



ROLE OF MILLETS IN MENTAL HEALTH

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ABSTRACT

The brain controls the entire system of the body. It is responsible for everything in our life such as thoughts, memory, perceptions, emotions, and movement. Various measures such as nutritious food, exercise and sufficient rest are all the primary factors for taking care of the mental health. In food, enough quantity of vitamins, minerals, trace elements and other essential amino acids are to be ensured for achieving holistic health. These components are all called as micronutrients and the millets are the greatest sources of these micronutrients. Keeping in view of these facts, the Government of India observes this year as year for Millets 2023 by promoting the farmers for produce of millets and creating awareness in society for the usage of millets in daily life. This article briefs about millets, their micronutrients and their role in brain health.

KEYWORDS : Micronutrients, Brain Health, Trace Elements And Minerals

INTRODUCTION

Mental health is an important component of over all well being of mankind. Good mental health refers not only the absence of illness but it specifies the full functioning of the brain to its maximum potential. WHO defines that Brain health is the state of brain functioning across cognitive, sensory, social-emotional, behavioural, and motor domains, allowing a person to realize their full potential over the life course, irrespective of the presence or absence of disorders (1). It has been reported that Low- and Middle-income countries have nearly 70 % of the global burden of neurological and neurodevelopmental conditions.

These neurological conditions are the leading cause of Disability adjusted life years (DALYs) and account for about 9 million deaths per year (2). There are reports that 43% of children under the age of five in low- and middle-income countries are believed to miss their developmental potential due to extreme poverty and growth stunting, leading to financial losses and projected 26% lower annual earnings in adulthood (3,4). Though there are various factors involved in the maintenance of good brain health, the role of nutrition with adequate levels of micronutrients is a major one.

Micronutrients is broadly the trace elements, minerals and vitamins that are required essentially for the health and well being of a person. The small grains collectively called as Millets are the rich source of these micronutrients and their role in brain health is significant one. The Ayurveda science emphasises, the need of healthy and balanced food for the complete holistic health of mind, body, and soul. The present article highlights about the micronutrients and its sources, their role in brain health.

Micronutrients and Millets

Micronutrients are minerals and vitamins that are required essentially to the body at small level, but their deficiency causes severe health issues. Micronutrients are taking care of regular metabolism of the body including production and functioning of various enzymes, hormones there by effecting the proper growth and development. So, consuming a healthy diet comprising of balanced nutritious food helps in prevention of malnutrition and protects from range of non-communicable diseases (5,6). The millets are the richest sources of micronutrients. The details of some millets and their reported health benefits have been briefed in Table 1.

Table 1. Health benefits of Millets

S. No	Name of some common Millets	Vernacular name (Hindi)	Botanical name	Reported Health benefits (7-12)
1	Sorghum	Jowar	Sorghum bicolor (L.) Moench	Reduces cholesterol absorption prevents cardiovascular diseases celiac diseases, obesity, cancer management rich of antioxidants protects from life style diseases
2	Pearl Millet	Bajra	Pennisetum glaucum (L.) R. Br.	Lignin content and rich of antioxidants helps for heart health treating stomach ulcer high amount of magnesium helps reducing respiratory problems role in bone growth and development prevention of gallstones
3	Finger millet	Mandua	Eleusine coracana (L.) Gaertn	Reduces triglyceride level hypocholesteremia property prevents illness of heart, anti-ulcerative properties hypo-glycaemic property bone health anaemia management
4	Little millet	Kutki	Panicum sumatrense	Helps to control blood sugar gastric problem
5	Kodo millet	Kodon	Paspalum scrobiculatum (L.)	Rich in antioxidants development of body tissue and energy metabolism
6	Foxtail/ Italian Millet	Kangni, Kaku m	Setaria italica (L.) P. Beauvois	Anti-hyper glycaemic effect nourishing gruel for pregnant women and nursing women
7	Barnyard millet	Sanwara, Jhangon	Echinochloa crusgalli (L.) P. Beauvois	Lowers the blood glucose and cholesterol level reduces heart attack, gastric problems

8	Proso millet	Barrle	Pennisetu m glaucum (L.) R. Br.	Rich in essential amino acids, vitamins and minerals liver protection
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Brain functions and Millets

Brain is a complex organ that controls everything in the body such as thoughts, emotion, memory, touch, breathing and other things that regulate the various physiological process of the body. The central nervous system is comprised of Brain and the spinal cord. For, the proper functioning of the CNS, it requires various molecules that helps for transmission of electrical and chemical signals between nerve cells or neurons. The millets are the good source of various micronutrients that is required for the improved functioning of the brain (13-16). The details of cognitive functions of the brain and the nutrients required for the relevant functions have been described in Table 2.

Table 2. Cognitive functions and the nutrients requirements

Cognitive functions	Nutrients required
Homocysteine metabolism	Folate, vitamin B complex
Energy metabolism	B-vitamins, lipoic acid, iron, manganese
Blood supply	Flavonoids
Membrane integrity	EPA and DHA, vitamin C, vitamin E, flavonoids
Nerve impulse propagation	Folate, vitamin B12, thiamine, iron
Neurotransmitter synthesis	B-vitamins, vitamin C, Zinc, Choline
Neurotransmitter binding	Vitamin B6

CONCLUSION

Millets have enormous health benefits and various studies reported that consumption of millets protects from various diseases including cardiovascular diseases, hyperglycaemic diseases, cancer, heart diseases, respiratory diseases and they also enhances the energy level, immunity level and improved brain functions. The presence of various nutrients in the millets such as resistant starch, essential amino acids, fatty acids, polyphenolic compounds, antioxidant compounds, trace elements and minerals are responsible for their health benefits. Government and Non-Government organizations should take a lead for promoting and popularizing the production and usage of millets among common man. Presently, the Government of India is observing the current year as the year for Millets 2023, and has the strategy to conducts various camps at schools, colleges and residential areas for promoting the usage of millets in their day-to-day life.

So, awareness creation among younger generation for usage of millets, financial incentive schemes to farmers for cultivation of millets and popularize new dishes made with millets among Indian kitchen are all the things to be taken on priority basis for wide usage of millets and by the way making our nation as Healthy India.

Conflict of Interest: Nil

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