



Higher ratio of Black rice to white rice is associated with lower risk of abdominal obesity in Korean men

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Black rice, also known as “forbidden rice”, is nutritious as it is rich in antioxidants. Black rice is usually consumed mixed with white rice in Korea. Black rice contains higher levels of anthocyanins than white rice, mainly composed of cyanin 3-O-glucoside and peonidin 3-O-glucoside⁽¹⁾. Previous studies have demonstrated that anthocyanin extracted from black rice inhibits atherosclerosis⁽²⁾. Black rice intake was associated with reduced levels of plasma cholesterol, triglycerides and low-density lipoprotein in rats⁽³⁾. However, there are few epidemiologic studies on the association between black rice intake and abdominal obesity. As black rice is often consumed mixed with white rice in Korea, we decided to evaluate the ratio of black rice to white rice to be able to guide public intake recommendations. Therefore, we examined the association between black rice and white rice ratio, and abdominal obesity in Korean men.

This study was based on the data from the Korea National Health and Nutrition Examination Survey (KNHANES) conducted in years 2010, 2011 and 2012. We excluded any subject: 1) under 19 or over 65 years of age, 2) with no waist circumference record, 3) with no dietary intake data, 4) with a daily energy intake of <500 kcal/day or >6000 kcal/day. As a result, a total of 5,174 male participants were included in our final analysis. Intake of black rice was calculated by using 24-hour recall and the ratio of black rice to white rice was categorized into three groups (no intake of black rice, intake of <10%, intake of ≥10%). Abdominal obesity was defined as having a waist circumference of ≥90 cm. The multivariate model was adjusted for age, energy intake, smoking, alcohol consumption, physical activity, education, income and survey year. Additionally we adjusted for white rice, vegetable and fruit consumption reported. All analyses were performed by using SAS statistical software (version 9.2; SAS Institute Inc., Cary, NC).

Mean intakes of black and white rice were 2.1 g/day and 207.5 g/day respectively for our data. Higher intakes of black rice were associated with a reduced prevalence of abdominal obesity (OR = 0.73; 95% CI = 0.60–0.89 for ≥10% black rice to white rice vs. 0%; *P* for trend = 0.002) in age and sex-adjusted logistic regression and (OR = 0.74; 95% CI = 0.60–0.90 for ≥10% black rice to white rice vs. 0%; *P* for trend = 0.002) in the multivariate model. When we adjusted for white rice, vegetable and fruit consumption, results remained unchanged.

These results suggest that intake of ≥10% black rice to white rice in a normal diet could lower the risk of abdominal obesity in men. This dietary modification could serve to improve public health. However, further longitudinal studies on the association between black rice intake and abdominal obesity are warranted.

This work was supported by Rural Development Administration R&D, Suwon, Republic of Korea.

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