

# Når klimaet rammer klinikken...

***Småtspisende og syge patienter  
- kan klima og god ernæring gå hånd i hånd?***

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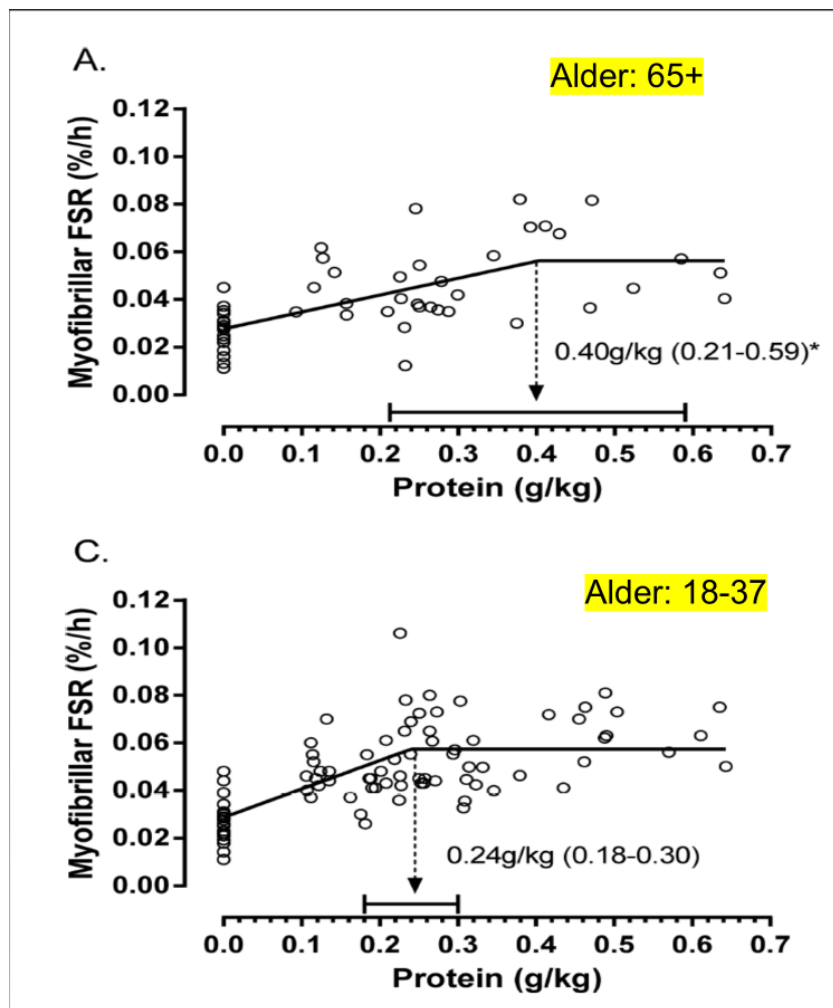
Herlev Gentofte Hospital.



# Proteinbehov hos ældre

- Behov 1.2–1.5 g/kg og 25–30 g protein pr. Måltid

FSR=Fractional Synthetic Rate = proteinsyntese



Moore et al. 2015

## Hvorfor:

- Øget metabolisk behov
- Sarkopeni
- Anabolsk resistens (inflammation, insulinresistens)
- Nedsat postprandial aminosyreoptag

Deutz et al. 2014, Bauer et al. 2013

# Realiteten – Spisekapacitet

Ernæringstruede kan typisk spise 200 g pr. måltid ...(25-30g protein/måltid)

Kræver meget “krudt” på lille volume

Munk et al. 2012, Svendsen et al. 2022, Groth & Sjøberg 2024

## Spisekapacitet

Clinical Nutrition ESPEN 60 (2024) 86–94

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Journal homepage: <http://www.clinicalnutritionespen.com>

Original article

Development of an electronic food ordering system and a la carte menu: Enhancing patient involvement in nutritional care

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Fig. 1. Example of a picture series of a main meal presented to patients to assess their preferred portion sizes.

**Table 4**  
Which portion size would

|                             | Portion 1   | Portion 2   | Portion 3   | Portion 4   |
|-----------------------------|-------------|-------------|-------------|-------------|
| 1. Soup (n = 91)            | 18 (19.8 %) | 49 (53.8 %) | 18 (19.8 %) | 6 (6.6 %)   |
| 2. Cold dishes (n = 92)     | 12 (13 %)   | 52 (56.5 %) | 24 (26.1 %) | 4 (4.3 %)   |
| 3. Main meal (n = 92)       | 17 (18.5 %) | 40 (43.5 %) | 26 (28.3 %) | 9 (9.8 %)   |
| 4. Open sandwiches (n = 93) | 17 (18.3 %) | 40 (43 %)   | 28 (30.1 %) | 8 (8.6 %)   |
| 5. Dessert (n = 91)         | 18 (19.8 %) | 32 (35.2 %) | 30 (33 %)   | 11 (12.1 %) |
| 6. In-between-meal (n = 90) | 21 (23.3 %) | 41 (45.6 %) | 15 (16.7 %) | 13 (14.4 %) |

Data are presented as numbers (%).

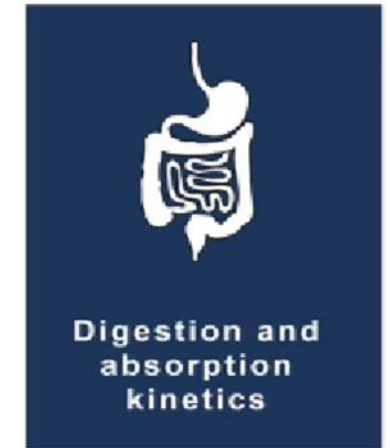
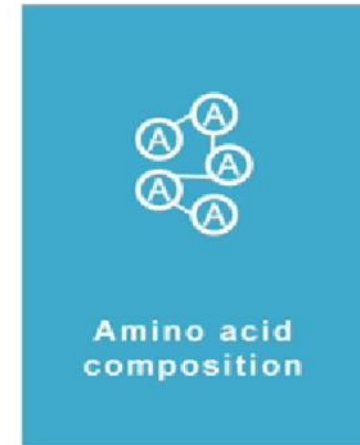


# Proteiner – hvilke?

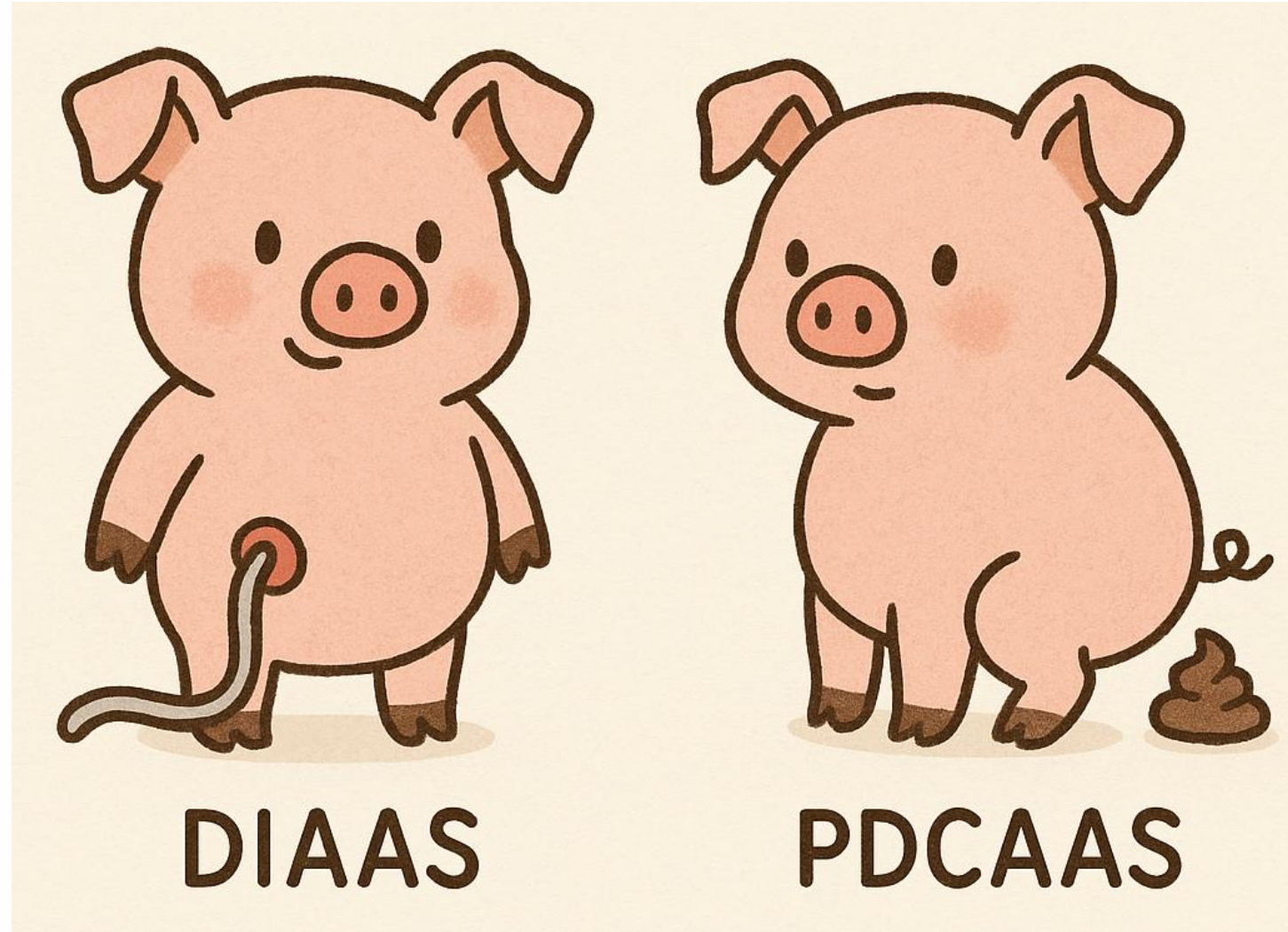
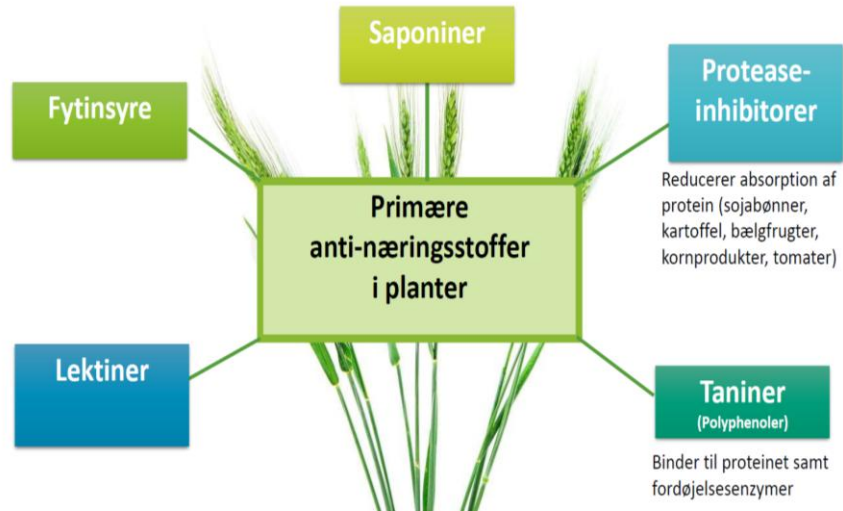
- Animalske vs. plantebaserede?

Tre relevante hovedpunkter:

- Optagelighed/biotilgængelighed
- Aminosyreprofil
- Anabolisk respons



# Optagelighed



**Overestimere med 15-40%**

Mathai et al. 2017

# Den nedsatte optagelighed

Teoretisk kan måske udlignes ved  
at indtage 20-30% mere  
planteprotein end animalsk protein

Men er det realistisk for syge og  
småtpisende..?

28 g protein on each plate



Chicken breast  
585 kJ



Pork chop  
without fat  
600 kJ



Porterhouse  
steak  
695 kJ



Egg  
1320 kJ



Red kidney  
beans  
500 kJ



Lima beans  
1810 kJ



Haricot beans  
1540 kJ

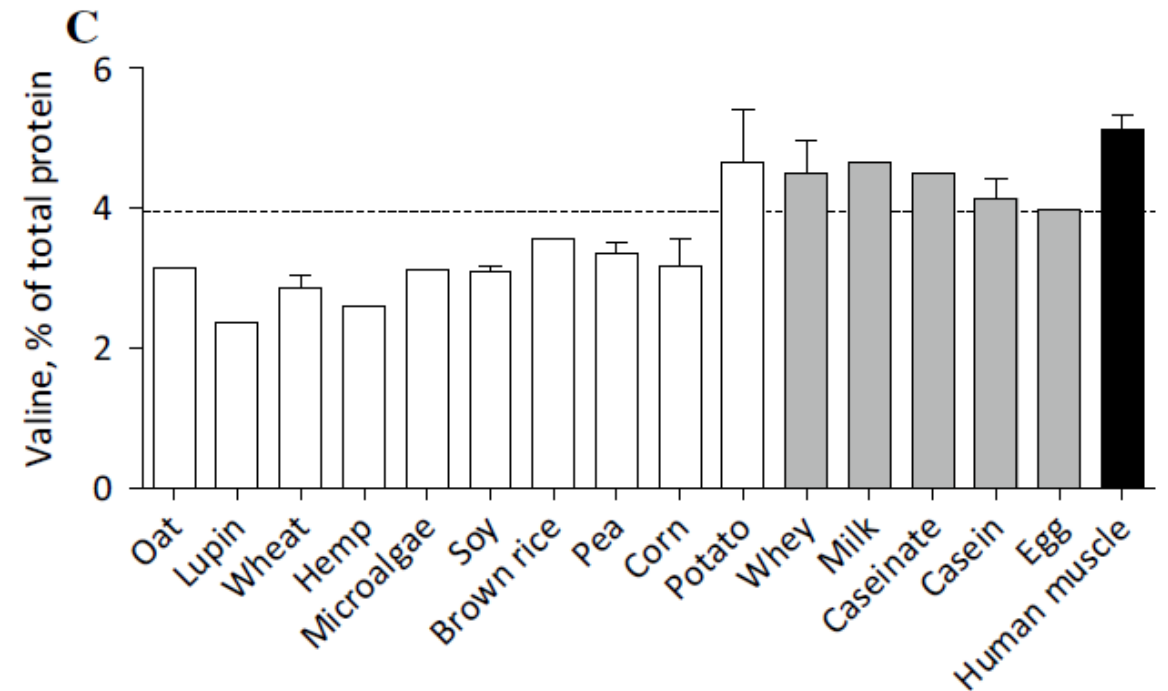
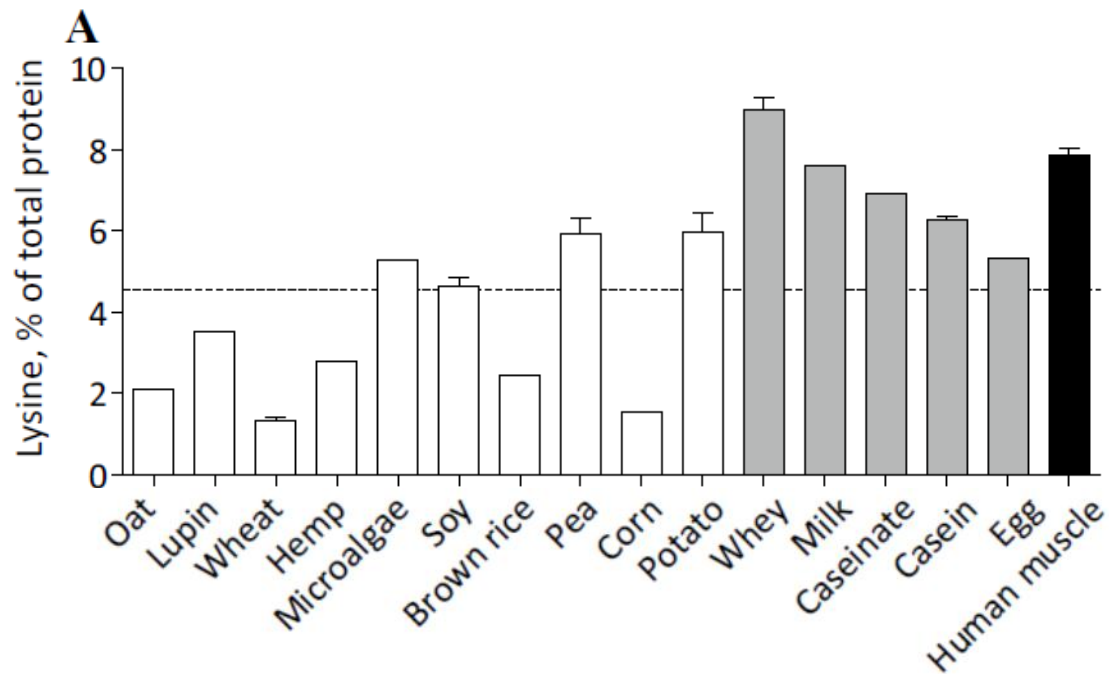


Hazel nuts  
4705 kJ





# I DIAAS indgår også **aminosyreprofilen** for et protein

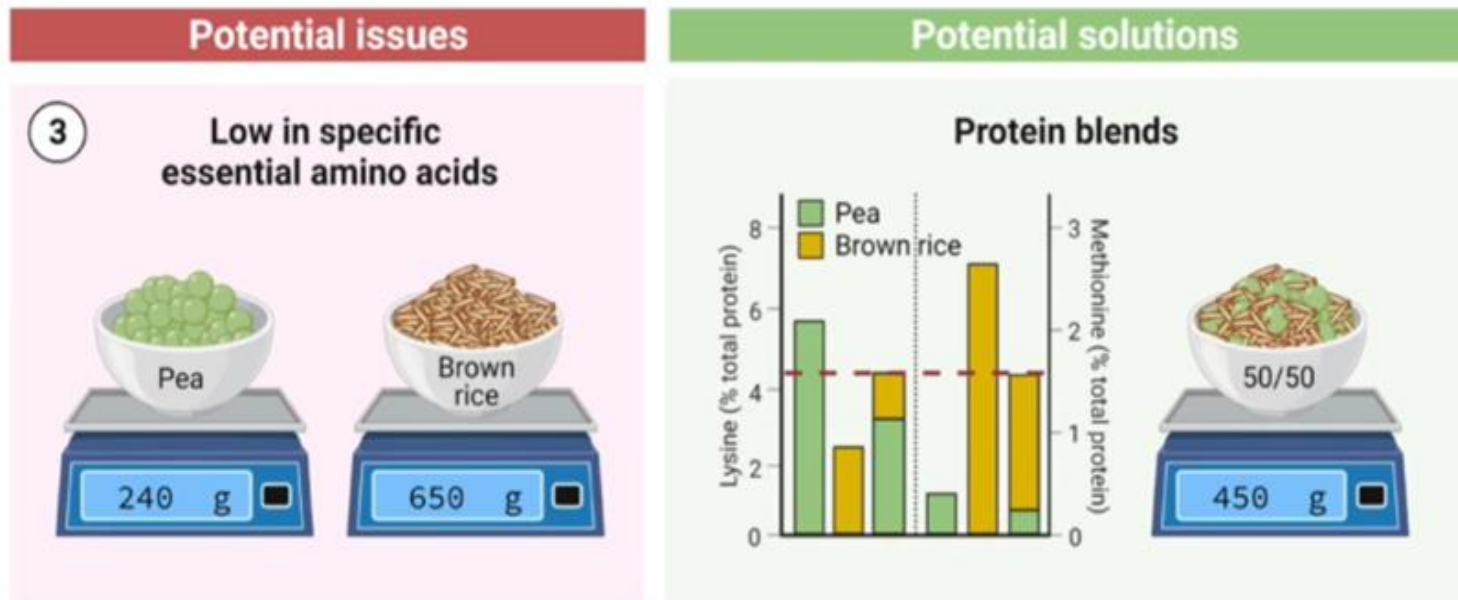


# Proteinblandinger – en mulighed for opkvalificere planteproteiner?

Anabolic properties of plant-based proteins

Usikkert –  
Nej – ikke hos ældre...

APPETITE study – Castro et al.  
2023



# Effect of Plant Versus Animal Protein on Muscle Mass, Strength, Physical Performance, and Sarcopenia: A Systematic Review and Meta-analysis of Randomized Controlled Trials



Rachel J. Reid-McCann, BSc, MPH, PhD , Sarah F. Brennan, BSc, PGDip, PhD ,  
Nicola A. Ward, BSc, MSc , Danielle Logan, BSc, MPH, PhD , Michelle C. McKinley, BSc, PhD ,  
Claire T. McEvoy, BSc, MPhil, PhD, RD \*

Overordnet konklusion : signifikant bedre effekt af animalsk protein vs. planteprotein på muskelmasse

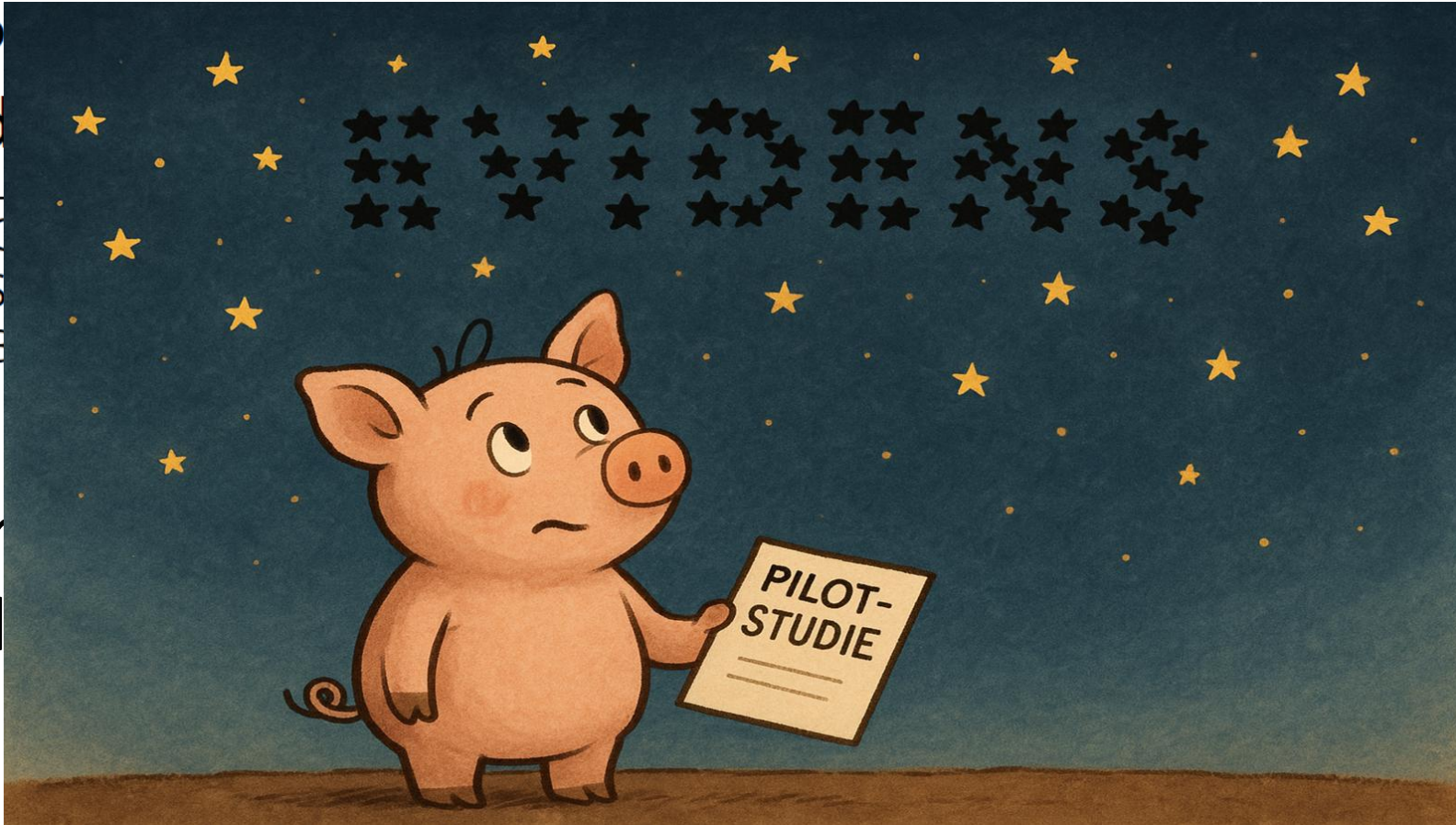
**43 RCT'er** (n  $\approx$  **1538**)

Kun 9/43 studier på ældre  $\geq$  60 år

# Effect of Plant Versus Animal Protein on Muscle Mass, Strength, Power, and Body Composition: A Systematic Review and Meta-Analysis

Rachel J. Reid-McCormick, PhD  
Nicola A. Ward, BS  
Claire T. McEvoy, BSc

Overrepresented  
animal



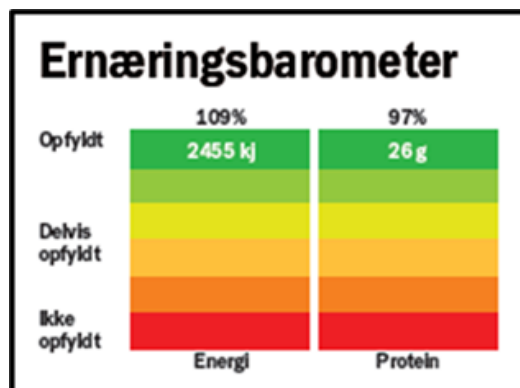
Kun 9/43 studier på ældre  $\geq 60$  år

# Madkonceptet Herlevs Herligheder – et forskningsbaseret koncept fra 2009 →

➔ Mere ”godt krudt” på mindre volumen

➔ Individuel behandling – digitalt

➔ Ernæringsbarometer – nudging



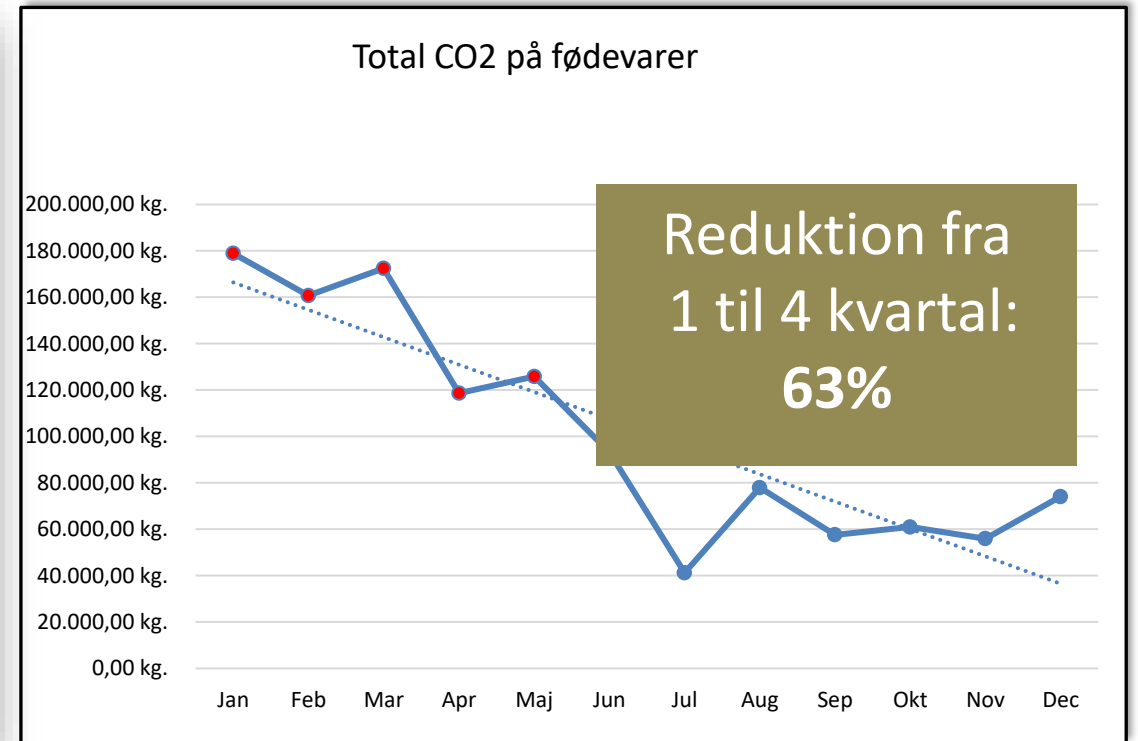
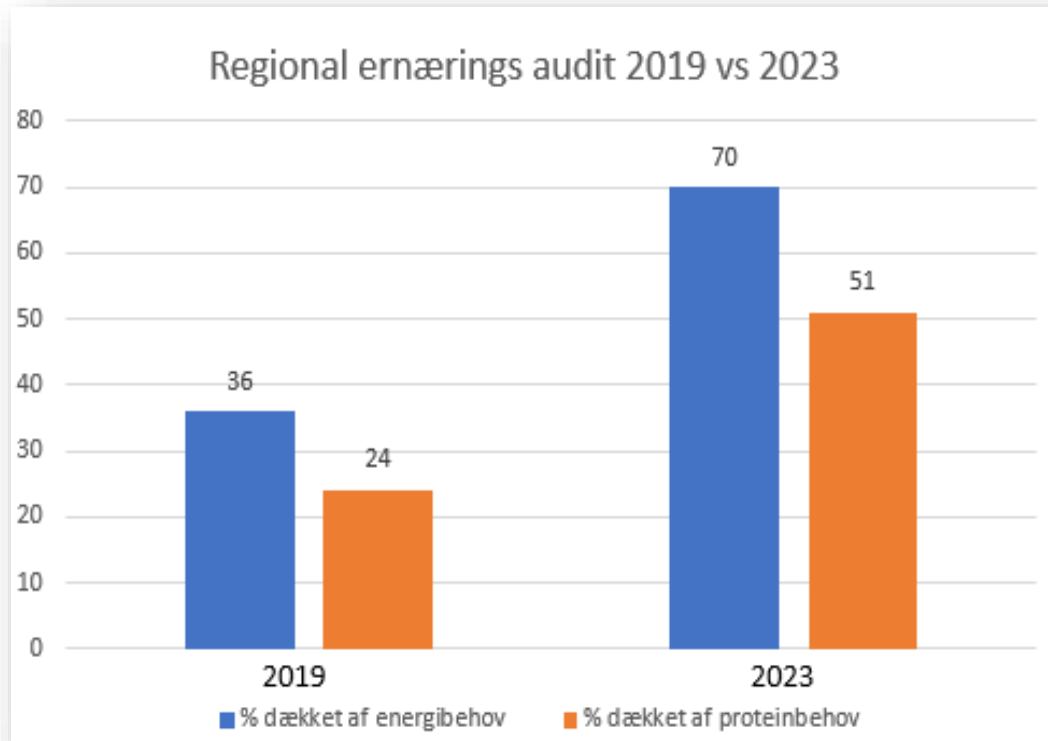
Berigelse med  
højkvalitetsprotein (DIAAS)

- Valleprotein
- Kartoffelprotein
- Skummetmælkspulver
- Æggehvidepulver



7g. protein pr. romkugle (50 g.)

# Resultater ved skifte fra buffet til a la carte



**Herlev Herligheder – målrettet ernæringsterapi → Meget mindre madspild**

Ernæring er  
patientkritisk  
behandling  
– vi skal arbejde  
evidensbaseret