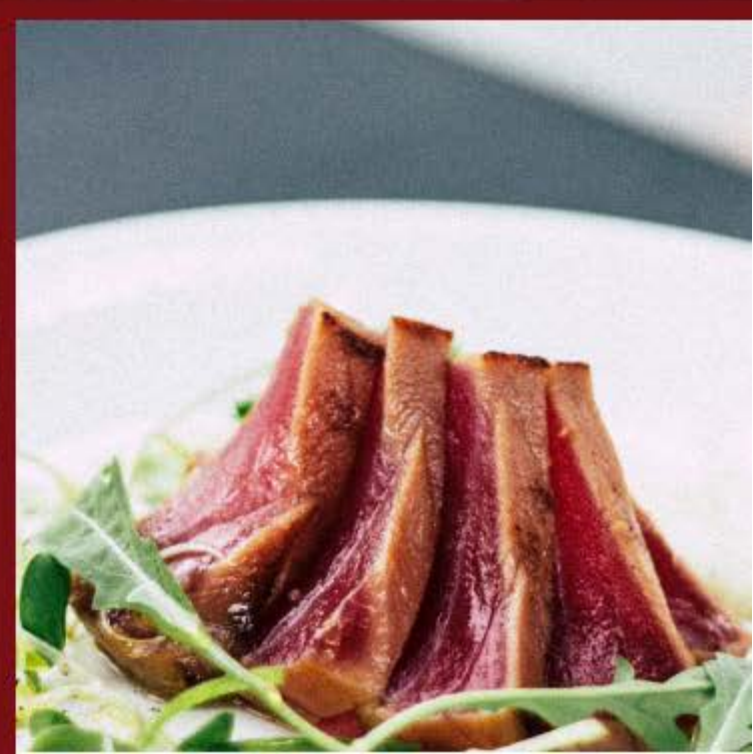




Benefits of Meat in the Diet





Meat is a high quality protein source that contains all essential amino acids, is highly digestible, and easily absorbable.



Benefits of Red Meat

Excellent source of:

Protein

Lipids

Minerals

Vitamins



Protein helps maintain and build muscles



Potassium helps control blood pressure



Zinc aids in immune health and growth



B Vitamins for brain function



Iron helps prevent anemia



Phosphorus aids in healthy bones

Meat is a high quality protein

- High quality, protein aids in:
 - Maintaining normal blood cholesterol levels
 - Maintaining normal blood pressure
 - Muscle building
 - Recovery
- Protein provides all essential amino acids required by the body
- Meat proteins have a much greater digestibility than plant proteins



Meat protein digestibility



Plant protein digestibility

Protein digestibility relates to the amino acids made available to the body after digestion and absorption

Essential Amino Acids

- Amino acids build and maintain body tissues and contribute to metabolic processes
- Meat is the only food that provides all 9 of the essential amino acids that the body cannot make



<http://meatandhealth.redmeatinfo.com/media/7789/Red-Meat-Infographic-final.jpeg>

Less calories, same amount of protein

THE POWER OF PORK: PORK IS HIGH IN PROTEIN

24G PROTEIN

3oz

PORK LOIN = 159 CALORIES
 PORK SIRLOIN = 173 CALORIES
 PORK TENDERLOIN* = 122 CALORIES

COMPARED TO OTHER PROTEINS

<p>6 TABLESPOONS OF PEANUT BUTTER</p> <p>564 CALORIES</p>	<p>1½ CUPS OF COOKED BLACK BEANS</p> <p>342 CALORIES</p>	<p>1½ CUPS OF NON-FAT GREEK YOGURT</p> <p>300 CALORIES</p>
<p>4 HARD BOILED EGGS</p> <p>312 CALORIES</p>	<p>6½ CUPS OF BROCCOLI</p> <p>176 CALORIES</p>	<p>3 CUPS OF QUINOA</p> <p>666 CALORIES</p>

*Three ounces of pork tenderloin offers 22 grams of protein.

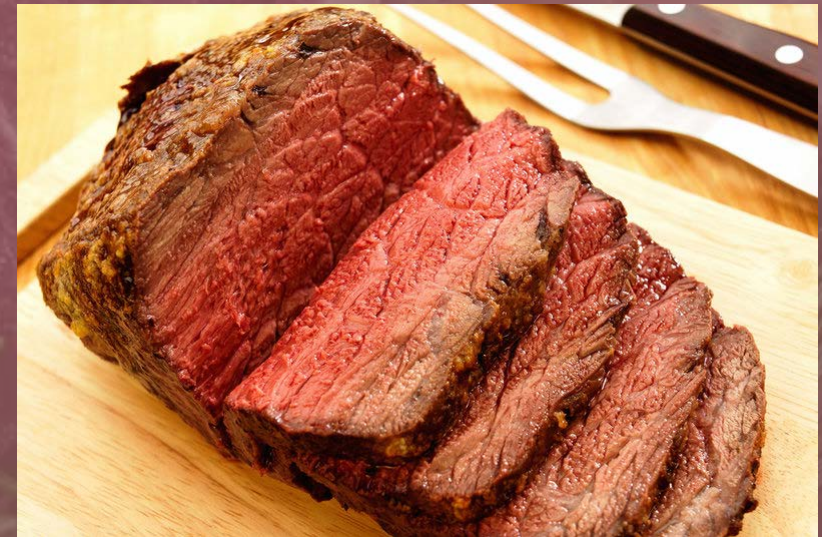
WHAT DOES 25 GRAMS OF PROTEIN LOOK LIKE?

	AMOUNT	CALORIES	PROTEIN
Quinoa	3 cups	666	25g
Peanut Butter	6.5 tbsp	613	25g
Black Beans	1 2/3 cups	379	25g
Edamame	1 1/3 cups	249	25g
Beef	3 ounces	173	25g

<https://www.beefitswhatsfordinner.com/nutrition/beef-protein>

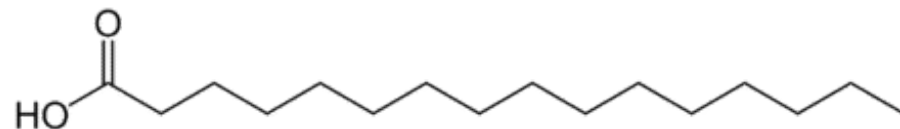
Lipids (Fat)

- Fat is the most variable component in meat - depends on the amount of untrimmed fat and marbling
- Lipids provides energy and essential fatty acids
 - Two types of fatty acids: saturated or unsaturated
- Fat helps the body absorb fat-soluble vitamins A, D, E, and K
- Cholesterol is a component of meat lipids
 - Precursor for steroid hormone synthesis and essential component of cell membranes

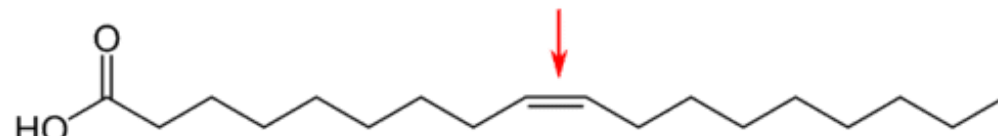


Saturated Fatty Acids

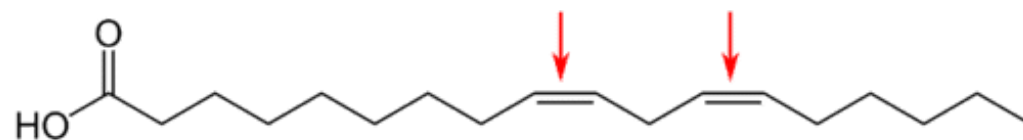
- Contains no double bonds on carbon chain
- Dietary guidelines recommend low levels of SFAs
- High consumption of certain SFAs can lead to high levels of bad cholesterol (LDL) which is a risk factor for cardiovascular diseases
 - However, 43% of SFA in meat have no effect on the body



Palmitic Acid - Saturated Fatty Acid



Oleic Acid - Monosaturated Fatty Acid



Linoleic Acid - Polyunsaturated Fatty Acid

Unsaturated Fatty Acids

- Monounsaturated Fatty Acids (MUFA)
 - Contains one double bond on carbon chain
 - Considered healthy fats that help protect against coronary heart disease
- Polyunsaturated Fatty Acids (PUFA)
 - Contains more than one double bond on carbon chain
 - Omega-3
 - Essential fatty acids the body cannot produce that are a crucial part of human cell membranes
 - Omega-6
 - Essential fatty acids the body cannot produce primarily used for energy
 - Meat is a rich source of Omega-6 fatty acid. With pork and beef among the top ten sources of Omega 6-fatty acids
- Trans Fatty Acids
 - Dietary guidelines recommend as low as possible intake levels of artificial trans fat due to an increased risk of heart disease.
 - Naturally occurring trans fat found in meat are considered safe.

Beef Lipids

- The beef checkoff considers 29 cuts of beef as lean
- Contains more saturated fatty acids than pork
- Roughly half of the fats in beef are heart-healthy mono-unsaturated fatty acids
- With enhancements in cattle breeding and feeding as well as improved trimming practices, more than 60 percent of whole muscle beef cuts found in the supermarket are considered lean

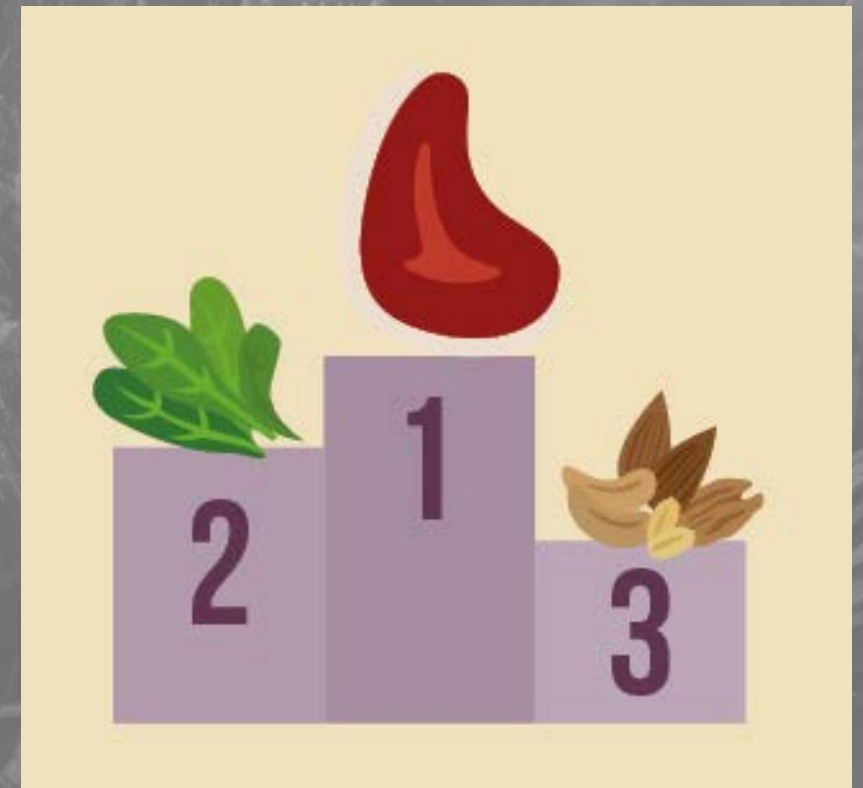
Pork Lipids

- The pork checkoff considers six cuts of pork as lean
- Contains more polyunsaturated fatty acids than beef
- Roughly half of the fats in pork are heart-healthy mono-unsaturated fatty acids\
- Pork today contains 16% less fat and 27% less saturated fat than pork produced in 1991

Minerals

- Iron: meat is a great source of iron and essential for maintaining good health; iron in meat is in a readily absorbable form known as heme iron
- Zinc: 1.8 times more absorbable for the body when it comes from meat than plants; essential for growth, wound healing, and maintaining a healthy immune system
- Selenium: helps protect cells from damage
- Potassium: provides blood pressure control
- Magnesium: aids in muscle and nerve function

Heme iron is 3X more absorbable than non-heme iron found in plants



Vitamins

- Meat is an excellent source of B complex vitamins
 - Thiamine promotes energy production and supports the nervous system
 - Riboflavin helps convert food into fuel
 - Niacin supports energy production and metabolism
 - Vitamin B6 and B12
 - Essential in brain development in children and helps maintain a healthy nervous systems and red blood cells
 - Vitamin B12 is only found in animal proteins
- Liver can provide sources of Vitamins A, D, E, and K
 - Vitamin A is approximately 20 times more absorbable from animal proteins than plants
 - Vitamin D3 is only found in animal proteins and is used at a much higher rate than Vitamin D2 found in plants



Importance of meat for.....

Older Adults

- Meat is necessary to maintain muscle mass in older adults
- Recommended protein levels for older adults is 46 g of protein for females and 56 g for males per day

<https://www.meatpoultrynutrition.org/content/benefits-meat-and-poultry-diet>

Child Development

- High-quality animal protein are essential for optimal growth and development of children
 - Many pediatricians now recommend meat as a first complementary food for babies
 - Recommended protein levels for children age 1-3 is 13 g and children age 4-8 is 19g
- Brain Development
 - Vitamin B12 is essential in brain development in children
 - Low B12 levels can be associated with cognitive disorders, neurological disorders, and memory loss
 - Vitamin D3
 - DHA
 - Most abundant Omega-3 fatty acid in the brain - critical for normal brain development



Processed Meats

- Meat that has been transformed through salting, curing, fermentation, smoking, cooking, batter/breading, and/or the addition of ingredients to enhance flavor or improve preservation
- Processed meats are a convenient protein source packed with key vitamins and minerals

What are nitrites?

- Curing agent added to extend shelf life, prevent bacteria growth and foodborne illnesses, prevent rancidity, and create unique flavors and color profiles associated with processed meats
- Nitrites are essential with our body making about 20 mg of nitrite and 300 mg nitrate
- Sodium nitrate is a naturally occurring chemical compound found in soil, water, plants, and our own body that is converted to nitrite when in the presence of bacteria
- Nitrites are naturally found in vegetables such as celery
 - Celery salt can be used instead of nitrite since it is a natural form of nitrite

Meat causing cancer

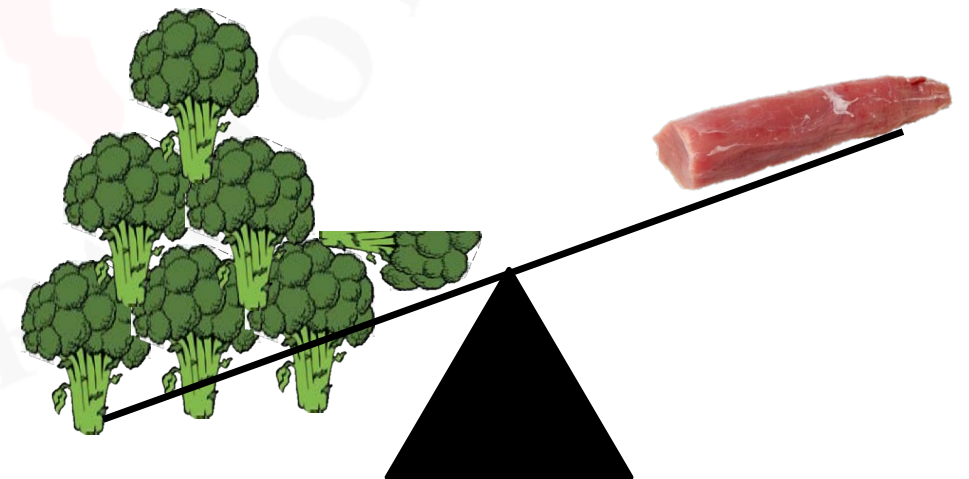
- Findings on red meat and cancer are inconsistent, largely in part to humans consuming diets and not a particular food item
- Many studies conducted are epidemiological studies that provide an association or correlation, but not a causation
 - These studies have many limitations including lack of reporting of lifestyle factors
- Red meat has often been linked to cancer, specifically colon cancer
 - In 2004, a pooled study concluded that there is not sufficient evidence to support a specific relationship meat red meat consumption and colorectal cancer
 - Cho, E. and Smith-Warner, S. (2004). Meat and fat intake and colorectal cancer risk: A pooled analysis of 14 prospective studies. American Association for Cancer Research. 64:113
- Nitrates and nitrites were originally linked to cancers because when meat that contains nitrites is cooked to high temperatures, it allows for the creation of nitrosamine, a carcinogenic compound
 - Led the USDA to place limits on the amount of nitrites added to meat products
 - However, the U.S. National Toxicology Program has concluded that nitrite is not a carcinogen

Grass-fed vs. Grain-fed Beef

- Cattle, regardless of how they're finished, spend a majority of their life on grass
- Grass-finished beef tends to be leaner, but regardless of finishing, all beef contains all the essential amino acids, protein, iron, and zinc
- Feeding cattle a grain-based diet for a short period of time helps to improve meat quality and makes for a more tender and juicier product
- Grain finished cattle tend to have slightly higher saturated fatty acid profiles than grass fed beef, but contain higher levels of the healthful monounsaturated fatty acid, oleic acid
- Beef from grass-finished cattle naturally contains about twice the concentration of omega-3 fatty acids than from grain-finished cattle.
 - A recent study, found grain-finished beef to contain 0.013 g fat/100 g beef of omega-3 fatty acids compared to grass finished beef with 0.024 g fat/100 g beef, while grain-finished cattle had an overall higher percentage of polyunsaturated fatty acids than grass-finished beef

Plant vs. Meat protein

- **No** plant protein source contains all the essential amino acids the body needs
 - Lysine, Methionine, Leucine, and Tryptophan are each limiting essential amino acids that can all be obtained in meat, but with plants, you can only obtain 3 of the 4 necessary amino acids
- Plants based proteins require a greater amount of calories for the same level of protein, but lack many of the essential amino acids, minerals, and vitamins that meat provides
 - For example, 3 oz pork tenderloin contains 25 g of protein and 122 calories compared to 6.5 cups of broccoli that contains 25 g of protein and 176 calories
- Our diet has become increasingly plant-based over the last four decades, when obesity has also increased
- Plant based protein products are often highly processed with added fat, sodium, and other potentially unhealthy or unsustainable ingredients, and can reinforce unhealthy dietary patterns



- Meat & Poultry Nutrition
- Beef It's What for Dinner
- Pork Nutrition
- Meat Up
- The Meat We Eat

