Comparison of the nutrient content of commercially-prepared rotisserie chicken to roasted chicken

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ABSTRACT: Meat and meat products available in the marketplace are in a constant state of flux with the introduction of new products, preparations, and changes in livestock management. The USDA National Nutrient Database for Standard Reference (SR) is constantly updated to reflect these changes in products. The objectives of this study were: To determine the nutrient content of rotisserie chicken (RT) for entry into SR. To compare nutrient values of RT to those of roasted chicken (RS) reported in SR. To examine the nutrient content of rotisserie chicken using the USDA National Food and Nutrition Analysis Program sampling plan. Thigh, breast, drumstick and wing were analyzed without skin, skin was analyzed separately. Products were analyzed for proximates, minerals and B-vitamins by commercial laboratories. Analytical quality control was performed through the use of duplicate sampling, inclusion constants and modern statistical methods. Nutrient values for RT were compared statistically to RS using a two-tailed t-test (critical value = 0.05). All results discussed below refer to values obtained in triplicate for RT and RS. Wings and drumsticks were higher in total fat (P<0.0005) and ash (P<0.02), but lower in moisture (P<0.0002). Skin was lower in protein (P<0.05) and fat (P<0.007), but higher in ash (P<0.001) and moisture (P<0.03). All products (skin and pieces) were higher in cholesterol (113%–184%), sodium (P<0.0001), potassium (P<0.0002), and phosphorus (P<0.0001, except breast). Iron was decreased in thigh (27%), breast (58%), and skin (5%). Magnesium and niacin were lower in thigh (P<0.05) and breast (P<0.005); magnesium was higher in wing (P<0.0001) and skin (P<0.0001).

Changes in nutrients such as phosphorus and sodium may have health implications for the consumer. Results from this study will be used by researchers, medical/health professionals, and government agencies for establishing nutrition policies and recommendations.

INTRODUCTION

The USDA National Nutrient Database for Standard Reference (SR) is the primary national source for nutrient data for use by many commercial and international databases. New poultry products, such as rotisserie chicken (RT), have since become available in the marketplace. Current nutrient databases only contain data for roasted chicken and skin. Nutrient data for these products is critical to the assessment of dietary intake and its effects on health status.

OBJECTIVES

To generate and compile nutrient data for a popular new poultry product, rotisserie chicken.

To evaluate differences in nutrient amount of chicken products, rotisserie chicken values were compared to values for roasted chicken (RS) prepared from raw non-enhanced products.

METHODS

Sampling:

125 breast and 125 thigh samples from 1979 to 1997 were available for SR. Sampling data for an additional 152 breast, drumstick, and thigh samples were available for study.

Analytical Quality Control:

Nutrient analyses were performed by the USDA National Nutrient Database for Standard Reference, Release 18. Nutrient Data Laboratory Home Page, http://www.ars.usda.gov/nutrientdata

RESULTS

Compared to SR, values for roasted chicken:

- Dark meat products and skin from roasted chicken contained levels of sodium, potassium, and phosphorus (Fig. 4).
- Breast meat from rotisserie chicken had significantly greater sodium and potassium content than skin from roasted chicken products and was significantly lower in magnesium (Fig. 3).
- Skin from roasted chicken products was lower in iron content than skin from rotisserie chicken (Table 2).

CONCLUSIONS

The highest levels of potassium, phosphorus and sodium contribute to the increase in risk factors and reflect the addition of ingredients through commercial enrichment or marination added to rotisserie chicken products.

Knowledge of fat, phosphorus, and sodium content for roasted chicken products is critical in maintaining health in consumers.

Decreases in iron content of rotisserie chicken may reflect additives used for food preservation and storage or pre-cooking treatment applied (e.g. a chemical enhancement or marination).

Data on changes in poultry composition since 1979 when last analyzed reflect the increase in rice and other cereals, and milk and milk products added to poultry diet.

REFERENCES
