



# **ANIMAL PRODUCTS AND A HEALTHY DIET**

## **VISION FROM THE NUTRITIONAL SCIENCE**

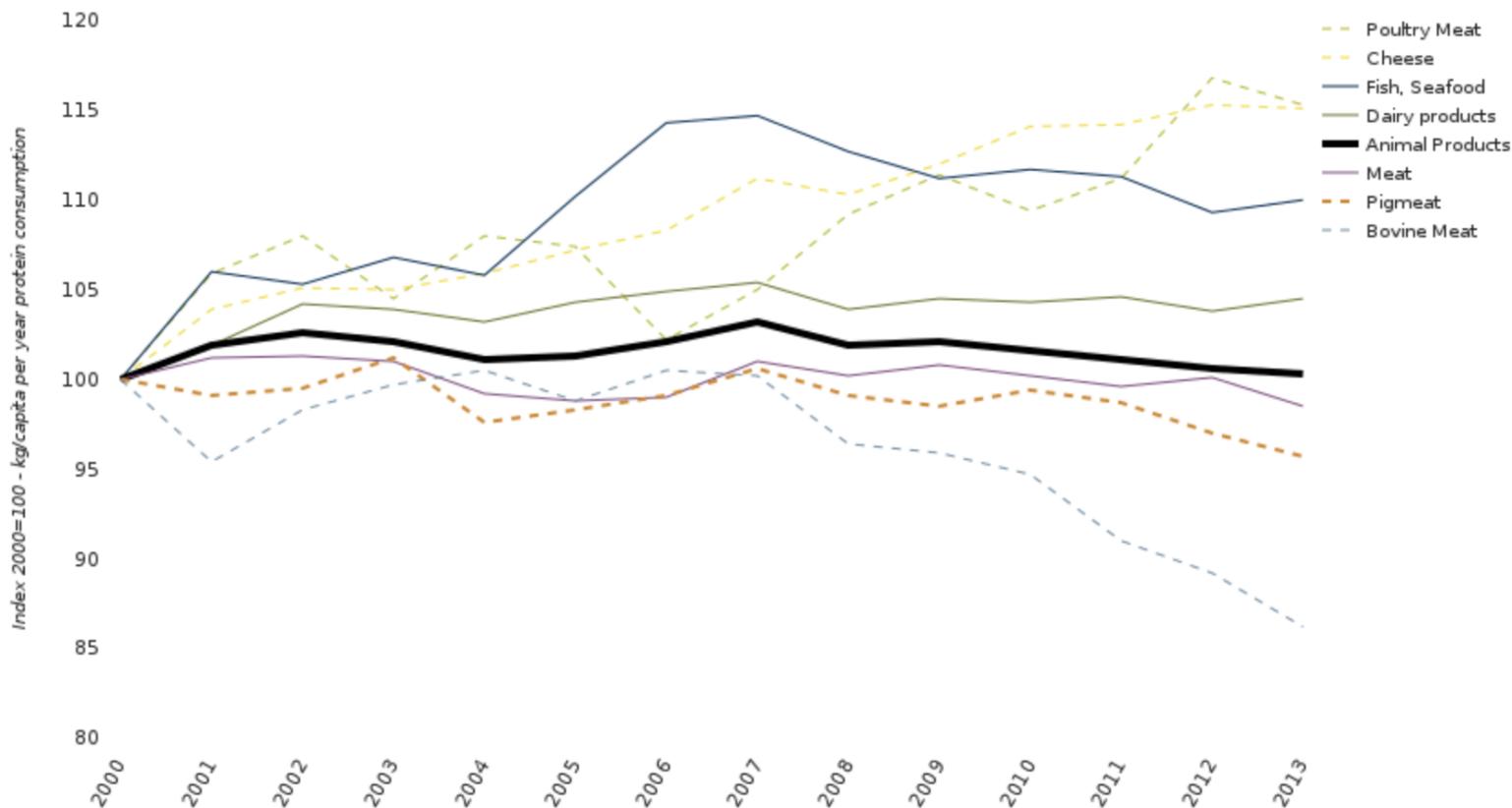
**27 | AUG | 18 MARIA JOÃO GREGÓRIO**

# TRENDS IN PER CAPITA ANIMAL BASED PROTEIN CONSUMPTION

Indeed, over the last 50 years, meat consumption rose worldwide from **23.1 kg per person per year in 1961 to 42.20 kg per person per year in 2011.**  
The same is true of proteins from dairy foods.

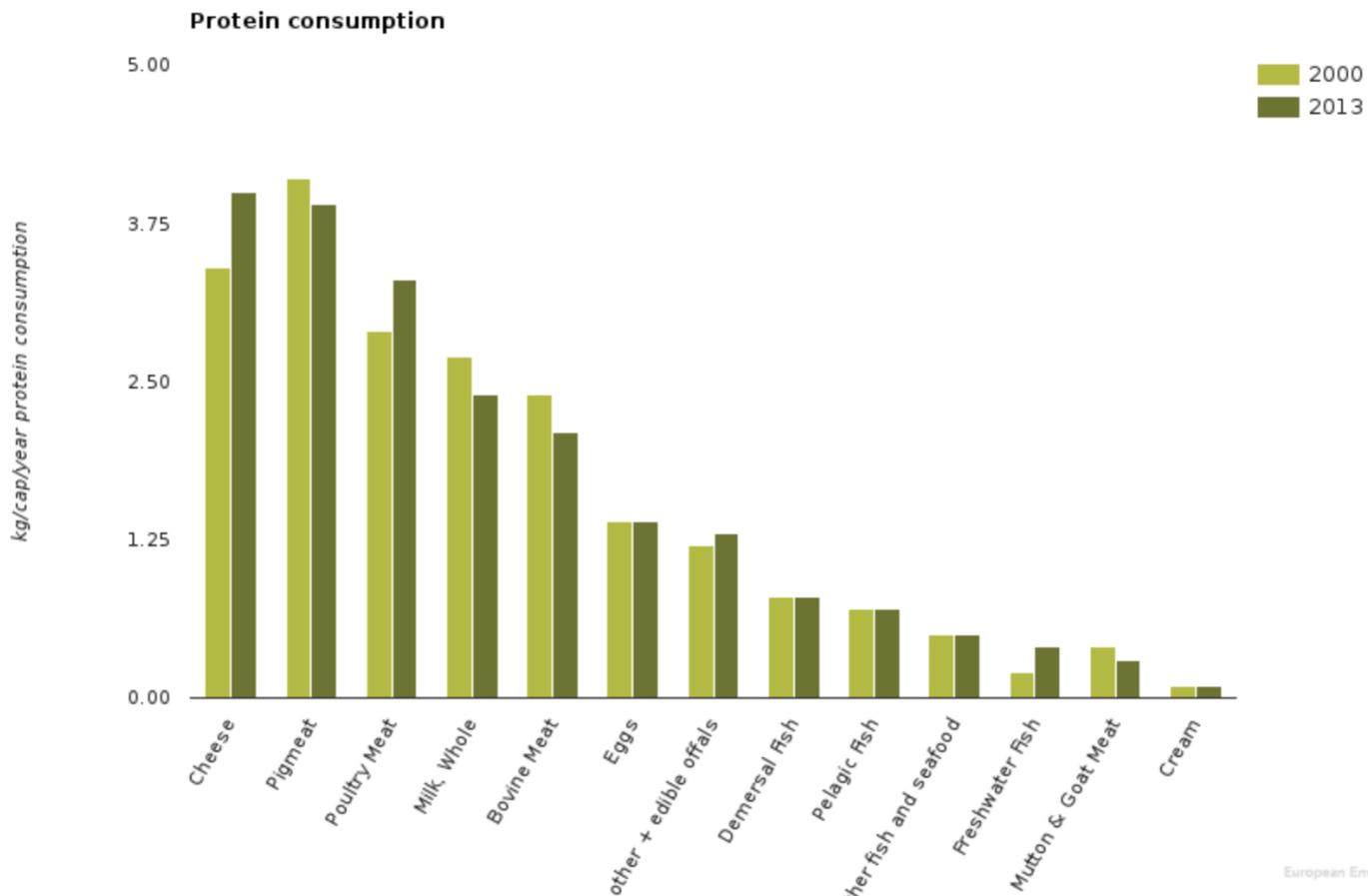
(Sans, Elsevier, 2015)

# TRENDS IN PER CAPITA ANIMAL BASED PROTEIN CONSUMPTION



(FAO, EEA)

# AVERAGE PER CAPITA PROTEIN CONSUMPTION



(FAO, EEA)

# PROTEIN REQUIREMENT VALUES FOR ADULTS

The population average protein requirement for healthy adults is estimated at **0.66 g/kg** body weight and the recommended safe lower level of protein intake was subsequently estimated at 0.83 g/kg body weight in the recently published report on protein and amino acid requirements in human nutrition

(WHO/FAO/UNU, 2008)

# DIETARY RECOMMENDATIONS

## Benefit

Fruits, Nuts, Fish  
Vegetables, Vegetable Oils  
Whole Grains, Beans, Yogurt

Fish -  $\geq 2$  servings/wk

Dairy products – 2-3 servings/d

Cheese

Eggs, Poultry, Milk

Butter

Unprocessed Red Meats

Processed meats - No more than 1 serving/wk

Unprocessed red meats – No more than 1-2 servings/wk

Refined Grains, Starches, Sugars  
Processed Meats, High Sodium Foods  
Industrial Trans Fat

## Harm

(Mozaffarian, Circulation, 2016)

# ANIMAL AND PLANT PROTEIN INTAKE AND ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY

JAMA Internal Medicine | [Original Investigation](#)

## Association of Animal and Plant Protein Intake With All-Cause and Cause-Specific Mortality

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**CONCLUSIONS AND RELEVANCE** High animal protein intake was positively associated with cardiovascular mortality and high plant protein intake was inversely associated with all-cause and cardiovascular mortality, especially among individuals with at least 1 lifestyle risk factor. Substitution of plant protein for animal protein, especially that from processed red meat, was associated with lower mortality, suggesting the importance of protein source.

*JAMA Intern Med.* 2016;176(10):1453-1463. doi:[10.1001/jamainternmed.2016.4182](https://doi.org/10.1001/jamainternmed.2016.4182)

Published online August 1, 2016. Corrected on October 3, 2016.

(Song et al, JAMA, 2016)

# PROCESSED MEAT AND RED MEAT AND CANCER RISK

The IARC Working Group classified consumption of **processed meat as “carcinogenic to humans” (Group 1)** on the basis of sufficient evidence for colorectal cancer. A positive association with the consumption of processed meat was found for stomach cancer.

The Working Group classified consumption of **red meats as “probably carcinogenic to humans” (Group “A)** – epidemiological data showing a positive association between consumption of red meat and colorectal cancer and the strong mechanistic evidence. Consumption of red meat was also positively associated with pancreatic and with prostate cancer.

**N-nitroso compounds**  
**Polycyclic aromatic chemicals**  
**Heme iron**

(Bouvard et al, Lancet Oncology, 2015)

# SATURATED FATS

SFAs are heterogeneous, ranging from six to 24 carbon atoms and having dissimilar biology. Palmitic acid (16:0) exhibits in vitro adverse metabolic effects, whereas medium-chain (6:0–12:0), odd-chain (15:0, 17:0), and very-long-chain (20:0–24:0) SFAs might have metabolic benefits.

Dietary SFAs are also obtained from diverse foods, including cheese, grain-based desserts, dairy desserts, chicken, processed meats, unprocessed red meat, milk, yoghurt, butter, vegetable oils, and nuts. Each food has, in addition to SFAs, many other ingredients and characteristics that modify the health effects of that food and perhaps even its fats.

The overall evidence suggests that total SFAs are mostly neutral for health—neither a major nutrient of concern, nor a health-promoting priority for increased intake.

Red meat intake should be minimised to prevent weight gain and risk of type 2 diabetes, butter used occasionally but not emphasised, and processed meats avoided entirely. Among meats, those highest in processing and sodium, rather than SFAs, are most strongly linked to coronary heart disease.

(Mozaffarian, The Lancet, 2015)

# DIARY PRODUCTS AND HEALTH

## Abstract

**Background:** There is scepticism about health effects of dairy products in the public, which is reflected in an increasing intake of plant-based drinks, for example, from soy, rice, almond, or oat.

**Objective:** This review aimed to assess the scientific evidence mainly from meta-analyses of observational studies and randomised controlled trials, on dairy intake and risk of obesity, type 2 diabetes, cardiovascular disease, osteoporosis, cancer, and all-cause mortality.

**Results:** The most recent evidence suggested that intake of milk and dairy products was associated with reduced risk of childhood obesity. In adults, intake of dairy products was shown to improve body composition and facilitate weight loss during energy restriction. In addition, intake of milk and dairy products was associated with a neutral or reduced risk of type 2 diabetes and a reduced risk of cardiovascular disease, particularly stroke. Furthermore, the evidence suggested a beneficial effect of milk and dairy intake on bone mineral density but no association with risk of bone fracture. Among cancers, milk and dairy intake was inversely associated with colorectal cancer, bladder cancer, gastric cancer, and breast cancer, and not associated with risk of pancreatic cancer, ovarian cancer, or lung cancer, while the evidence for prostate cancer risk was inconsistent. Finally, consumption of milk and dairy products was not associated with all-cause mortality. Calcium-fortified plant-based drinks have been included as an alternative to dairy products in the nutrition recommendations in several countries. However, nutritionally, cow's milk and plant-based drinks are completely different foods, and an evidence-based conclusion on the health value of the plant-based drinks requires more studies in humans.

**Conclusion:** The totality of available scientific evidence supports that intake of milk and dairy products contribute to meet nutrient recommendations, and may protect against the most prevalent chronic diseases, whereas very few adverse effects have been reported.

Keywords: obesity; type 2 diabetes; cardiovascular disease; osteoporosis; cancer; mortality

# NUTRITIONAL BENEFITS OF ANIMAL BASED PROTEIN FOODS

**MEAT**

Free and haem iron  
Zinc  
B vitamins (B12 vitamin)

**FISH**

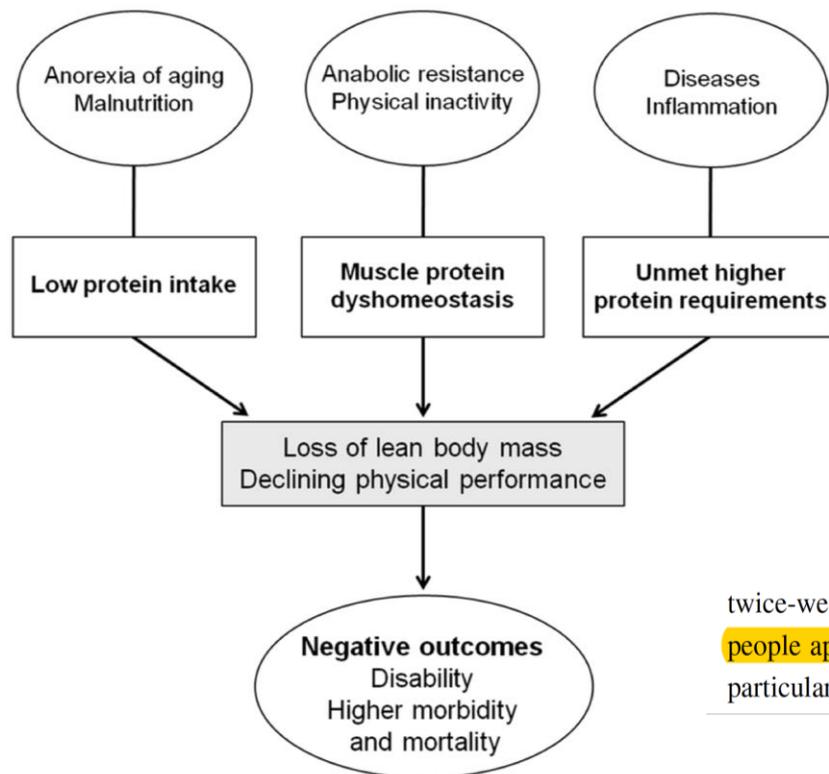
Long-chain omega-3 fatty acids

**DIARY PRODUCTS**

Calcium

High-quality and bioavailable protein

# PROTEIN REQUIREMENTS FOR OLDER PEOPLE



*Nutrients* 2015, 7, 6874–6899; doi:10.3390/nu7085311

OPEN ACCESS

*nutrients*

ISSN 2072-6643

www.mdpi.com/journal/nutrients

Review

## Protein Requirements and Recommendations for Older People: A Review

Caryl Nowson <sup>1,\*</sup> and Stella O'Connell <sup>2</sup>

twice-weekly progressive resistance exercise reduces age-related muscle mass loss. Older people appear to require 1.0 to 1.3 g/kg/day dietary protein to optimize physical function, particularly whilst undertaking resistance exercise recommendations.

Figure 1. Alterations in protein homeostasis during aging and related clinical outcomes.

(Landi et al, *Nutrients*, 2016)

# CONCLUSION

There is consensus in international dietary recommendations that **animal source foods are part of a healthy and balanced diet**

The consumption of animal products (excluding processed and red meats) at recommended amounts in the context of a dietary pattern that meets recommendation for fruit, vegetables, whole grains, nuts, seeds and legumes and does not exceed the recommendations for added sugars, sodium and saturated fats may not adversely affect, and may benefit cardiometabolic risk

(Petersen et al, Curr Dev Nutr, 2017)



**THANK YOU**

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