



Æg som superfood

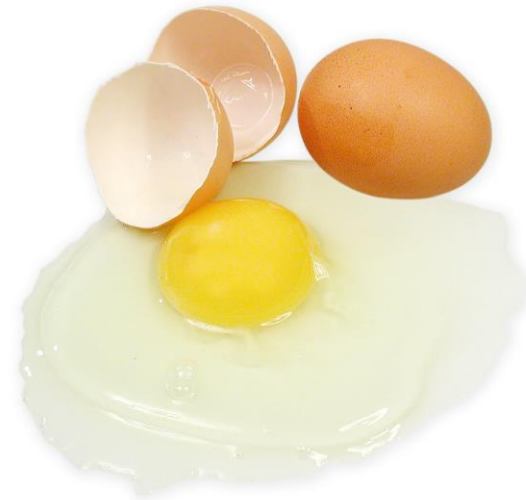
Nina Geiker

Post.doc. Ph.d., Cand.scient.. Human Ernæring



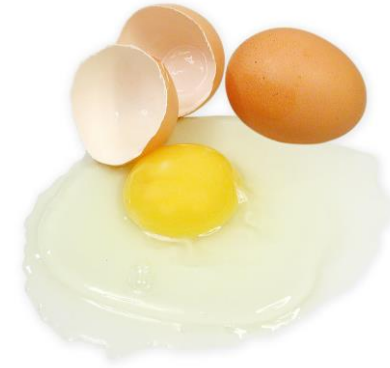
Dagligt indtag i Danmark

- 1/3 æg ~18g
- Er det passende?
 - For meget?
 - For lidt?





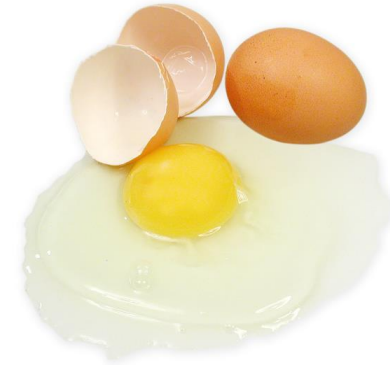
Energiindhold



	Æg		E%	Minimælk		E%
	pr 100 g	1 æg		Pr 100 g	1 glas	
Energi, kj	594	333		158	316	
Fedt	9,9	5,5	63	0,5	1	12
Protein	12,6	7	36	3,5	7	37
Kulhydrat	0,8	0,4	2	4,7	9,4	51



Energiindhold



	Æg		E%
	pr 100 g	1 æg	
Energi, kj	594	333	
Fedt	9,9	5,5	63
Protein	12,6	7	36
Kulhydrat	0,8	0,4	2



Fedt i æg

Gram fedt pr. 100 gram	Æg
Fedt	9,9
<i>Mættede fedtsyrer</i>	2,6
<i>Umættede fedtsyrer</i>	3,8
<i>Flerumættede fedtsyrer</i>	1,8
<i>Transfedtsyrer</i>	0
<i>Kolesterol</i>	0,423
<i>α-linolensyre (C18:3, n-3)</i>	0,083
<i>Linolsyre (C18:2, n-6)</i>	1,250

Kød	Ost	Mælk
0,07	0,085	0,010

Kolesterol

- Cellemembraner
- Hormoner
- D-vitamin
- Galdesyre

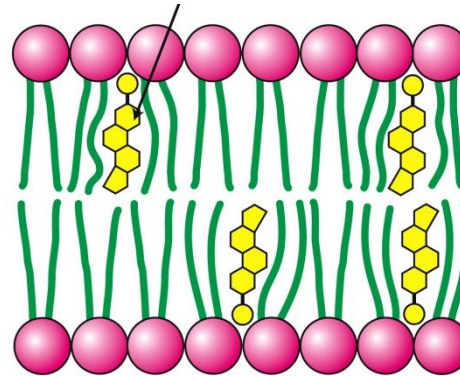
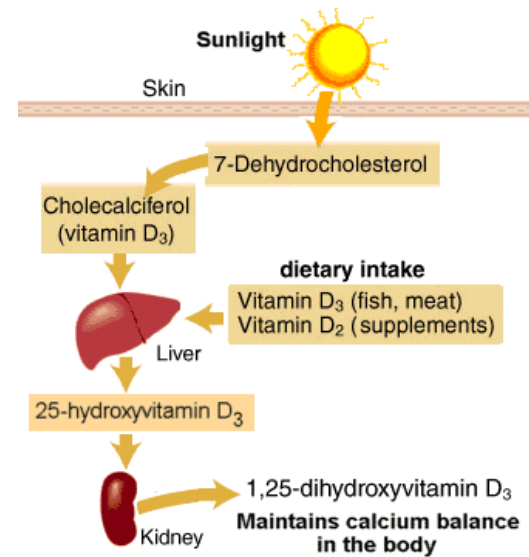


Figure 12.33
Biochemistry, Seventh Edition
© 2012 W. H. Freeman and Company



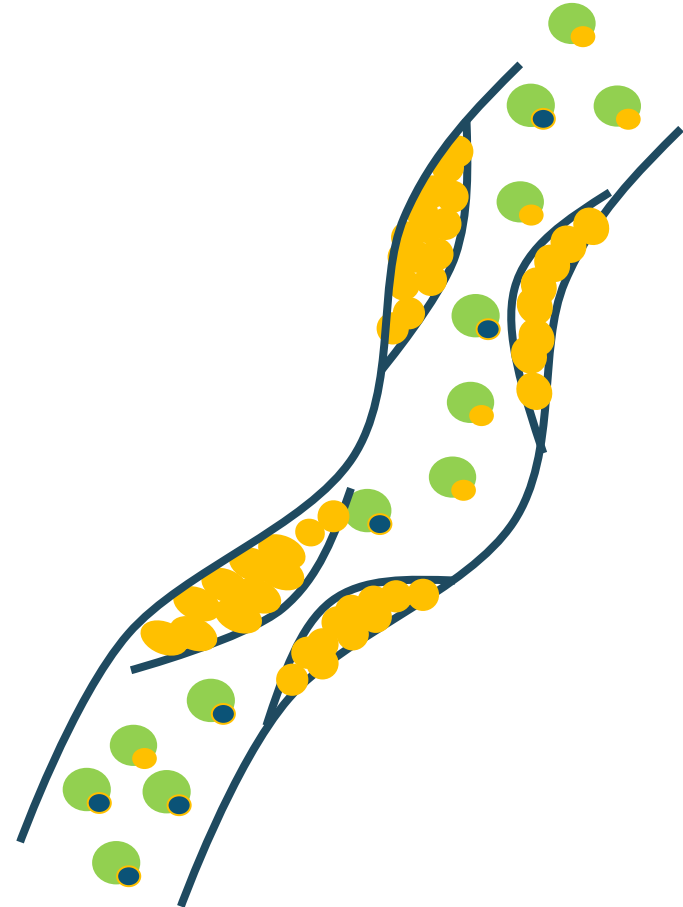
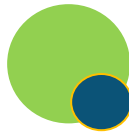


Kolesterol

- LDL-kolesterol



- HDL-kolesterol





ANNALS
of Internal Medicine
JANUARY
Published

Serum Cholesterol, Lipoproteins, and Risk of Coronary Heart Disease

The Framingham Study

WILLIAM B. KANNEL, M.D., WILLIAM P. ABELSON, M.D.,
PATRICIA M. MCNAMARA, Framingham, Mass.

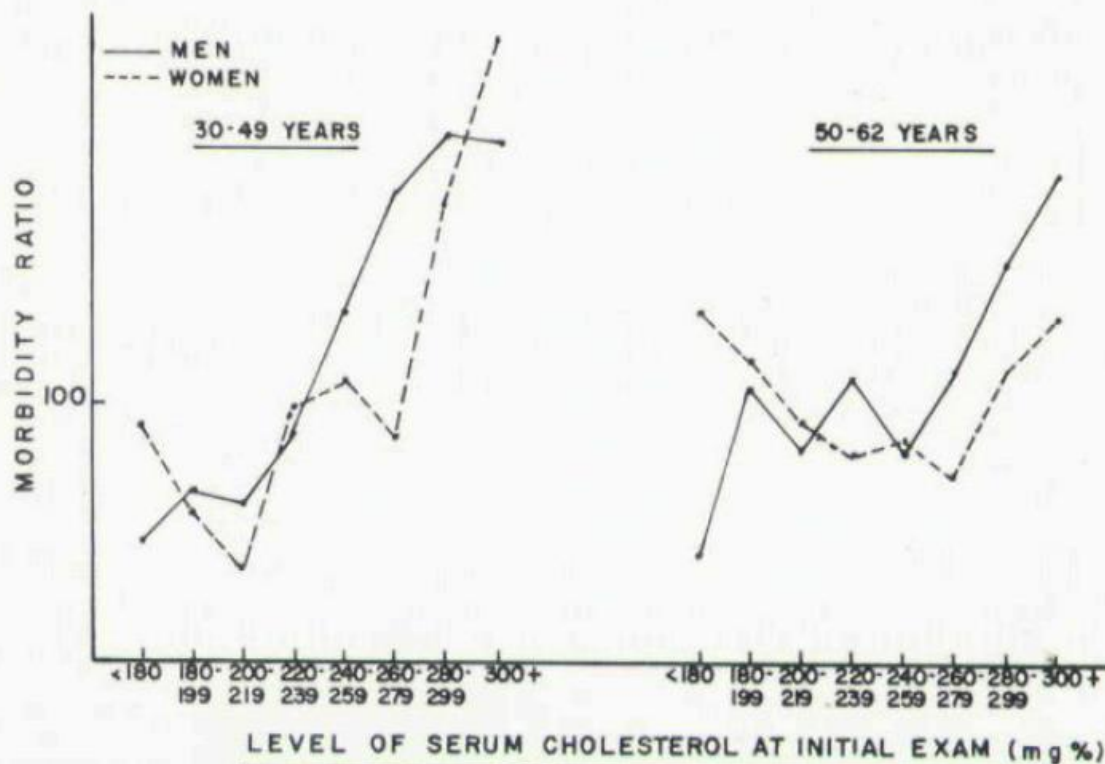


Figure 3. Risk of coronary heart disease (14 years) according to cholesterol level: men and women age 30 to 62 at entry. Framingham Study.

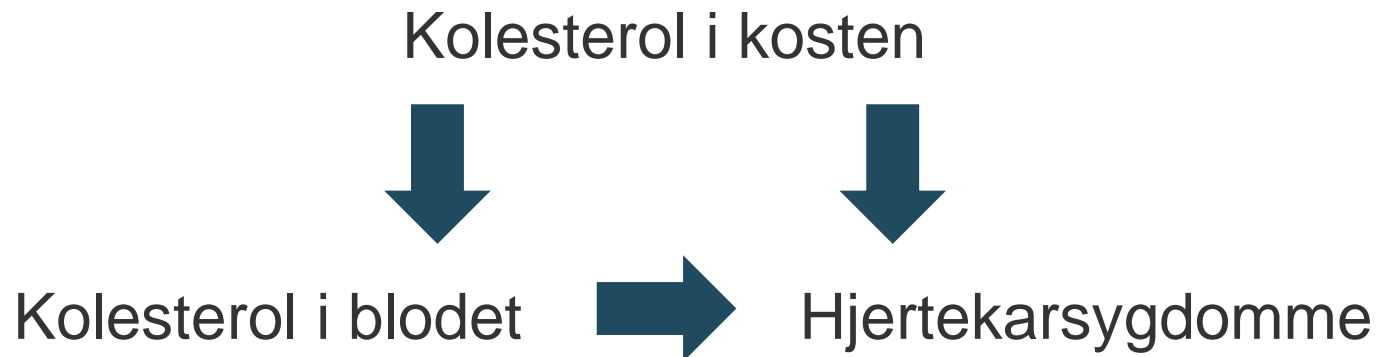
Kannel et al. Annals of Internal Medicine. Jan71, Vol. 74 Issue 1, p1-12.



Observationer

Fx Framingham og Oslo Heart Studies

↑Serum kolesterol → ↑ åreforkalkning → ↑hjertekarsygdomme





Egg
 dise

Thomas
 Jeremy

• Frami

s—surveys

heart

D, MPH, and

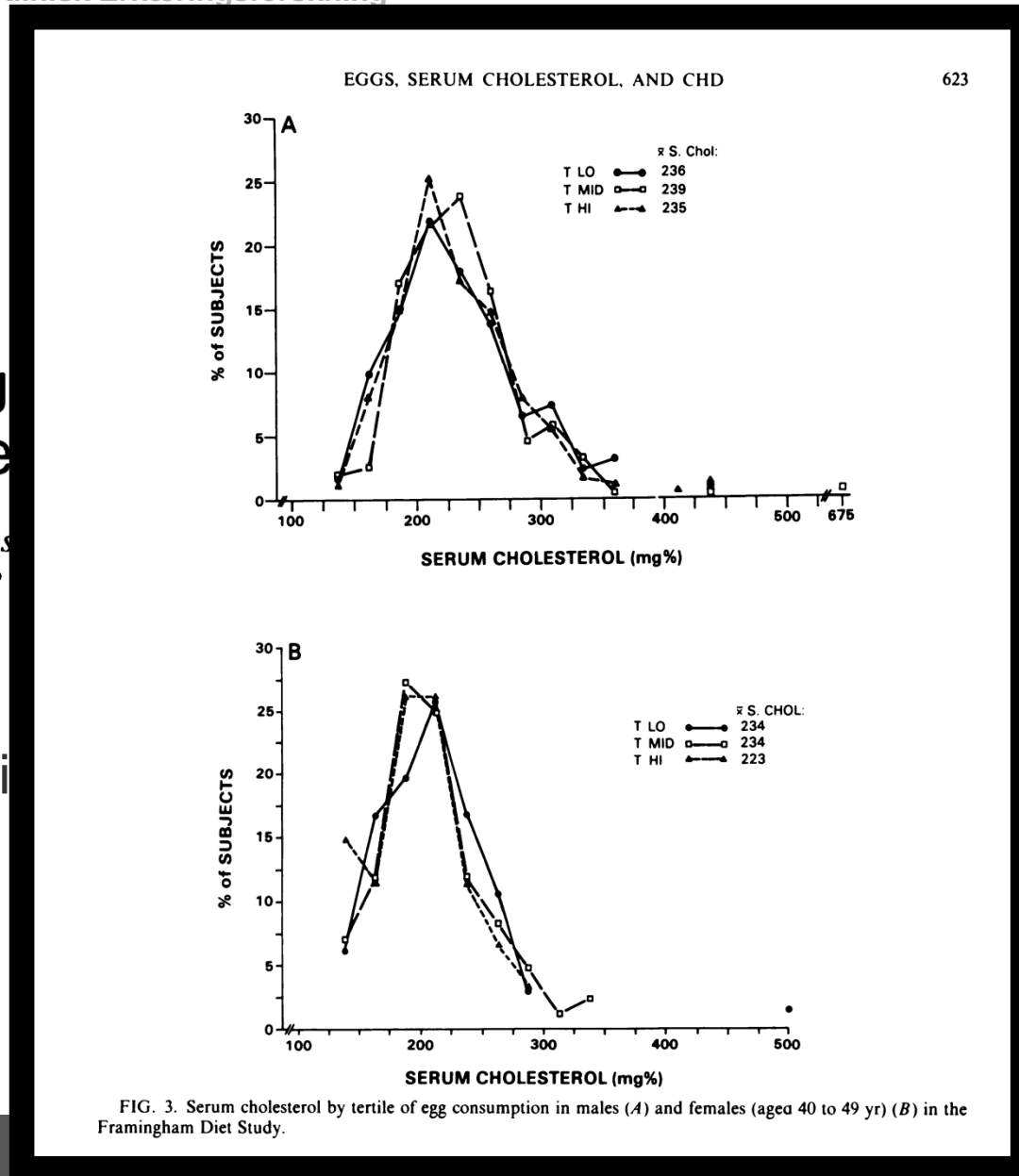


FIG. 3. Serum cholesterol by tertile of egg consumption in males (A) and females (aged 40 to 49 yr) (B) in the Framingham Diet Study.

m J Clin Nutr 1982;36:617-625.

avns Universitet



Egg consumption in relation to risk of cardiovascular disease and diabetes: a systematic review and meta-analysis¹⁻³

Jang Yel Shin, Pengcheng Xun, Yasuyuki Nakamura, and Ka He

Author	HRs (95% CI)	Weight, %
IHD		
Hu, 1999 (30)	1.08 (0.79, 1.48)	7.67
Hu, 1999 (30)	0.82 (0.60, 1.13)	7.54
Nakamura, 2006 (32)	0.84 (0.61, 1.16)	7.26

Iskæmisk
 hjertesvøm

Conclusion: This meta-analysis suggests that egg consumption is not associated with the risk of CVD and cardiac mortality in the general population. However, egg consumption may be associated with an increased incidence of type 2 diabetes among the general population and CVD comorbidity among diabetic patients.
Am J Clin Nutr doi: 10.3945/ajcn.112.051318.

Blood

Kard

hertesygdom

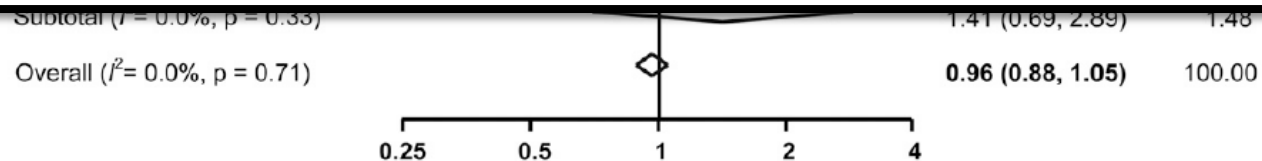


FIGURE 2. Pooled HRs and 95% CIs for incident IHD, stroke, and overall CVD. The pooled estimates were obtained by using a random-effects model. The dots indicate the adjusted HRs from a comparison of the highest category of egg consumption (≥ 1 egg/d) with the lowest (< 1 egg/wk or never). The size of the shade square is proportional to the weight of individual study. The horizontal lines represent 95% CIs. The diamond data markers indicate the pooled HRs. CVD, cardiovascular disease; IHD, ischemic heart disease.



Egg consumption in relation to risk of cardiovascular disease and diabetes: a systematic review and meta-analysis¹⁻³

Jang Yel Shin, Pengcheng Xun, Yasuyuki Nakamura, and Ka He

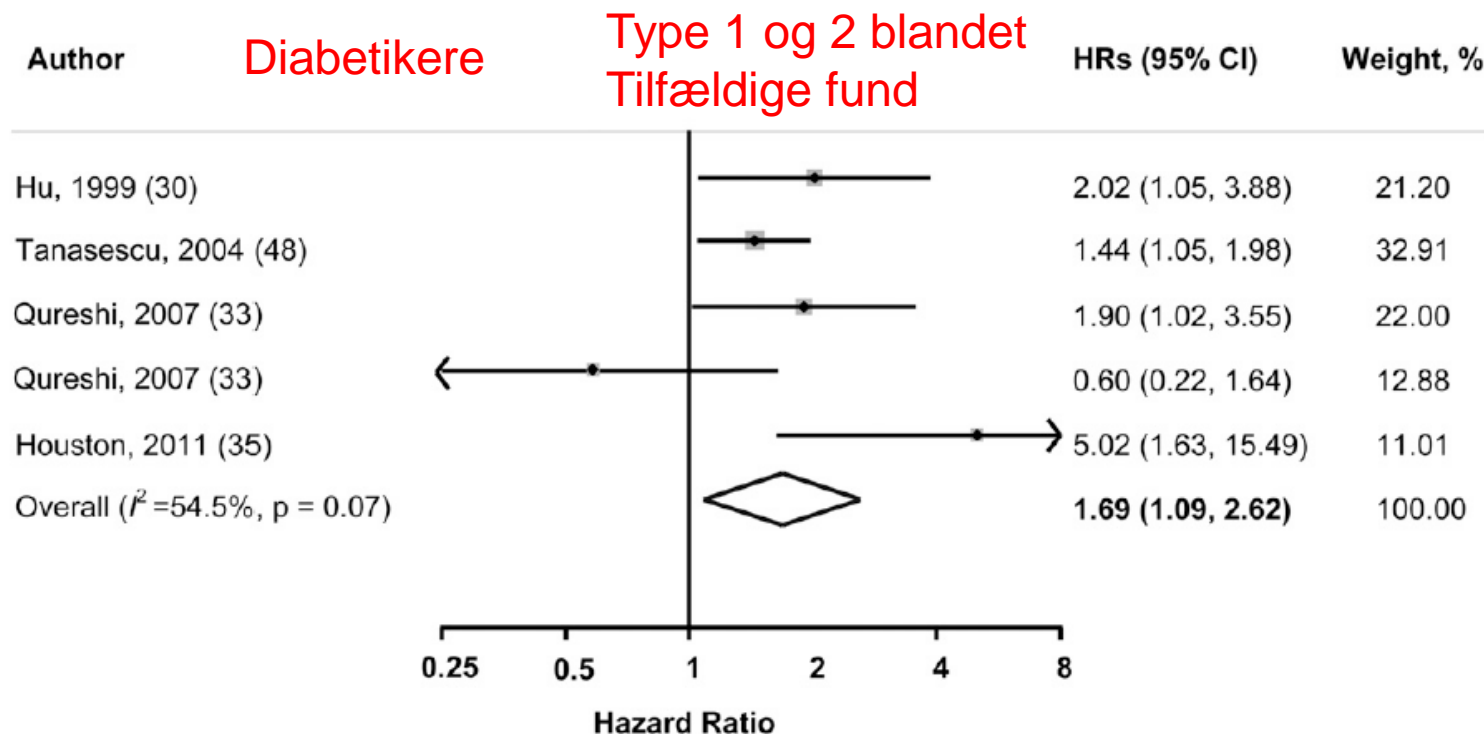


FIGURE 3. Pooled HRs and 95% CIs of incident overall CVD in diabetic patients. The pooled estimates were obtained by using a random-effects model. The dots indicate the adjusted HRs from a comparison of the highest category of egg consumption (≥ 1 egg/d) with the lowest (< 1 egg/wk or never). The size of the shade square is proportional to the weight of the individual study. The horizontal lines represent 95% CIs. The diamond data markers indicate the pooled HR. CVD, cardiovascular disease.



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Clinical Nutrition

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Original article

Egg consumption and risk of type 2 diabetes among African Americans: The Jackson Heart Study

Luc Djoussé^{a, b, c, *}, Andrew B. Petrone^a, DeMarc A. Hickson^{d, e}, Sameera A. Talegawkar^f, Patricia M. Dubbert^g, Herman Taylor^h, Katherine L. Tuckerⁱ**Table 3**Prevalence ratios (95% confidence intervals) for prevalent type 2 diabetes by egg consumption stratified by gender^a.

Multivariable adjusted Model		
Egg consumption	Male	Female
<1/month	1.00 (ref)	1.00 (ref)
1–3/month	1.78 (1.05–3.00)	0.99 (0.75–1.29)
1/week	1.68 (0.98–2.87)	1.26 (0.95–1.67)
2/week	1.71 (1.01–2.88)	1.26 (0.97–1.64)
3–4/week	1.65 (0.97–2.78)	1.19 (0.90–1.58)
5+/week	2.10 (1.24–3.57)	1.38 (1.00–1.90)
p for trend	0.048	0.019

^a Adjusted for age, smoking, alcohol, BMI, physical activity score, education, energy intake, intake of red meat and fruits and vegetables, dietary trans fat, magnesium, and fiber, and history of hypertension and CVD. p for sex*egg interaction = 0.53.



Table 1
Characteristics of the 4568 Jackson Heart Study participants by frequency of egg consumption^a.

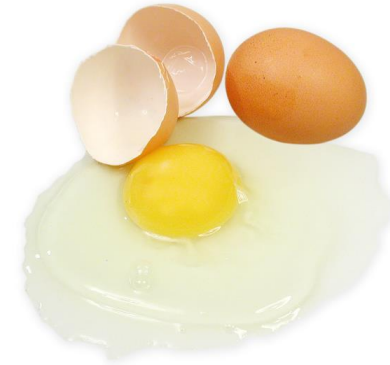
	Egg Consumption Categories						p for linear trend
	<1/month (n = 742)	1–3/month (n = 958)	1/week (n = 698)	2/week (n = 881)	3–4/week (n = 781)	5+ /week (n = 508)	
Age (y)	57 ± 12	54 ± 13	55 ± 12	55 ± 13	55 ± 12	57 ± 13	0.43
BMI (kg/m ²)	31 ± 7	31 ± 7	32 ± 8	32 ± 7	32 ± 7	32 ± 7	0.01
Male (%)	23	32	37	37	41	50	<0.0001
Smoking (%)							
Never	71	69	71	73	71	61	0.0013
Past	20	20	18	16	17	24	0.23
Current	7.6	12	11	11	12	15	0.002
Education (%)							
< High School	19	16	16	16	16	26	0.02
High School/GED/Some College	42	37	41	41	41	45	0.02
College/Assoc. deg or higher	39	47	43	43	39	29	<0.0001
Drank alcohol in past year (%)	33	49	47	47	48	46	0.0001
Hypertension (%)	67	58	61	61	66	69	0.02
CVD (%)	11.2	10.7	10.7	10	12	13	0.02
LDL (mg/dL)	128 ± 38	128 ± 38	128 ± 38	128 ± 36	125 ± 35	127 ± 35	0.19
HDL (mg/dL)	53 ± 14	53 ± 14	53 ± 14	52 ± 14	51 ± 15	51 ± 14	0.0002
Triglycerides (mg/dL)	107 ± 62	107 ± 62	107 ± 62	109 ± 71	103 ± 78	111 ± 80	0.25
Waist Circumference (cm)	99 ± 17	99 ± 17	100 ± 17	101 ± 17	102 ± 16	103 ± 15	<0.0001
Physical Activity Score	8.0 ± 2.5	8.0 ± 2.5	8.6 ± 2.5	8.3 ± 2.6	8.4 ± 2.6	8.0 ± 2.8	0.77
Fruit and Vegetables (servings/day)	2.8 [1.8–3.9]	2.8 [1.8–3.9]	2.8 [1.8–4.1]	3.4 [2.3–4.7]	3.2 [2.2–4.5]	3.5 [2.4–5.0]	<0.0001
Red Meat (g/day)	7.8 [3.0–20.4]	8.1 [3.5–16]	12.4 [5.0–24]	14.5 [7.2–27]	15.3 [7.7–29]	21 [10–38]	<0.0001
Fish (g/day)	8.6 [3.0–20.4]	9.7 [4.3–21.9]	13.8 [5.3–27.4]	12.0 [5.6–27.1]	13.8 [5.3–27.1]	10.8 [4.3–24.7]	<0.0001
Saturated Fat (g/day)	18 [12–26]	19 [14–27]	23 [16–31]	26 [18–35]	29 [21–38]	34 [26–44]	<0.0001
Trans Fat (g/day)	3.2 [2.1–4.8]	3.4 [2.3–4.8]	3.7 [2.7–5.7]	4.4 [2.9–6.2]	4.6 [3.2–6.6]	5.2 [3.5–7.3]	<0.0001
Dietary Cholesterol (mg/day)	162 [109–243]	190 [145–255]	257 [192–327]	334 [260–433]	439 [345–548]	657 [478–804]	<0.0001
Dietary Magnesium (mg/day)	251 [191–326]	244 [191–319]	270 [215–354]	286 [225–359]	298 [229–371]	315 [238–388]	<0.0001
Dietary fiber (g/day)	13 ± 6	12 ± 6	14 ± 6	14 ± 6	14 ± 6	15 ± 6	<0.0001
Calories (kcal/d)	1644 ± 709	1655 ± 703	1869 ± 746	2041 ± 773	2154 ± 780	2348 ± 786	<0.0001

^a Mean ± SD for continuous variables with Gaussian distribution or median [interquartile range] if not normally distributed.

Er æg markør for andre forskelle?



Energiindhold



	Æg		E%
	pr 100 g	1 æg	
Energi, kj	594	333	
Fedt	9,9	5,5	63
Protein	12,6	7	36
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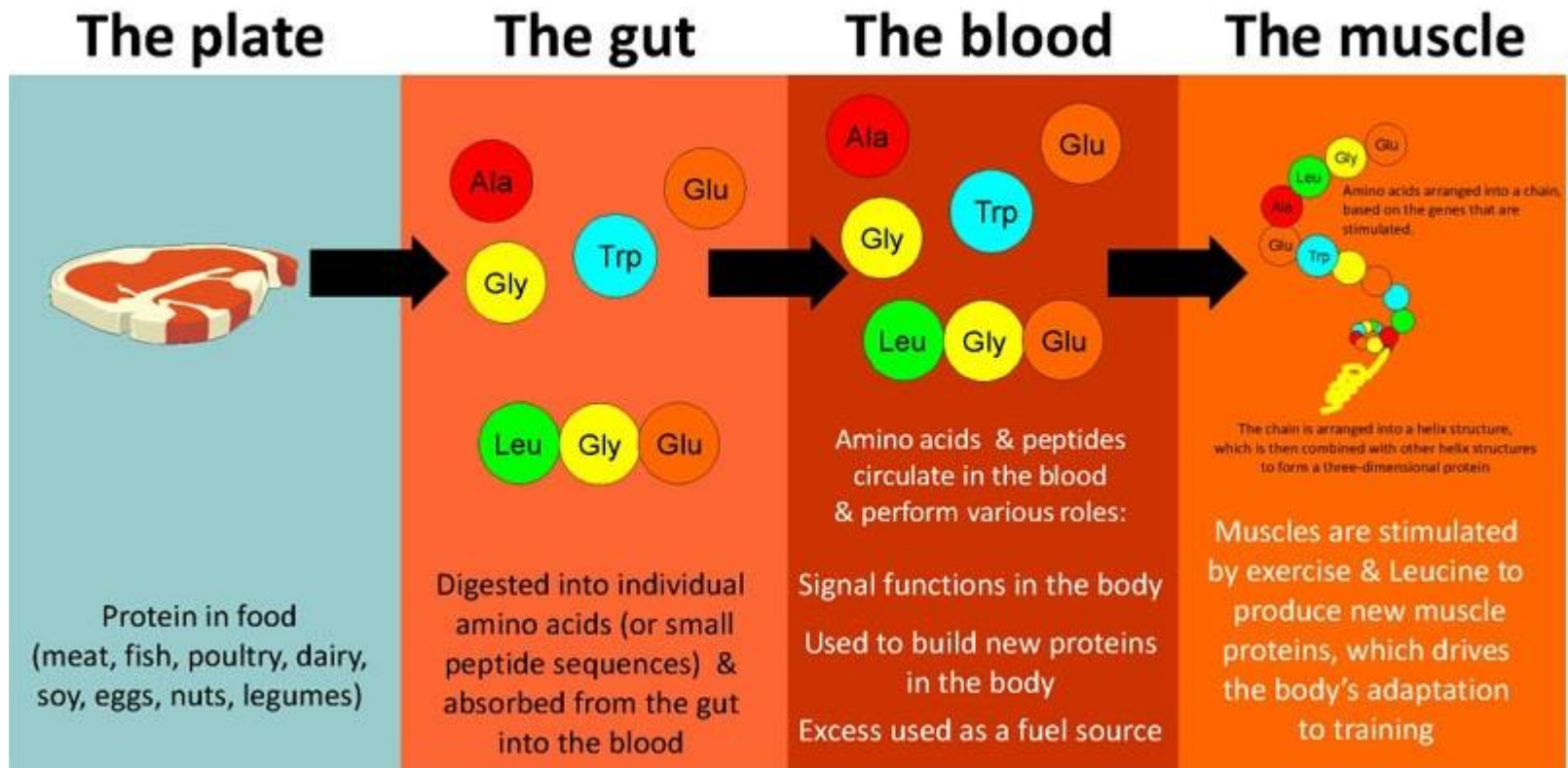
Protein

- Kød, alle typer
- Fisk og skaldyr
- Æg
- Mejeriprodukter
- Bælgplanter
- Nødder
- Korn



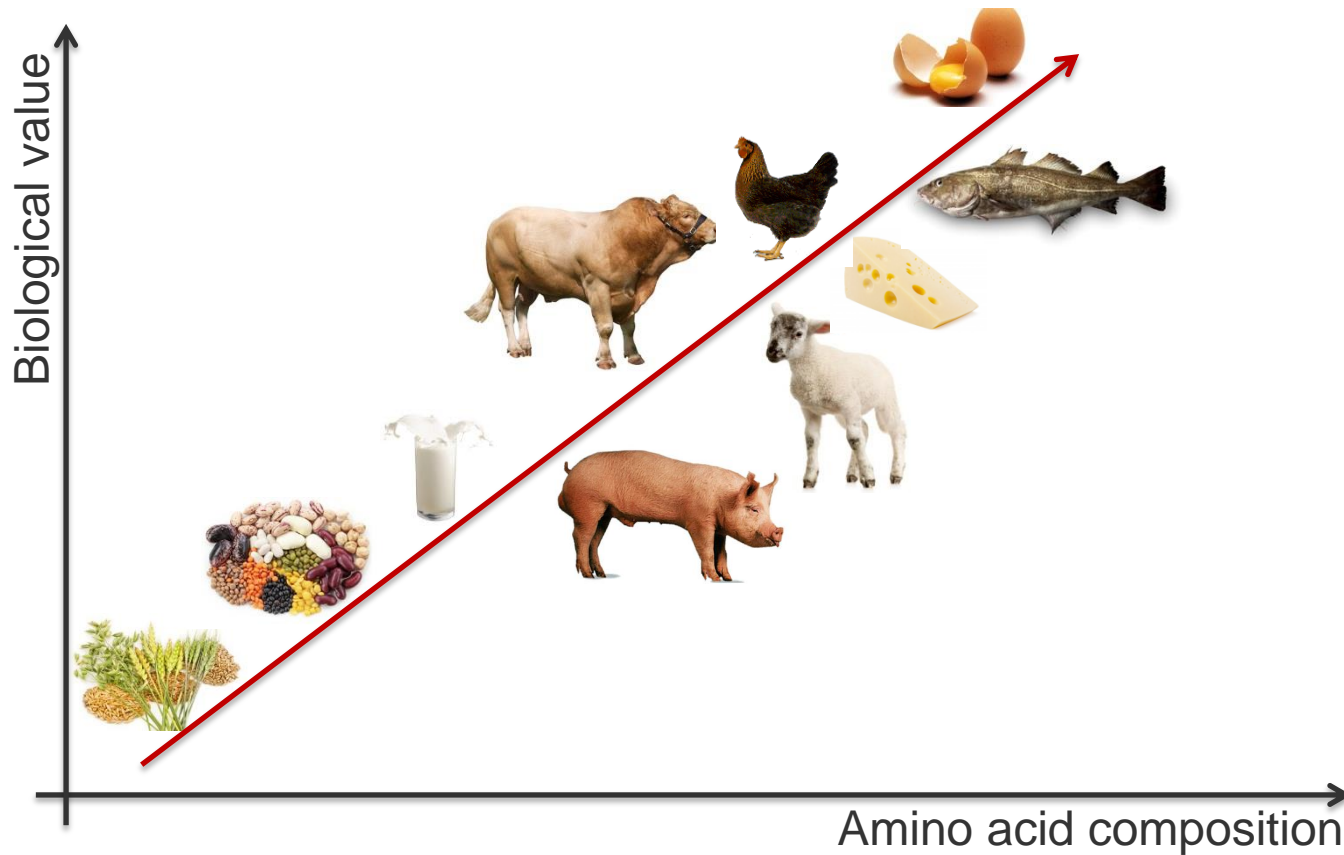


Protein i kroppen





Biologisk værdi





Protein anbefalinger

- Estimeret dagligt behov 0.6 g/kg BW (minimum)
- Anbefalet dagligt indtag 0.8 g/kg BW
 - Kvinder ~ 52 g protein/dag (65 kg)
 - Mænd ~ 68 g protein/dag (85 kg)

BW: body weight

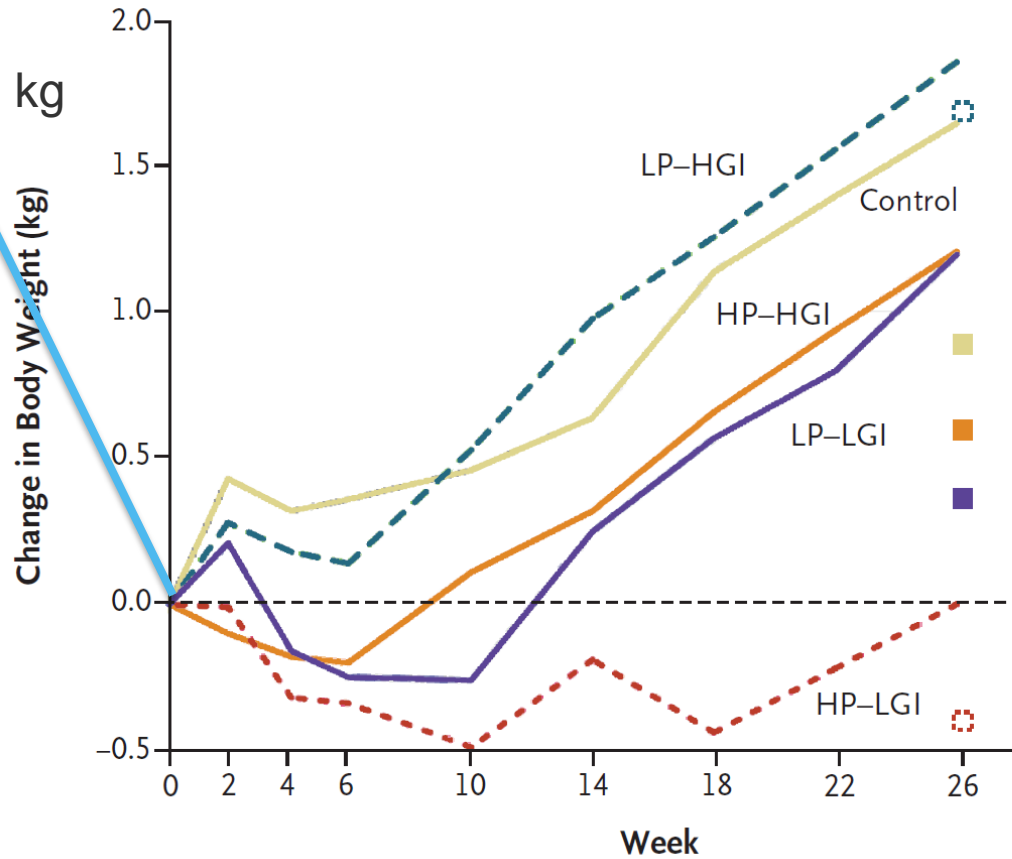


Protein anbefalinger

- Estimeret dagligt behov 0.6 g/kg BW (minimum)
- Anbefalet dagligt indtag 0.8 g/kg BW
 - Kvinder ~ 52 g protein/dag (65 kg)
 - Mænd ~ 68 g protein/dag (85 kg)
- Behov øges ved
 - Alder, sygdom, fysisk aktivitet, graviditet, amning, væggtab, vægtvedligehold
- Protein behov 1-1.8 g/kg BW



Diets with High or Low Protein Content and Glycemic Index for Weight-Loss Maintenance



← 25 E% protein + Low GI



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VIEWPOINT

Efficacy of high protein diets to
assess quality of life

A. Astrup^{a,b,*}, N. Geiker^c

OPEN ACCESS

REVIEW

Available online at www.sciencedirect.com

Nutrition, Metabolism & Cardiovascular Diseases

Høj-protein diæt =

Vægttab

Vægtvedligehold

↓ Fedt

↓ Blodtryk

↓ Inflammation

↓ Kolesterol

↑ Insulinfølsomhed

The role of higher protein diets in weight control and obesity-related comorbidities

A Astrup¹, A Raben¹ and N Geiker²

Journal of Obesity (2015) 39, 721–726
© Elsevier B.V. All rights reserved 0307-0565/15

ijournal



Begrænsning af vægtøgning under graviditeten hos overvægtige gravide

- ↑ Protein →
- ↑ Mæthed
 - ↓ Energiindtag
 - ↓ Vægtøgning
- ↑ Muskelmasse
- ↓ Blodsukker
 - ↓ Graviditets sukkersyge

Børnene

Slankere

Mindre fedt om maven

Stærkere knogler

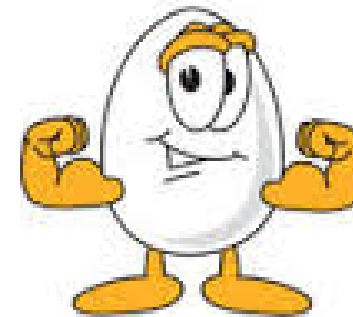


Opsummering

- Æg er rige på fedt og protein
- Danskerne spiser 1/3 æg per dag
- 1 æg pr dag øger ikke risiko for hjertekarsygdom
- 1 æg er muligvis beskyttende overfor blodprop
- Æg øger mætheden, reducere energiindtaget og kan medvirke til vægttab og vægtvedligehold



Æg er super sundt og danskerne må gerne spise flere!



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