Changes in Nutrient Levels for Three Fresh Pork Loin Cuts between 1992-2010

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Abstract: Since pork composition has changed between 1992 and 2010, a collaborative study was conducted by scientists at USDA, Texas Tech University, and the National Pork Board to determine current nutrient values. To compare analytical values from 1992 to that of 2010 in three highly consumed pork products (Baby back ribs bone-in (BKR), Blade chops, bone-in (BCB), and sirloin roast boneless (SRB)) were purchased from 12 retail outlets using a nationwide sampling plan developed for USDA’s National Food and Nutrient Analysis Program (Pehrsson, P. et al, J. Food Comp. Anal 13:379, 2003). Nutrient values for proximates, cholesterol, and minerals were determined by certified commercial laboratories using validated methodologies. Results of the collaborative study will provide updated nutrient values for 15 cities across the US. Nutrient values from 1992 and 2010 were compared statistically using a paired two-tailed t-test (Critical value p<0.05). Moisture increased significantly (p<0.01) while total fat, and cholesterol decreased (p<0.01) in all three cuts (80%/24% hot less than 90 mg/100g). Calcium, potassium and phosphorus were higher (p<0.05) whereas iron and zinc were lower (p<0.01). This research updates the values in SR and provides current and accurate data for use in nutrition monitoring and research.

Introduction

Improving pork quality through nutritional interventions has been of interest to the pork industry in recent years. Changes in breeding practices and swine nutrition has been undertaken to improve attributes such as muscle color, holding capacity and pork palatability. Nutrient composition on fresh pork loin in the National Nutrient Database for Standard Reference (SR) was last updated in 1992. A collaborative study was conducted by scientists at ARS/USDA, Texas Tech University, and the National Pork Board in order to determine current nutrient content in three highly consumed fresh pork products and to evaluate those levels to those reported in 1992.

Objectives

• To update the raw nutrient profiles of three popular fresh pork loin cuts (BCB and SRB) in the USDA National Nutrient Database for Standard Reference (SR: baby back ribs, bone-in (BKR), sirloin roast, boneless (SRB), and blade chops, bone-in (BCB)).
• To compare nutrient values from 1992 to those determined in 2010.

Methodology

Sampling: Three fresh pork cuts were recently purchased from 12 retail outlets using the nationwide sampling plan developed for the USDA National Food and Nutrient Analysis Program. The 1992 data were derived from analyses of 11 fresh retail cuts; our sampling was based on a nation-wide market basket survey of retail meat cases in supermarkets across the US.

Sample preparation: Separable fat, bone and connective tissues were removed from each cut; separable fat was combined from all samples and composited prior to nutrient analysis. Lean portions were composited by cut for nutrient analysis.

Nutrient values for proximates (ash, moisture, protein and total fat), minerals and cholesterol were determined by a commercial laboratory using standard AOAC methodology4; minerals were analyzed by ICP methodology5. Quality Control: Nutrient assurance was monitored through the use of commercial reference materials, in-house control materials and random duplicate sample preparation. Statistical6: Data were evaluated using a paired two-tailed t-test, a sample size of 12, and a significance level of 0.05.

Results

Results expressed relative to data from the 1992 cuts: Moisture concentration increased (p<0.05) while total fat levels decreased (p<0.01) in all three cuts. Changes in cholesterol, phosphorus, calcium and potassium varied among the cuts. With the release of these data in the USDA National Nutrient Database for Standard Reference (http://ndb.nal.usda.gov/), consumers, restaurant associations, researchers and dietitians will have the new nutrient information to select leaner pork cuts.

Conclusion

• New data developed in 2010 indicate that all three pork loin cuts are significantly leaner than in 1992.
• Comparison of sodium data indicate that sodium levels increased 9-24% in all three cuts since 1992.
• Changes in cholesterol, phosphorus, calcium and potassium varied among the cuts.

Contents


References