PROTEIN QUALITY AND DENSITY MATTER FOR HEALTHY EATING: PORK DELIVERS BOTH

Protein plays an essential role in promoting health and well-being all throughout life, from children's growth and development to healthy aging. It provides building blocks human bodies require in the form of amino acids, including the nine essential amino acids we must obtain from food.[1] Both the protein quality and protein density of foods matter when it comes to helping people to meet their daily protein needs.

A Regular Supply of Sufficient Protein Is Needed to:

- Support children's growth and development
- Build, repair, and maintain muscle and bone
- Protect immune health and promote recovery
- Preserve muscle while managing body weight
- Manage metabolic health and chronic disease
- Prevent sarcopenia and frailty in aging adults

PRACTICE TIP: Lean meats such as pork, poultry, and fish are dense sources of complete protein. These foods provide a balance of all nine essential amino acids that is well matched to human requirements.

Optimizing Protein Intakes in Adults (19-plus Years)

Acceptable Macronutrient Distribution Range (AMDR)[1]

Protein should provide **10% to 35% of total daily energy** (i.e., calories).

More Optimal Protein Intakes (Based on Current Evidence)[2-6]

Experts suggest amounts **≥ 1.0 g of protein/kg body weight/day** are more optimal for overall health.

Recommended Dietary Allowance (RDA)[1] (i.e., Minimum Intake)*

A minimum of **0.8 g of high-quality protein/kg body weight/day** is needed to prevent deficiency in healthy adults.

*The RDA for protein is based on the minimum amount of high-quality protein to maintain nitrogen balance.[1]

Optimal Per Meal Protein Doses Increase with Age:

HEALTHY YOUNG ADULTS

need between **20 grams to 30 grams of high-quality protein per meal** to maximize muscle protein synthesis, based on expert consensus.[3]

HEALTHY OLDER ADULTS

may need up to between **30 grams and 50 grams of protein per meal** to preserve muscle strength and physical function, based on Canadian research.[7]

Protein Quality Defined

A food's protein quality depends on its ability to meet the body's nitrogen and amino acid requirements for growth, maintenance, and repair.[1] This depends on its amino acid composition, digestion and absorption, and bioavailablity. When amino acids are not present in the right balance, protein utilization is limited.

High-Quality Protein: Commonly known as "complete protein," high-quality protein contains all nine essential amino acids in a pattern that closely matches human requirements and is efficiently absorbed.

Complete Proteins[1]	Incomplete Proteins[1]
Provide a balance of all nine essential amino acids that is well matched to human needs.	Have a limiting amount of one or more of the nine essential amino acids.
Are found in animal source foods such as pork, beef, poultry, fish, eggs, milk, cheese, and yogurt., as well as a few plant foods such as soy and quinoa.	Are found in plant source foods such as lentils, beans, peas, grains, nuts, seeds, and vegetables.

Pork is Protein-Rich: Pork is an excellent source of complete protein. Lean cuts of pork contain around 30 grams (28–33 grams) of protein per 100-gram cooked serving.[8]

Research Shows Protein Quality Matters

Canadian research on the impact of increasing intakes of plant protein in the diet found that:[9]

- Total protein intakes decrease as people eat more plant protein.
- Bread, crackers, rolls, and other grains become the most prevalent source of protein when plant protein contributes more than 50% of dietary protein.
- When corrected for protein quality, mean protein intakes were inadequate in adults eating protein mostly from plant foods (75% to100% of total protein).
- Protein quality decreases substantially in diets with 75% of protein or more from plant foods.

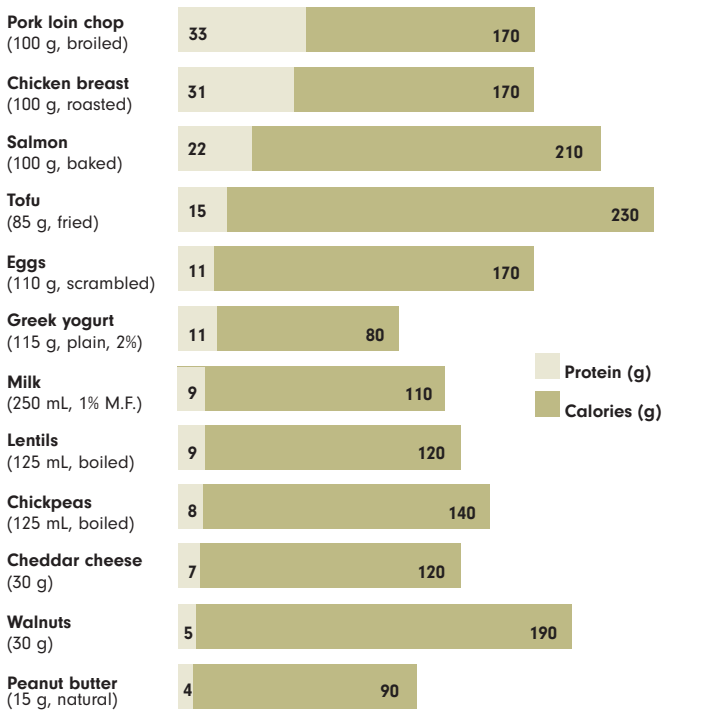
Protein Density Also Matters

It's also important to consider the caloric cost of protein foods when counselling your patients.[5] This is especially true for those Canadians who eat too many calories and have low nutrient intakes.

Research Shows Protein Quality Matters

For Example: According to Health Canada's Canadian Nutrient File:[8]

- A pork loin chop contains 33 grams of protein and 170 calories per 100-gram cooked serving.
- To get the same amount of protein, you'd need to eat 500 millilitres of chickpeas, which provides 560 calories.



Source: Health Canada. 2015. Canadian Nutrient File. Food Codes: 1970, 842, 3183, 6577, 133, 7469, 63, 3393,3390, 119, 2590, 6289. Serving sizes based on Health Canada's Table of Reference Amounts for Foods. Note: Nutrient values are rounded per Canadian nutrition labelling rules.

Counselling Considerations:

- Children with smaller appetites need protein-dense, nutrient-rich food choices to support normal growth.[1]
- Research shows older adults (who also tend to have smaller appetites) need higher per meal protein doses to stimulate muscle protein synthesis, and preserve strength and function, thus promoting healthy aging.[3,4,7]
- People trying to lose weight (including those taking GLP-1) need to eat enough protein to help minimize lean muscle loss.[10] Protein-dense foods such as pork, poultry, and fish can help.
- Vegetarian diets must prioritize complementary protein choices, such as beans and rice, and incorporate a variety of plant proteins.[9]
- Protein-dense foods such as pork, poultry, and dairy foods provide concentrated protein for relatively fewer calories compared to similar amounts of plant-based protein.
- Protein and exercise work together to help build and maintain muscle and bone throughout life.[4]

Remember: Keep both protein quality and density in mind when counselling patients about healthy eating. Lean pork is an affordable, nutrient-rich complete protein that contributes to over-all diet quality.[11]

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PICK PORK