



ISSN 2456-3110

Vol 8 · Issue 9

September 2023

Journal of  
**Ayurveda and Integrated  
Medical Sciences**

*www.jaims.in*

**JAIMS**

An International Journal for Researches in Ayurveda and Allied Sciences



**Maharshi Charaka**  
Ayurveda

Indexed

# An eyeshot on the role of Millets in healthy lifestyle - A Literary Review

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## ABSTRACT

In today's lifestyle, many new diseases are emerging day by day. To overcome these diseases or to maintain the health of an individual, an important key component is *Traya Upastambha* (three pillars of Ayurveda) i.e., *Aahar* (food), *Nidra* (proper sleep) and *Brahmacharya*. *Aahar* is one of them. Proper intake of *Aahar* plays an important role in maintaining the health of an individual and adding Millets in our *Aahar* or diet is one of the strategies of lifestyle modification to maintain the health of an individual. *Acharyas* has mentioned twelve categories of *Aahar* in which millets are to be considered in *Trinadhanya* and *Kshudradhanya* of *Dhanyavarga*. The nutrient profile of Millets is higher than the other cereals. They are rich fibre content, magnesium, phosphorous, vitamins, low calorie and gluten free property. Also, qualities of *Kshudradhanya* have been mentioned in *Ayurvedic* classics like *Ruksha*, *Dhatushoshana*, *Lekhan*, due to which they have been indicated in *Santarpanjanya Vyadhi* i.e., *Prameha* (Diabetes), *Sthoulya* (overweight), *Medo Roga*. Hence, this analysis may help in understanding the benefits of Millets and the most importantly the right way to use millets with precautions to maintain the healthy lifestyle and reduces the risk of lifestyle disorders.

**Key words:** *Aahar*, *Ayurveda*, *Kshudradhanya*, *Millets*, *Santarpan Janya Vyadhi*.

## INTRODUCTION

After the struggle of the world with the covid over, there are so many diseases emerging day by day. To overcome these new emerging ailments, humankind has started to adopt healthy lifestyle to remain healthy and fit. *Ayurveda* depends on two goals i.e., treating the diseased one and maintaining the health of the healthy individual. Let's discuss about the second one. To counteract with the second goal, *Ayurveda* has

mentioned so many strategies in which dietary modification is one of them which is based on *Traya Upastambha* i.e., *Aahar*, *Nidra* and *Brahmacharya*. *Acharya Kashyap* has considered *Aahar* as *Mahabheshaj*. Proper intake of *Aahar* plays an important role in maintaining the health of an individual. *Acharya Charak* has mentioned twelve categories of *Aahar* in which *Dhanyavarga* is one of them. *Ayurveda Acharyas* has mentioned about millets like *Ragi*, *Bajra*, *Gavedhuka*, *Kodrava*, *Sama*, *Shyamaka Kodo*, *Cheena*, *Neewar* etc. in *Ayurvedic* texts which has been considered under *Trinadhanya* and *Kshudradhanya*.

However, *Ayurveda* does not advocate regular usage of millets as food. Millets are included under *Kudhanya*, the very word is derived from *Kutsita Dhanya* meaning that which is contemptible. Hence a need to overview on the importance of millets is required for the benefit of mankind in order to reduce the risk of lifestyle disorders.

Millets haven't popular recently. Millets are the heritage crop of ancestors. About 30 to 40 years ago,

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Submission Date: 14/07/2023 Accepted Date: 21/08/2023

### Access this article online

Quick Response Code



Website: [www.jaims.in](http://www.jaims.in)

DOI: 10.21760/jaims.8.9.25

they were an important part of our food. But, in 1980's after green revolution, government's policy came into light which gives priority to wheat and rice. Also, Millets started being considered as poor man's food or substandard food. As a result, millets disappeared from our diet. And today, wheat and rice have become the most cheap, popular and easy available grains. But nowadays, with the increasing health issues, water shortage problem, nutritional profile, and ecological benefits, increases the global demand of Millets.

Generally, millets are frequently consumed in rural areas as its nutritional value is very high. So, by emphasizing on adding millets in our diet, we can maintain the health standards for an individual. If we talk about the qualities of millets, they are *Kashaya* and *Madhura* in *Rasa*, *Sheeta Virya*. They increases *Vata*, balance *Pitta* and *Kapha*, *Ruksha* and *Grahi* and light to digest.<sup>[1]</sup> Millets has also been described by *Bhavaprakash Nighantu* in the group of *Dhanyavarga* as *Kshudradhanya* (*Kanguni*, *Cheenak*, *Shyamaka*), *Kodo*, *Gavedhuka*. *Bhavaprakash* has mentioned its *Ushna Virya*, *Laghu*, *Ruksha*, *Vatakaraka*.<sup>[2]</sup>

Millets can be considered under *Trinadhanya Varga*. These are the group of grains produced by grass like plants. Millets offer nutritional security and need for promoting millets as they are highly nutritious. In general, millets are rich source of fibres, minerals and B complex vitamins. Millets is an alkaline forming food and balances the pH of the body, also called coarse grain or poor people's crop. These are small seeded crop and cultivated in less fertile soil. These crops require less water and resistant to pests and diseases. Millets has high fiber content and rich in promoting phytochemicals like polyphenols, lignans, phytosterols, phytoestrogens, phytocyanins. Being non glutinous, millets are safe for people suffering from gluten allergy and celiac diseases. Millets are non-acid forming, easy to digest and non-allergenic.<sup>[3]</sup>

Millets are recognized as high energy nutritious food which help in proper nourishment and thus helpful in malnutrition. Also contain 32-38% dietary fiber, which is highest among cereals. They provide nutraceuticals components such as phenols, phylates along with

other nutrients. Millets have high protein content which is a substantial addition to a vegetarian diet.<sup>[4]</sup>

### Benefits of Millets

The magnesium content in millets maintains healthy sugar level. Also reduces the effects of migraine. Millets contain antioxidants, phytochemicals that promote health. B3 content in millets maintain the cholesterol level which results in keeping the cardiovascular system healthy. The serotonin in millets is calming to your moods. Millets are gluten free, hence, considered good for the patients suffering from gluten sensitivity enteropathy. Due to its anti acidic property and high fiber content, risk of constipation and gastric ulcer has come to an end. As millets have lower glycemic index than rice, which reduces the chance of diabetes and produce lower blood sugar level than wheat and rice.<sup>[4]</sup>

### Types of Millets

- 1) **Bajra (Pearl Millet)** - In *Ayurveda*, *Bajra* is mentioned by the name known '*Nali*'. It is first mentioned by *Madanpal Nighantu* under the category of *Trinadhanya*. *Acharya* has mentioned the properties of *Trinadhanya* in common, thus not mentioned the properties of *Nali* in detail. It possesses *Madhur Rasa*, *Ruksha*, *Laghu*, *Ushna virya*, *Katu Vipaka*.<sup>[5]</sup> The other properties of *Nali* are *Shleshmahara*, *Balya*, *Durjara*, *Pumstvahara*, *Vilekhana*, *Badhdhanisyanda*.<sup>[6]</sup> The diseases that are alleviated by *Bajra* are *Raktapitta*, *Krumi*, *Visha*, *Shula*, *Ashmari*, *Mutrakruchcha*, *Raktadosha*, *Trusha*, *Kandu*, *Jwara*, *Vrana* and *Arsha*.<sup>[6]</sup>
- 2) **Nartiki (Ragi/ finger Millet)** - Finger Millet or *Ragi* is abundantly found in India as well as in Sri Lanka. Finger Millet is rich in calcium and iron which helps in preventing in anemia and strengthening the bones. In previous years, it has lost the popularity over wheat and rice. But recently UN FAO focuses on the importance of millets in malnutrition. Also due to its calcium content, it really works well in lactating mothers. As per Ayurvedic texts, it is advised in *Raktapitta* (bleeding disorders), *Amlapitta* (gastric disturbances), *Twak Roga* (skin

diseases). It is *Tikta-Madhura*, and *Kashaya* in *Rasa*, *Sheeta Virya*, *Snigdha Gunayukta*. It can be advised in *Daurbala*, as it is having *Balya* properties; *Sthoulya* and *Prameha* due to its *Tikta Kashaya Rasa*.<sup>[5,6]</sup>

- 3) **Kangu (Priyangu / Foxtail Millet)** - Ayurveda has mentioned *Kangu* as *Guru*, *Samgrahi*, *Brinahana*, *Shoshana*, *Bhagnasandhankrita* and *Vrishya*.<sup>[5,6]</sup> It works in conditions like *Sthoulya* and *Prameha* due to *Brumhana* and *Shoshana* properties. It can be used for *Dhatu Shoshana* for over nourished *Dhatu*s like *Meda* and *Mamsa*.
- 4) **Cheenaka (Proso Millet)** - *Cheenak* is having *Guru*, *Ruksha*, *Kaphahara*, *Brumhana*, *Durjara*, *Bhagnasandhankara* properties.<sup>[5,6]</sup> Also works in *Santarpan Janya Vyadhi* due to its properties. Hence it can be recommended in *Sthoulya*, *Prameha*, *Medo Roga*.
- 5) **Shyamaka (Barnyard Millet)** - It is having *Samgrahi* and *Dhatu Shoshaka* properties.<sup>[5,6]</sup> Due to its *Samgrahi* properties, used in *Atisara*, *Grahani*.
- 6) **Kodrava (Kodo Millet)** - *Kodo* is having *Madhura-Tikta Rasa*, *Guru*, *Param Grahi*, *Vishahara*, *Avrishya*, *Pathya* in *Vrana*.<sup>[5,6]</sup> It is recommended in *Santarpan Janya Vyadhi* like *Sthoulya*, *Prameha*, *Medoroga* due to *Kleda Shoshana*.
- 7) **Gaveduka (Adlay Millet)** - It is having *Katu-Madhura Rasa*, *Karshyakaari*, *Kaphahara* properties<sup>[5][6]</sup>, due to which it is recommended in *Sthoulya*, *Sthula Pramehi*, and other *Kapha Pradhan Vyadhi*. Adlay Millet is used in Rheumatism.<sup>[7]</sup>
- 8) **Yavanaala (Sorghum)** - It is having *Avrishya*, *Ruchya*, *Trishnaghna*, *Kledaghna* Properties. It is advised in *Raktapitta*, *Amlapitta*, *Twak Roga* as it is *Pittaghna*, *Rakta Shamaka*, *Trishna*, *Sthoulya*, *Prameha* as it is *Tikta Kashaya* in *Rasa*.<sup>[5,6]</sup> It is having anti-obese and anti-diabetic properties of Sorghum.<sup>[8]</sup>

## DISCUSSION

By analyzing the qualities of different types of Millets mentioned in *Ayurvedic* texts, whether *Ayurvedic*

*Gunas* or the benefits mentioned in modern science, it is clear that the millets have gained uttermost importance in the lifestyle of modern era. As mentioned, before that most of the millets have qualities like *Ruksha*, *Kaphahara*, *Lekhana*, due to which, they are very much beneficial in *Santarpanjanya Vyadhi* like *Prameha*, *Sthoulya*, *Medo Roga*, *Vrana* etc. The millets can be best advised in *Kaphaj*, *Pittaj* and *Raktadushti*. One should always keep in mind, not to be advised in *Vataj Roga*, as it can aggravates the condition.

Millets are rich in dietary fiber, protein and less carbohydrates, which is an extra benefit of millets over other cereals and rice. Though millets are heavy for digestion, but still they are considered as *Laghu* as their after effect imparts lightness in the body. They are *Ruksha* and *Lekhan* in qualities, hence, works for *Santarpanjanya Vyadhi*.

It is reported that Millets has become a choice of diet for the patients suffering from IBS due to its gluten free nature.<sup>[9]</sup>

Apart from the qualities mentioned in *Ayurvedic* texts, indications of the particular millet can be inferred by analyzing their *Guna* and *Karma*.

1. **Bajra (Pearl Millet)** - As mentioned before, *Bajra* is having *Ruksha Guna*, which helps in haemocoagulation, resulting in relief from *Raktapitta* like bleeding disorders. The anti-inflammatory and anti-oxidant property of *Bajra* helps in faster wound healing. Also, *Bajra* contains p- hydroxyl benzoic acid of anti-microbial property which acts towards fever relief.

*Ayurvedic* texts have mentioned the occasional use of *Bajra* due to its *Ruksha* and *Lekhan* properties. Implementing its regular use in diet who are not gluten allergic, may harm their health. Hence regular use of *Bajra* not recommended in south Indian population. *Ayurveda* has mentioned its importance in different diseases but not advocate its regular use in diet.

It is the most widely grown millet. It is also known as African millet or spiked millet. *Bajra* is a summer crop that is grown extensively in Rajasthan in India and few

African countries. It is extremely helpful in controlling sudden blood sugar spikes, preventing chronic conditions and is a heart healthy food. Generally, it should be consumed in winter to boost lung power as the anti-inflammatory properties in Bajra can ease breathing. Bajra comes under the category of alkaline foods. It is the ideal food for acidity. Regular intake of Bajra aids in reducing bad or LDL cholesterol thus preventing blocks in the arteries, as this wonder millet is a rich source of Omega-3 fatty acids, plant lignans.<sup>[10]</sup>

Though *Bajra* or pearl millet is one of the most consumed foods in country, but it comes with its share of side effects. Pearl millet is not recommended for those suffering from thyroid gland dysfunction as it can further compromise the functioning of this butterfly shaped gland and can lead to various metabolic disorders. The oxalates in Bajra, if not cooked properly can result in kidney stones and the phytic acid may interfere with the absorption of food in the gut.<sup>[11]</sup>

**2. Ragi (Finger Millet)** - As mentioned before, *Ragi* is having *Tikta Kashaya Rasa*, due to which having effective role in *Prameha* and *Sthoulya*. Also, it is *Snigdha* and *Balya*, hence recommended in *Daurbalya*. Also, it is helpful in reducing the oxidative stress induced by Obesity. Hence it is evident to have anti obese property.<sup>[12]</sup>

#### Ragi health benefits

It also has naturally occurring iron, which helps in anemia. It helps lactating mothers produce sufficient breast milk. *Ragi* has all the macronutrients i.e., carbohydrates, proteins, fats, along with micronutrients i.e., vitamins and minerals. It has negligible levels of cholesterol and sodium, to promote heart wellness. In addition, *Ragi* has vitamin C and E, to boost immune, skin, and hair health. The B complex vitamin i.e., thiamine, riboflavin, niacin and folic acid as well as calcium, magnesium, iron, and phosphorous are also present in *ragi* flour. It is considered as a wholesome breakfast cereal and a superfood. *Ragi*, being organically, gluten free, can easily be substituted for wheat, to prepare *Chapattis*, *Dosas*, and sweets and is often recommended for patients with celiac disease. The best time to consume *Ragi* is in the morning, as the

stomach and intestines display peak levels of metabolism in the morning. Hence, *Ragi* based foods for breakfast activates the digestive juices and ensures complete assimilation of nutrients found in *Ragi*, which are absorbed into the bloodstream and transferred to vital organs.<sup>[13]</sup>

#### Ragi for bone health

Finger millet is a good source of natural calcium that strengthen bones and lower the risk of bone fracture and keeps the disease like osteoporosis at bay. It helps in the development of bones in growing children and ageing people. It also has naturally occurring iron, which helps in anemia. It helps lactating mothers produce sufficient breast milk.<sup>[11]</sup>

#### Ragi for Obesity

*Ragi* contains an amini acid called Tryptophan which lowers appetite and helps in keeping weight in control. Its digestion is very slow and its fiber content controls the excessive food consumption.<sup>[13]</sup>

#### Side effects of Ragi

*Ragi* on a regular basis can be tolerated by most healthy individual and even by those who are overweight or diabetic patients. But *Ragi* should be avoided to those persons who are suffering from kidney complications as it has high calcium content and lead to more urinary calculi or kidney stones in the body.<sup>[13]</sup>

#### Ragi in diabetes

The phytochemicals present in *Ragi* are responsible for the slow digestion process which results in controlling blood sugar levels. Also, it has more fiber content as compared to wheat and rice, and has a slow glycemic response, i.e., lower ability to increase blood sugar levels which lower the digestibility and absorption of starch.<sup>[13]</sup>

**3. Kangu (Foxtail Millet)** - As mentioned earlier, about the qualities present in *Kangu*. It is having *Samgrahi Guna*, due to which can be used conditions like *Atisara*, *Grahani*. As it is having *Dhatushoshana Guna*, it can be recommended in conditions like *Sthoulya* and *Prameha*. It has been

evidenced the reduction in blood glucose level in type 2 diabetes on using multi millet therapeutic food which contain foxtail millet too.<sup>[14]</sup> Also based on its *Guna*, *Asthibhagna* and *Bhagnasandhankrit Karma*, it can be indicated in *Amavata*.

4. **Cheenak (Proso Millet)** - Like other Millets, Proso Millet works on the principle of *Guru* and *Aptarpan Aahara* of *Sthoulya*, *Prameha* and *Meda Roga*, as it is having *Guru*, *Ruksha* and *Kaphahara* properties. Proso Millet has pro-apoptotic and anti - adipocytic activities toward adipocytes which is useful for obesity.<sup>[15]</sup> Also Proso Millet reduces the risk of coronary heart disease as it increases the HDL levels.<sup>[16]</sup>

5. **Shyamaka (Barnyard Millet)** - It is indicated in *Santarpan Janya Vyadhi* due to its *Shoshana*, *Lekhana*, *Ruksha* and *Badda Mutrakara*. Also useful in *Kapha Pitta Pradhan Rogas*. It is evidenced to be useful in controlling Diabetes Mellitus as it having low glycemic index.<sup>[17]</sup>

6. **Kodrava (Kodo Millet)** - As mentioned before, about the ayurvedic qualities of *Kodrava*. It can be recommended in *Atisara*, *Grahani* due its *Grahi Guna*. It is a traditional food that aids in weight loss and has a taste that is similar to rice. It is quickly absorbed and rich in phytochemicals and antioxidants, which aid in preventing many diseases related to a sedentary lifestyle. Also, it relieves hip and knee pain and also regularizes menstruation in women.<sup>[18]</sup>

Kodo Millet drastically lowers the level of glycated haemoglobin, stimulates the creation of liver glycogen, and increases diabetics' level of energy right away. *Kodo* millets are an impressive source of powerful antioxidants. The phenolic extract in this tiny millet reduce LDL or bad cholesterol, keep the heart healthy. As *Kodo* millet is an alternative to rice and wheat, it serves the purpose of weight loss.<sup>[18]</sup>

7. **Gavedhuka (Adlay Millet)** - As mentioned earlier, *Gavedhuka* is *Karshyakari*, *kapha hara*. Other properties are said to be similar to *Shyamaka*. It can be used in *Mutrakrich*, due its *Mutral* property. Also its roots are used in dysmenorrhea.

8. **Yavanaala (Sorghum)** - It has been mentioned earlier, that *Yavanaala* is *Pittaghna*, *Raktashamaka*. Hence, indicated in *Raktapitta*, *Amlapitta*, *Trishna*. Sorghum is known as King of Millets. Sorghum works well in Obesity as it is high in dietary fibre. It satisfies the hunger, heightens satiety and reduces the risk for obesity. Also, it plays an important role in Diabetes Mellitus. Sorghum tends to decrease LDL cholesterol, triglycerides, and blood pressure, and increase HDL cholesterol.<sup>[19]</sup> Also it has been studied that the regular consumption of whole grains reduces the risk of CVD.

#### Precautions to be taken while using Millets

Along with the benefits gained by using millets, one should always use millets by taking some precautions. Most of the Millets are *Ruksha*, *Vatakara* in qualities, hence, not suitable for *Vata Pradhan Vyadhi* like *Sandhigata Vata* (Osteoarthritis), *Shosha* (emaciation), and *Karshya* (underweight). If need to be given in such conditions, then, *Samskara* should be done with *Deepan Pachana* drugs, Ghee and *Vata Shamak Prakshepas*. Also, one should keep in mind some precautions given below while using the Millets-

1. Try to consume organic and unpolished millets.
2. Consume only one type of Millet in a day, never consume one millet with another millet.
3. Always presoak Millets for 6-8 Hours before using.
4. Don't consume one type of Millet continuously, rotate them.
5. Roast the Millets for few minutes to enhance the nutty flavor.
6. Serve Millets always hot/warm
7. Include Legumes/Dal in Millet Meal to enhance Nutritional Value.
8. *Soaking* and sprouting reduces the level of Antinutrients.

In this study, one more aspect needs to be highlighted that in Ayurveda, Millets are considered under *Kudhanya*, i.e., inferior among cereals. *Ayurveda* never

advocated about the regular use of Millets in diet. They have not been mentioned under *Nitya Sevaniya Aahar* (foods to be used regularly). It was reported that the regular consumption of *Bajra* (Pearl Millet) increases the risk of Goitre in iodine deficiency areas, due to the presence of Polyphenol which interferes with the function of thyroid gland.<sup>[20]</sup>

## CONCLUSION

Today's lifestyle is becoming sedentary day by day, which give rise to the *Santarpan Janya Vyadhi* or we can say lifestyle disorders i.e., *Prameha* (Diabetes), *Medo Roga* (obesity), *Sthoulya* (over weight). Millets works on principles of both preventing from disease and therapeutic diet for disease. But Millets should be used cautiously in *Vataj Vyadhi*, as it can aggravate the condition. Also, one should limit the consumption of Millets, suffering from thyroid dysfunction. Millets has nutritional profile similar to other cereals like wheat and rice, but millets have additional health advantages of presence of phytochemicals, vitamins, minerals, high fiber content, low calorie and the most important gluten free benefit. All these qualities make millets superior to other cereals. Hence, one should consume fruits, vegetables, and try to add millets in their diet to maintain the healthy lifestyle.

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**How to cite this article:** Astha Sharma, Shiv Shankar Shukla. An eyeshot on the role of Millets in healthy lifestyle - A Literary Review. J Ayurveda Integr Med Sci 2023;09:153-159.

<http://dx.doi.org/10.21760/jaims.8.9.25>

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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