

# DAVID CAMERON-SMITH

Liggins Institute, University of Auckland

Professor Cameron-Smith is the University of Auckland Chair in Nutrition. He leads a research team focused on understanding the interactions between food and human health, with particular emphasis on how the digestion of protein and minerals are affected by ageing.

## Digesting red meat

Red meat, at face value, should be a healthy food choice, rich in protein, iron and a wide array of vitamins. Yet remarkably little is known about the benefits provided by red meat in the delivery of these nutrients; for example the digestibility of red meat protein and the delivery of essential amino acids for rebuilding and repairing human tissue. Similarly, the bioavailability and benefits of highly bioavailable haem-iron on human health remain under researched. Even less is known about the potential health benefits of the unique fats found in meat. A surprising feature of red meat is the relatively high content of a unique type of omega-3 fatty

acid known as docosapentaenoic (DPA), but with its biological actions largely undetermined, it remains off the list of recognised omega-3 fatty acids.

Counterbalancing the potential health benefits remains the continued consumer sentiment that red meat is dangerous to health. Again there is little, if no, scientific data on whether the risk of heart disease, cancer or diabetes is exacerbated by a diet rich in red meat. Recent headlines of red meat being as dangerous as smoking are not borne out with appropriate analysis of lifelong mortality figures.

**MONDAY 12 MAY**

 **12.40pm** | Room 6

# ***Digesting Red Meat***

Professor David Cameron-Smith

Food and Health Program

Liggins Institute

University of Auckland

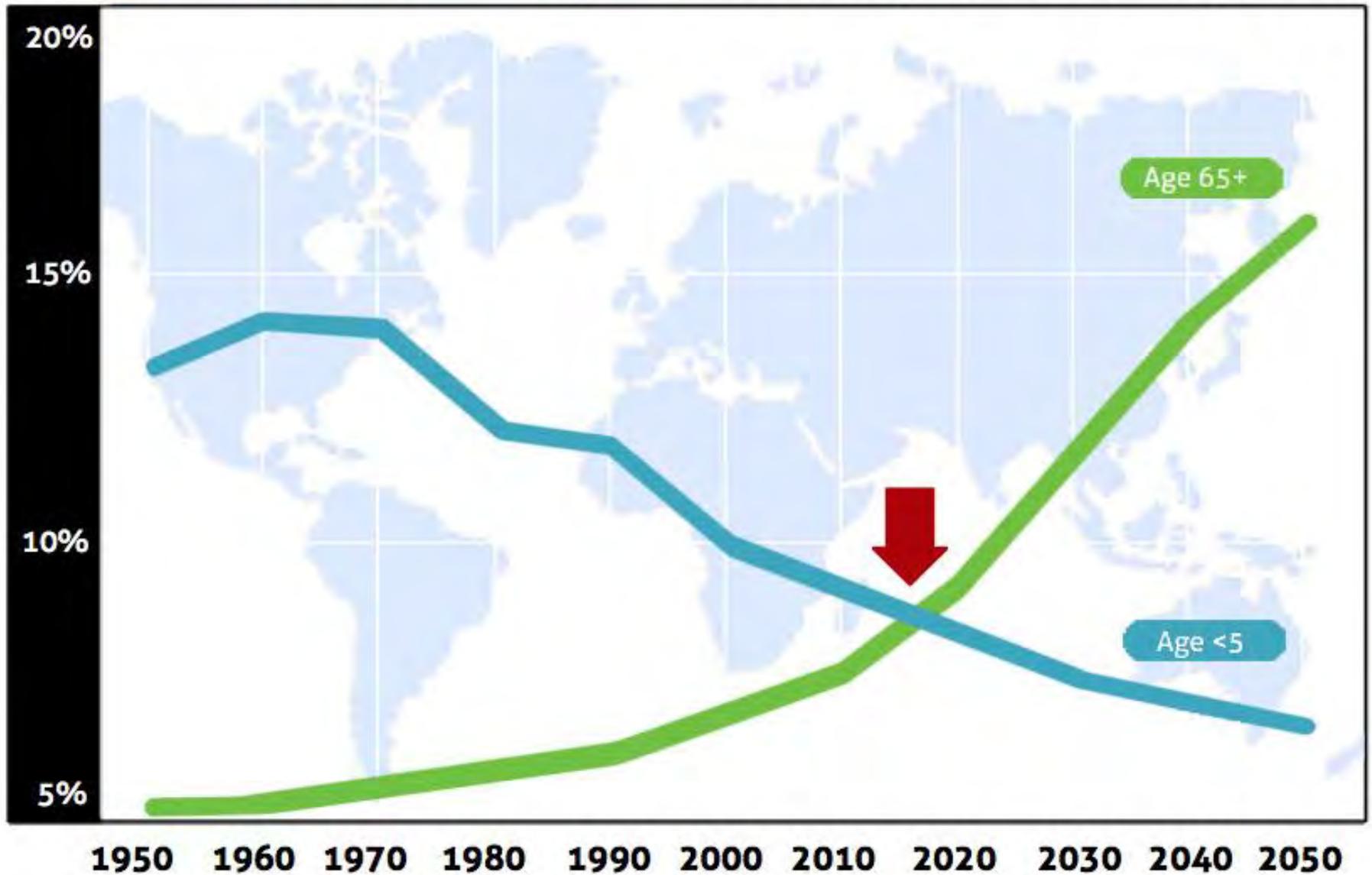


**THE UNIVERSITY  
OF AUCKLAND**

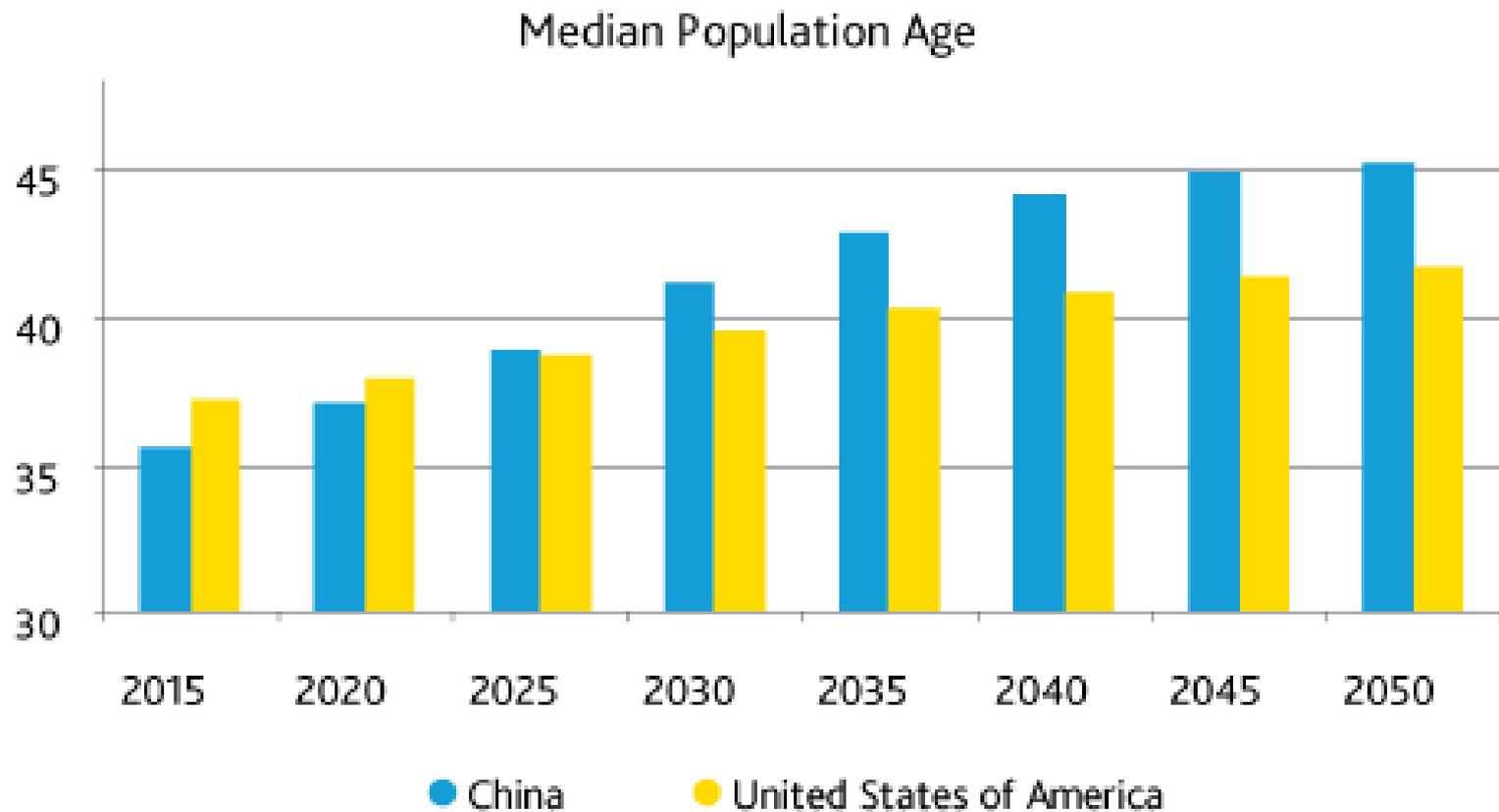
**NEW ZEALAND**

Te Whare Wānanga o Tāmaki Makaurau

## Young Children and Older People as a Percentage of a Global Population



# In Fifteen Years, the Median Age in China Will Be Older Than in the U.S.



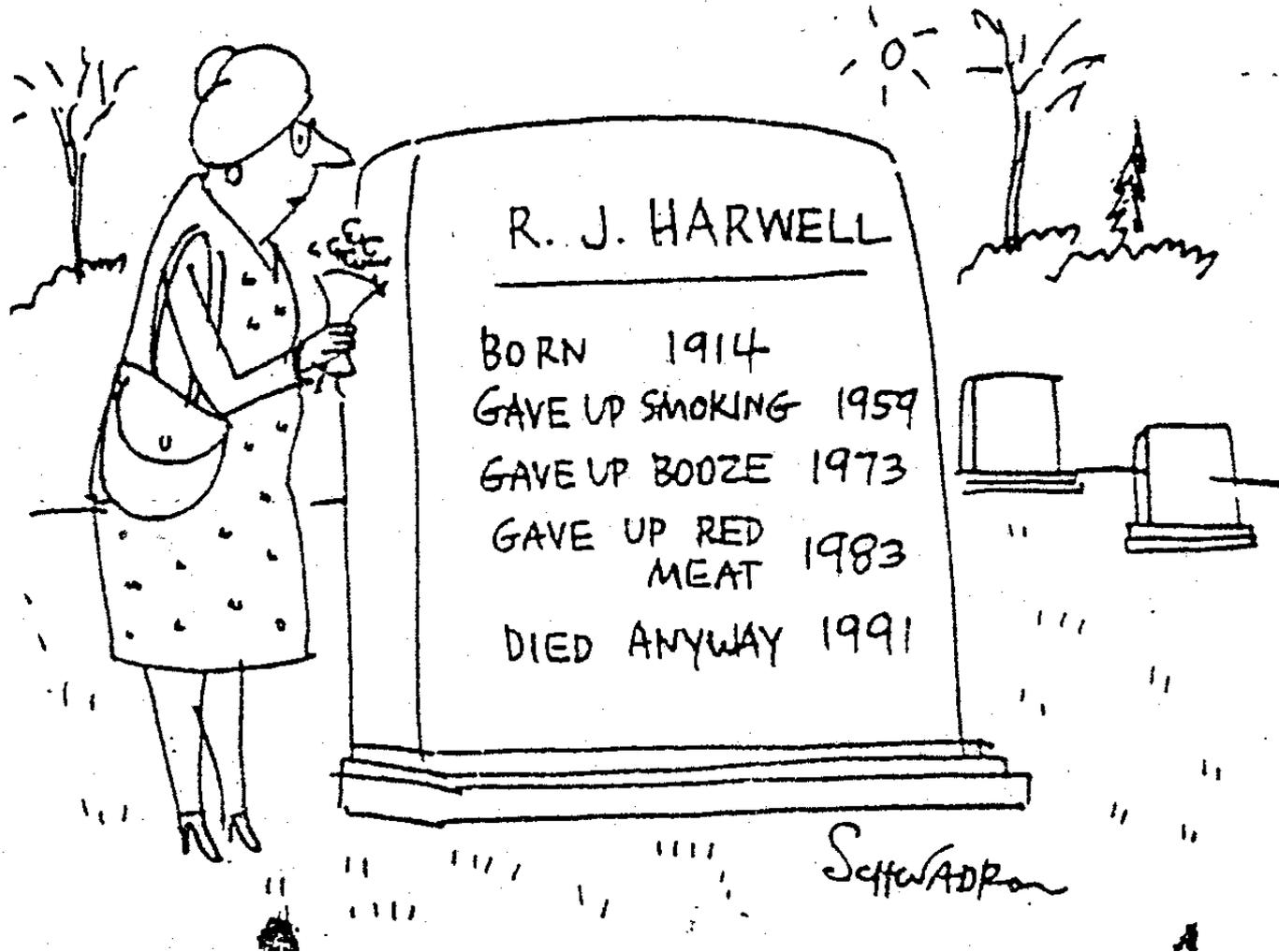
Source: United Nations Population Division

## The Cat In The Hat On Aging



I cannot see  
I cannot pee  
I cannot chew  
I cannot screw  
Oh, my God, what can I do?  
My memory shrinks  
My hearing stinks  
No sense of smell  
I look like hell  
My mood is bad -- can you tell?  
My body's drooping  
Have trouble pooping  
The Golden Years have come at last  
The Golden Years can kiss my ass

THE WALL STREET JOURNAL



**Is eating meat really  
as bad as smoking?**





**Meat-Eating is a  
Risk Factor for  
DEVELOPING DIABETES**

#BreakingMedicalNews  
**PCRM.org/Diabetes**

**Physicians  
Committee**  
for Responsible Medicine

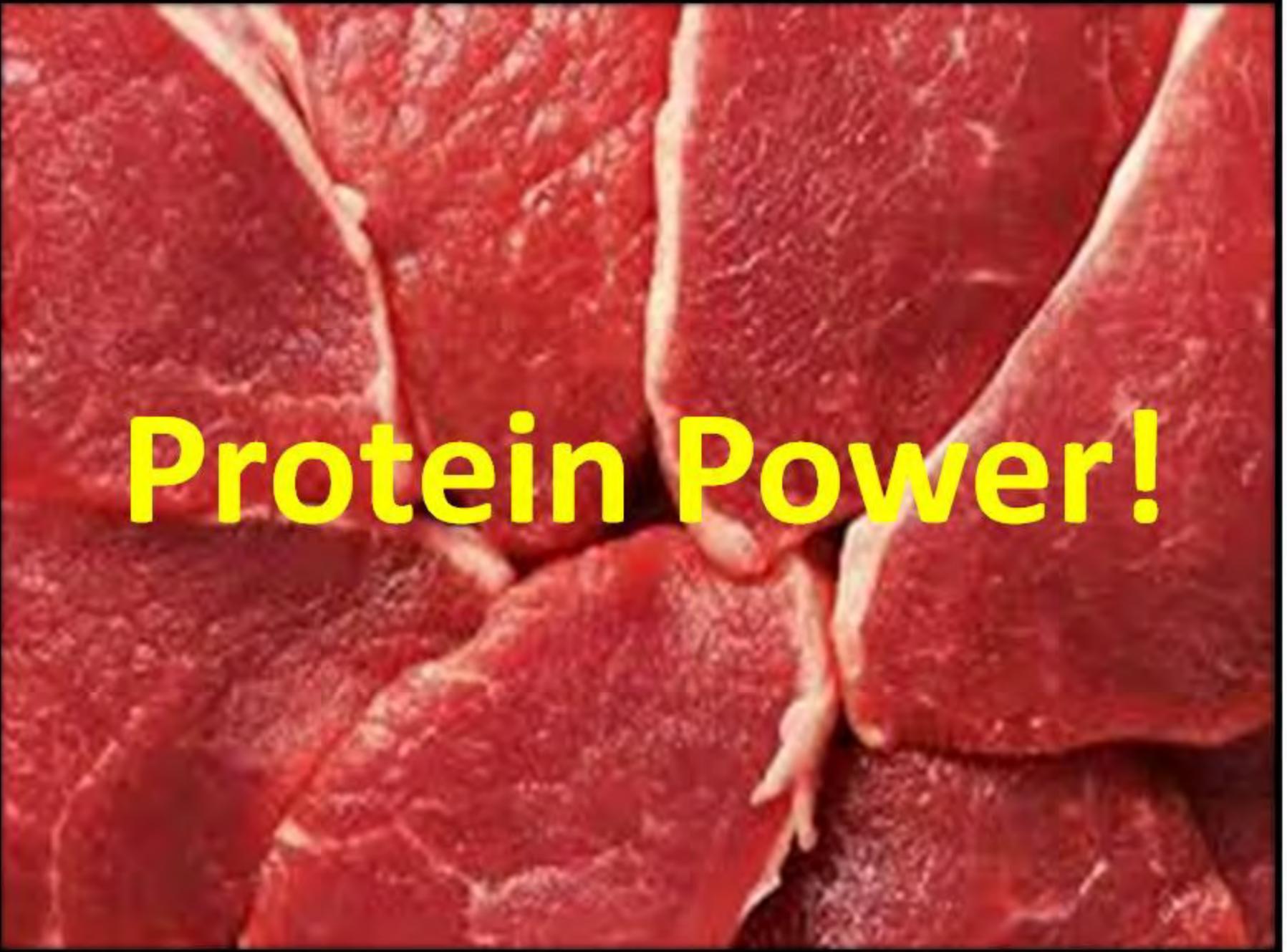




**1. Protein**

**2. Fats**

**3. Minerals**

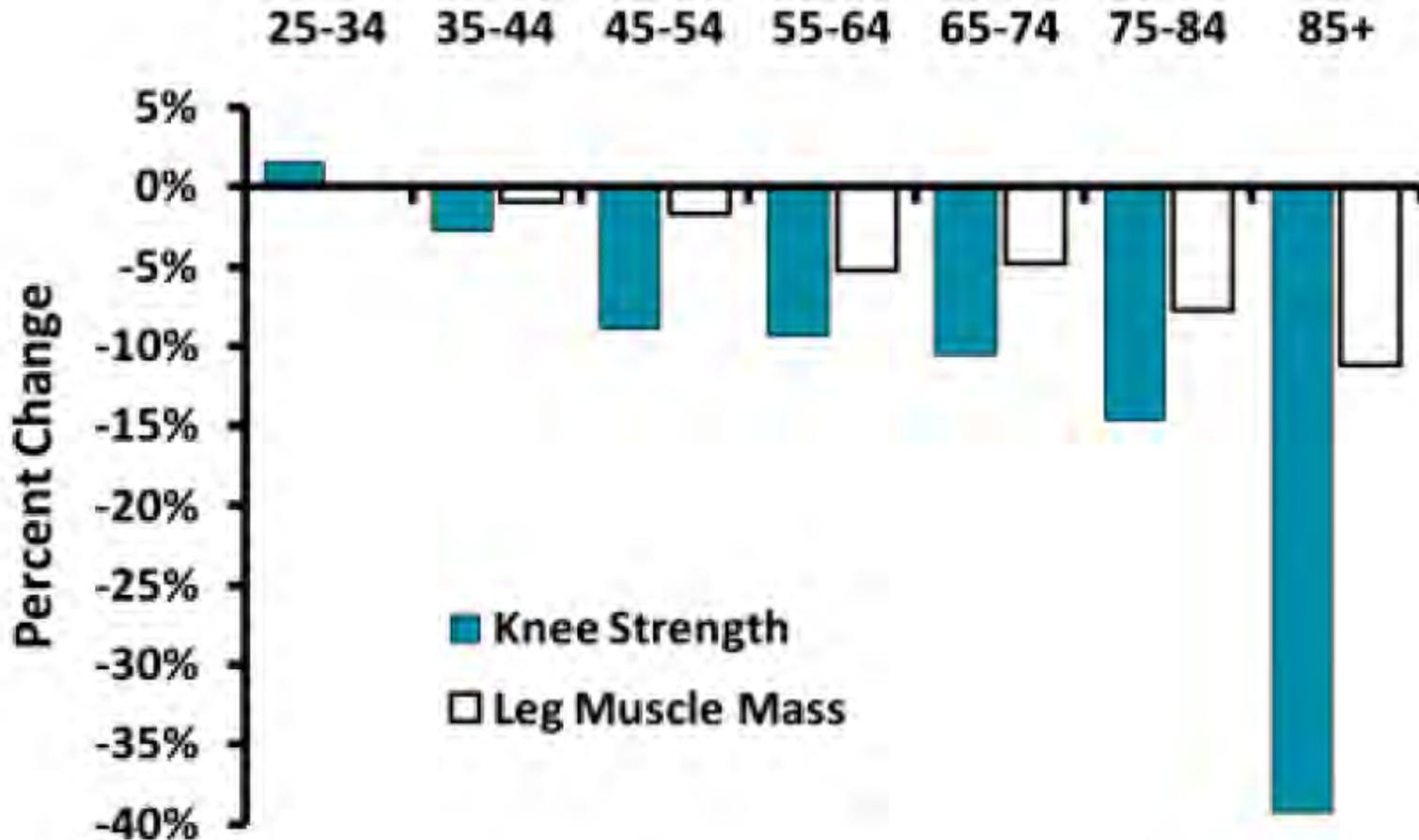


**Protein Power!**

# POWER PROTEIN

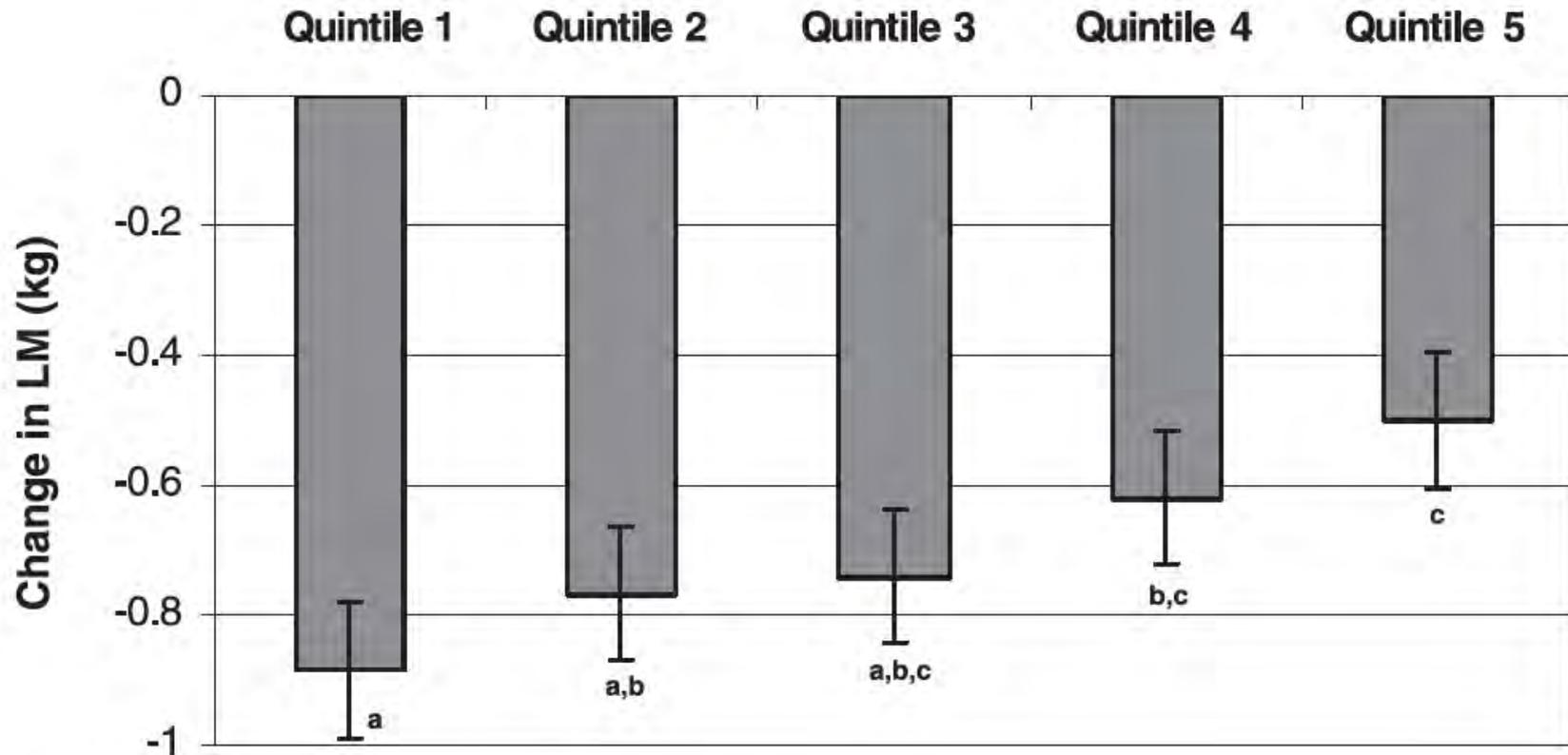
1. Recommended Daily Intakes (RDIs)
2. Protein Quality
  - only **part** of the picture

# Mass Vs Strength



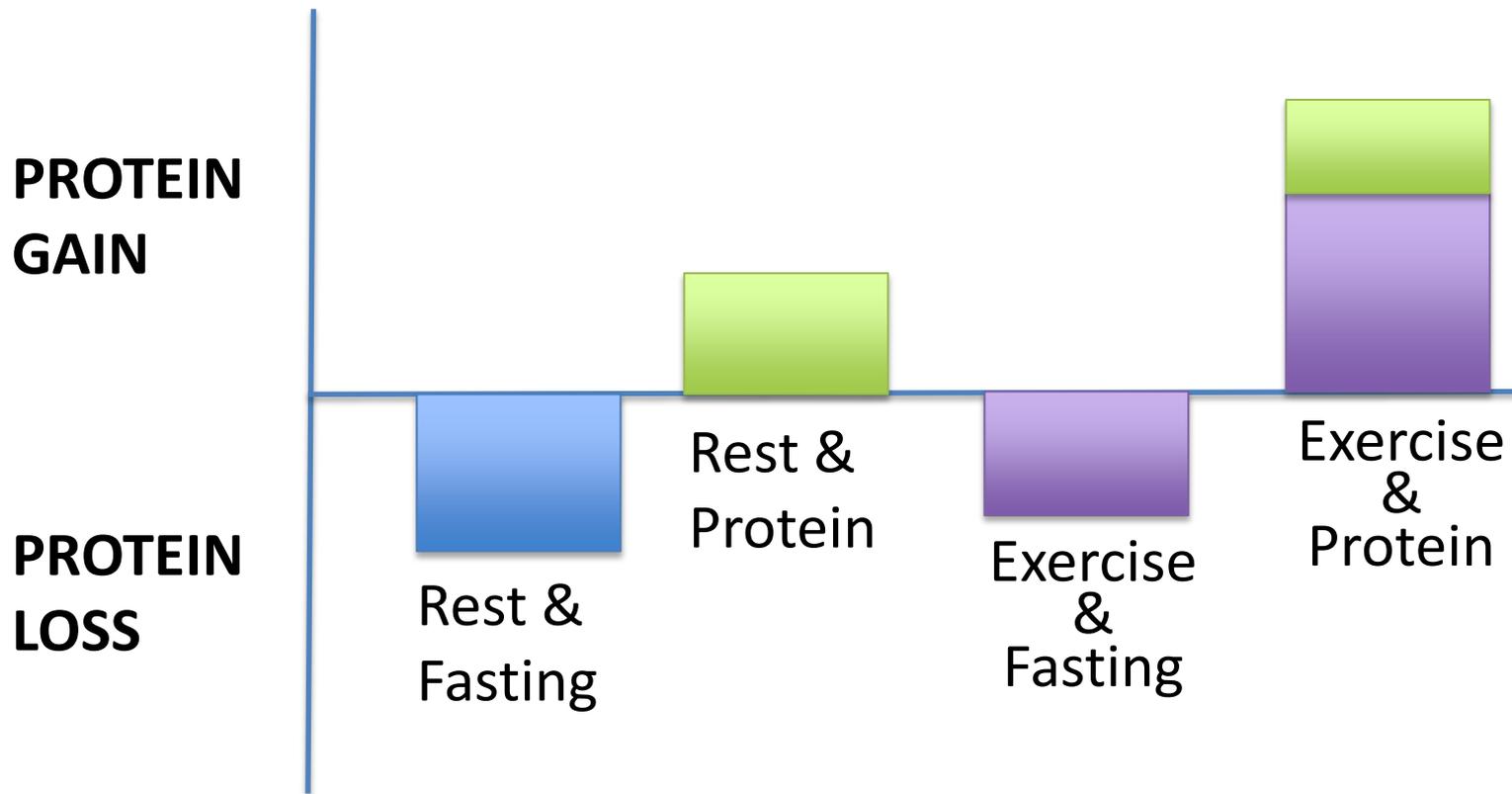
Ferrucci L et al. *J Gerontol A Biol Sci Med Sci* (2012) 67A:13-16

# Loss of muscle relates to protein intake



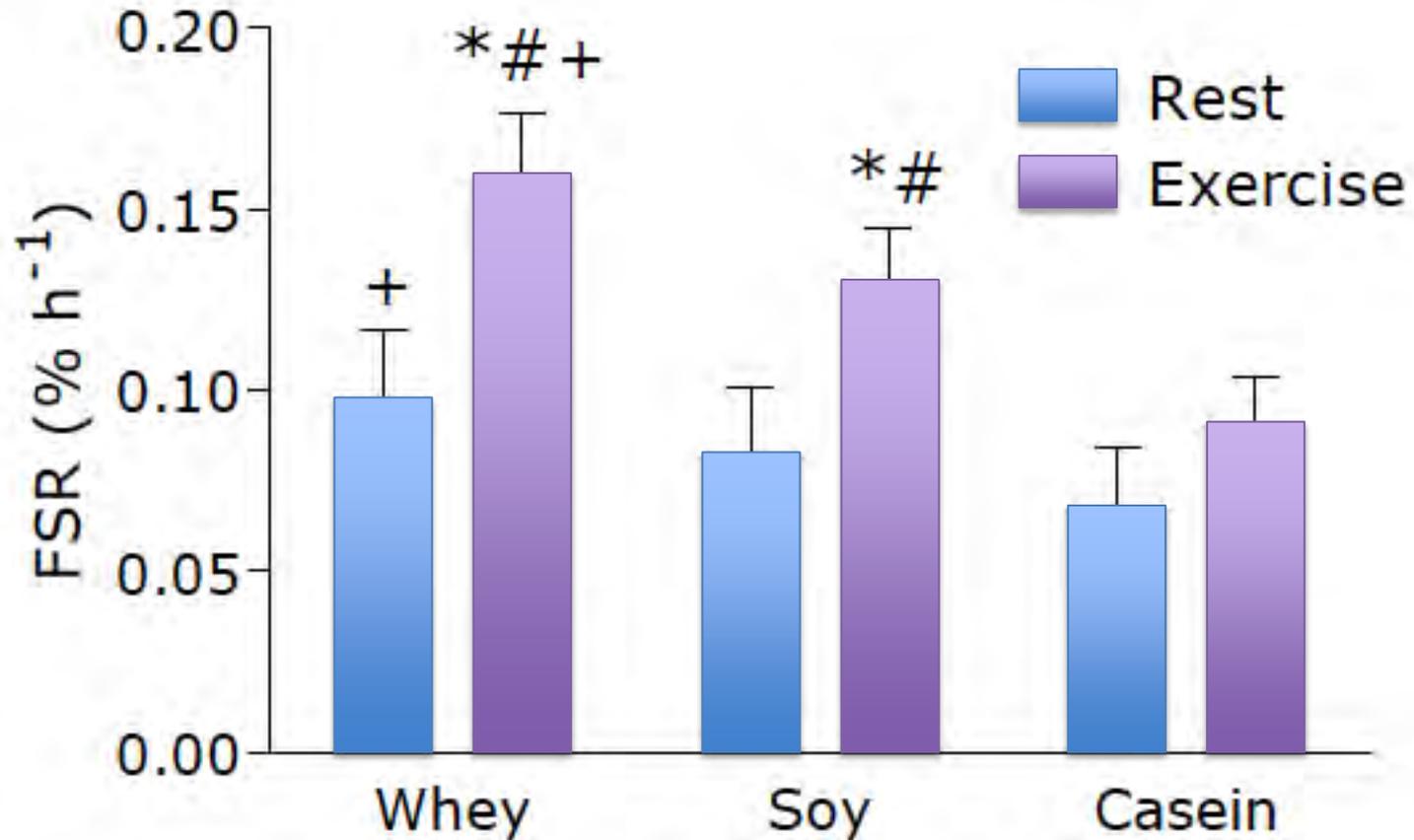
**FIGURE 1.** Adjusted lean mass (LM) loss by quintile of energy-adjusted total protein intake.  $n = 2066$ . Adjusted for age, sex, race, study site, total

# Exercise **plus** Protein Increases Muscle Protein Synthesis



Adapted from Phillips SM. *Nutrition* (2004) 20;689-95.

# Building the Perfect Protein – *Fast & Leucine*



<b>Protein Source</b>	<b>Leucine</b>	<b>BCAA</b>
Whey protein isolate	14%	26%
Milk protein	10%	21%
Egg protein	8.5%	20%
Red Meat protein	8%	18%
Soy protein isolate	8%	18%
Wheat protein	7%	15%

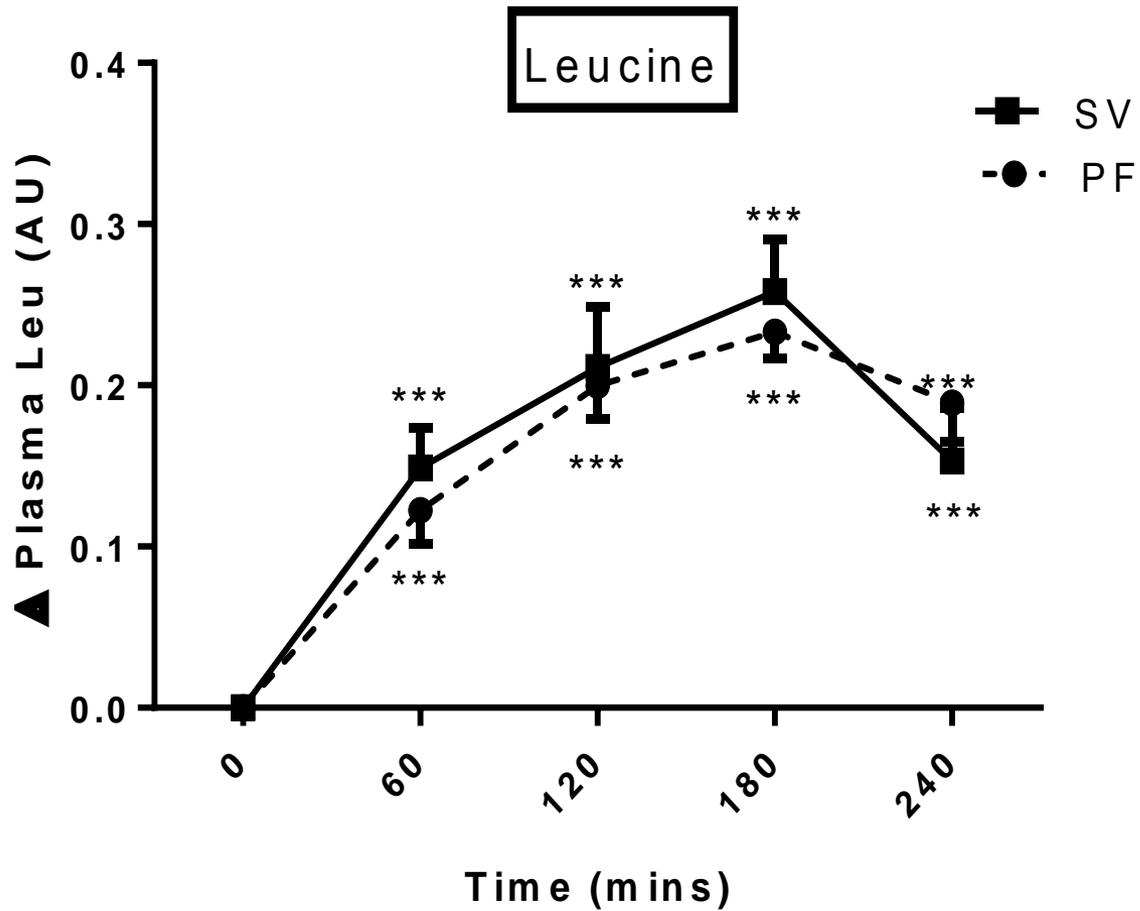


***Slow Digesting***

Is this true?

# Auckland Study – Rump Steak





Part of metabolomics analysis of blood response to meat. 80+ metabolites measured.

Pundir, Chiang, Cameron-Smith (Unpublished, 2013)

# The Value Proposition

- Red meat is **NOT** slowly digested
- Processing ***MAY*** increased digestion rate
- Meat digestion in **OLDER** consumers **Not** analysed
- Does red meat help **build** muscle?





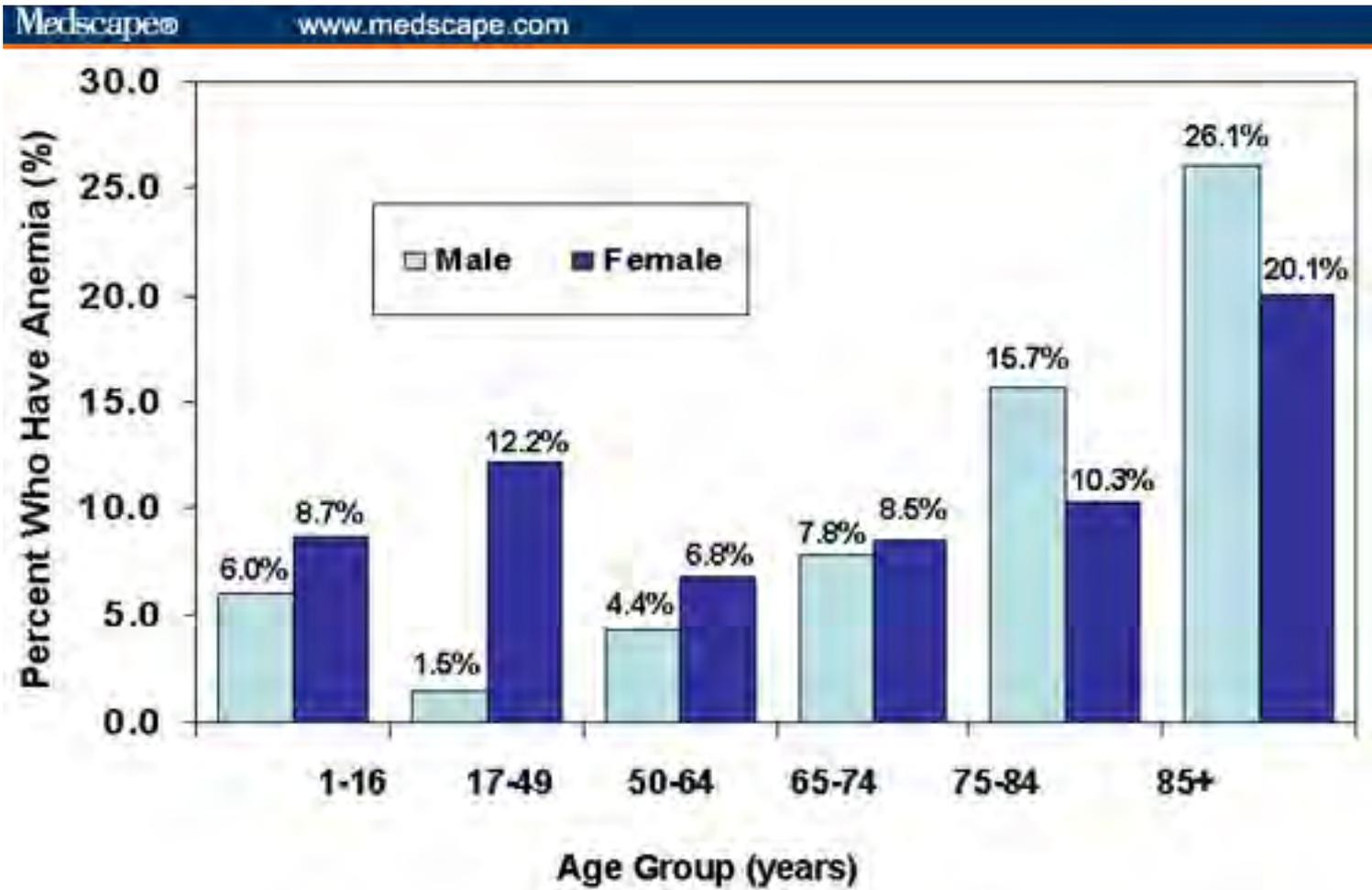
*Worth* 1000.com

City  
Shop

# Kids Love Mince.

And being high in iron,  
it loves them too.

# Increasing prevalence of Anaemia



Percentage of people considered anemic according to age and sex: NHANES III, phases 1 and 2, 1988-1994.

# TIME

## CHOLESTEROL

And Now the Bad News...



AT THE SUPER ELECTIONS  
The Democrats  
Brace for a  
Marathon

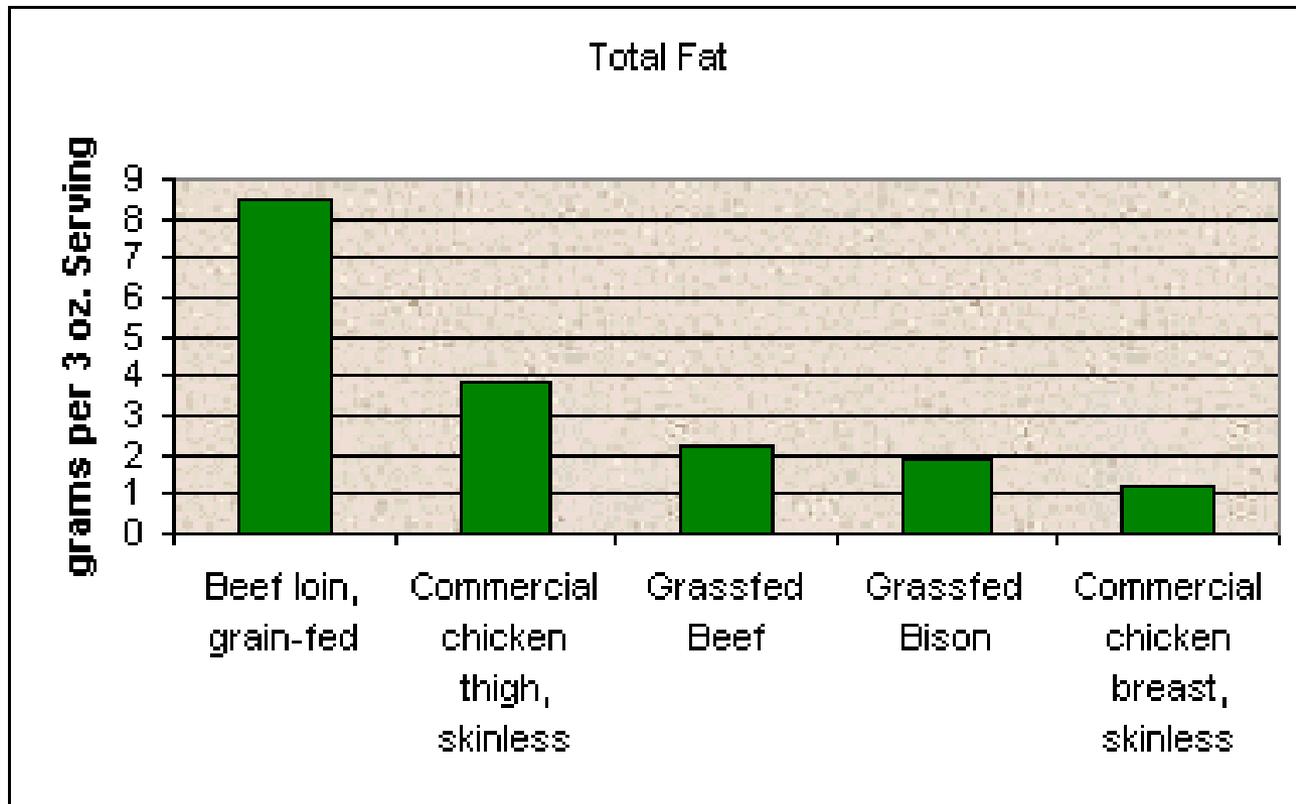


# The 'Superfood'

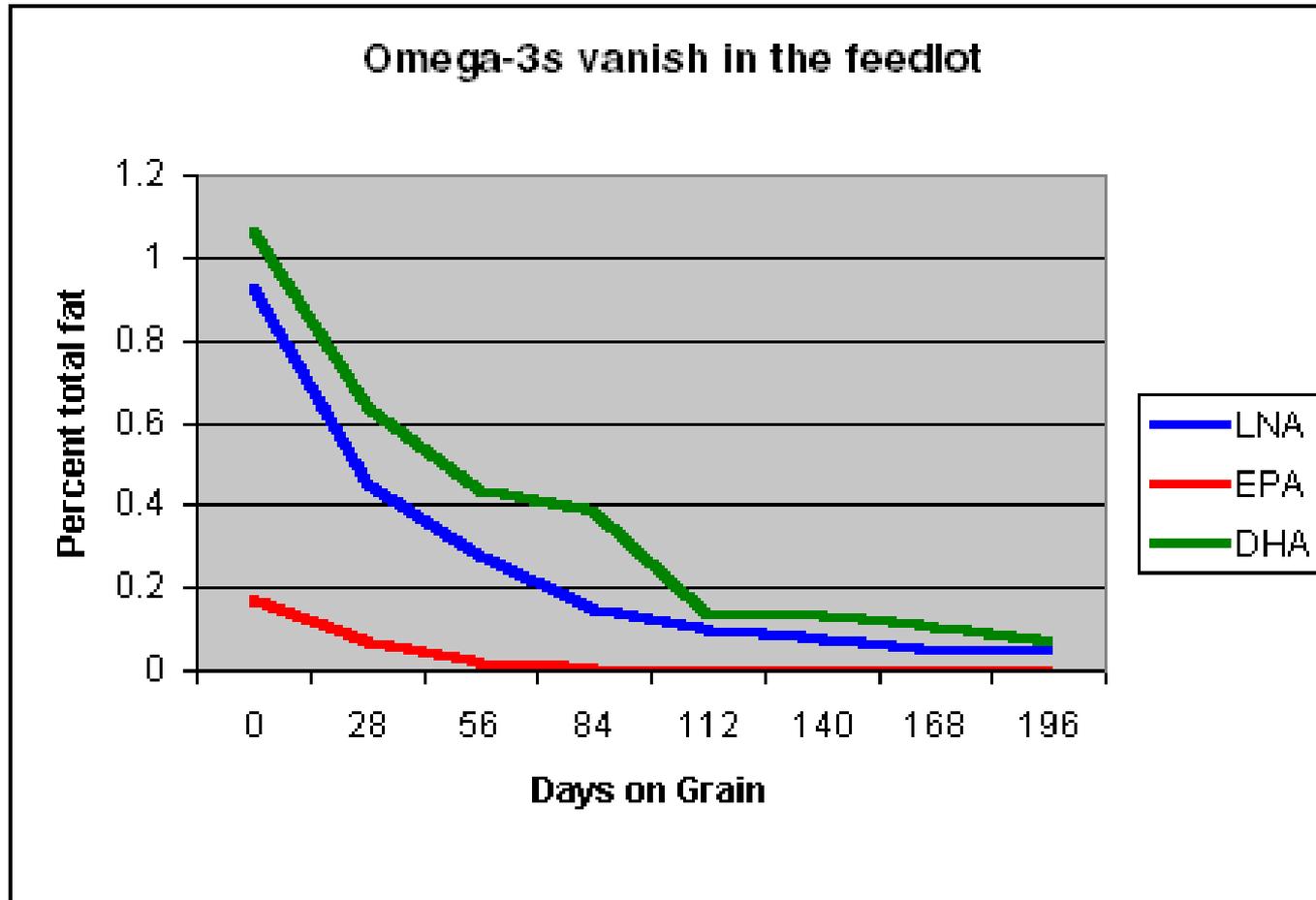


**YES!**

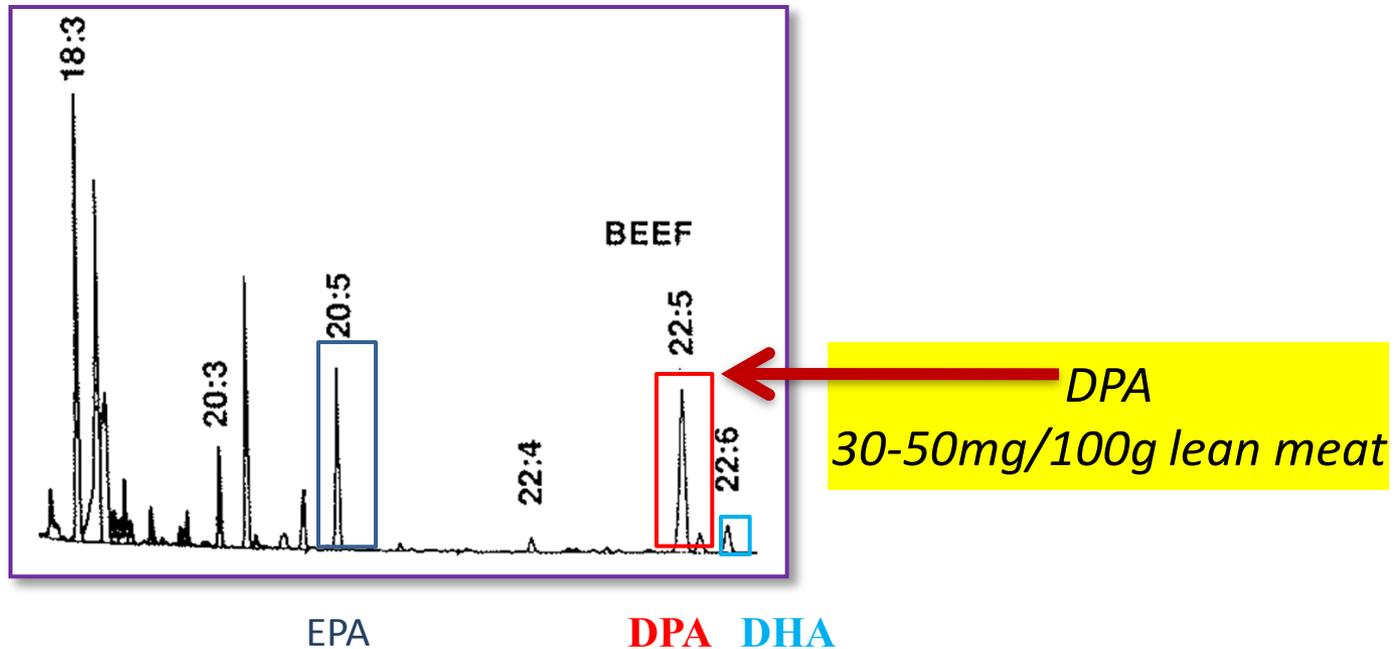
# Omega-3 in BEEF!



# US Feedlots - Diminishing Returns



# The Missing Omega 3



**Sinclair** AJ, Johnson, L, O'Dea K. and Holman RT. Diets rich in lean **beef** increase the eicosatrienoic, arachidonic, eicosapentaenoic and docosapentaenoic acid content of plasma phospholipids. *Lipids* 29: 337-343 (1994).

# The Missing Omega-3

- In Australia, a low seafood consuming country, red meat contributes about **50%** of the intake of long chain omega 3 fatty acids.
- Food Standards Australia & NZ (FSANZ) does not consider DPA as an omega 3 FA “**because too little is known about DPA!**”

# The TAKEAWAY

- Red Meat – Export Growth/NZ benefit

	Research	Consumer
<b>Protein</b>	<b>X</b>	<b>✓</b>
<b>Minerals</b>	<b>X</b>	<b>✓ ✓</b>
<b>Fats</b>	<b>X</b>	<b>-</b>



■ People Who Eat  
Healthy, Balanced Meals

■ People Who Wish  
This Was Really Pie