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Nutrient Values for Different Types of Sausage, From USDA Research Studies

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Objectives

USDA's Nutrient Data Laboratory (NDL) analyzes, evaluates and reports the nutrient content for a wide variety of different foods available in the US, based on research and consumer priorities. Representative samples and analytical data are obtained through the National Food and Nutrient Analysis Program (NFNAP). Data are publicly released in the USDA food composition database. The objective of this study was to obtain current analytical nutrient values including proximates, vitamins, and minerals for 3 different types of sausage which are highly consumed and available in the United States retail market (chorizo, beef hot dog, and Italian sausage), to update the USDA database, and to make nutrient comparisons among these products.

Materials and Methods

Nationally representative samples were collected for each type of sausage including 2 or 3 leading national brands and several store brands per type, from 12 different US locations through NFNAP. Chorizo and Italian sausage were pan-fried and beef hotdog was precooked (unheated) by the manufacturer. Samples were composited using standardized methods and analyzed for proximate nutrients (protein, moisture, fat, carbohydrates and ash), minerals and cholesterol ($n = 5$ to 17) at qualified commercial laboratories using approved AOAC's methodologies and quality control procedures such as certified reference material. Nutrient values were reported per 100 g basis. The nutrient values were first compared

using 1-way ANOVA and t test for significant differences between the 3 types of sausage, a pairwise comparison (t test) with the Bonferroni correction was used.

Results

Protein was lowest for beef hot dog (11.7 ± 0.13 g) compared to Italian sausage (18.2 ± 0.54 g; $p < 0.05$) and chorizo (19.3 ± 1.60 g; $p < 0.05$). Total fat ranged from 26.4 ± 1.1 g to 28.2 ± 0.36 g, showing no significant difference among the 3 products. Sodium value was significantly lower for Italian sausage (766 ± 33.4 mg) compared to chorizo (983 ± 50.4 mg; $p < 0.05$) and for Italian sausage compared to beef hot dog (872 ± 21.5 mg; $p < 0.05$). For calcium, iron and phosphorus, chorizo had significantly higher values than beef hot dog ($p < 0.05$) and Italian sausage ($p < 0.05$). Zinc was higher in Italian sausage (2.4 ± 0.06 mg) than beef hot dog (2.1 ± 0.08 mg; $p < 0.05$). Magnesium (range 12 to 30mg) and moisture (range 46 to 55 g) differed between the 3 types ($p < 0.05$).

Conclusion

Nutrient differences varied among the product types, especially for protein, moisture and magnesium, due to processing and ingredients used. Overall, comparing these sausages allows researchers and consumers to see the differences in nutrient values. Meat scientists, nutritionists, and consumers can use meat nutrient data for research, nutrition policy, and food purchase decisions. Full nutrient profiles for these products using data from these assays, as well as data for other processed meats, are available publicly at <http://www.ars.usda.gov/ba/bhnrc/ndl>.