci.
3. Jatyadi taila is ropaka – vranaropaka. Vrana shodhan achieved with jatyadi tailakta pichu dharan for aamutrakala(7).
4. Ayurvedokta Agnikarma found painless and uncomplicatory procedure. It reduced burden like hospital stay and anesthesia. It found cheap.
5. Upto follow up of 06 months, patient didn't redevelop symptoms as well as evidence of cyst at cervix.

## CONCLUSION

Neobothian cyst requires excision or electrocautery by modern ways. It creates other symptoms like per vaginal bleeding, leucorrhoea, pain etc.

Agnikarma with shalaka reduced hospitalization, expenses, anesthesia and other complications which proves promising results.

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