

## Nutritional and Health Beneficial Properties of Brown Rice

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**ARTICLE ID: 056**

Brown rice is whole grain rice with the inedible outer hull removed and it has a dark colour due to the presence of intact bran layer. Brown rice has a mild, nutty flavour, chewier and is more nutritious than white rice. The nutritional components in brown rice mainly exist in the germ and bran layers, which are mostly removed by polishing. Brown rice is an excellent source of functional components which contains important nutrients such as bioactive components, B-complex vitamins, dietary fiber, and minerals which can provide and promote human health. It is a rich source of vitamins like thiamine (vitamin B1), riboflavin (vitamin B2), niacin (vitamin B3) and minerals like manganese, phosphorous, iron. Although, the main component of brown rice is carbohydrates, but it has a lower value of glycemic index which indicate low digestibility of starch and is more beneficial to control blood glucose level in type II diabetes. Brown rice is a rich source of fiber which provides anti-carcinogenic effect in reducing the time of cancer-causing substances spent in contact with colon cells. Brown rice is a good protein source which contains essential amino acids in order to provide many health benefits.

### **Nutritional Composition of Brown rice:**

Brown rice constitutes about 10.37 g moisture, 7.94 g protein, 2.92 g total fat, 3.5 total dietary fiber, 77.24 g carbohydrates, 0.85 g total sugars and 1.0-1.5 g ash. It contains about 1.47 mg Iron, 143 mg magnesium, 333 mg phosphorous. Brown rice contains moisture (9.90 per cent), protein (7.23 per cent), fat (2.06 per cent), ash (1.13 per cent), antioxidants (58.97 per cent), total phenols (1.8 mg GAE/g),  $\beta$ - carotene (0.11  $\mu$ g/ g). Brown rice exhibits calorific value of 370 Kcal/ 100gm of its edible portion.

### **Health benefits of Brown Rice:**

- Because of the low glycemic index of brown rice, they are highly useful for diabetic and obese people.
- Brown rice provides powerful plant compounds like flavonoids, phenols, a class of antioxidants that helps to protect the body from oxidative stress such as heart disease, premature ageing etc.
- Due to the presence of dietary polyphenols, they are known to possess a number of properties associated with reducing the risk of developing chronic non-communicable diseases.
- The antioxidants found in brown rice help to prevent cell injury caused by unstable molecules (free radicals) and reduce inflammation in the body.
- They play an important role in providing protection against cardio-vascular diseases, neuro-degenerative diseases, cancer and type II diabetes.
- Brown rice contains powerful bioactive components that might be effective for preventing cancer.
- Because of the gluten free property of brown rice, they are beneficial to gluten intolerant persons.
- Brown rice is a good source of magnesium which helps in lowering high blood pressure, reducing the frequency of migraine headaches, reducing the severe effect of asthma and also reducing the risk of heart attack and stroke.
- It is also a good source of selenium which plays an important role in boosting immune system of the human body.

**Conclusion:**

Brown rice is rich in vitamins, minerals, fibres and antioxidants than white or milled rice and hence consumption of brown rice brings higher potential to prevent malnutrition as well as chronic diseases such as diabetes, blood pressure, hyperglycaemia, heart diseases. It is concluded that, besides providing nutritional benefits, brown rice also provides health benefits to our body. They can be utilized as a bioactive component for the development of gluten free products which will be more beneficial to gluten intolerant persons.