

## Millets In Curative Diet

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DOI: 10.31080/ASNH.2024.08.1384

Received: April 29, 2024

Published: May 21, 2024

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### History of holy spirit hospital

History of Holy Spirit Hospital, a Charitable Trust Hospital located in Andheri (E), Mumbai, was established in the year 1967 and is owned and managed by the Missionary Sisters Servants of the Holy Spirit. The first group of 4 sisters arrived in India in 1933. Seeing the health condition of the people Sr. Carmelann Mckee promptly set up a dispensary, in Mumbai in 1964. Down the years, the mission continued to expand and the number of ministries grew. Starting as an out-patient clinic in 1964, Holy Spirit Hospital turned to 65 bed hospital in 1967. Today our Hospital stands proudly as an upgraded 300 bed multi-specialty tertiary care hospital catering to the comprehensive health care of approximately three million people. Over the years, it has been gradually transformed into a tertiary care hospital with large spacious outpatient departments and in-patient wards, surrounded by lush green landscape, conducive to healing. Among our clientele, 10% of our patients are slum dwellers getting free treatment, 70% belong to the low-income group and treated at a concessional rate and only 20% constitutes paying patients. Here in Mumbai where quality healthcare is only available at a premium, our hospital offers state-of-the-art and up-to-date facilities at unbelievably subsidized rates. We incessantly strive to bring quality medical care within the reach of the common people. We are deeply committed to our vision, mission and motto and we spread the healing love of God to all without any distinction of caste, creed, religion or economic status. We are grateful to its many donors from India and abroad for their generous contributions towards translating our dream into a reality. Also we are obliged to honorable Sisters, Doctors, Staff, Clients, Government authorities and well-wishers who have enabled the hospital to maintain its commitment to provide quality medical service to the common people.

The dietetic department caters to over 1,200 people per day including 326 patients, 550 employees as well as the Missionaries. There are 4 dieticians working under 1 chief dietitian, heading about 45 kitchen staff who are involved in the washing, pre-preparation, cooking and distribution of the food.

An accustomed perception of hospital food is that it is insipid or unpalatable. In order to change this perception the team of di-

eticians at Holy Spirit Hospital under the guidance of chief dietitian Mrs. Reena Alex, undertook the mission of combining health with taste. Our department has received 5 star certifications and have been conferred with the title "Eat Right Campus" from Food Safety and Standard Authority Of India (FSSAI) for following guidelines established by the FSSAI.

As this year has been declared as International year of millets (IYM 2023), it would be suitable to incorporate millets based delectable handmade recipes which will appeal to the patients in a traditional way and also stimulate their taste buds which in turn will help prescribed by us to fight patient's malnourishment during the hospital stay.



Figure a

### Message from head of the Department.

Millet is one of the oldest human foods and believed to be the first domesticated cereal grain. Studies have shown that a diet rich in millets, including whole grains, is protective against non-communicable diseases like diabetes, cancer and cardiovascular diseases. Millet ranks as the sixth most important cereal grain in the world today, sustaining more than one-third of the world's population. To create awareness about goodness of millet, From the early years of our hospital, various types of millets like finger millet or ragi, sorghum or jowar, pearl millet or bajra has been provided and prescribed by the us (dietitian) in the form of porridges, ryles tube feeds to patients. I firmly believe that millets offer better nutrition

as they are rich in various micronutrients like vitamin B complex, calcium, iron and high protein, high dietary fibre and low glycemic index which help in the nutritional improvement of the patient tremendously.

My futuristic vision is to introduce the other husked millets like foxtail millet, little millet, proso millet, kodo millet and brown top millet as me and my team strongly believes that all these indigenous grains are the centre of all the curative diets especially in lifestyle metabolic disorders like diabetes, hypertension, cardiovascular diseases etc.



Figure b

**Millet based recipes given to patients on a daily basis**  
**Ragi porridge**

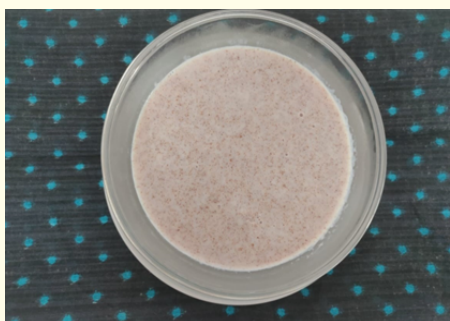


Figure c

Finger millet commonly known as ragi is one of the oldest millet used in India. Its importance is well recognized because of its high content of calcium (0.38%), dietary fiber (18%) and phenolic compounds (0.3–3%). Extensive research has shown that this millet has anti-diabetic, anti-tumorigenic, atherosclerogenic effects, antioxidant and antimicrobial properties.

**Ragi dosa**



Figure d

Keeping all the above points in mind we have been giving Ragi in form of porridges and dosa to patients who are on liquid and soft diet. Ragi malt is provided in pediatric ward on a daily basis keeping children’s calcium need in mind.

Introduction of millets in HSH community health centre-RAGI PORRIDGE Keeping in mind the nutrient and protein requirements of TB patients, they are provided with egg, banana, ragi porridge on a daily basis for breakfast in our community health centre.



Figure e

**Millet mix RTF**

Our Chief dietitian has formulated a unique 7 grain millet based Ryles tube feeding (RTF) formula. This formula has equal quantity of wheat, jowar, bajra, ragi, groundnuts, moong and kabuli chana. This feed is given to the patients twice a day. Patients are taught how to prepare this feed at home as they are nutrient dense and cost effective esp. for those who come from low socio-economic strata and cannot afford commercial formulas.

**Millet based new recipe development**  
**Bajra METHI MATHRI with bajra chutney**

**Ingredients**

- Bajra flour
- Chopped methi leaves
- Sesame seeds(roasted)



Figure f

- Red chilly powder
- Turmeric powder
- Coriander powder
- Salt
- Oil
- Curry leaves

**For chutney**

- Urad dal
- Chana dal
- Bajra
- Onion
- Kashmiri Red chilly -2
- Jeera
- Mustard seeds
- Curry leaves
- Salt

**Recipe for mathri**

Combine all the ingredients in a bowl and make a semi stiff dough. Roll out medium sized ball and press it to make it like a mathri. Grease the oven tray with little oil. Bake it at 180 degrees for 15-20 minutes till it turns golden brown. Serve hot with millet chutney.

**Recipe for chutney**

In a pan add oil and fry red chilly urad dal and chana dal till golden brown. Then add chopped onion and bajra and fry well. Then allow it to cool. Then add salt and grind it to a chutney consistency by adding water.

Then in the same pan add oil mustard seeds cumin seeds asafoetida powder curry leaf and saute well then add this to the ground chutney. Mix well and serve.

Nutritional value table					
For MATHRI					
Ingredients	Amount	Energy (kcal)	CHO (g)	Protein (g)	Fats (g)
Bajra flour	100 g	333	70	10	1
Methi leaves	20g	7	0.6	0.4	0
Sesame seeds	10g	56	2.5	2	4.3
Oil	10ml	90	-	-	10
For Chutney					
Ingredients	Amount	Energy	CHO	Protein	Fats
Bajra flour	30g	100	21	3	0.6
Urad dal	10g	33	4.9	2.3	-
Chana dal	10g	33	4.9	2.3	-
Oil	5ml	45	-	-	5
TOTAL		697 kcal	104g	20g	20.9g

Table a

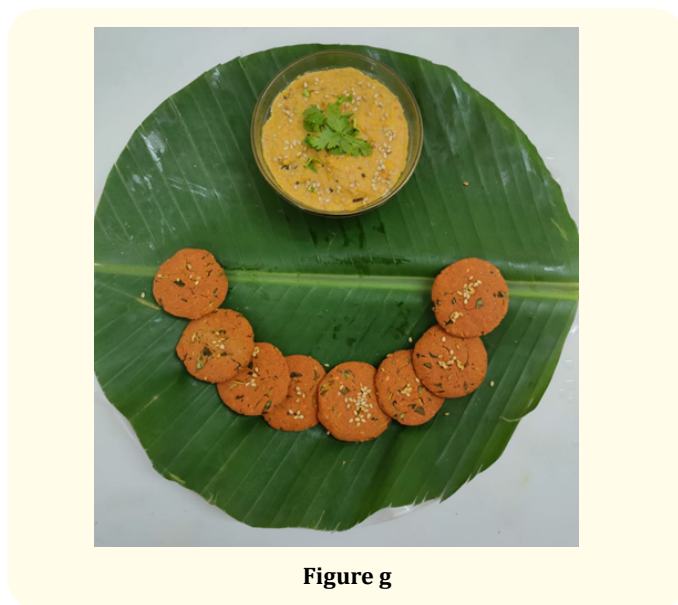


Figure g

- Total yield- 10 pieces were made out of 100g bajra flour.
- It is a high protein, calcium rich, high fibre recipe which can be given to breastfeeding mothers, anemic children and diabetic patients.
- Bajra helps maintain blood sugar levels and reduces the risk for cardiovascular diseases.
- Bajra is anti inflammatory and helps boosts energy.
- Bajra acts as a galactagogue thus can be given to breastfeeding mothers.



Ms. Ishita Juthani Dietitian Holy Spirit Hospital.

Mrs Sai Kumbhar Dietitian Holy Spirit Hospital.

**Barnyard millet kheer**

**Ingredients**

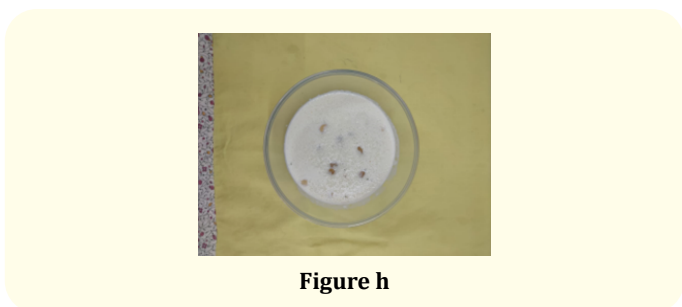
- Barnyard Millet/Varai- ½ cup (100g)
- Fresh milk- 500 ml
- Jaggery- 50g
- chopped cashewnuts- 2 tablespoon
- Chopped almonds- 2 tablespoon
- Raisins- 2 tablespoon
- Elaichi powder- 2-3 pinch

**Recipe for Barnyard kheer**

- Dry roast the millet in a pan for 3-4 minutes or until it gets little puffed and crisp.
- In a heavy bottom pan, boil the milk. Add jaggery to the milk.
- When the milk starts boiling, Add elaichi powder and reduce the flame to medium, let this cook until the milk reduces to half of its original volume. Now add barnyard and stir well to avoid lumps.
- After 10 minutes, the millet would have cooked well. Add the chopped nuts and raisins.
- Let this sit on the stove for another 8-10 minutes. Remove from flame.
- Serve it warm or chilled.
- Barnyard pudding or Varai kheer for the patients who are on soft diets, mashed diets and renal diet.
- This recipe can be given to patients with kidney diseases as it is high in antioxidants and also excellent source of fiber.
- It has little or no phytase activity so minimal amount of phosphorus is likely to be absorbed.
- Its low glycemic index and cholesterol lowering property makes it suitable for diabetic and cardiac patients also.

Nutritional Value Table					
	Amount	Energy (kcal)	CHO (g)	Protein (g)	Fats (g)
1 serving/1 bowl	100 ml	123Kcal	30.4	6.3	4.5

**Table b**



**Figure h**

**Millet khichdi**

**Ingredients**

- Moong-15g
- Ragi -15g
- Jowar -15g
- Bajra-15g
- Corn - 15g
- Oil- 1 tsp
- Jeera-1 tsp
- Ginger garlic green chily paste-1 tbsp
- Coriander and salt as per taste
- Turmeric and dhania powder-1 tsp

**Recipe**

- Dry roast moong, ragi, jowar, bajra, corn separately.
- Make a coarse powder.
- Cook in cooker with salt, haldi and 3 ½ cup water.
- For tadka-
- Add 1 tsp ghee, jeera, ginger garlic green chilly paste.
- Add carrot, beans, tomato, onion and sauté for 2 minutes.
- Add the cooked khichdi and let it simmer for 2 minutes.
- Serve hot with curd or any curry.

**Nutritional information**

Ingredients	Amount (g)	Energy (kcal)	Protein (g)	CHO (g)	Fats (g)
Moong	15	50	1.5	11	0.3
Ragi	15	50	1.5	11	0.3
Jowar	15	50	1.5	11	0.3
Bajra	15	50	1.5	11	0.3
Corn	15	50	1.5	11	0.3
Ghee	5ml	45	-	-	5
TOTAL		295 kcal	7.5 g	55 g	6.5 g

**Table c**

**\*Prescribed for diabetic patients. Used as a replacement for rice and chapatti.**

- Nutritious one pot meal which aids in weight loss, glycemic control.
- Rich in dietary fibre thus helps in feeling of satiety and easy digestion.
- Gluten free, iron, calcium and antioxidant rich.



Figure i

Mrs Reena Alex HOD, Registered Dietitian Holy Spirit Hospital.

**Strategies adopted by HSH under the national initiative for millets.**

Awareness creation through seminars and competition

- On the occasion of national nutrition month 2023 clinical nutrition and dietetics department of Holy Spirit hospital conducted a seven day fun filled programme.

- Nutrition talk on importance of millets for all age groups was conducted by our dietitian.
- Recipe competition was organized for all staff, students and patient relatives on theme "Discover the power of Millets".
- In view of cancer awareness day- 7<sup>th</sup> November 2023 we displayed millet based recipes, nutritional counseling about importance of millets in cancer was done for cancer patients and their relatives, doctors and staff.



Figure i

### Statistics

Millets have been included in our hospital diet from last 54 years. Approximately 250 patients have been eating millets daily atleast once in a day. We can proudly state that we have fed millets to approximately 48, 60,000 patients till now.

Millets in Ryles tube feeding is used extensively in our hospital especially in intensive care unit. Till now approximately 2, 72,160 patients have been given this feed to increase their calorie and nutrition quotient.

We had also created a special product known as ARF powder (Amyulase Rich powder based on millets) for malnourished children (SAM and MAM) during an initiative started by our community health department for the children below the poverty line. During this outreach programme approximately 500 children were given ARF powder and their parents were counseled accordingly.

Millets are also given in staff canteen for doctors, nurses and other paramedical staff. 200 numbers of staff consumes millets in some form atleast twice a week. So, approximately 12, 96,000 staff in last 54 years have been enjoying these delicious treats.

As we know there are so many nutritional benefits of millets but as an establishment we have to consider its cost effectiveness also. For that purpose, we make all the millet based recepies in house. From roasting, grinding to cooking, the whole procedure is done in our kitchen itself. So we gain double benefit as it becomes very economical and also vey hygienic while maintaining its nutrition score intact as it is done under strict supervision of nutrition experts.

### Way forward- future possibilities

Millets will be the center of all diet in the near future. It can be considered as future food due to its various qualities as they are abundant in calcium, fiber, polyphenols and protein. All the experts are and will be suggesting millet based diet in coming years as they are nutritionally dense. These miracle grains are able to grow in any adverse climatic conditions helping the farmers to grow surplus yield without much investment in costly resources providing food and water security.

Hospitals, NGOs and other food related government authorities can endorse variety of millet based dishes in their set up. Dietitians and nutrition counselors can influence patient’s food preference and emphasis the role of millets in their daily intake.

### Patient feedback



Figure k: Patient given millets khichdi.



Figure l: Patient enjoying barnyard pudding.



Figure m: Patient eating ragi porridge for breakfast.

### Valuable feedback

“Millets are an excellent source of nutrients which aids in digestion and boosts immunity, acts as an antioxidant. I have seen ryles tube feed patients weight improvement and lower risk of malnourishment after using millets in tube feeds.