Effects of Diets Containing Beef Compared with Poultry on Pancreatic β-Cell Function and Other Cardiometabolic Health Indicators in Males and Females with Prediabetes: A Randomized, Crossover Trial

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Funded by Beef Farmers and Ranchers

STUDY HEADLINE

Findings from a randomized controlled, crossover trial (RCT) demonstrate that eating 6-7 ounces of beef per day does not impact risk factors for T2D, nor other cardiometabolic health markers, in adults with prediabetes. Results were similar when compared to poultry.

BACKGROUND

About 34 million Americans have Type 2 Diabetes -- a chronic disease that can lead to other serious health complications, yet has modifiable risk factors like diet and lifestyle changes.[1]

Development of type 2 diabetes mellitus (T2D) typically results from insulin resistance which, over time, can contribute to the progressive deterioration of pancreatic β-cell function, leading to insufficient insulin secretion and increased blood glucose levels. Observational studies have reported associations between higher red meat intake and increased T2D risk, whereas poultry intake has generally not been associated, or was inversely associated, with T2D risk.

Pancreatic Beta-Cells

In response to glucose in the blood stream, beta-cells in the pancreas release insulin.	Prolonged periods of overproduction of insulin can lead to beta-cell exhaustion and loss of beta-cell function.	Poor beta-cell function leads to insufficient insulin secretion to maintain normal blood glucose levels.

Findings in observational studies may be confounded by lifestyle and behavioral factors that are often seen in those who consume greater amounts of red meat versus those who consume less. However, RCTs generally show the intake of red meat, including beef, does not significantly affect insulin sensitivity. There has been limited clinical research evaluating the impact of red meat on pancreatic β-cell function, specifically. **The objective of the study was to examine the effects of beef intake compared with poultry intake on pancreatic β-cell function, other indicators of glucose homeostasis, glucoregulatory hormone responses, lipoprotein lipids, and biomarkers of inflammation in adults with prediabetes.**

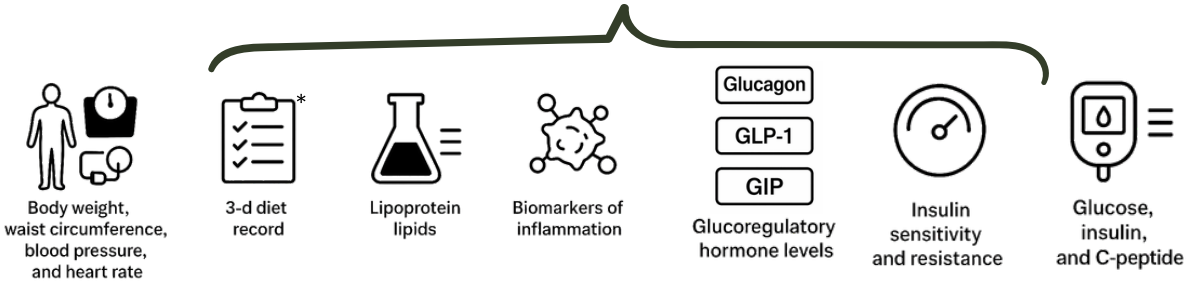
[1] https://www.cdc.gov/diabetes/about/about-type-2-diabetes.html

STUDY DESIGN

Study Population = 7 females, 17 males; 18-74 yrs with overweight or obesity and prediabetes

Beef= Habitual diet + 6-7 oz of cooked, unprocessed beef in prepared entrees
Poultry= Habitual diet + 6-7 oz of cooked, unprocessed chicken in prepared entrees
(avoiding all meat, seafood, eggs, and poultry other than that provided)

Measured at visits 2,3,4, and 5.



*Diet records not collected during washout.

KEY TAKEAWAYS

1. No statistically significant differences were observed for any of the pancreatic β-cell function parameters or insulin sensitivity after 28-days of consuming 6-7 oz per day of unprocessed beef or poultry, when incorporated into participants' habitual dietary patterns.
2. Beef consumption also did not impact other measures of cardiometabolic health, including indicators of glucose homeostasis, glucoregulatory hormones, lipoprotein lipids, or biomarkers of inflammation.
3. Results from this gold standard randomized, crossover, controlled feeding trial builds on the available scientific evidence that concludes eating beef does not adversely impact glycemic control or inflammation biomarkers, both potential measures of cardiometabolic health.

Read the paper here!