



ROLE OF MILLETS IN PREVENTION AND MANAGEMENT OF LIFESTYLE DISORDERS

Ayurveda

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ABSTRACT

Introduction: Ayurveda gives special importance to diet and nutrition. Global population growth necessitates addressing food and health issues caused by an imbalanced diet of high-calorie fast food, sedentary lifestyles and consumptions of processed foods. Therefore, the Risk of non-communicable diseases is increasing. In such conditions millets having rich nutritive values can be good resource for prevention and management of NCD's. **Materials and Methods:** Literature review was done from different Ayurvedic classical texts, Materials related to millets concepts, and other significant topics have been collected related with it. **Discussion:** Millet is a nutrient powerhouse since it is rich in protein, fiber, magnesium, phosphorus, copper, potassium, and manganese. Studies have shown that including millets in the diet can help reduce the risk of several chronic diseases, including lifestyle disorders. **Conclusion:** Including millets in the diet can help enhance the body's ability to fight infections and diseases and promote overall good health.

KEYWORDS

Millets, Ayurveda, Kshudradhanya, lifestyle Disorders.

INTRODUCTION:

Today's life is very fast, and everyone prefers fast food which causes malnourishment. Millets are a diverse species of small-seeded grasses that are commonly cultivated as cereal grains for human and animal nourishment around the world. The outbreak of non-communicable diseases brought on by the sophisticated sedentary lifestyle. Including millet in the diet and avoiding refined foods like rice, wheat, refined flours, processed meats, refined oils, packed & ready-to-eat foods, and milk will help one live a healthy life. Several epidemiological researches, regularly consuming millet grains and their by-products is associated with a reduced risk for chronic diseases like diabetes, heart disease, cancer, and all-cause death. Hence, consumers can improve their health and lower their chance of developing chronic diseases by changing their diet by increasing their daily intake of a wide variety of fruits, vegetables, and millet grains. One of the most significant cereal grains is millets. In terms of agricultural output around the world, it is the sixth cereal crop. It has been grown for the past five decades. Generally millets are named as poor man's food. The millets are belongs to the family of Poaceae^[1]. The ancient Veda i.e. Rig-Veda introduced them initially, followed by Yajurveda and Atharvaveda. Later they have been mentioned in Ayurveda as Kudhanya and Trina Dhanya.^[2] They are Kangu –Foxtail millet, Shyamak – Barnyard millet, Cheenak–Proso millet, Kodrav- Kodo millet, Nartaki-Finger millet, Yavanala - White millet, Bajra- Pearl millet^[3] The general properties of Trina Dhanya as mentioned in text are Ushna Veerya, Kashay and Madhura Rasatmaka, Katu vipaki, Laghu (light), Ruksha (dry), Kledashoshak (absorbs moistness), Lekhaniya (scrapping), Vatakar (increases Vata), Baddha Vitak (binds stools), Pitta-rakta and Kapha Shamak (balances Pitta-Rakta and Kapha).^[4] Based on this understanding the gross indications for the use of millets are, Sthoulya (obesity), Kushta (skin diseases), Prameha (Diabetes), Atisaara (Diarrhea), Medoroga (Diseases due to excessive lipids), Vrana (wounds and ulcers) and other Santarpanajanya Vyadhi (diseases due to over nourishment of single or multiple tissues) which are usually lifestyle disorders. Sarita ES et al. 2016^[5] and Polkampally S^[6] reported that Millets are beneficial in chronic conditions like Obesity and Diabetes Mellitus.

This paper focuses on the dietary and health importance of the millets for production, utilisation and propagation of millets in mass level.

AIM & OBJECTIVE:

The goal of the current paper is to understand and examine millet's nutritional and medicinal properties and to promote their usage for prevention and cure of lifestyle diseases.

METHODOLOGY:

The methodology of the study consists of a literary survey that comprises Ayurveda literature, and topic related research publication.

Indian Millet Sourcing Point:

India is the largest producer of millets in the world. The majority of the millet used for human use is grown in India, China, Greece, Egypt, and Africa. In many regions, millets are an important part of traditional meals especially in Karnataka, Rajasthan and Maharashtra. Millets come in a variety of kinds, each used in various Indian states. Tough the production of millets was abundant in initial phase later on their production got declined due to some of reasons like

- **Low Productivity of Millets:** Over the last decade, the production of sorghum (Jowar) has fallen, the production of pearl millet (Bajra) has stagnated, and the production of other millets, including finger millet (Ragi), has stagnated or declined.
- **Lack of Awareness:** Many people in India are not aware of the health benefits of millets, leading to low demand.
- **High Cost:** Millets are often priced higher than traditional cereals, making them less accessible to low-income consumers.
- **Limited Availability:** Millets are not widely available in traditional and modern (e-commerce) retail markets, making it difficult for consumers to purchase them.
- **Perceived Taste:** Some people believe that millets have a bland or unpleasant taste, which discourages them from consuming them.
- **Agricultural Challenges:** The cultivation of millets is often associated with low yields and low profitability, which can discourage farmers from growing them.
- **Competition from rice and wheat:** Rice and wheat are staple foods in India and are widely available, making it difficult for millets to compete in the market.
- **Lack of Government Support:** India has not provided enough support to promote the cultivation and consumption of millets, which has limited their growth.

Millets: A Nutritive Powerhouse

Pesticides are not necessary for millets grown conventionally, and the land used for their cultivation is devoid of any pests. Thus, in their original form, they are organic crops. Millets can thrive in areas that are prone to drought and can withstand higher heat regimes.^[7]

Nutritive Value of Millets as per Ayurveda & Modern

All over in India wheat and rice are the staple food items used by general populations, when compared to rice and wheat, millets constitutes higher fibre and less mineral content. Each of the millets

contains more fibre than wheat and rice together. Therapeutic indication of millets in Ayurveda is given below:

Table no 1: Therapeutic indication of millets in Ayurveda.^[8]

Millet	Synonyms	Guna	Therapeutic uses
Sama (<i>Barnyard Millet</i>) <i>Echinochloa frumentacea</i> Linn.	Shayamak, Shyam, Tribeej, Rajdanya, Trinbeej, Uttam	Sheet, Snigdh, Laghu	Sthoulya, Raktapitta, Pittakasa, Urustambha, Stanyadosa, Jalodara
Kodo Millet <i>Paspalum scrobiculatum</i>	Kodrav, Kordush, Kudyal, Uddalak	Guru, Ruksha	Sthoulya, Raktapitta, Pittakasa, Visha, Urustambha,
Gavedhuk (<i>Coix lacryma jobi</i> Linn)	Vaijyanti,	Ruksha	Sthoulya, Kaphaj Chhardi
Kanguni (<i>foxtail Millet</i>) <i>Setaria italica</i> Linn. Beauv	Kanguni, Pitatandula, Vatal, Sukumar, Priyangu	Guru, Ruksha	Kustha, Vatakarak, Pitta-daha nashak, Bhagna- asthi Sandhan
Cheena (<i>Common Millet</i>) <i>Panicum miliaceum</i> Linn.	Varak, Sthulkangu, Sthul Priyangu, Kangubhed, Marha	Ruksha	Brihana
Jwar (<i>Sorghum vulgare pers</i>)	Jurnahwa, Yavnal, Raktika Krostupucha,	Guru, Sheet	Brihana, Malrodhaka, Ruchikaraka, Viryavardhaka
Ragi (<i>Finger Millet</i>) <i>Eleusine coracana</i> Linn	Madhuli, Ragika, Nartak, Madua	Laghu, sheet	Brihana, Triptikaraka, Balakaraka, Raktapitta Shamaka
Bajra (<i>Eleusine coracana</i> Linn)	Bajranna, Sajak, Nalika, Neelkaran	Ruksh, Ushna	Balya, Agnideepak, Shwashara
Neewar (<i>Eleusine coracana</i> Linn)	Tini, Aranyadhanya, Munidhanya, Trinodbhav	Laghu, Snigdh, Sheet	Raktapitta, Vatarakta, Pathya, Kaphakaraka, Malamutrardhak

Table no 2: Nutritional Analysis of Millets per 100gm^[9]

SR. No.	Millets	Protein (gm)	Fiber (gm)	Minerals (gm)	Iron (gm)	Calcium (gm)
1	Sorghum	11	6.7	2.7	3.4	13
2	Finger millet	7.3	3.6	2.7	3.9	344
3	Foxtail millet	12.3	8	3.3	2.8	31
4	Kodo millet	8.3	9	2.6	0.5	27
5	Little millet	7.7	7.6	1.5	9.3	17
6	Pearl millet	10.6	1.3	2.3	16.9	38
7	Proso millet	12.5	2.2	1.9	0.8	14
8	Barnyard millet	11.2	10.1	4.4	15.2	11

Millets and their therapeutic actions in different lifestyle disorders:

Millets-Diabetes Mellitus^{[10]:}

The enzyme aldose reductase reduces the risk of developing diabetes by assisting in the reduction of sorbitol accumulation. In addition, millets help control blood sugar levels by breaking down complex carbohydrates in cases of hyperglycemia.

Millets-Cancer^{[11]:}

Significant anti-nutrients that lower the risk of cancer development include tannins, phenolic phyates, and phenols. It is possible to prevent the growth and spread of cancer through the use of phenolic. Linoleic acid, which is abundant in millets, helps prevent cancers. Sorgam contains tannins and polyphenols, which have anti-mutagenic and anti-cancerous properties.

Millets-Celiac disease^{[12]:}

Gluten, which is mostly found in wheat, is the cause of celiac disease, a genetic disorder. The Millets minimize sensitivity to other cereal grains as they don't contain gluten.

Millets-Heart Disease^{[13]:}

Millets include a considerable amount of protein, minerals, essential amino acids, and phytochemicals. It is essential for maintaining good health and helps avoid diabetes, hyperlipidemia, and other diseases. Millets include magnesium and phytochemicals that reduce cholesterol which lessen the risk of heart attacks, and aid in preventing cardiovascular diseases. Consumption of millets reduces hyperlipidemia and hence hypertension and raises the levels of HDL-C (good Cholesterol) which can be beneficial for managing the risk associated with developing hypertension and atherosclerotic cardiovascular disease in future.^[14]

DISCUSSION

Due to excess use of these high carbohydrate food grains, non-communicable diseases are increasing rapidly. In order to halt this silent pandemic exclusive dietary changes by population are required. A good alternatives or supportive food items should be inculcated with staple food which will be beneficial in under and over nutrition. The millets are the greatest food for those with gluten sensitivity because they are the least allergenic and easy digesting meals. They are a great source of vital fatty acids, amino acids and dietary fibre. Nutrient rich millets are the super foods and supportive in deficiency disorders. Iron & copper are two minerals found in millets that are necessary for haematopoiesis and enhancing blood oxygenation. Moreover, they contain phosphorus, which aids in blood pressure regulation. Regular Consumption of millets helps lower triglyceride levels in the body, which prevents blood platelets from clumping and lowers the risk of coronary artery disease and hence myocardial infarctions. Millets provide vitamins like vitamin B, which are beneficial in diabetic neuropathies and associated symptoms. Vit B also facilitates the simple digestion of fats and carbohydrates. They aid in lowering the blood homocystine level, preventing cholesterol from bonding and generating deposits. By blocking cholesterol from entering the bloodstream, niacin aids in raising HDL levels. They defend the blood arteries from atherosclerosis and blood clots. Millets are non-glutinous cereals. Since they are a fantastic source of plant protein that is superior to animal protein and contains no saturated fat, these can be consumed by vegans and vegetarians. Millets are beneficial to weight control programmes because of their high fibre content, which helps to satisfy hunger and prevent overeating. As Millets include phytonutrients and fibre lowers the risk of colon cancer.^[15] The lignans found in millets, are transformed into mammalian lignans and protect against breast cancer. The magnesium in millets helps to relax the muscles that line the arteries, lowering blood pressure. Also reduces the intensity of asthma attacks and migraine occurrence. Millets have numerous health advantages, including preventing diabetes, lowering the risk of heart disease, enhancing the digestion, preventing cancer, degenerative diseases like metabolic syndrome, enhancing the neurological and muscular systems, enhancing the respiratory system, etc. In this way, millet should be taken in the diet daily for the promotion of health and prevention of diseases. It is also sustainable source of income for farmers. It require less cost-intensive cultivation.

CONCLUSION:

The fact that all lifestyle diseases (NCDs) can be cured by simply increasing the intake of millets for breakfast, lunch, and dinner and avoiding refined processed foods like rice, wheat, refined flours, meats, refined oils, packaged & ready to-eat foods, and milk is also obvious to thousands of patients. Ready -to-eat food industry should come forward to provide a healthy food to the mankind keeping in view the changing demography. In order to propagate millets use in masses and utilisation of them in general diet, more research is on therapeutics and their nutraceutical products should be done.

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