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A Survey Study on Role of Oils in Context of Longevity

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ABSTRACT:

Ayurveda, a science of life emphasizes on the maintenance, promotion of health and curing of diseases through *Dincharya*, *Ritucharya and Aahar* as well as medicine. As per *Ayurveda*, *Aahar is Mahoshad* and edible oils form an essential part of our diet. Olis (Tail) provide Strength and rigidity of skin and also helpful to longevity. The oil plays an important role in our daily life due to constitutive property and essential part of our food. The traditional medicinal system of India mentioned oils for different uses along with part of food like; for Massage, *Nasya*, *Basti*, *Kavala*, *Gandush*a etc. This article shows a study based on a survey, conducted under *Nirogi* Rajasthan Programme. This study was done on 1500 people aged above 60 years irrespective of their gender. The Persons were 1022 out of 1500 irrespective of their gender, use non-refined oil on a daily basis. Among these 537 were male and 485 were females. In this Study, we found that people who take non-refined oil on a daily basis have better life expectancy or Longevity. Oils are an important part of our diet either, increase or decrease in its amount leads to many systemic disorders. Alopecia, thrombocytopenia, intellectual disability, Vitamin deficiency disorders caused by Vitamin A, D, E and K are caused by lack of essential fatty acids. However fatty liver, obesity, dyslipidemia, CVD, Hypertension all are caused by excessive amounts of fat in the body. The proper amount of oil consumption and proper metabolism are essential for maintaining health. Good health deals with longevity.

Keyword: Longevity, Tail, Non-Refined oil, Smoke point, Free radical.

INTRODUCTION

The traditional medicinal system of India mentioned oils (*Tail*) for different uses like; for massage, Nasal oleation therapy (*Nasya)*, Anima of oil or medicated oil (*Anuvasan Basti*), Rinse or Gargle of oil or medicated oil (*Sneh Kavala*), filling full of the mouth with so much quantity of oil or medicated oil, that can't be move (*Sneh Gandusha*) etc. The ancient text of *Ayurveda* suggested that oil represents properties of its origin. As per *Ayurveda* oils possess *Madhur ras*, *Kashaya anuras*, *Sukshma*, *Vyavayi*, *Pittakar*, *Malamutra vibhandkar*, *Ushana*, *Medha* and *Agnideepak* properties and help to maintain *kapha* and *balya* along with skin rigidity[(1)]. As per description of *acharya charaka* and *sushrut* oils offers beneficial effects

for skin and eyes when used externally. *Achyara vagabhat* mentioned that oils help to maintain normal health as it made *Krush* (Thin person) to *Pusta/Bruhaniya* and *Sthula* (Obese person) to thin person. It has been also considered that oils medicated with drugs offer properties to cure many diseases (*Sarvarogjit*) [(2)]. *Bhavprakash Nighantu* explains the opponent action phenomenon found in oil like *Lekhan* (Scraping of fatty tissues) and *Bruhagan* (Massiveness), *Grāhak* (Constipative) and *Sārak* (Laxative) phenomenon of oil. The *Vyavayi*, *Sukshma, Tikshn, Ushana, Sara* of oil are the cause of Scraping of fatty tissues and *Sartā, Sukshmatā, Snigdhtā,* and *Mridutā etc.* are responsible for Massiveness[(3)]. Traditional text also mentioned sesame oil (*Til tail*) as good one amongst the all oils while *Kusumbh tail* (*Carthamus tinctorius flowers* oil) as worst[(4)]. According to *Acharya Charak* the Person who uses oil and their body easily assimilate it, These people are strong, bear all misery or troubles and long lived[(5)]. In *Sneha* Chapter thirteen of *Charaka Samhita Acharya* mentioned twenty four preparations employed for *Chaturvinshati sneh pravicharnayen* (Twenty four preparation for the Oleation therapy and after consuming oil, take Soup (*Yoosh*) as *Anupaan* (Vehicle)[(6)].

The general properties of the oil, (Table 1) but oil of some oilseeds may differ in this regard. For instance, mustard oil is pungent in taste while sesame oil is sweet and sour. Similarly, oil of mustard also differs in properties as it is *kapha, shukra and vata* annihilator. (Table 2)

The oils are composed of three fats namely monounsaturated, polyunsaturated and saturated. Cooking oils are considered high in fat; they should not be consumed excessively. The confirmed elimination of cooking oils from diet may help to cut out fat deposition. The consumable oil must contain a balanced combination of monounsaturated, polyunsaturated and saturated fats. The saturated fats should be in lesser amounts amongst the three on the nutrition value because they are more harmful. Monounsaturated and polyunsaturated fats belong to the category of unsaturated fats and are considered good fats and offer some health beneficial effects like; Improve cholesterol levels, Reduce inflammation, Stabilize heart rhythms. Monounsaturated fats may be found in avocados, almonds, pecans, hazelnuts, pumpkin seeds, olive and peanut. Polyunsaturated fats can be found in oils such as flaxseed, soybean, corn and sunflower.

Good Health for Longevity

The amount of intake energy (calories) should be in balance with energy consumption is necessary for good health. A Balanced diet is providing adequate amounts of the nutrients necessary for good health and consisting of a variety of different types of food. The major five pods of over diet are Carbohydrates, Protein, Fat, Vitamins - Minerals and Water.

According to World health organization-

- Total fat should not exceed 30% of total energy intake.
- Intake of saturated fats should be less than 10% of total energy intake.
- Intake of trans-fats less than 1% of total energy intake.

It is necessary for good health and to avoid unhealthy weight gain, total energy intake from fats should be less than 30% [(7,8,9)]. Prefer to Unsaturated fats in diet that are found in fish, avocado, nuts and in sunflower, soybean, canola and olive oils. Always avoid the saturated fats which found in fatty meat, butter, palm oil, coconut oil, cream, cheese, ghee, lard and all kinds of trans-fats. The source of trans fats including both of industrially produced trans-fats found in baked foods, fried foods and pre-packaged snacks and foods such as frozen pizza, pies, cookies, biscuits, wafers, and cooking oils and spreads and ruminant trans-fats found in meat and dairy foods from ruminant animals, such as cows, sheep, goats and camels should be avoided always. Reducing the amount of total fat intake to less than 30% of total energy intake helps to prevent unhealthy weight gain in the adult population [(7,8,9)]. In particular, industrially-produced trans-fats are not part of a healthy diet and should be avoided [(7,8)]. We need to shift fat consumption away from saturated fats and trans-fats to unsaturated fats and towards the goal of eliminating industrially produced trans-fats [(10,11,12)].

It is suggested by WHO that the intake of saturated fats be reduced to less than 10% of total energy intake and trans-fats to less than 1% of total energy intake [(11)]. Also, the risk of developing NCDs is lowered by:

1- Reducing saturated fats to less than 10% of total energy intake;
2- Reducing trans-fats to less than 1% of total energy intake; and
3- Replacing both saturated fats and trans-fats with unsaturated fats in particular, with polyunsaturated fats.Fat intake, especially saturated fat and industrially-produced trans-fat intake, can be reduced by:
4- Steaming or boiling instead of frying when cooking;
5- Replacing butter, lard and ghee with oils rich in polyunsaturated fats, such as soybean, canola (rapeseed), corn, safflower and sunflower oils;

6- Eating reduced-fat dairy foods and lean meats, or trimming visible fat from meat; and
7- Limiting the consumption of baked and fried foods, and pre-packaged snacks and foods like doughnuts, cakes, pies, cookies, biscuits and wafers that contain industrially-produced trans-fats.

MATERIALS AND METHODS

- A survey study was conducted under *Nirogi* Rajasthan Programme. This study was done on 1500 people aged above 60 years irrespective of their gender.
- The related references have been collected from different *Ayurvedic* texts and its available commentaries, related websites. The collected references have been critically observed, compiled and discussed thoroughly.

Literature review:

Bruhatreyi (three major texts), *Laghutrayi* (three minor texts) and *Nighantu* (lexicons) in *Ayurvedic* classics viz *Charaka Samhitā, Susruta Samhitā, Astāng Sangrah, Sārangadhara Samhitā, Bhāvaprakasha Nighantu, Kaiyadeva Nighantu* etc. were taken from our institute's library and thoroughly studied along with contemporary research compiled on the usage of oils with respect to longevity as below table in alphabetical order**.(Table 3)**

Classification of oils

Refined oils

Refined oils involve sophisticated mechanical and chemical processes to extract the oil from seeds, due to which natural nutrients are removed out from the seeds and a final product formed which oxidizes easily. These oils are more prone to form free radicals, which causes cancer. Removal of particles and resins and makes naturally refined oils more stable which can be stored for a longer period of time. These oils also offer properties like resistance to smoking, afford high-heat cooking and frying. The refined oil, which are recommended for high-heat cooking and deep-frying are sunflower and peanut oil. High monounsaturated fats of these oils increases resistance to the high heat. Some refined vegetable oils are hydrogenated, which makes them solid at room temperature. But the disadvantage of the hydrogenation process is that this process damages the fatty acids of oils and forms trans-fatty acids (TFA) which are considered harmful to human health. There are some demerits of the excess consumption of vegetable oils generated from chemical extraction processes like; elevation in blood triglycerides, impaired insulin response, carcinogenicity and heart related disease.

Non-Refined oils

Non-refined oils are lightly filtered to remove large particles. This oil involves sesame or olive oil which may have cloudy appearance, due to light purification process these are compromised with quality. Non-refined oils possess more pronounced flavors, colors and fragrances than refined oils. Non-refined oils offer more nutritional value but shorter storage profile than refined oil. Unrefined oils are used unheated in dressings or with low heat sautéing or baking. On overheating the natural resins and beneficial particles of these oils burn and develop unpleasant flavors with harmful properties.

Smoke Point of oils

Smoke point is the temperature at which oil starts smoking and produces toxic fumes along with harmful free radicals. Due to variation in chemical properties various oils offer different smoke points, therefore some oils possess better suitability for cooking at higher temperatures than others. As per general consideration it can be concluded that more refined oil offers higher smoke point; therefore vegetable, peanut and sesame oils possess highest smoke points [13].

Cooking oils to avoid

Ayurveda acharyas quoted that *tailas* are capable of fight against diseases after doing "*Samyoga or Samsakra"* to that. *Tail* which is do *Murchana* for removing *Amatha and Phenodgama*, is the *Pakalakshana of tail* it suggests indirectly heating more than a particular temperature may cause changes in to the qualities of *tail*[14] . (Table 4) Oils are composed of balanced combinations of fats but the fat ratios in some oils are imbalanced which may be harmful to the health, these oils are commonly used in deep-frying which is unhealthy to begin with and can even contain genetically modified ingredients. Vegetable oils are loaded with an improper balance of omega3s and omega-6s, and may increase risk of many degenerative diseases; therefore following unhealthy oils must be avoided: Corn, Canola, Soybean, Sunflower and Safflower.

Oils Storage

Air, heat and light cause oils to oxidize and turn rancid. Natural oils should smell and taste fresh and pleasant. Rancid fats may cause cancer and heart disease. For maintaining quality of flavor and nutrition, it is best to store oils in an airtight glass bottle in a cool, dark place.

RESULT

The data contained in this research was obtained from a survey that studies the subjective health parameters stated in *Ayurveda*, achieved after consumption of oil or oily products. The study was conducted in the state of

Rajasthan amongst 1500 people aged above 60 years in context of use of refined and unrefined oil. In this Study, We found that people who take non-refined oil on a daily basis have better life expectancy (Longevity).(Table 5)

DISCUSSION AND CONCLUSION

More research needs to be done on edible oil. Many studies focus on only certain components of the oils that are normally employed during research. There also seems to be a trend that each oil is only used in studies to obtain specific types of endpoints which have previously been associated with that oil. These approaches frustrate any attempt to speculate what the effects of dietary supplementation of edible oils on cardiovascular health would be.

Edible oils form an essential part of the modern diet. These oils play a role as an energy source, and provide the diet with many beneficial micronutrients. Although a popular conception may be that fat should be avoided, certain edible oils as a dietary supplement may play an important role in the improvement of overall health along with cardiovascular health.

The substance named as *tail* which has properties like *guru* (heavy to digest), *Sita* (cold in potency), *Sara* (flows), *Snigdha* (unctuous), *Mantha* (slow in activity), *Sukshma* (can penetrate to minute channels), *Mrudu* (soft in touch), *Drava* (which flows) and opposite to dry substance is *sneha*. *Tail* is considered as one of the *Chathursneha*[15]. Qualities of tail can be improved by using *Samsakara* (processing) or *Samyoga* (combination) this processing is relevant while cooking [16].

In *Ayurveda* oil is considered a useful part of daily regimen. Edible oils are described as adjuvant of food (*Aaharyogi varga*) in *Charak Samhita Sthan* chapter 27. It goes to all the *Srotas* (micro channels) due to its deep penetrating quality. It is also utilized in simple purification process of *Dhatus* (Iron etc. metals) as a first purifier (Oil, Buttermilk, Cow's urine, *Aarnal* and *Kulattha*). When it comes to penetrating the body's seven *Dhatus* or layers of tissue (bones, nervous system, muscles, fat, blood, plasma, and reproductive tissue), When consumed in the original form and right state (non-refined), oil is enormously beneficial for the body. Use of oils provide multitude health beneficial for us including: Renewed and Stored energy, Strength and Stamina, Boosted immunity, Skin, Hairs and Bone health, Higher quality sleep, brain tonic (*Medha vardhan* which enhance intellect), anti-fatigue, Fertility (as *Yoni Vishodhana*).

In General, oil is Sweet, Astringent (*Kashaya anuras*-after sweet) unuctus (greasy or soapy feel), rarefactive (*Viral, Sukshma*), spread in hall body before digestion *(Vyavayi),* heating effect *(Ushana),* stimulates the digestion (*Agni Deepak),* excretory binder *(Malamutra vibhandkar), enhance intellect (Medhya)* and help to maintain emphasis (*Balya)* along with skin rigidity. The oil aggravates the *pitta* (*Pittalam*) and *kapha* (*Shleshmabhivardhanum*) and is best for mitigating disorders of *vata* (*Vatagneshuttamam*).

Sweetness, nourishment, unctuousness, and hotness are the general properties of the oil, but oil of some oilseeds may differ in this regard. For instance, mustard oil is pungent in taste while sesame is sweet and sour. Similarly, oil of mustard also differs in properties as it is kapha, shukra and vata annihilator.

Taila with *Katu-tiktha rasa Ushnavirya, Katuvipaka, lagu guna* can be chosen for *kapha prakriti*. Because of these people are adapted to *Madura rasa* and normally not that much physically or verbally active. So there is more chances of accumulation of *Kapha* and *Medas* in their body and may lead to *prameha, sthoulya* etc. *Tailas* which possess *Madhura Rasa, madhura vipaka, seetha virya* and *guru guna* can be chosen for *pitta prakriti* persons. *Pitta prakriti* persons are usually hyperactive and adapted to *katu andamla rasa*[17]. So adopting tailas have these properties helpful for preventing lifestyle diseases like *amla pitta, Kushta, raktha chapa* etc[18]. *Taila* which possesses *madhura rasa, ushna virya, katu vipaka and guru* can be chosen for *vata prakriti* persons. Basically they are physically very active and prone to diseases related to *asthi and majja*[19]. So oils which possess these properties are helpful for balancing the *prakruthi avastha* of *doshas* and *dhatus. Katu rasa* can be correlated to pepsin ability to remove *srotorodha, mahura rasa* which has high glucose content which promotes brain functions and makes the mind calm. *Tikta rasa* is considered as light so it can penetrate the tissues. *Ushna veerya* has ability to increase metabolism and *laghuta of taila* helps to decrease excess *medas* and *kapha* which has *guru guna* which reduce *vata* will nourish bones and lubricate joints. Oils are types of fats and should be used in moderation. Specific attention should be paid to the smoke point of oils before use. Storage of oils is also an important factor and cooking oils should be used as early as possible to reduce its rancidity. The excess consumption of oil in older age must be avoided and non-refined oil should contain balanced nutritional value of good fats. Non-refined oils offer more nutritional value but shorter storage profile

than refined oil. This Study also suggested that refined oils, which are considered harmful for health, must be avoided for cooking purposes.

Oils are an important part of diet either, increase or decrease in its amount leads to many systemic disorders. Alopecia, thrombocytopenia, intellectual disability, Vitamin deficiency disorders caused by Vitamin A, D, E and K are caused by lack of essential fatty acids also. Fatty liver, obesity, dyslipidemia, CVD, Hypertension all caused by excessive amounts of fat available or deposited in the body. The proper amount of oil consumption and proper metabolism are essential for maintaining health. Community is accustomed to intake of excess or more than daily recommended dietary intake of oil. Also lack of intake of raw or half boiled vegetables along with an oily diet compared to other countries. This affects the metabolism of oils in the body. Based on the climate of the living place, based on lifestyle, habitual consumption, processing of oil, composition, depending on these factors should choose oil for cooking.

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Table:- 1, General Properties of Oil

Sr. No.	*Rasa*	*Anurasa*	*Guna*	*Vipak*	*Veerya*	*Dosh Karma*	*Karma*
1.	*Madhur*	*Kashay*	*Sukshma, Vyavayi, Tikshan, Sara, Sukshma, Snigdh, and Mridu*	*Katu*	*Ushna*	*Uttam Vataghn, Pittakar, Shlehsma Vardhan*	*Malamutra vibhandkar, Yoni Vishudhan, Balya, Twachya, Keshya, Medhavardhan, Agnivardhan, Sarvaroghar, Shramhar.*

Table:- 2, Properties of different oils

S. N.	Name of oil	*Rasa*	*Anurasa*	*Guna*	*Vipak*	*Veerya*	*Dosh Karma*	*Karma*
1.	Sesame	*Madhur (sweet), Tikt (bitter), Kashaya (astringent), Katu (pungent)*	*Kashay*	*Sukshma, Vyavayi, Tikshn, Sara, Snigdh, and Mridu*	*Katu (pungent)*	*Ushna*	*Uttam Vataghn, Pittakar, Shlehsmaghna*	*Balya, Twachya, Keshya, Sarvaroghar, Shramhar.*
2.	Mustard	*Katu (pungent)*		*Sukshma, Vyavayi, Tikshn, Sara, Snigdh, and Mridu*	*Katu (pungent)*	*Ushna*	*Rakt and Pitta polluter, kapha, and vata annihilator*	*kapha, shukra and vata annihilator, Scabies and Nettel-rash (thrash) destructer.*
3.	Ground nut	*Madhur (sweet),*		*Sukshma, Vyavayi, Tikshn, Sara, Snigdh, and Mridu*	*Katu (pungent)*	*Ushna*	*Uttam Vataghn, Shlehsmaghn*	*Sarvaroghar, Shramjit,*
4.	Flax seed	*Madhur (sweet) and Amla (sour)*	-	*Sukshma, Vyavayi, Tikshn, Sara, Snigdh, and Mridu*	*Katu (pungent)*	*Ushna*	*Vataghn (mitigets vata), Elevates raktapitta.*	*Mitigets vata, Elevates raktapitta, Drishthi-Shukraghna*

Table:-3, Ayurvedic classics name with references

Sr. No.	Name of *Samhita* Or *Nighantu*	Chapter/*Shlok* No.
1.	*Astāng Hrudaya Sutra Sthān*	16/46
2.	*Astāng Sangrah Sutra Sthān*	6/1s00-101 and 23/72
3.	*Bhāvaprakasha Nighantu Tail varga*	2-27
4.	*Charak Samhitā Sutra Sthān*	13/23-25, 27/286-288
5.	*Charak Samhitā Viman Sthān*	8/118
6.	*Kaiyadeva Nighantu Tail Varga*	*Tail Varga*
7.	*Kshema Kutuhalam*	5/17-18
8.	*Sārangadhara Samhitā Chikitsā Sthān*	31/156
9.	*Sushrut Samhitā Chikitsā Sthān*	31/56

Table:-4, Use and Smoke Point of Some Oils

Name	Description/Uses for Refined Oils	Smoke Point
Avocado	This rather unusual light, slightly nutty tasting oil is considered primarily to be a novelty. This oil is often made from damaged and cosmetically inferior avocados.	520°F
Canola	Light, golden-colored oil, similar to safflower oil. Low in saturated fat. Extracted from the seeds of a plant in the turnip family, the same plant as the vegetable Rapini or Broccoli rabe. Used in salads and cooking, mostly in the Mediterranean region and India; also used in margarine and blended vegetable oils. It has a mild flavor and aroma.	400°F
Corn oil	Made from the germ of the corn kernel. Corn oil is almost tasteless and is excellent for cooking because it can withstand high temperatures without smoking. It is used to make margarine, salad dressings and mayonnaise.	450° F
Grape Seed	This light, medium-yellow, aromatic oil is a by-product of winemaking. It is used in salads and some cooking and in the manufacture of margarine.	400°F
Lard	Baking,	361-401°F
Peanut	Made from pressed, steam cooked peanuts. Peanut oil has a bland flavor and is good for cooking because it doesn't absorb or transfer flavors.	450°F
Safflower, Regular	Clear, almost flavorless oil made from the seeds of safflowers. Safflower oil is a favorite for salads because it doesn't solidify when chilled. Sunflower oil is pale yellow and has a bland flavor. It is good all-purpose oil.	450°F
Soybean	Highly refined soy oil is reasonably priced, very mild and versatile, accounting for over 80% of all oil used in commercial food production in the U.S. This is a good all-purpose oil that is also used in cakes and pastries	450°F

Table:-5, Observed data in Survey Study

No. of oil users	Male	Female	Grand Total	
			Oil users	Percentage
Non-Refined oil users	537	485	1022	68.133%
Refined oil users	275	203	478	31.866%
Total	812	688	**1500**	**99.999**%