

## ROLE OF MILLETS IN PREVENTION AND CONTROL DISEASES

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**Abstract :**

*Milletts were historically the first crop that humans tamed, and they served as the main source of nutrition for numerous civilizations in Asia and Africa. Milletts are naturally high in phytochemicals and nutrients that promote health. Milletts have a significantly greater dietary fibre content than other common cereals. Foods with a high dietary fibre content have lower glycemic indexes. Additionally serving as prebiotics, dietary fibre promotes the development of a balanced gut microbiome. All of the necessary amino acids are present in the millet proteins, which are also gluten-free. Unsaturated fatty acids are prevalent in the millet fats. They are also a good source of B-complex vitamins and important minerals like calcium, iron, and zinc. They contain far more phytochemicals, such as phenolic acids, flavonoids, and tannins, than do the common grains. According to reports, these non-nutritive components have antioxidant, anti-diabetic, anti-cancer, anti-cardiovascular.*

**Keywords :** *communicable and non-communicable disease, millets, nutri-cereals.*

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**Introduction :**

Numerous factors, including climate change, population growth, water scarcity, rising food prices, and an increase in human illness, pose a threat to agriculture, food security, and nutritional security worldwide, particularly for the world's poorest populations who reside in arid and sub-arid regions. The elimination of hunger, poverty, and nutritional inadequacies has become a challenge for scientists and nutritionists to discover various methods of creating, processing, and utilizing new food sources for humans. Cereal grains are a major source of food in the world and are crucial to our diet.

Milletts are small, spherical minor cereals that belong to the Poaceae family of small seeded grasses. Their amazing capacity to endure in less fertile soil, tolerance to pests and diseases, and a short growing season are characteristics of it (Devi et al. 2004). Nutri-cereals are small-seeded annual grasses that are grown for food. Examples include finger millet (*Eleusine coracana* (L.) Gaertn), barnyard millet (*Echinochloa frumentaceae* L.), little millet (*Panicum sumatrense*), foxtail millet (*Setaria italica* L. P. Beauvois), proso millet (*Panicum*

miliaceum L. The millets are known by several names in different parts of the world, including finger millet (Ragi), barnyard millet (Sanwa), foxtail millet (kakum), proso millet (Cheena), small millet (kutki), and kodo millet(kodra).

As their grains contain significant levels of proteins, minerals, flavonoids, polyphenols, and vitamins, millets are nutritious powerhouses. Therefore, a healthy diet can aid in overcoming malnutrition in the bulk of our Indian population. Although they were previously referred to as coarse grains, these are now known as "nutriamillets" or "nutria-cereals" because of their nutritional benefits. Millets provides an additional advantage of using them as they helps in fighting against communicable and non- communicable diseases due to their richness in many vital nutrients.

### **Diabetes millets :**

A study found that regular use of multigrain flour—a blend of 30:70 wheat and millet—reduced a diabetic person's high blood sugar level. People who ate chapatti made from multigrain flour had lower blood sugar levels, it was discovered. Regular low-fat dairy meal consumption has also been shown to reduce type 2 diabetes risk by 13%. Therefore, including millets in a daily diet may help avoid diabetes or keep diabetics' blood sugar levels under control.

### **Millets with heart disease :**

Unhealthy nutrition is the primary cause of heart attacks and strokes. Millets may aid in lowering the prevalence of cardiovascular disease. In hyperlipidemic rats, finger and proso millet reduced plasma triglycerides. In order to determine their inhibitory effects on the peroxidation of lipids, phenolic extracts from millets including kodo, finger, proso, foxtail, tiny, and pearl millets were also assessed. In food systems, all kinds effectively inhibited lipid oxidation. Demonstrated superior lipid peroxidation inhibition, comparable to butylated hydroxyanisole at 200 ppm, as did kodo millet.

### **Millets in cancers :**

According to the literature, millet grains contain antinutrients like tannins, phytates, and phenolic acids. It has been demonstrated that these antinutrients in millets reduce the risk for colon and breast cancer in animals. Additionally, a recent study found that millet phenolics may be effective in the prevention of cancer initiation and progression in vitro. The UK Women's Cohort Study found that a fiber-rich diet reduces the risk of colon and breast cancer.

### **Millets in celiac disease :**

When someone with a genetic predisposition consumes gluten, they develop celiac disease, an immune-mediated enteropathy. The rising prevalence of celiac disease has increased the demand for gluten-free meals. A new market for goods derived from grains other than wheat or white fine flour was therefore created. Oats, sorghum, and millets have taken on

a specific role in this competitive market. According to recent studies, celiac disease has surpassed all other conditions affecting people on a regular basis in many parts of the world. Food made of grains including rice, corn, millet, sorghum, buckwheat, amaranth, oats, quinoa, and wild rice must be consumed by those who adhere to a gluten-free diet. Millets are therefore quite helpful in producing foods for people with celiac disease because they are gluten-free.

**Millets in aging :**

Millets have the potential to be helpful in preventing aging. A significant factor contributes to the development of diseases including diabetes and aging. the non-enzymatic glycosylation chemical process. Due to their abundance in antioxidants and phenolic compounds, millet grains have antioxidant properties. These anti-oxidant qualities aid in preventing metabolic syndrome and aging. It has been discovered that the methanolic extract from finger millet and kodo millet inhibits collagen glycation and crosslinking.

**Millets in gallstones :**

Some experts have conducted a study that demonstrates how consuming soluble and insoluble fiber-rich diets can help women avoid gallstones. According to a study, women who consume more high-fiber meals have a 13% lower risk of developing gallstones than those who consume the least of these foods.

**Millets in arthritis :**

Patients with arthritis generally hope to manage inflammation without using drugs. To such people, millets are godsend opportunities as they can both contain and prevent inflammation, thanks to the curing abilities of gluten-free proteins that they possess.

**Millets in obesity :**

Eating millet or other whole grains in place of refined grains like white flour, white rice or packaged snacks is recommended for weight loss and overall health. Millets are rich in dietary fiber and has unique physical and chemical characteristics like bulk to the diet, viscosity, water holding and absorption capacity which determine the subsequent physiological behavior. The diet with high dietary fiber increase satiety thereby reducing the risk of over eating. While animal proteins contain high amount of saturated fatty acids, millets provide fat-free protein. The amino acid, tryptophan present in it regulates appetite thereby preventing overeating and consequent excessive weight gain by the body.

**Millets in constipation :**

Millet is abundant in dietary fiber, whose intake of 40 grams each will reduce constipation. Adequate dietary fiber can be achieved by consuming about two to three servings of whole grains/millets grains and around five servings of fruits and vegetables per day.

**Millets in wound healing and nerve growth factor (ngf) production :**

Rajasekaran et al. reported the role of finger millet feeding on skin antioxidant status, NGF production, and wound healing parameters in healing impaired early diabetic rats. Hyperglycemic rats received 50 g finger millet per 100 g of diet.[66] Full-thickness excision skin wounds made after 2 weeks prior feeding of finger millet diet. The rate of wound contraction and the levels of collagen, hexosamine, and uronic acid in the granulation tissue were determined.

**Millets in anemia :**

The prevalence of iron deficiency anemia is highest among low and middle income countries. Millets, including sorghum, are a traditional staple in many of these countries and are known to be rich in iron that's why millets helps in preventing anemia.

**Conclusion :**

Millets are rich in minerals like Ca, Mg and K and reported to have numerous health benefits such as maintaining blood sugar level, blood pressure and cholesterol levels and they are easy to digest due to high fibre and it contain high lecithin which is great for building up the nervous system. Millets are gluten free and can be great choice for people who have for celiac disease or follow gluten free diet. Regular consumption of millets can give a healthy life. Production of functional food by fortification or supplementation of the millet is a successful method that can be utilized to get rid of nutrients deficiencies. Since India is the world leader in millet production maximum focus should be given to develop functional food by fortification or supplementation.

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