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Nutrition Perspective

Nutrition Perspective is a series of practical resources for health professionals on health issues of importance to Canadians. It is brought to you by the Registered Dietitians at the Beef Information Centre.

Beef and Health:

Answers to Your Most Frequently Asked Questions

Over the years, the Beef Information Centre has received a number of excellent questions from health professionals regarding beef and health. The following is a highlight of some of these questions with evidence-based answers to help you in your practice. This issue will cover topics falling under four headings:

- Beef in your diet—with a focus on specific nutrients and intake
- Beef and health—identifying the role of beef in health
- Beef from gate to plate—cooking and producing Canadian beef
- Beef in the market place—finding lean, Canadian cuts

Beef in your Diet

Q: In comparison to other proteins, I understand beef is a nutrient-dense choice. What is an easy way to educate my clients on the topic of nutrient density?

A: A new and well-respected method is the Nutrient Rich Food (NRF) Index developed by Adam Drewnowski. This index is a simple nutrient profiling system identifying nutrients to encourage—protein, fibre, vitamins A, C and E, calcium, iron, potassium and magnesium—and nutrients to limit—saturated fat, added sugar and sodium—relative to energy or serving size. The algorithm to calculate the NRF Index is:

NRF 9.3 = Sum of 9 nutrients to encourage (%DVs/100 kcal) – Sum of 3 nutrients to limit (%MRVs/100 kcal)

MRV=Maximum Recommended Value (20 g saturated fat, 50 g added sugar and 2,400 mg sodium)

Higher scores mean the food is more nutrient-rich. The nutrient-rich approach supports recommendations in *Eating Well with Canada's Food Guide*. Foods identified in the four food groups are representative of nutrient-rich foods, while those identified as foods to limit tend to be energy-rich and nutrient-poor. Using the serving size is the most appropriate way to compare foods within a food group.[2] Table 1 illustrates how the NRF Index can be utilized to compare foods within a food group.

Table 1 - **Comparison of Proteins Utilizing the NRF Index**

Food*	Nutrient Rich Food Score
Beef, composite cuts, steak, lean and fat, 0mm (0") trim, cooked; CNF code 6172	66.7
Chicken, broiler, flesh only, roasted; CNF code 567	53.3
Salmon, Atlantic, farmed, baked or broiled; CNF code 3183	47.7

*Description: 75 grams, 1 serving, Canadian Nutrient File 2007b (CNF)

Listen to... Dr. Adam Drewnowski talk about the Nutrient Rich Food Index. Visit *Nutricast™ Radio* in the health professional section at **beefinfo.org**

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Q: I heard beef contains vitamin D – is this true?

A: Yes, beef is a source of vitamin D. In fact, 100 grams of cooked beef contains 25 IU of vitamin D, which is similar to one egg yolk.

Researchers at McGill University analyzed data from the Canadian Community Health Survey (CCHS) 2.2 to assess both the total intake of vitamin D from food, as well as determine the key food sources that provide vitamin D in the diet.[3]

Based on food intake alone, the average intake barely reaches the Adequate Intake (AI) levels for younger adults of 200 IU (see Table 2 & 3). Food alone does not come close to meeting the needs of those over 50 years (AI is 400 IU for 50 – 70 year olds) or those older than 70 years (AI is 600 IU). As a result, Health Canada recommends all individuals over 50 years of age take a daily vitamin D supplement of 400 IU.[4]

Table 2 -
Contribution of Vitamin D from Food Groups for Canadian Adults - Males

Adult males (years)	Vitamin D intake (IU/d)	Contribution Milk Products (%)	Contribution Meat & Alternatives (%)	Contribution Other (%)
19-30	235	55	26	10
31-50	220	44	35	13
51-70	282	33	50	13
71+	267	42	38	13

Table 3 -
Contribution of Vitamin D from Food Groups for Canadian Adults - Females

Adult females (years)	Vitamin D intake (IU/d)	Contribution Milk Products (%)	Contribution Meat & Alternatives (%)	Contribution Other (%)
19-30	186	56	24	10
31-50	206	46	35	11
51-70	200	42	37	14
71+	235	39	43	11

From the CCHS 2.2, it is evident that the foods contributing the most vitamin D in the diet come from the Milk and Alternatives and the Meat and Alternatives food groups. Within these groups it is not surprising fortified liquid milk is the main source. However, as the population ages, more vitamin D comes from the Meat and Alternatives food group and less from the Milk and Alternatives food group.[3] Although fatty fish is a good source of vitamin D, it is not consumed regularly by all Canadians. Foods such as beef and eggs contribute the most vitamin D from the Meat and Alternatives food group followed by processed red meat, poultry and other red meats.

Q: Some of my clients are concerned they eat too much red meat. Are Canadians eating too much red meat?

A: On average, Canadians are not eating too much red meat. An analysis of the CCHS 2.2 indicates the mean intake for all Canadians (≥1 year of age) is 52 grams per day of fresh red meat, which includes beef, veal, pork, lamb and ground meat and 22 grams per day of processed meat.[5] This is a total of 74 grams or about the amount of one food guide serving of cooked lean meat, fish or poultry. *Eating Well with Canada's Food Guide* recommends children consume 1-2 servings and teens and adults consume 2-3 servings of Meat and Alternatives each day.

Statistics Canada food disappearance data indicates beef consumption among all Canadians has decreased by twenty-five per cent from 1980 to 2008.[6]

Beef is part of a healthy diet. In fact, ninety-five per cent of health professionals surveyed (dietitians, doctors, and nurses) agree beef is a nutrient-rich food. Seventy-eight per cent of health professionals and more specifically, eighty-one per cent of dietitians agree beef is an important part of a healthy, balanced diet.[7]

Beef and Health

Q: My clients often ask if they should cut out red meat if they are trying to lose weight. Should I make this recommendation?

A: Lean beef is a nutrient-rich food that fits into a weight management program. The protein content of beef may play a role in satiety and maintaining lean body mass.

A number of ad libitum studies have shown higher protein diets, in the range of 20-30% of energy, reduces perceived hunger and improves satiety resulting in better long-term weight loss.[8,9] In addition, the higher protein diets appear to preserve lean body mass during energy restriction.[8-10]

A number of mechanisms may be involved in the role of protein-induced satiety such as the increase in energy expenditure to digest, absorb and metabolize protein, the role of gut hormones on regulating appetite and the effect of amino acids on satiety via gluconeogenesis pathway.[11-13]

Listen to... Dr. Stuart Phillips discuss protein and satiety. Visit *Nutricast™ Radio* in the health professional section at **beefinfo.org**

Q: Should I recommend to my clients a decreased beef intake if they are at risk for cardiovascular disease?

A: A study at Laval University showed lean beef, lean fish and poultry diets were equally effective in reducing plasma total and LDL cholesterol when included in an American Heart Association diet.[14] In addition, a review of 54 studies showed when lean red meat, trimmed of visible fat, was consumed, it did not increase plasma cholesterol levels.[15]

Beef contains the naturally occurring trans fats—conjugated linoleic acid (CLA) and its precursor, vaccenic acid (VA). CLA has been shown to improve lipid profiles and delay the development of atherosclerosis.[18] Recent studies at the University of Alberta on VA have shown it to have hypolipidemic effects in animals with metabolic syndrome.[19]

Listen to... Dr. Catherine Field discuss CLA and VA. Visit *Nutricast™ Radio* in the health professional section at **beefinfo.org**

Beef – from Gate to Plate

Q: Are there hormones in beef?

A: Animals and people have naturally occurring hormones. Three natural and three synthetic hormonal growth promoters are approved for use in Canada by Health Canada. Hormones are used so the animal uses its feed efficiently in addition to increasing lean muscle tissue and decreasing fat deposits, therefore creating a leaner product. By improving feed efficiency fewer resources are used, such as water, feed, and less manure is produced.

In order to ensure safety, the Canadian Food and Inspection Agency (CFIA) monitors for hormone residues. If any detected residues are above permitted levels, the animal and its meat products are removed from the production line and never reach the consumer.[20]

The safety of hormone use has been reviewed by many experts and agencies, including Health Canada, the World Health Organization and the Food and Agriculture Organization of the United Nations. All have concluded hormones can be used safely in beef production and result in no risk to consumers.[21]

For more information on hormones, download the fact sheet at: beefinfo.org/factsheets

Q: Some of my clients believe there are antibiotics in beef – is this true?

A: Antibiotics are given to beef cattle when necessary. Under the Food and Drugs Act and Regulations, the Veterinary Drugs Directorate evaluates and approves all veterinary drugs in Canada. Three main reasons why antibiotics may be used: to treat diseases as needed, to prevent and control disease, and to enhance production by preventing disease.

The CFIA administers Canada's National Chemical Residue Monitoring Program, which for antibiotics includes random sampling of beef and other foods to determine if there are antibiotic residues present in concentrations above the maximum residue levels and identifying 'suspect' animals by meat inspectors. Residues of antibiotics in beef are rare. According to the most recent results of CFIA residue testing program, residue monitoring of beef shows 100% compliance.[21]

For more information on antibiotics, download the fact sheet at beefinfo.org/factsheets.

Q: What is one key tip I can offer my clients to help them reduce risk of foodborne illness?

A: An easy yet underused tool is the food thermometer. Proper use of the thermometer when cooking meat is key to minimizing foodborne illness and enhancing meat quality. There are a number of different types of thermometers on the market. However, a digital instant read thermometer is recommended.

One of the difficulties encountered most often in using thermometers is how to insert them into different cuts. For burgers and steaks, insert the thermometer stem sideways into the centre of the patty or thickest part of the food to a depth of at least 4 cm. For meatloaves, roasts and casseroles, insert into the thickest part of the food at least 4 cm in and avoid touching the bottom of the pan. Appropriate cooking temperatures are listed in Table 4.

For more information on food safety, visit ***befoodsafe.ca***

Table 4 - **Temperature Rules for Safe Doneness**

Ground Meat & Meat Mixtures		
Beef, Pork, Veal, Lamb	160 °F	71 °C
Turkey, Chicken	165 °F	74 °C
Fresh Beef, Veal, Lamb		
Medium Rare	145 °F	63 °C
Medium	160 °F	71 °C
Well Done	170 °F	77 °C

Beef in the Market Place

Q: What lean cuts of beef can I recommend?

A: Many cuts of beef are lean and meet criteria for the Heart and Stroke Foundation's Health Check™ Program. The Health Check™ symbol can be found on eight lean cuts of beef (Table 5) plus lean and extra lean ground beef.

The Health Check™ symbol means registered dietitians at the Heart and Stroke Foundation have reviewed the nutritional content of the food and it meets their criteria for a healthy choice following Canada's food guide. For more information on the Health Check™ Program, visit their website at **healthcheck.org**

In addition, if the Health Check™ symbol is not visible, look for beef cuts containing the words 'loin', 'round', or 'lean/extra lean' in their names. This means the cut you are choosing is a lean choice.

Table 5 -
Health Check™ Qualified Beef
Nutrition information based on beef cuts trimmed of external fat (o-inch/cm trim)

Lean beef choices (100 grams raw)	**Fat content** (grams)
Eye of round	5
Inside round	5
Sirloin tip	5
Top sirloin	6
Strip loin	8
Flank	8
Cross rib	9
Outside round	9
Extra lean ground beef	10
Lean ground beef	15

Q: I have seen the Canadian Beef logo on beef in grocery stores and on menus in restaurants. What does this logo mean?

A: The Canadian Beef brand logo seen here indicates: Canadian beef is nutritious and produced according to world class quality and safety standards. Canadian beef comes exclusively from cattle raised and processed in Canada.

This logo is used to serve as a reminder about the goodness in every bite of Canadian beef. It has 14 essential nutrients* needed for healthy living. *Eating Well with Canada's Food Guide* recommends eating 1 to 3 servings of Meat and Alternatives each day.

Canadian beef is renowned for its rigorous and progressive grading, inspection and food safety standards. Canada has the only mandatory cattle identification system in North America. Canada's beef farmers and ranchers are dedicated to raising cattle with respect for their animals and the environment. Encourage your clients to look for the Canadian beef brand logo at the grocery store and in restaurants.

Healthy eating never sounded so good!
Registered Dietitian Hélène Charlebois delivers healthy practical tips for nutrient-rich eating for your clients. Listen to Hélène's fresh perspective on preparing nutrient-rich meals.

Visit *Nutricast™ Radio* in the health professional section at **beefinfo.org**

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† The Heart and Stroke Foundation's registered dietitians have reviewed lean and extra lean beef to ensure it meets the specific nutrient criteria developed by the Health Check™ program based on the recommendations in Canada's Food Guide. A fee is paid by each participating company to help cover the cost of this voluntary, not-for-profit program. See healthcheck.org
*Per 100 gram raw lean beef, trimmed of external fat (composite of 26 cuts): 162 calories, 21 g protein, 7.8 g fat, 0 g carbohydrate % Daily Value: potassium 9%, iron 15%, vitamin D 10%, thiamine 10%, riboflavin 15%, niacin 45% , vitamin B_6 15%, vitamin B_{12} 110%, pantothenate 10%, phosphorus 15%, magnesium 10%, zinc 60%, selenium 40%.

Beef Information Centre

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