CURRENT EVIDENCE ON RED MEAT AND CHRONIC DISEASE

STRONG EVIDENCE CHALLENGES COMMON PERCEPTIONS ABOUT RED MEAT

This research update highlights important findings from recent reviews, meta-analyses, randomized controlled trials (RCTs) and other studies that call into question prior reports and recommendations related to red meat and chronic diseases in general, cardiovascular disease, and type 2 diabetes.

CHRONIC DISEASES, IN GENERAL

UN FAO Report The most comprehensive analysis to date of the role of animal sourced foods in the diet states: "Synthesized findings from risk analyses show that consumption of modest amounts of unprocessed red meat (ranging from 9 to 71 g/day) has minimal health risk."[1]

On average, Canadians eat 41 g of unprocessed red meat per day.[2]

Global Burden of Disease Study A diet high in red meat was not ranked in the 25 leading risk factors in the latest 2021 Global Burden of Disease Study report.[3]

NutriRECS Consortium Conducted a rigorous series of 5 systematic reviews, using GRADE methods to rate the certainty of the evidence related to red meat and heart disease, diabetes and cancer.[4] Based on their findings, they recommended that most people in North America can continue to consume red meat at current average intakes.

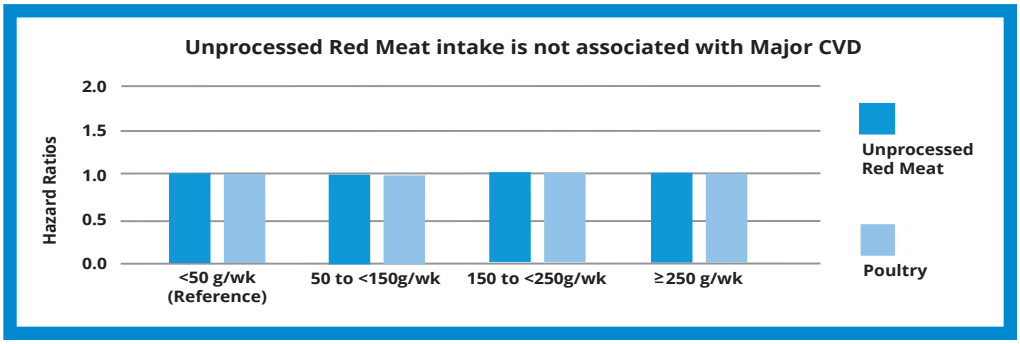
Animal vs Plant Protein Analysis of U.S. NHANES III data found no adverse associations between usual intakes of animal or plant protein and all-cause, cardiovascular disease-, or cancer-related mortality risk.[5] Animal protein was associated with a small reduction in cancer mortality risk. No such relationship was seen for plant protein.

Burden of Proof Study Evaluated the strength of the evidence and found only weak evidence of an association between unprocessed red meat and heart disease, colorectal cancer, breast cancer, or type 2 diabetes and no evidence of association for ischemic or hemorrhagic stroke.[6]

Life Expectancy Study Worldwide analysis of 175 countries/territories showed higher meat intake (including red meat, poultry, game, and organ meat) correlates with better life expectancy.[7] This study found that life expectancy was greater when diets include more meat, even in countries with a Mediterranean diet.

CARDIOVASCULAR DISEASE (CVD)

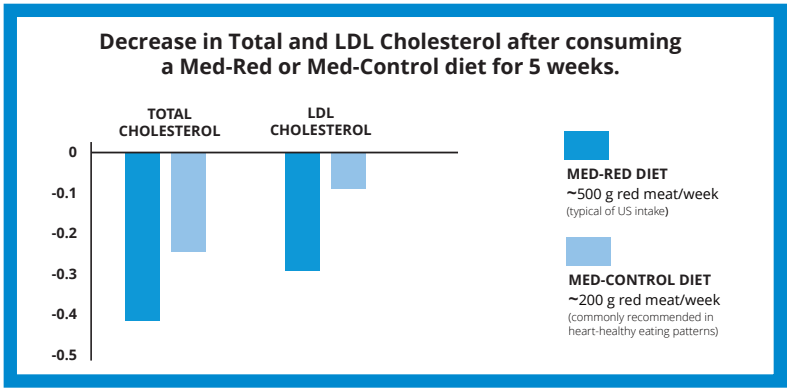
PURE Study Found no association between unprocessed red meat or poultry intakes and major CVD (i.e. heart attack or stroke) or total mortality in adults from 21 countries (n=134,297).[8]



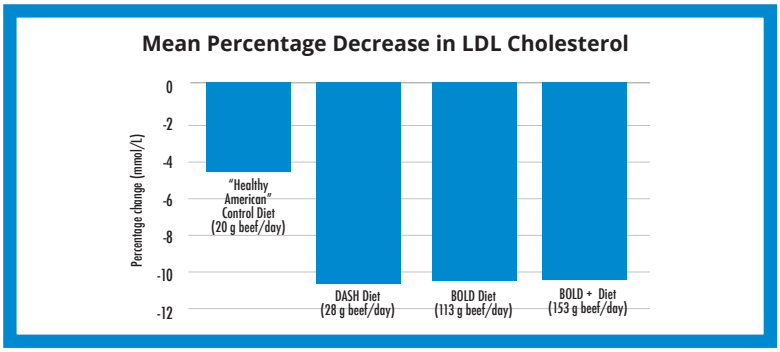
Mendelian Randomization Study Based on over 1.8 million data points for meat intake, found no significant causal relationship between red meat intake and the risk of four CVD outcomes, including coronary artery disease, stroke, atrial fibrillation, or heart failure.[9]

Meta-analysis of 24 RCTs Found that diets higher in red meat (≥3.5 servings/week) have no adverse effect on clinically relevant CVD risk factors, such as LDL cholesterol and blood pressure, compared to diets with little to no red meat.[10]

Mediterranean Diet RCT Showed a mediterranean-style diet higher in lean unprocessed red meat helped overweight and obese adults achieve a significant decrease in total cholesterol, LDL cholesterol, and blood pressure within 5 weeks.[11] The Med-Red diet (500 g red meat/week) reduced LDL cholesterol more effectively than the Med-Control diet (200 g red meat/week).



Bold Diet RCT Confirmed a heart healthy diet including lean beef can be as effective as the DASH (Dietary Approaches to Stop Hypertension) diet for cholesterol management.[12] In this study, hypercholesterolemic adults achieved a 10% decrease in LDL cholesterol within 5 weeks on both the DASH and BOLD (Beef in the Optimal Lean Diet) diets.



Umbrella Review of Systematic Reviews Based on 10 systematic reviews, concluded that neither total, animal, or plant protein were associated with coronary heart disease, stroke, or cardiovascular disease risk.[13] This umbrella review was conducted to inform the German Nutrition Society evidence-based guideline on protein.

InChianti Study Concluded that higher animal protein intakes were associated with a lower risk of cardiovascular and all-cause mortality in older adults in Italy, after 20 years of follow-up.[14] This study found every 1% increase in animal protein intake was associated with a 7% reduced risk of cardiovascular mortality and a 4% decreased risk of all-cause mortality.

Heart and Stroke Foundation encourages Canadians to pay attention to their overall diet quality, rather than focusing on saturated fat.[15]

TYPE 2 DIABETES (T2D)

Mendelian Randomization Study Found no evidence of a causal link between red meat (beef, pork, and lamb) consumption and the development of T2D or CVD (heart disease, high blood pressure, and stroke).[16]

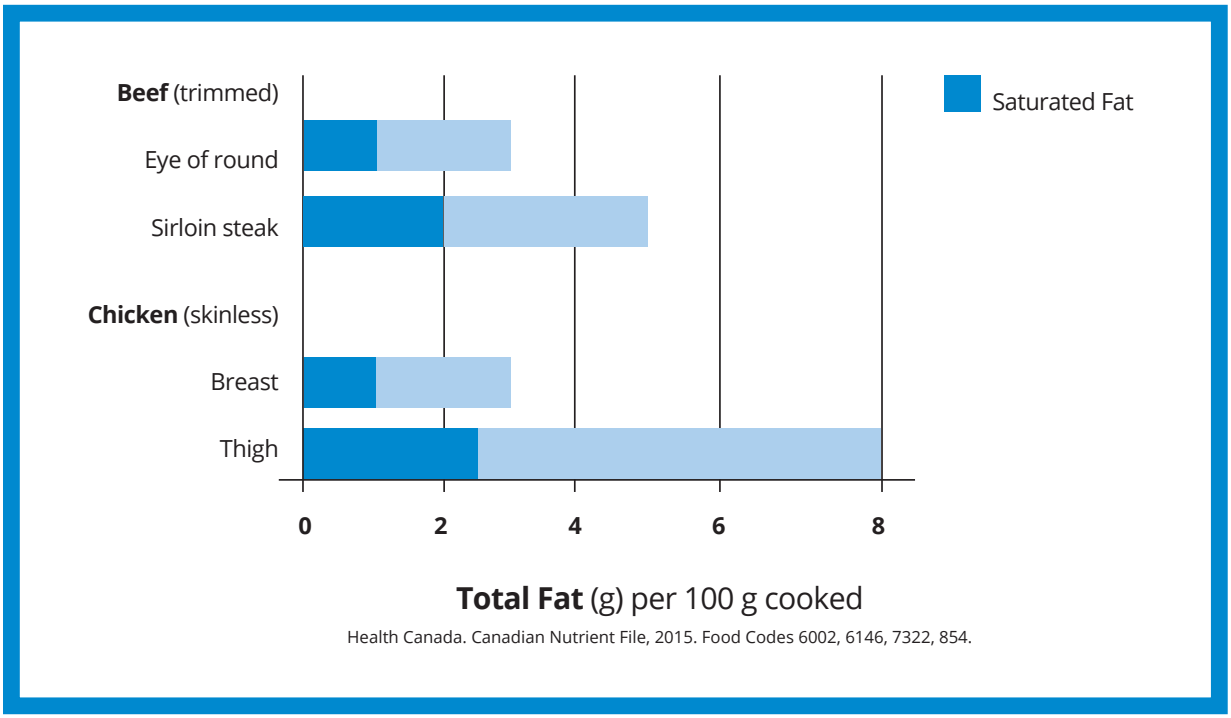
Meta-Analysis of 21 RCTs Concluded that compared to diets containing less or no red meat, diets with red meat did not impact blood markers for T2D including fasting blood glucose, fasting insulin, insulin sensitivity, HbA1c, pancreatic beta-cell function, and GLP-1 in adults.[17]

Meta-analysis of 20 RCTs Concluded that red meat had no adverse effect on blood sugar control or inflammation in adults at risk of diabetes, heart disease and stroke.[18] This meta-analysis found that replacing red meat with other animal or plant proteins such as poultry or soy showed no benefit.

RCT in Adults with T2D Showed that eating a moderate amount of red meat in the context of a balanced diet has no adverse effect on blood sugar control, cholesterol levels, or blood pressure, as compared to soy or non-soy legumes.[19]

Weight Loss RCT Demonstrated energy-restricted diets with moderate or high amounts of protein (21% or 40% of total energy) combined with regular exercise are an effective way to help adults with T2D lose weight and improve body composition, blood glucose control, and cardiometabolic health.[20] This study showed that the higher protein diet, which included beef at least 4 times a week, was as effective as the moderate protein diet with no red meat.

COMPARE THE FAT IN BEEF AND CHICKEN



Health Canada. Canadian Nutrient File, 2015. Food Codes 6002, 6146, 7322, 854.

Expert reviews on saturated fat suggest nutrient-dense foods such as unprocessed meat and whole-fat dairy foods can be consumed without increasing the risk of CVD.[21,22]

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