



ISSN 2456-3110

Vol 4 · Issue 1

Jan-Feb 2019

Journal of  
**Ayurveda and Integrated  
Medical Sciences**

*www.jaims.in*

JAIMS



**Charaka**  
Publications

Indexed

# Shimbi Dhanya (pulses) as Ayurvedic food supplement for calcium deficiency

Dr. Athira K.S.,<sup>1</sup> Dr. T.B. Tripathy,<sup>2</sup> Dr. Swathi Sharma,<sup>3</sup> Dr. Harisankar M.S.<sup>4</sup>

<sup>1,4</sup>2<sup>nd</sup> year Post Graduate Scholar, <sup>2</sup>HOD & Guide, <sup>3</sup>Final year Post Graduate Scholar, Dept. of Swasthavritta, Sri Dharmasthala Manjunatheswara College of Ayurveda, Hassan, Karnataka, INDIA.

## ABSTRACT

Ahara (food) is an important tool in Ayurveda. Ahara itself acts as an Aushadha (medicine). Shimbidhanya Varga (pulses) in daily diet has an important role in maintaining strength of Asthi Dhatu. Asthi Dhatu can be anatomically correlated to bones and teeth of body, 98% of bones composed of calcium. So calcium deficiency may directly proportional to Asthi Dhatu Kshaya. Shimbi Dhanya Varga (pulses) is rich in Proteins, Calcium, Phosphorus and Magnesium. Mudga (green gram), Masha (black gram), Soya Bean etc. are coming under Shimbi Dhanya Varga has 124mg, 154mg, 240mg of calcium content respectively per 100gm. It will satisfy RDA of calcium in diet. Among Indian population aged 30 to 60 years had low calcium with high prevalence of osteopenia (52%) and osteoporosis (29%). This made the community to use of calcium tablets with or without physicians advice. So incomplete absorption, high cost and later side effects affects community health. So promote and educate useful ways of intake of calcium to human body just through daily diet and made it part of community health care programmes.

**Key words:** Ahara, Food, Calcium Deficiency, Shimbi Dhanya Varga, Pulses.

## INTRODUCTION

Food is the basic unit of life. It not only satisfy our nutrient requirement but also acts as an *Oushadha* (medicine) and *Rasayana* (rejuvenative). Ayurveda emphasis on *Trayopathambha* (3 subpillers) that is nothing but *Ahara* (food), *Nidra* (sleep) and *Brahmacharya* (celibacy). How much we will give importance for our diet that much we can lead a healthy life. Our body built, mental power, activities even our economic and social status are based on food.

### Address for correspondence:

Dr. Athira K.S.

2<sup>nd</sup> year Post Graduate Scholar, Dept. of Swasthavritta, Sri Dharmasthala Manjunatheswara College of Ayurveda, Hassan, Karnataka, INDIA.

E-mail: athikarthika392@gmail.com

Submission Date: 14/01/2019 Accepted Date: 15/02/2019

### Access this article online

#### Quick Response Code



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

DOI: 10.21760/jaims.4.1.9

Major problem that is faced by the community is changing food habits. All are behind taste, no one have time to assess food. That's why now most of the people upper or lower class are equally suffering with nutritional deficiency disorders. Instead of low calorie and nutrient sufficient food community using more fast food. Also additives like aginomoto, mionase along with wrong cooking practice make the food just for taste stuff and not a nutritional supplement.

In present era calcium deficiency acts like a slow poison. While doing routine health check up, people will not make sure about their calcium. From blood, calcium reaching to the proper site can be assuring thorough Bone Mass Density (BMD) Test. Among Indian population aged 30 to 60 years had low calcium with high prevalence of osteopenia (52%) and osteoporosis<sup>[1],[2]</sup> (29%).

This made the community to use of calcium tablets with or without physicians advice. So incomplete absorption, high cost and later side effects affects community health.

Ayurveda has told *Asthi Dhatu* doing the *Dharana* (support) of whole body. *Asthi Dhatu* can be anatomically correlated to bones and teeth of body.<sup>[3],[4]</sup> *Dhatu Kshaya* make the person unable to satisfy his role in community.

Simple and cost effective methods should adopt for solving this problem. Pulses (*Shimbidhanya*) if process properly and administer based on need will effectively manage calcium deficiency. Also with the external supply of calcium along with adopt a healthy lifestyle produce a healthy community.

## MATERIALS AND METHODS

References were collected from Ayurveda classics texts, preventive and social medicine, various journals and articles. These references were analyzed logically and conclusion is drawn has shown below.

## DISCUSSION

Most common forms of calcium available are calcium carbonate and calcium citrate. Other forms like lactate, gluconate and hydroxyapatite. Whole body calcium metabolism is controlled by number of tissues include intestine, kidney, bone, fat mass and brain. Calcium absorbed in small intestine with the help of vitamin D, Normal serum level of calcium is regulated by parathyroid gland. Parathyroid hormones stimulate the kidney to covert calciferol to calcitriol which enhance intestinal calcium absorption. Absorbed calcium that metabolizes with some intestinal enzymes like protease and reach to blood stream. Calcitonin and parathormone (PTH) will regulate whole calcium metabolism and homeostasis of blood calcium levels. PTH will increase the concentration of calcium in blood plasma so indirectly it reabsorb calcium from bones. Calcitonin will reduce the calcium concentration in blood other wise it increase mineralization of bones. Calcium mainly stored in bones, teeth, muscles, sarcoplasmicreticulum etc. Calcium ions excreted through bile, feces and through urine. Main functions of calcium include supporting bones, improve muscle strength, improve contraction and relaxation of muscles and increase calcium-protein bonding.<sup>[5]</sup>

## Calcium Deficiency<sup>[6]</sup>

Based on one article published in 2015, it shows that in 2011 globally 3.5 and 1.1 people were at risk of calcium and zinc deficiency. RDA of calcium for adult between 19 to 50 years is 1000mg/day. Woman above 50 and men above 70 need 1200mg/day.<sup>[6]</sup> Minor and major symptoms of reduced level include numbness, muscle cramp, poor appetite, weak or brittle nails, difficulty in swallowing, lethargy, mental confusion, irritability, depression, anxiety, tooth erosion, insufficient blood clotting, prone to fractures, bodyache, delayed milestone, high blood pressure, arrhythmia etc. Risk group include adolescent girls and boys, menopausal woman, men above 70 and dairy intolerance. Common disorders in calcium deficiency are mainly hypocalcaemia, osteopenia and osteoporosis. But high concentration also lead to some diseases like kidney stones. Normal blood calcium should be 8.5 to 10.2 mg/dl. Laboratory investigations such as serum calcium, urine calcium, phosphorous, magnesium, vitamin D, PTH and calcitonin levels, alkaline phosphatase etc. and Radiological investigations such as X-ray, CT, MRI, Bone densitometry Bone scintigraphy etc. useful in detection of calcium deficiency.

## Pulses<sup>[7]</sup>

Pulses are the dry seeds of legumes that contain small amount of fat. Those with high amount of fat are referred to as leguminous oil seeds (soybean and peanut). In addition to the basic nutrients, pulses also contain other constituents called bioactive compounds which could have health enhancing and disease prevention properties such as polyphenols, phytoestrogens and pigments. Commonly using pulses are peas, beans, lentils, chick peas, fava beans, cowpea and pigeon pea etc. Protein content of pulses is twice as that of cereals, that's why they become most economical source of proteins. There is less methionine (amino acid) than animal proteins but higher in lysine content make them good supplement to rice. Pulses and beans are reputed to lower blood cholesterol and help diabetics by reducing post meal rise in blood sugar. Dried beans lower serum lipids

and Bengal gram consumed over several weeks may reduce serum cholesterol levels by increasing fecal excretion of total bile acids. Leguminous seeds and beans provide high fiber as well as antinutrients.<sup>[7]</sup>

Pulses, due to their hard texture, are generally consumed after various processes like soaking, cooking, milling, roasting, puffing, and germinating. Soaking pulses in water for 2-3 days will improve their nutritive value, vitamin A and C content. Germination increases content of folic acid and vitamin B group. Tannins and phytates which adversely affects bioavailability are broken down by germination. Also fermentation of dal (for making idli, dosa etc. will enhance content of vitamin B group. Pulses contain an anti-digestive factor (trypsin inhibitor) which is destroyed by cooking. Green gram is better digested than other pulses because small size facilitates cooking. Extrusion has also been shown to be the most effective method for improving protein and starch digestibility when compared with soaking and germination and lowers flatulence.

Among all pulses while comparing calcium content gram per 100 gram soya beans, rajmah, moth bean, horse gram, sesame seeds contain highest. And among this soya bean contains high amount of calcium (240mg/100g), protein (43.2mg/100g) and phosphorous (690mg/100g). Sesame seeds also is rich in calcium (1450mg/100g) and iron (17.73g/100g). Calcium will absorb more easily in presence of phosphorous and while metabolism it make a chemical bond with protein and enter to the transport system. Green gram is recommended for daily intake even though it contain 75mg/100g calcium but it rich in phosphorous and protein. In case of horse gram it contains highest amount of calcium (287mg/100g). Rajmah also having high calcium (260mg/100g) and phosphorous (410mg/100g) content. Moth beans are also rich in calcium (202mg/100g). But over view of pulses it is rich in protein, calcium and phosphorous. So it will satisfy your daily calcium needs. Pulses are rich in minerals like Ca, P, Mg. etc. and vitamin B group vitamins like riboflavin, thiamine. So that pulses are also called as poor man's meat.

### *Shimbi Dhanya*<sup>[8],[9]</sup>

Grains (*Dhanya*) that covered with *Kanjuka* (pod), pods will cover the seeds. Grains that are covered by pod is called *Shimbidhanya* (legumes). *Samija*, *Simbija*, *Simbibhava*, *Supya* and *Vaidala* are the synonyms of *Shimbidhanya*. Generally *Shimbidhanya* are having *Madhura* (sweet) and *Kashaya* (astringent) taste. Its having *Rukshaguna* and *Sita* (cold) in potency. It possess *Katuvipaka*, it will pacify *Kapha* and *Pitta* but slightly increases *Vata*, also *Mutrala* (diuretic). Due to *Astraya* and *Asrayibhava* of *Asthi Dhatu* and *Vata*. When *Vata* increases *Asthi Dhatu* will decrease, some pulses possess *Vatahara* property but some possess *Vatakara* property.<sup>[8]</sup> Even though both of them increases *Asthi Dhatu*, *Vatakara Dhanyas* containing more protein and phosphorous will increase bone density. Among *Shimbidhanya*, *Mudga* (green gram) is the best. Ayurveda has included this under *Nithyasevaneeya Ahara*. *Masha* is heavy in digestion but indicated for healthy and those who do physical exertion. *Kulatha* which will increase *Pitta* and *Raktha* so it promote digestion and better metabolism of calcium will take place. *Chanaka* is rich protein source but because of low glycemic index indicated in *Prameha*, obesity etc. *Tila* (sesame seeds) which will nourish the body also *Raktha Dhathu Vardhaka*, so that *Asthi Dhathu Poshana* also happens. *Masura*, *Nishpava*, *Adaki* are also *Madura*, *Snigdha* and *Vatahara*.<sup>[9]</sup> Mainly classical preparations like "*Yusha*" *Kalpana* are prepared. *Yusha* is the best preparation for *Shimbidhanya*.

### Precautions

While taking calcium internally health of kidney should taken to consider. Need of calcium for the body will differ for each person. Excessive calcium accumulation will lead to kidney stones. Increased calcium content has termed as hypercalcaemia. It cause generally head ache, fatigue, abnormal heart rhythm, muscle cramp, osteoporosis, depression, memory loss etc. So along with calcium supplement, Vitamin D, PTH level also need a routine check up.

### Productive community reach

This can be achieved through nutraceuticals, health care programmers, make classical recipe into homely

food and encourage research. Nutraceutical means a food stuff (fortified food/dietary supplement) that provides health benefit in addition to its basic nutritive value. If pulses reach community as tablets, capsules and powder form will be an excellent remedy for suffering community.

Conducting medical camp, awareness programs, conduction of health seminars, promote public talk will improve knowledge of community. Classically lot of foods preparations has mentioned when it reaching to the common man's kitchen then we can expect a incredible health feed back. If any talk is based on evidence means trust towards medical system will increase. So research in field of diet and nutrition is compulsory.

### CONCLUSION

Regular consumption of *Shimbi Dhanya* (pulses) like *Mudga* (green gram), *Rajma* and soya bean etc., shows valuable result in health promotion and prevention from various calcium deficiency diseases (osteopenia, osteoporosis). Germination, soaking, boiling and soup are excellent methods to utilize maximum yield of calcium from pulses. It is also stated as, for *Swastharakshana* a person should daily indulge in *Hithara* and *Hitavihara Sevana* so that can avoid various lifestyle disorder. In order to live healthy, one must live in harmony with his surroundings and follow a diet suitable to one's on bodily constitution.

### REFERENCES

1. Preventive and curative aspect of shimbidhanyavarga (pulses) w.s.r. to calcium deficiency Shubhangi S.

1. Kshirsagar, Vidya A. Thatere (Wasnik), V. G. Patrikar Ayurline: International Journal of Research In Indian Medicine 2017; 1(3): 40-47
2. Prevalence-of-Osteoporosis-in-femalepopulation-in-rural-central-india-by-calcanealultrasound-downloaded from. www.omicsgroup.org
3. Vagbhata, Ashtang Hriday, Sutra e-ISSN: 2456-4435 July-Sept 2017 | Vol. 01 | Issue : 03 International Journal of Research in Indian Medicine
4. Ayurline: IJRIM | Website: www.ayurline.in | E- ISSN: 2456-4435 47 Sthana, Doshadividnyaniya Adhyaya, 11/26, Kaviraj Atrideo Gupta Atrideo Gupta, chaukhamba Prakashan; Varanasi, 2007; pg. 88
5. K. Park. Parks textbook of Preventive and Social Medicine, 22nd edition. Bhanot publication, 2013, Nutrition and Health, pg 574.
6. Osteoporosis factsheet www.iofbonehealth.org
7. F.P. Antina, Philip Abraham, clinical dietetics and nutrition. 4th ed. Thane. reproknowledgecast limited. 2002.p192-194
8. Raghunathasuri, Bhojanakuthuhalam, 1ed, Mysore. M/s Tech Prints. 2012.p15-27
9. Bhavaprakash, Bhavaprakash Nighantu, Dhanyavarga, 51-52, Dr. K. C. Chunekar, Chaukhamba Bharati Academy, Varanasi, 2006, pg. 647.

**How to cite this article:** Dr. Athira K.S., Dr. T.B. Tripathy, Dr. Swathi Sharma, Dr. Harisankar M.S. Shimbi Dhanya (pulses) as Ayurvedic food supplement for calcium deficiency. J Ayurveda Integr Med Sci 2019;1:47-50.  
<http://dx.doi.org/10.21760/jaims.4.1.9>

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

\*\*\*\*\*