

## Using the Nutrient Rich Food Index to Identify Nutrient Dense and Affordable Foods in South Africa

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### Abstract

**Background:** Choosing nutrient-dense foods for optimal health and preventing chronic diseases is a key component of food-based dietary guidelines. High food prices, however, make adherence to these guidelines difficult. Poor diets, obesity and diet-related diseases are associated with the inability to afford healthy foods.

**Aim:** To determine the nutrient density of foods relative to cost in South Africa, with the aim to identify foods within food groups with the best nutritional value per cost.

**Methods:** We developed a checklist to record the type, unit, brand, and price of 116 food items. Three national supermarket websites were used to obtain food prices, and the cost per 100 kcal (418 kJ) for each food item was calculated based on the average cost per 100 g edible portion. South African Food Composition Tables were used to determine the nutritional content of the food items. Nutrient density was calculated using the Nutrient Rich Food (NRF9.3) Index based on nine nutrients to encourage (protein, fibre, vitamin A, vitamin C, vitamin D, vitamin B12, calcium, magnesium, and iron) and three nutrients to limit (saturated fat, added sugar and sodium). Nutrient density relative to cost was calculated as NRF9.3/price per 100 kcal.

**Results:** Overall, pulses (beans, lentils, and soya mince) had the highest nutritional value per cost. Fortified maize meal porridge and bread had the best nutritional value per cost within the starchy food group. Animal protein sources with the best nutritional value per cost were chicken giblets, eggs, pilchards, and sour milk. Vegetables and fruits with the best nutritional value per cost were carrots, butternut, oranges, and bananas. Foods with the least nutritional value per cost were, foods high in fat and sugar, and drinks high in sugar.

**Conclusion:** The identification of nutrient dense foods with the best nutritional value for cost using the Nutrient Rich Food Index can be used to develop tools to guide South African consumers to be able to identify foods that are both healthy and affordable

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