Buffalo vs. Beef: Analyzing Lipid Components in Search of Potential Health Benefits

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Diabetes is a major health concern of many, but it is especially prominent in Native American people. The traditional diet has been replaced with inexpensive, processed food. Perhaps the most drastic diet change involves the switch from wild buffalo meat to grainfed beef as a primary protein source. Given that a majority of animal fat is composed of triglycerides, which are known to be higher in people with diabetes, meat samples were tested to look for a potential difference in the amount of unhealthy fats in different kinds of meat. Lipids were extracted from grassfed and grainfed buffalo and beef in search of potential health benefits. Three different solvent methods were used for lipid extraction. After extraction, lipids were concentrated under pressure using a rotary evaporator and a percent total lipid by mass was calculated. Grassfed buffalo meat exhibited the least amount of total lipids, followed by grainfed buffalo, grassfed beef, and finally grainfed beef, which contained 519% more total lipids than the grassfed buffalo. Using infrared spectroscopy, functional groups were identified, which indicates the presence healthy and unhealthy fats in the meats. Analysis provided data showing grassfed buffalo not only had largest percentage of healthy, polyunsaturated fats, but also had the least amount of unhealthy, saturated fats. A diet that contains high levels of saturated fats increases the risk for heart disease, diabetes, obesity, and other health concerns.

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