

Summary Report for Yak Association

Comparisons were made using products found in the USDA Nutrient Database (accessed Jan 14, 2011; <http://www.nal.usda.gov/fnic/foodcomp/search/>). The serving size was set at 113 g to match the Yak product serving size. Selection of muscle products for comparison to Yak was based on similarity in location from carcass. However, it should be noted that the USDA Nutrient Database, although extensive, does not contain all possible trims and grades of meat products. A good example is the lack of nutritional information for a beef top round, separable lean, select, trimmed to 0% fat product. This selection was not available from the database. As a result, the “best available” beef product for comparison was beef top round separable lean, select product trimmed to 1/8% fat. Because fat trim was higher, total fat content was also higher. This must be kept in mind when trying to evaluate differences in products.

Summary of differences between the following products:

Yak Round Steak, Pork loin (leg, rump half separable lean only – NDB# 10014), Beef round (top round separable lean only, select, trimmed to 1/8” fat – NDB# 23636), Buffalo (free range, top round – NDB# 35174), Veal (top round, separable lean only, raw – NDB# 17099).

The fat in veal and buffalo products had comparable fat levels to the Yak round steak. It is likely the beef round would have as well if it had been trimmed to 0% fat. Protein levels are very similar for all products. The sodium value for Yak is similar to free range buffalo and slightly lower than the other 3 meat products. For a red meat product, Yak round steak has comparable iron levels to both buffalo and beef. For fatty acid profiles, it is important to focus on relative percentages of total saturated, monounsaturated, and polyunsaturated fats. Based on relative percentages, the Yak round steak seems to have a saturated fat content that is similar to the pork and lower than the beef, veal or buffalo products. However, because all products are so lean, none are really contributing large amounts of saturated fat to the diet. The monounsaturated fat level in Yak round steak was slightly lower than its beef and pork counterparts. Polyunsaturated fat was similar for all products. None of the products are major contributors to monounsaturated fat or polyunsaturated fat to the diet. This, again, is due to the leanness of all products. Cholesterol was not reported for the buffalo product. However, when compared to beef and pork there does appear to be slightly less cholesterol in the Yak round steak.

Conclusion: Yak round steak compares very well with other very “lean” red meat products and should be considered a healthy red “meat” choice for consumers.

Summary of differences between the following products:

Ribeye Yak Steak, Pork loin center rib (boneless, separable lean only – NDB# 10199), Beef ribeye (small end, separable lean only, trimmed to 0" fat, choice – NDB# 13097), Bison ribeye (separable lean only, trimmed to 0% fat – NDB# 17268).

The Yak ribeye was very lean. The fat level of Yak ribeye is comparable to Bison ribeye. There was not a “select” ribeye beef steak in the USDA Nutrient database. Comparisons could only be made with “choice” steaks which had 9g fat per serving. Protein levels are very similar for all products. The sodium level is slightly higher for Yak ribeye than its counterparts. But when put into perspective, the total level of sodium for all products is low. For a red meat product, Yak ribeye has comparable iron levels to both bison and beef. For fatty acid profiles, all products were fairly comparable. The majority of the fat is composed of either saturated and monounsaturated fats. Only a small (~10% for Yak, Pork and Bison) or very small amount (3% for Beef) of the fat from these products is polyunsaturated fat. The level of polyunsaturated fat is similar also to the bison, pork and Yak round steaks (10%, 11%, 12%, respectively). Because fat levels are low, none of these products are providing a significant amount of polyunsaturated fats to the diet. As with the Yak round steak, the Yak ribeye appears to contribute slightly less cholesterol to the diet. Average % Daily Value of cholesterol for the other three products ranged between 21-23%, while for the Yak Ribeye it was only 17%.

Conclusion: This Yak ribeye sample was very lean. As a result it should be a healthy “meat” choice for consumers.

Summary of differences between the following products:

Ground Yak, Ground Bison (NDB# 17330), Ground Turkey (NDB# 05305), Ground Pork (94% lean, 10% fat – NDB# 10973), Ground Beef (90% lean, 10% fat - NDB# 23562).

When comparing ground meat products, it is important to pay attention to the ratio of lean to fat. Fat is often added to aide in meat binding. Beef processors can control the amount of fat (carcass fat trim) added to lean (carcass muscle trim). Typically, the lowest ratio of lean:fat for beef is 90:10. This is really related to application purposes. Fat plays a key role in helping muscle to bind when products such as patties or links are formulated from the product. At 10% lean, you are at the “cusp” of binding ability and for patty application this is really about as low as you can go in fat content and still be able to create a patty that does not fall apart upon cooking. The take home message is ground meat is a “fabricated” product. The processor controls lean to fat ratios. Theoretically it is possible to make all the above products the same lean:fat ratio. However, because the database did not contain all possible lean:fat ratios, comparisons here have to be made between products that are only in a technical since “different”.

The fat content in the ground Yak was similar to ground turkey and only slightly lower than ground beef. The pork, being 96% lean, had of course about half as much fat. The Bison

product was formulated as an 80:20 product and therefore had double the fat of the Yak. Protein levels are similar for all products. Again, the sodium level is slightly higher for ground Yak than its counterparts. But when put into perspective, the total level of sodium for all products including Yak is low. Ground Yak has comparable iron levels to both buffalo and beef. For fatty acid profiles, the ratios of total saturated, monounsaturated, and polyunsaturated fats for ground Yak are similar to Bison and Beef. Pork, has slightly lower saturated fat, slightly more monounsaturated fat, and 4x the polyunsaturated fat. However, the total level of polyunsaturated for all three products is very low. For example, polyunsaturated fat makes up only 4% of the total fat from Yak, while in Pork it makes up 16% of total fat. Taken into perspective 96% of the fat from Yak and 80% of the fat from Pork is NOT polyunsaturated fat. The polyunsaturated fat is omega 3 and omega 6 fat. For turkey, polyunsaturated fat comprises 32% of the total fat or there is 2x more polyunsaturated fat in the turkey than in the pork. As with the round steak, the Yak appears to contribute slightly less cholesterol to the diet. Average % Daily Value of cholesterol for the other three products ranged between 22-26%, while for the ground Yak it was only 20%.

Conclusion: Ground Yak appears to be similar to ground beef and ground bison in its nutritional contribution to the diet.

Overall Conclusion

The nutritional analysis provided for the Yak round steak and ribeye indicate that these products could be labeled as low fat and low sodium. In addition, the Yak round steak and ribeye could carry the USDA-FSIS label “healthy” because they both (per recommended serving size) contain 3 g or less of fat, 1g or less of saturated fat, the saturated fat makes up less than 15% of calories, <480 mg of sodium, and the iron content is at least 10% of the DV.

The ground Yak could only be labeled as low in sodium.

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Table depicting lipid, cholesterol and iron values of different muscle food products.

	Yak ribeye	Beef ribeye (choice)	Pork Center rib	Bison ribeye	Poultry Breast	Turkey Breast	Skipjack Tuna	Farmed Salmon
Fat	2 (3%)	9 (16%)	7 (12%)	2.5 (5%)	3 (5%)	1 (2%)	1 (2%)	15 (25%)
Saturated*	44%	46%	38%	43%	32%	29%	39%	28%
Monounsat*	37%	50%	50%	48%	44%	43%	23%	35%
Polyunsat*	9%	3%	12%	9%	23%	27%	38%	36%
Omega 6**	6%	3%	11%	9%	22%	25%	5%	10%
Omega 3**	3%	<0.1%	0.5%	0.3%	1%	2%	33%	25%
Cholesterol	50 (17%)	65 (22%)	60 (21%)	70 (23%)	70 (24%)	50 (16%)	55 (18%)	60 (21%)
Iron	2.5 (15%)	2.5 (15%)	0.9 (6%)	3.2 (15%)	0.4 (2%)	1.6 (10%)	1.4 (8%)	0.4 (2%)

Values for Fat, Cholesterol and Iron are reported based on one serving (113 g) across all products. The value is rounded according to nutritional labeling rules. The values in parenthesis represent the % Daily Value (%DV). Percent daily values were calculated from raw data, not from rounded data.

*Values represent the percent of total fat. For example of the 2 grams of fat found in one serving of Yak ribeye, 0.88 g are saturated fats ($2 \times 0.44 = .88$)

**Values demonstrate the percent of the total fat that is omega 6 or omega 3 type fat. Omega 6 and 3 are the polyunsaturated fats. Values when combined should be close to the polyunsaturated contribution to total fat.