

NUTRIENT VALUES OF BEEF: A STUDY OF CHANGES IN COMPOSITION OF RAW AND COOKED GROUND BEEF

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ABSTRACT

The nutritional aspect of ground beef (GB) is important to consumers. However, GB nutrition labels are based on the raw product which may misrepresent the true nutritional profile of the cooked product. Few studies have been done comparing the composition of raw and cooked ground beef. Given the new FSIS regulations regarding meat nutrition labels, more research needs to be done on ground beef. Our objective was to compare the fat content of retail GB raw and cooked to determine if the labeled fat content matched the actual fat within 20% and the difference in caloric content between a 113.4g raw serving and 85.1 cooked serving. Ground beef packages weighing 0.454 kg were purchased from four retail stores and were separated in half for subsequent raw and cooked analysis. Ground beef packages were purchased in duplicate for five fat classifications (diet lean (DL) <10%; extra lean (EL) 10-13%; lean (L) 14-17%; regular (R) 18-23%; high fat (HF) 24-30%) from two suppliers from each store (n=66). If a sample was not available at a particular store no attempt was made to replace it. Samples were cooked as hamburger patties to a temperature of 71°C. Duplicate total lipid extraction was performed on the raw and cooked samples following the 2:1 Chloroform: Methanol procedure. Data was analyzed using Proc Mixed (SAS, Inc.), supplier within store was considered the random term. Means were considered significant at $P \leq 0.05$. Deviations greater than 20% of label claim occurred in two of the fat categories (DL and R). The deviations in the DL category all exceeded the +20% limit but the deviations in the R fat category were less than the allowed -20% limit. Raw label and actual fat and caloric content decreased as fat category decreased ($P < 0.05$). Label vs. actual fat % and caloric content was different for all categories ($P < 0.05$) except for L and EL. Calories from cooked patties were lower than raw caloric content for HF, R and L product when analytically measured. Actual cooked caloric content was lower than label raw values in HF, R, and L. Caloric content for EL was the same between labeled raw and cooked product. The data showed that accurately estimating caloric intake from the raw product may be very difficult and usually results in an overestimation.