Fiskeproteinhydrolysat (FPH) reduserer fedme. Kjenner vi årsaken?

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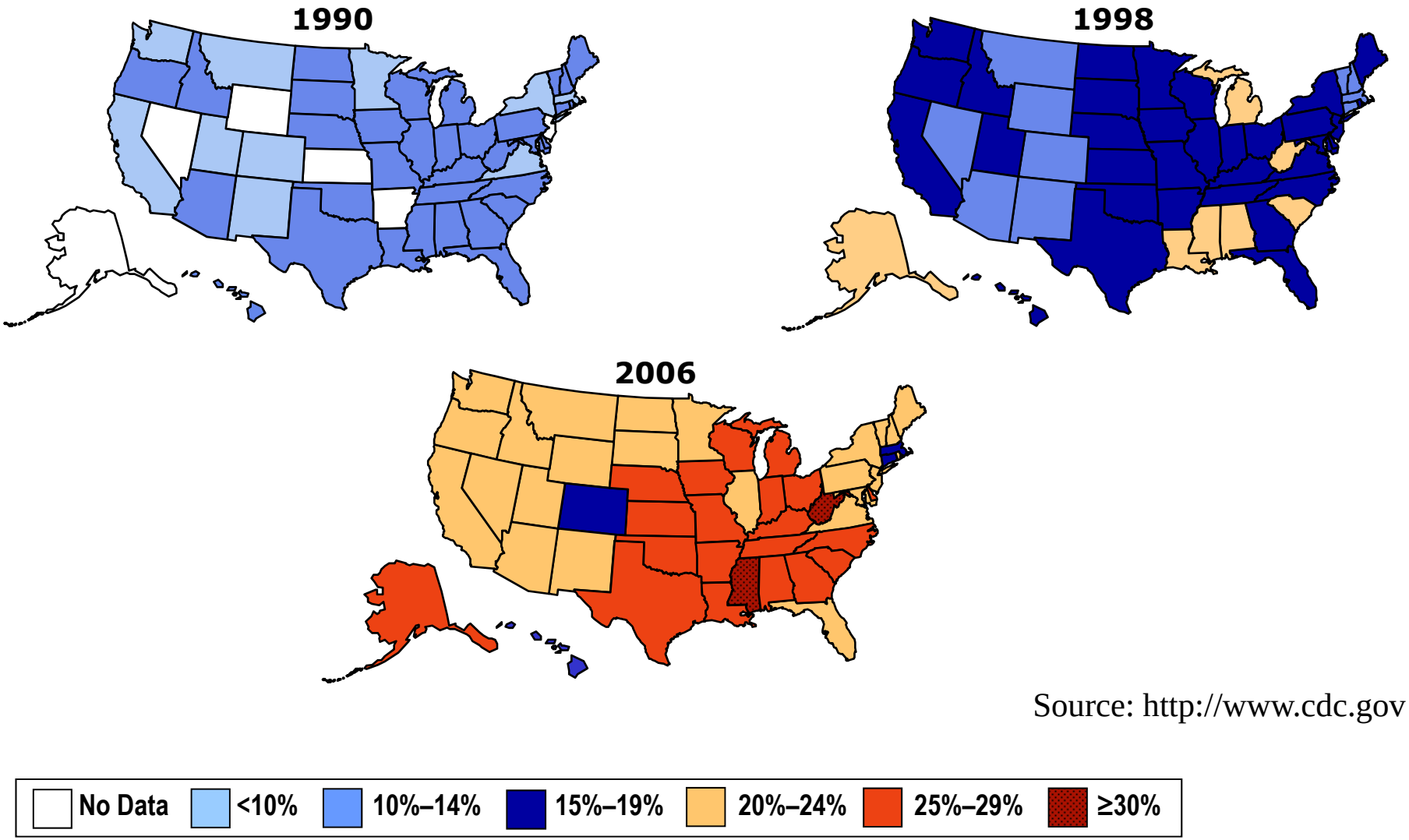
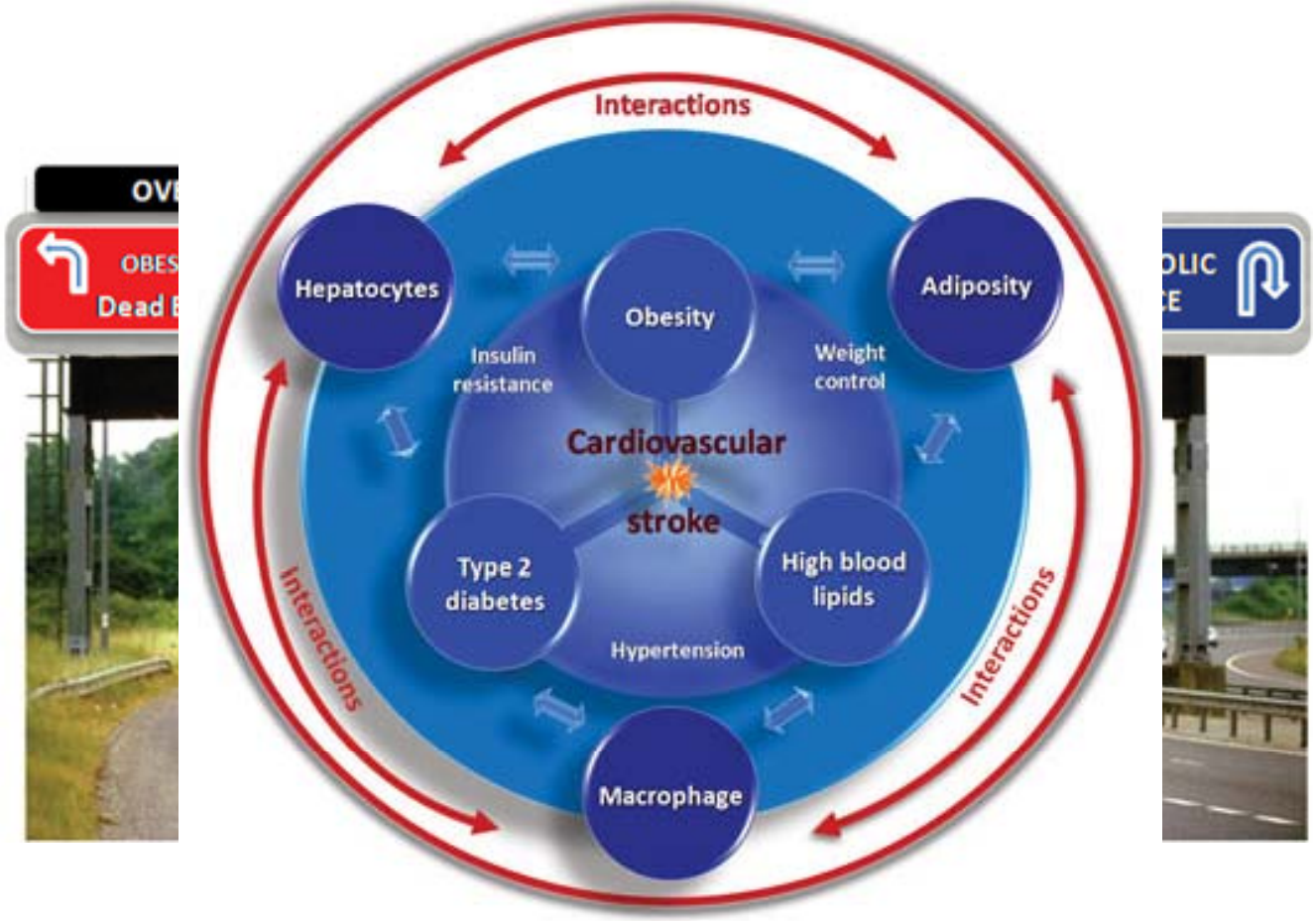
Sjømat og helse,
Nasjonalt institutt for ernærings- og sjømatforskning (NIFES)

BMI ≥ 30 (kg/m²) i USA



Source: http://www.cdc.gov

Overvekt aukar – so what?



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Fedme og metabolsk syndrom

Definitions for the Metabolic Syndrome

WHO 1999

- Dysglycemia (DM, IFG, IGT, IR) + 2 of:
  - BMI > 30 or ↑WHR (>0.90 males/>0.85 females)
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ATP III

- 3 or more of:
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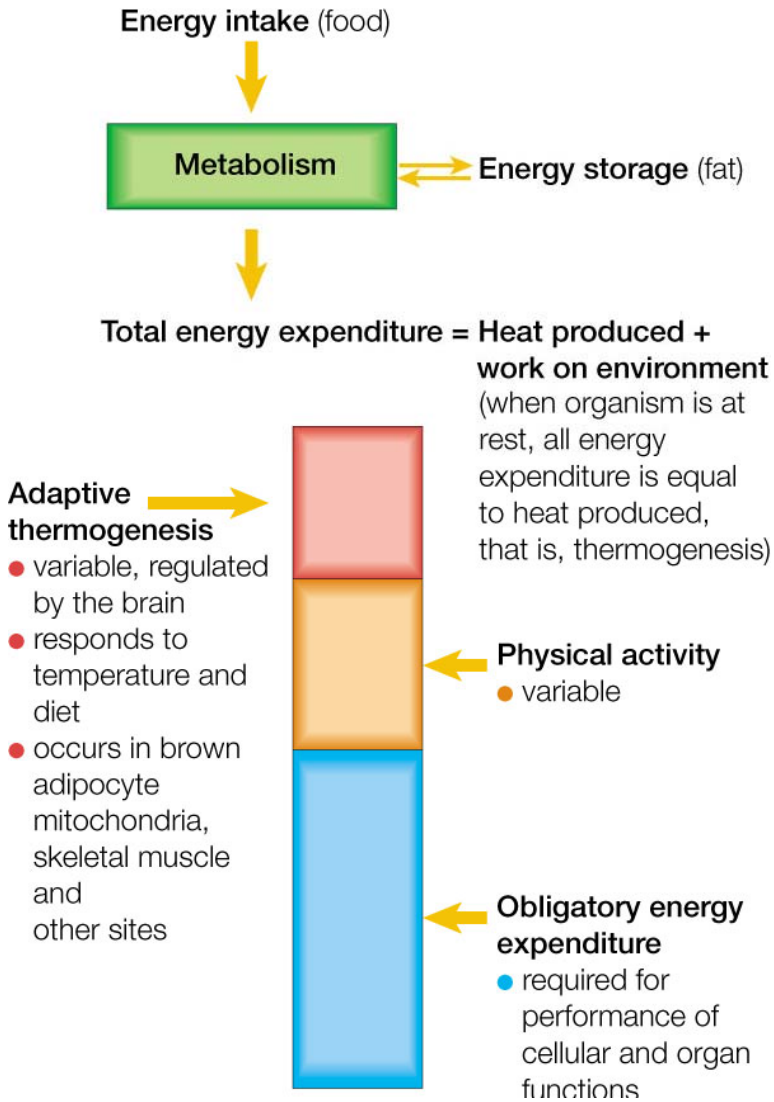
http.img.medscape.com

Kvifor overvekt ?

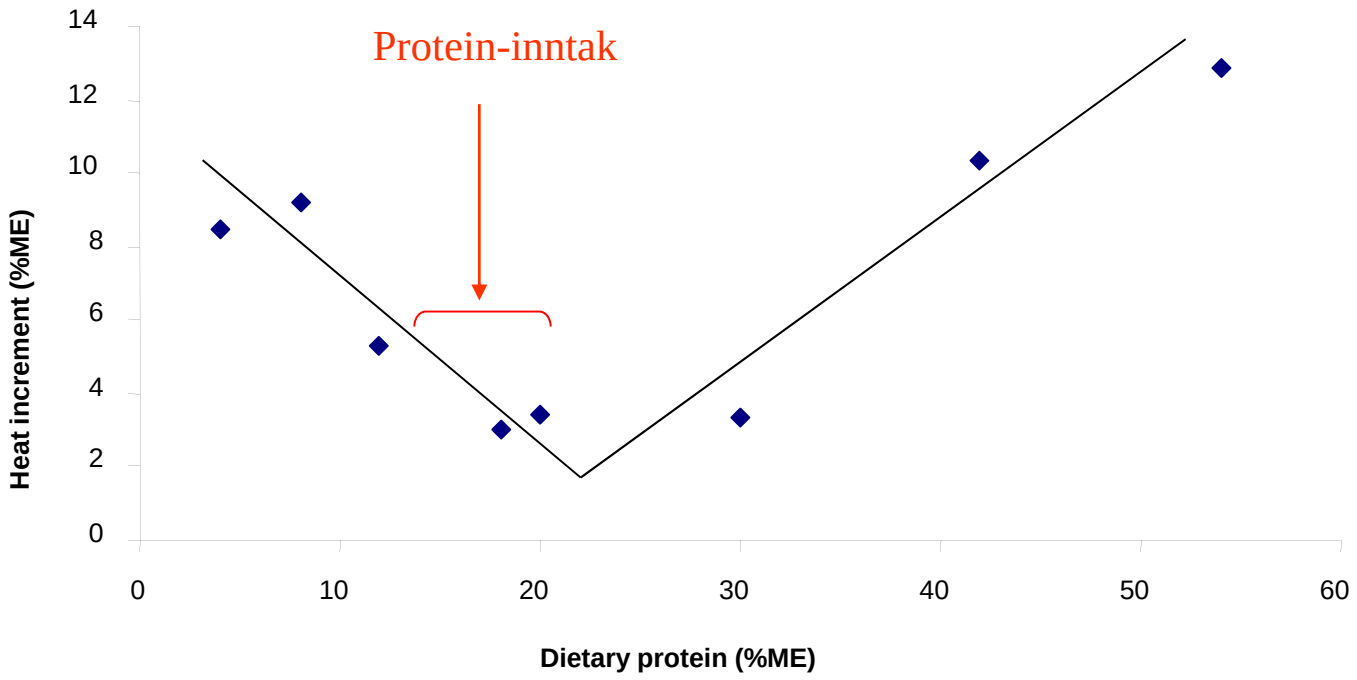
- **Protein !!!**



Lowell & Spiegelman 2000
Nature 404: 652

Protein i kosten og energiforbruk

Data frå TS Hamilton 1939 J Nutr



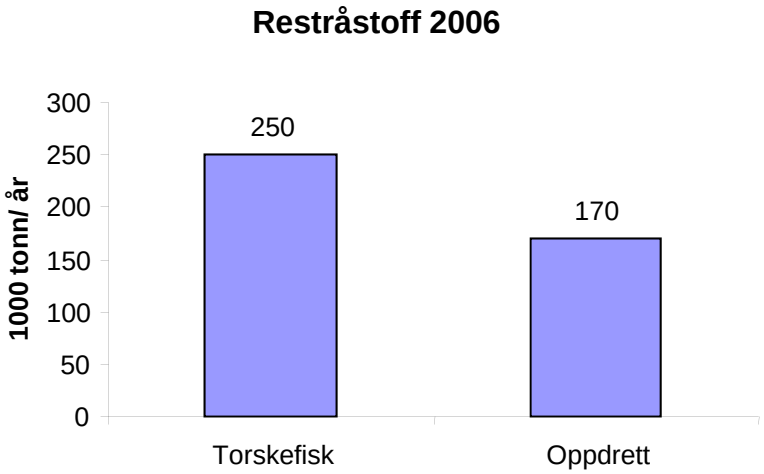
- Anbefalt protein inntak: 15 (10-35) energi%

Diett protein og energi-omsetnad

- Lavt diett-protein aukar energi-omsetnad
- Høgt diett-protein aukar energi-omsetnad

- Kan proteinkjelder med ulik aminosyresamansetnad påverke energi-omsetnad ved normalt diett-protein?

Fiskeprotein hydrolysat



www.rubin.no

Enzymatisk hydrolyse

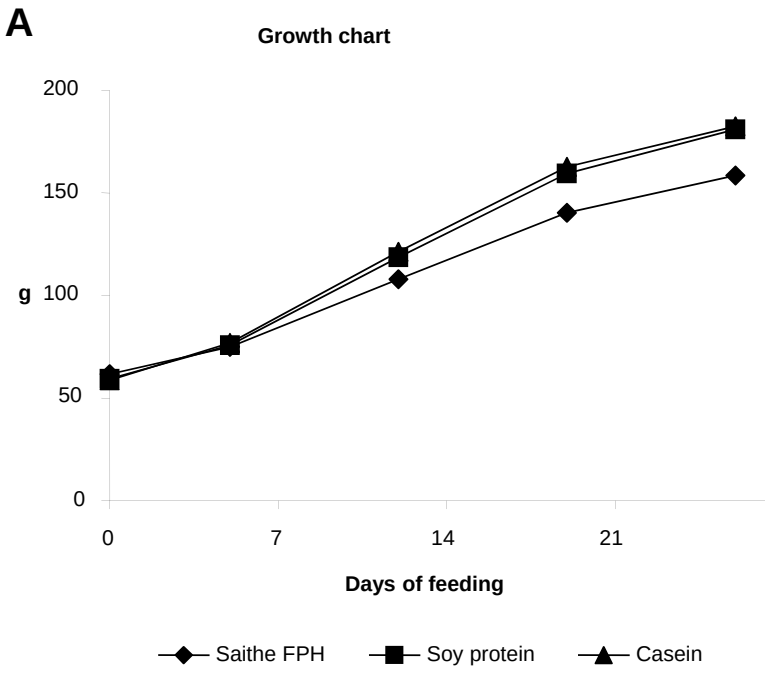
Tørt fiske protein hydrolysat (FPH)

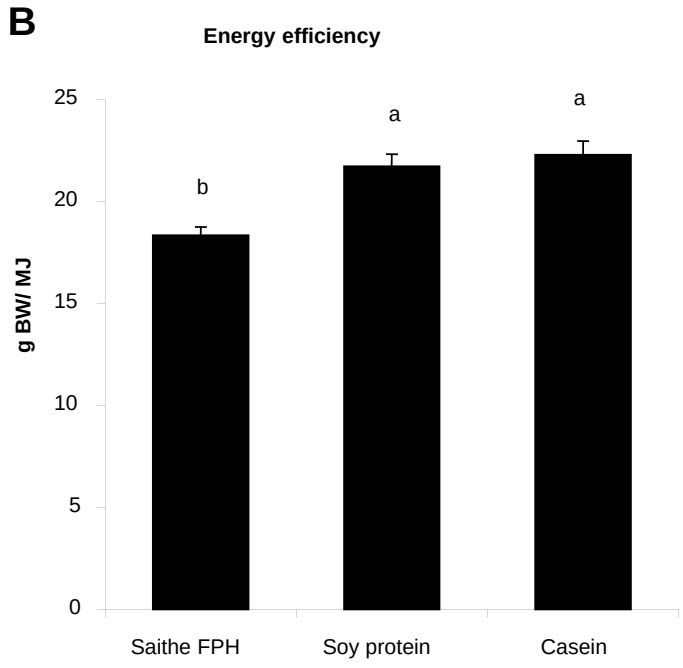
Rotteforsøk med FPH frå sei

- Samanlikna sei FPH med effekt av soyaprotein og kasein

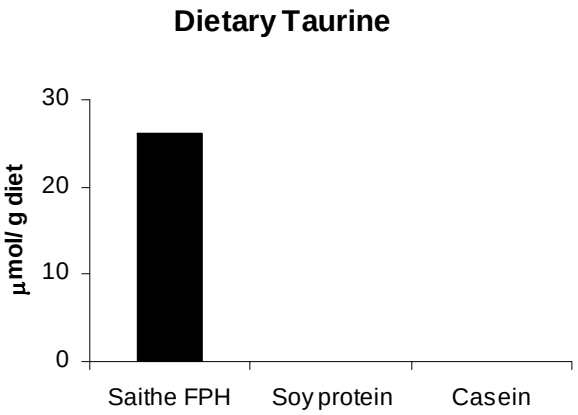
Component, g/kg	Saithe FPH	Soy protein	Casein
Saithe FPH	239	-	-
Soy protein isolate	-	230	-
Casein	-	-	227
KCl	-	23	26
Salt mix AIN-93 G*	35	35	35
Vitamin mix AIN-93G*	10	10	10
Cellulose	50	50	50
Sucrose	90	90	90
Supplement AIN-95G*	10	10	10
L-Cystine	3	3	3
Choline Bitartrate	2,5	2,5	2,5
Soy bean oil	100	100	100
Potato starch, dextrinized	461	447	446

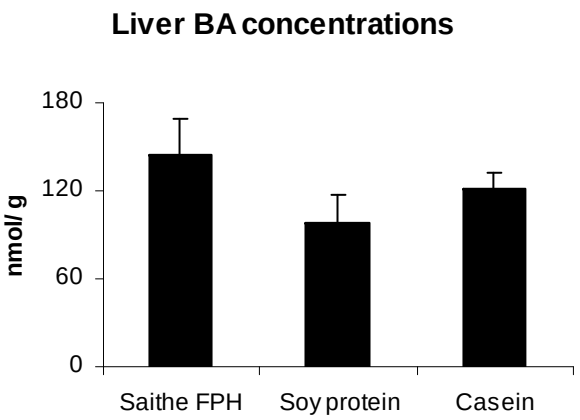
Sei FPH reduserer energi-effektivitet

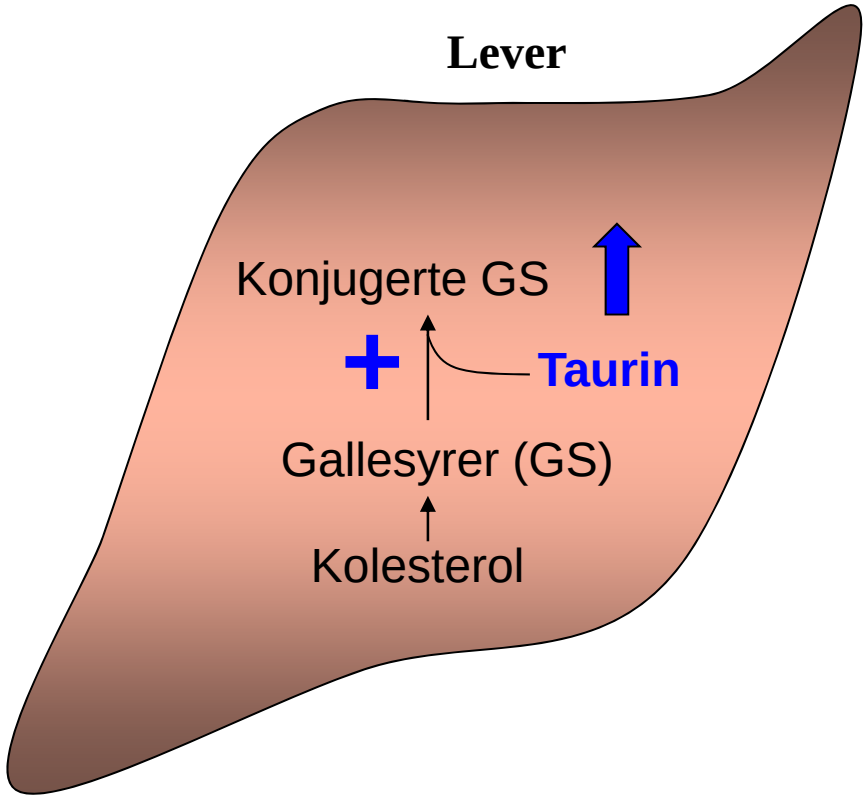




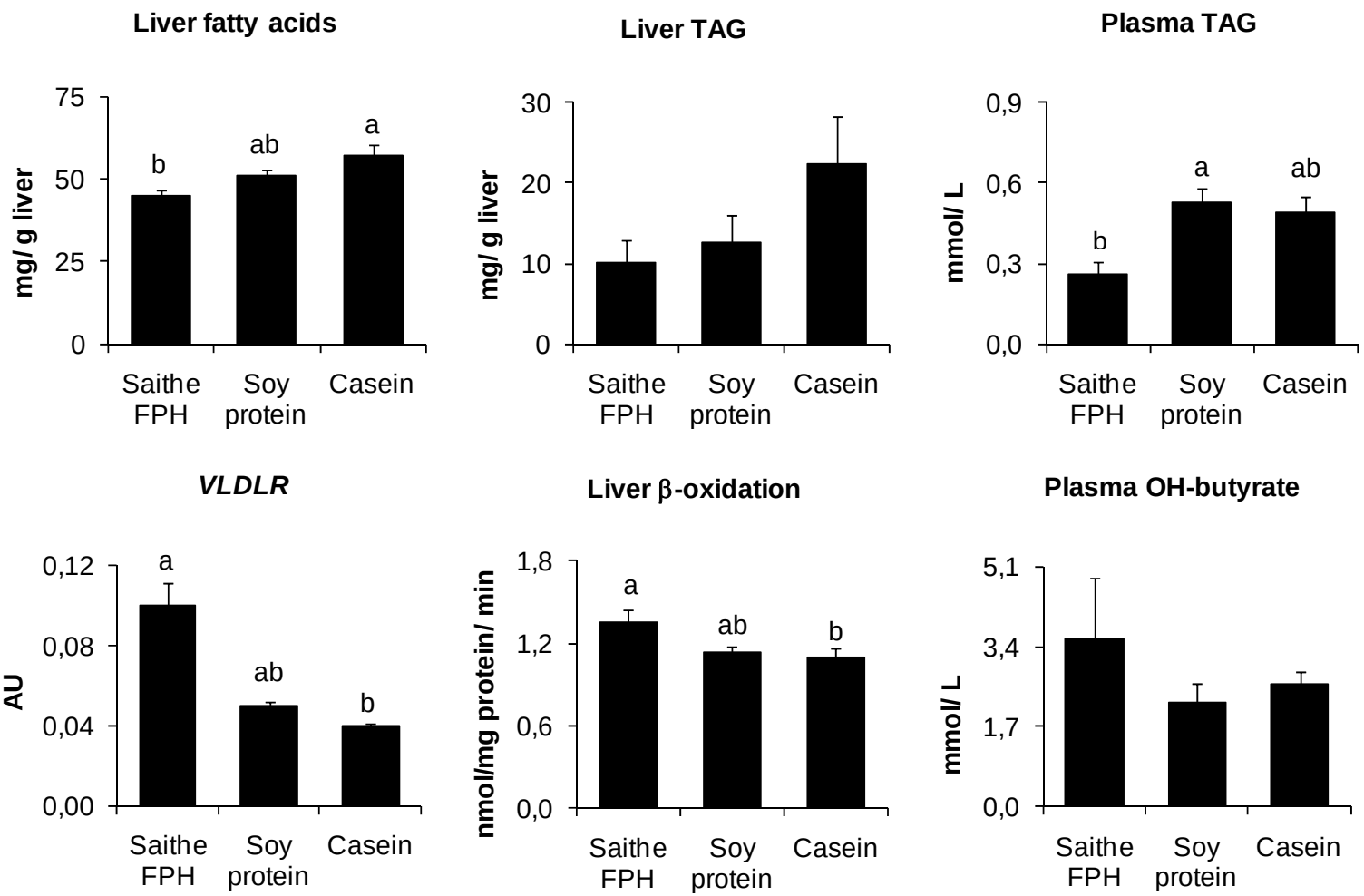
Sei FPH er rikt på taurin – og taurin er involvert i gallesyre-produksjon



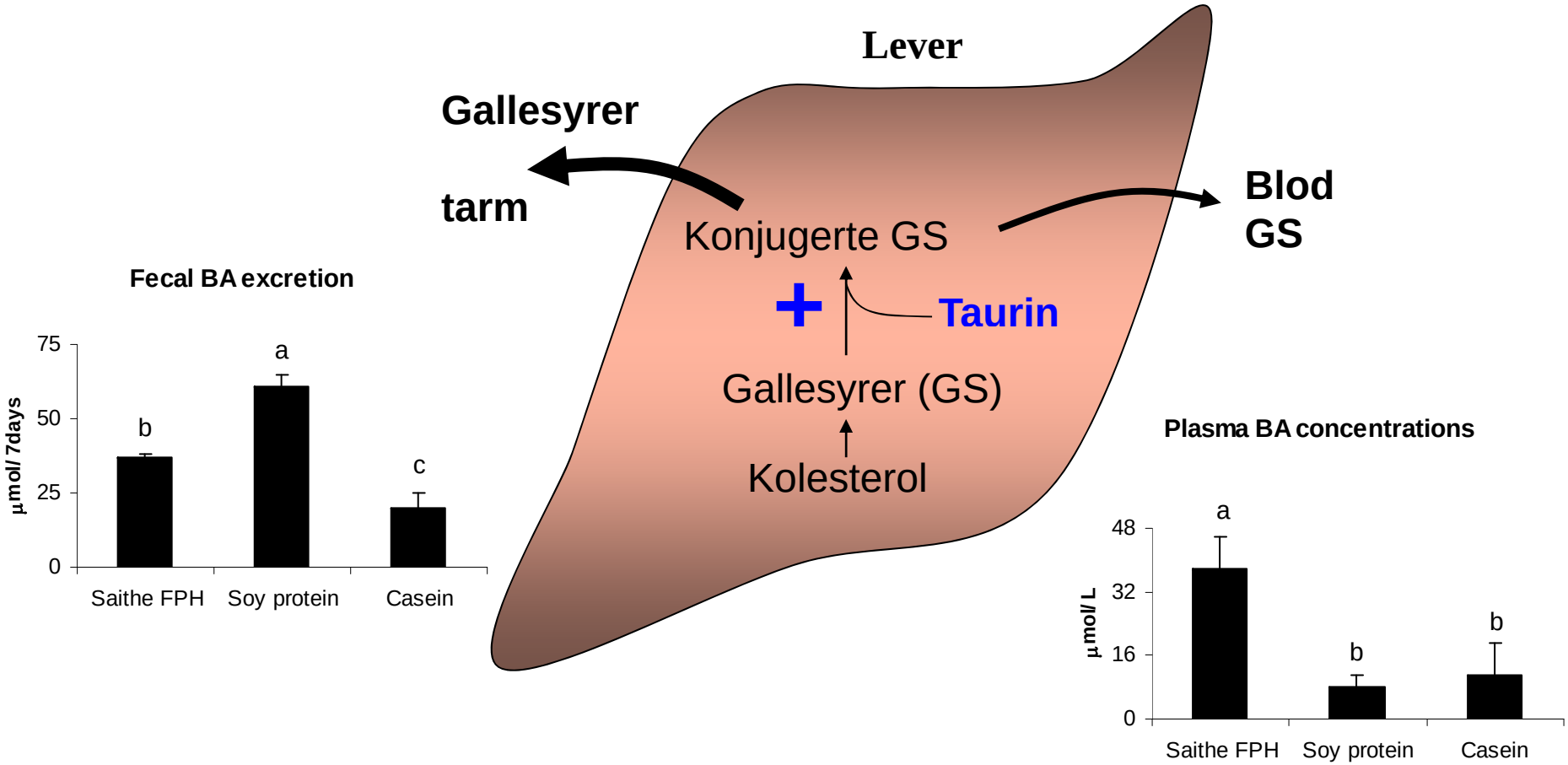




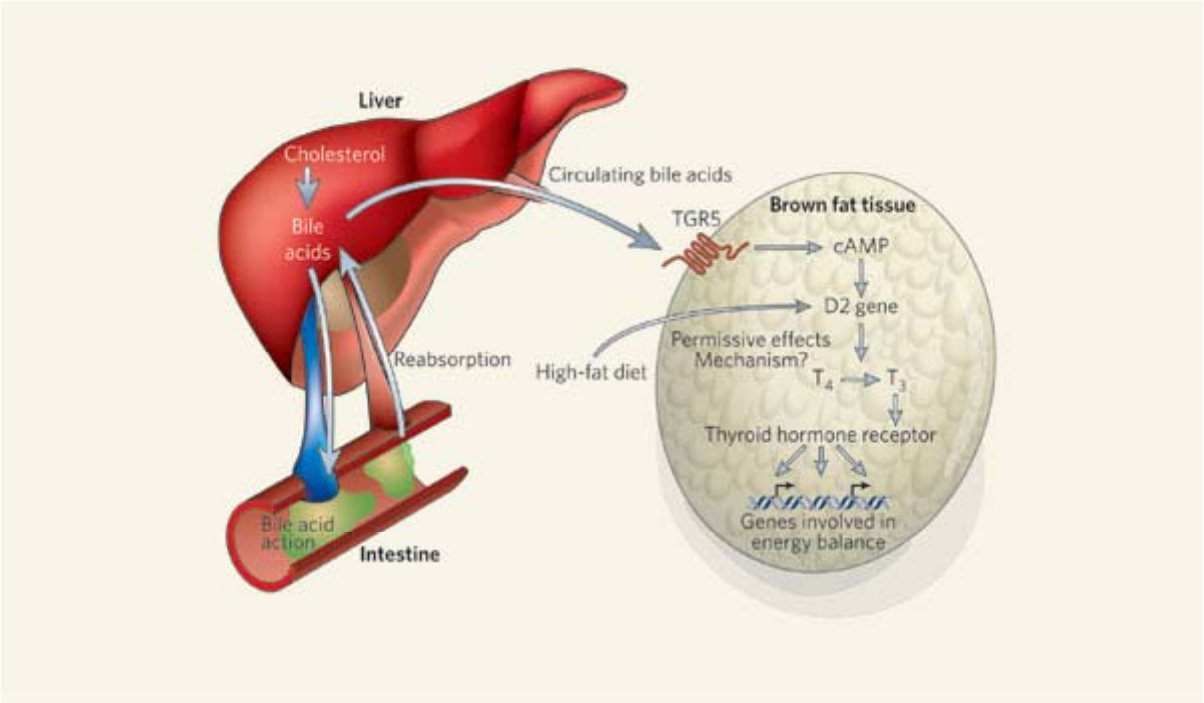
Sei FPH reduserer TAG i lever og blod



FPH aukar plasma konsentrasjon av gallesyrer

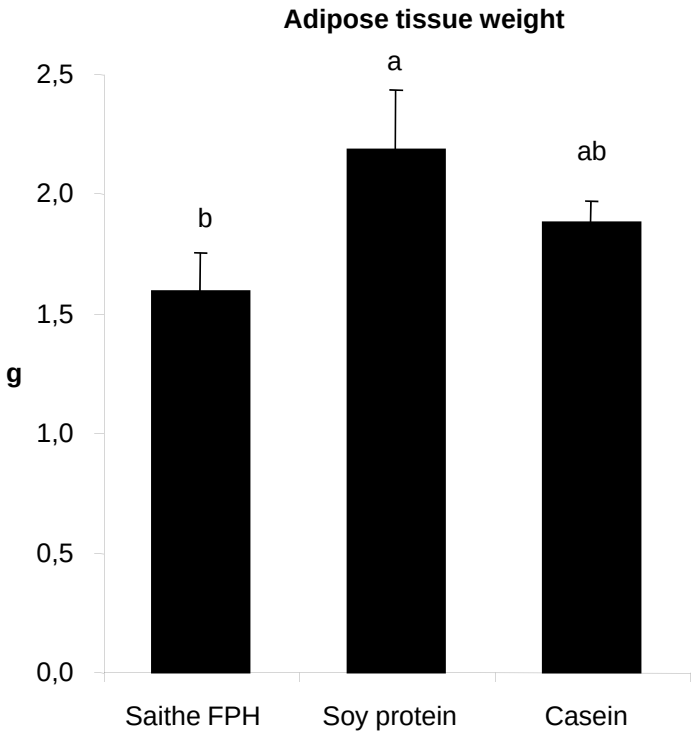


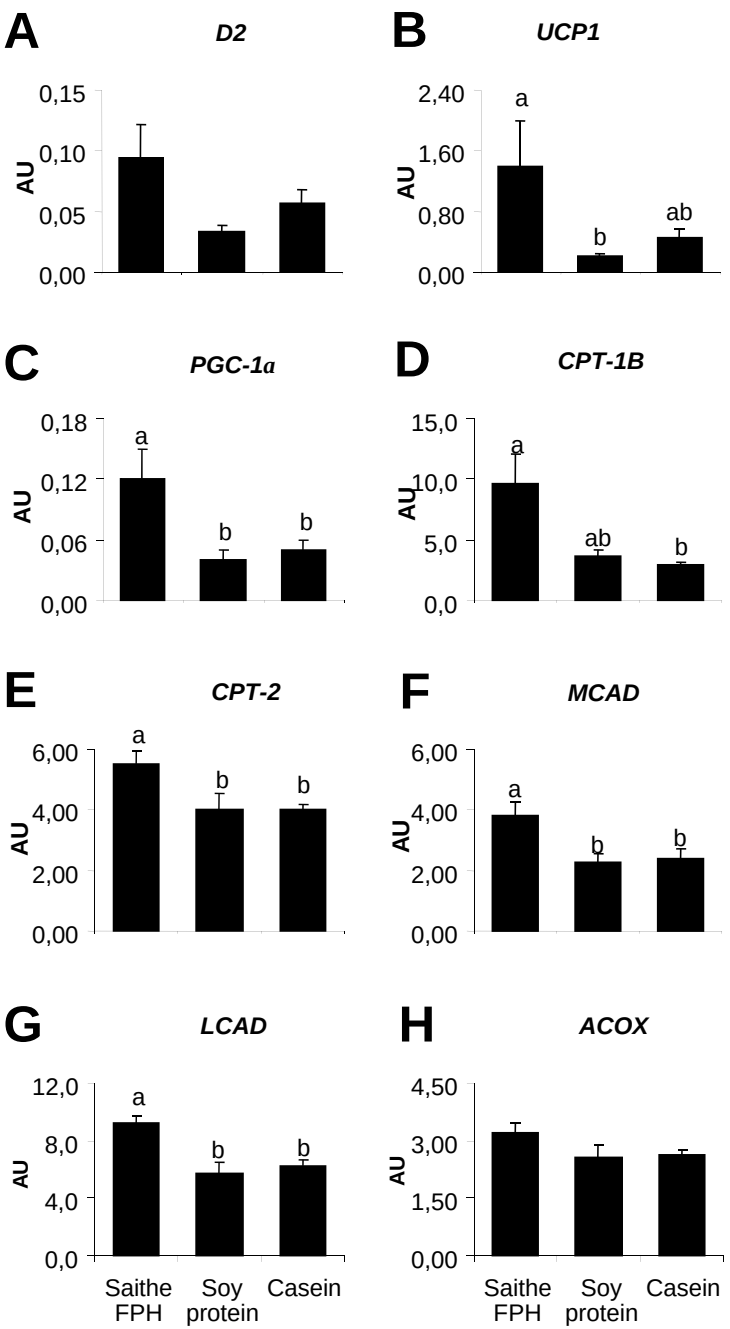
Gallesyrer aukar energiomsetnaden fettvev



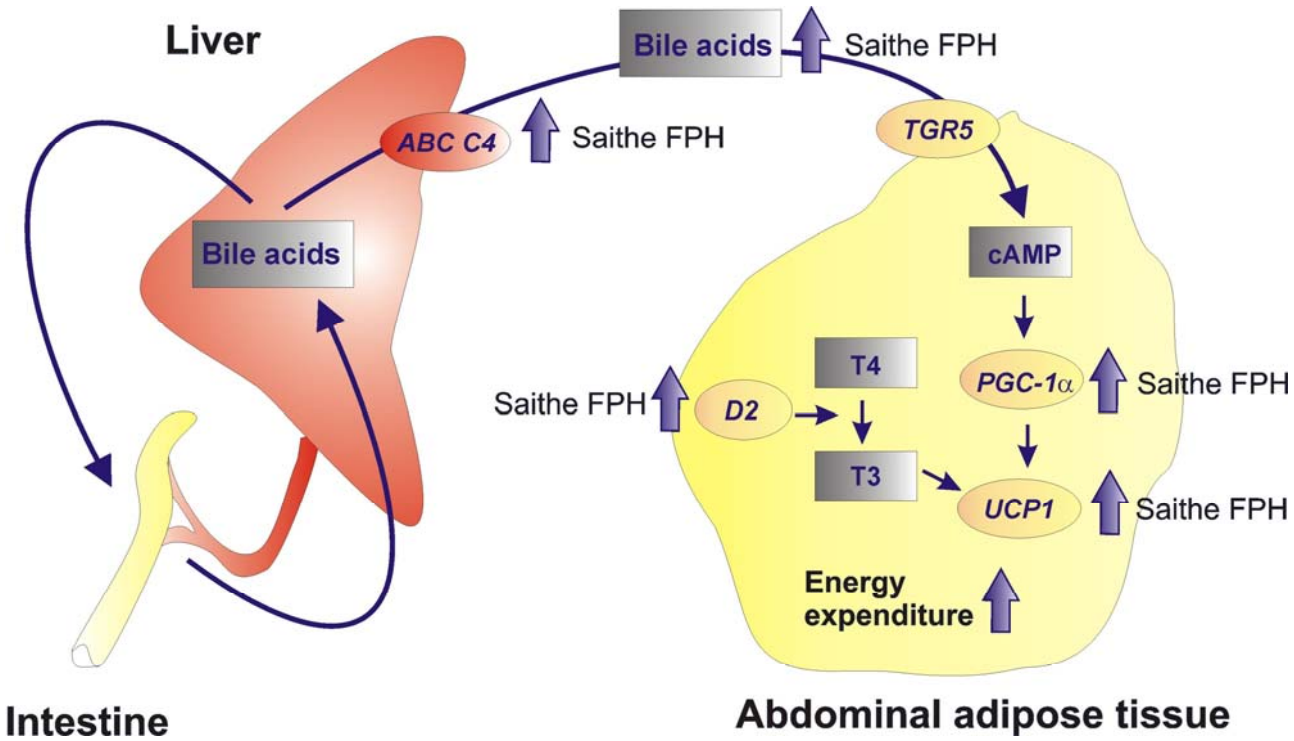
From Baxter, J.D. and Webb, P. (2006) Nature 439: 402-403

FPH reduserer mengde bukfett og endrar genuttrykk i bukfett





Oppsummering FPH og redusert fedme



Konklusjonar:

- Ved likt energi-inntak har rotter som får FPH i dietten:
  - **Redusert mengde bukfett**
  - **Lavare TAG i blod**
  - **Mindre fett i lever**
- FPH kan motvirke utvikling av metabolsk syndrom i rotter, samanlikna med soyaprotein og kasein

FPH mot metabolsk syndrom

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Medarbeidarar:

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- Rubin/ FHF
- Innovasjon Norge
- Danish Natural Science Resarch Council (Danish Obesity Research Centre)
- Programstyret for Ernæring, UiB

Takk for merksemda!

1dak.com/people/biggest-beer-belly-in-the-world/