

# Benefits of consuming beef

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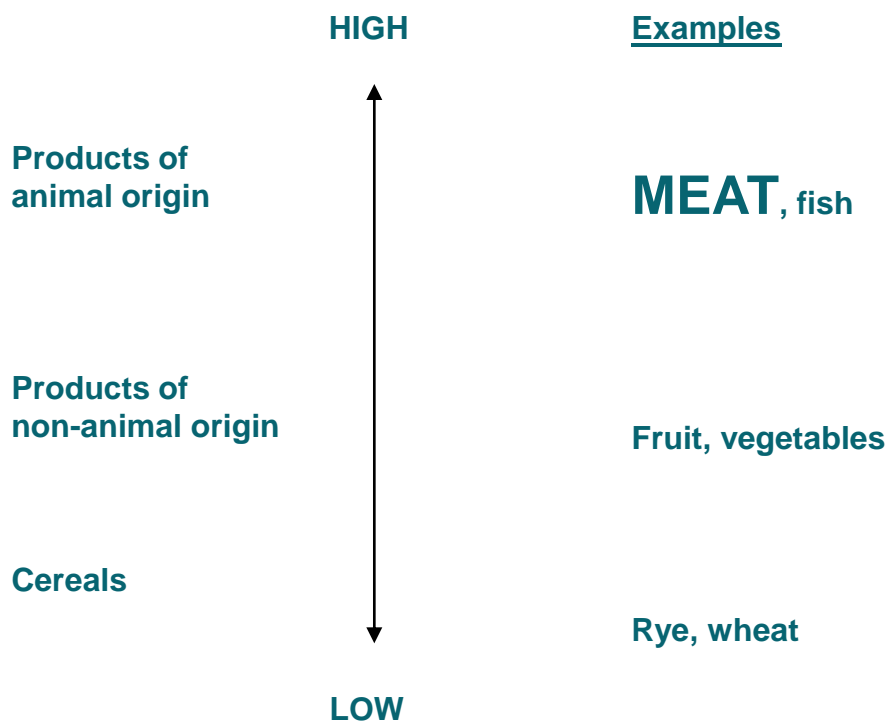


# COPENHAGEN

- The world's best RESTAURANT
- The world's best CHEF
- Highest density of Michelin stars per capita



# Food ranking – western food cultures



Twigg (1984)

# Meat

- **Not only does it taste good – meat is also a great way to fuel your body**
- **Meat is one of nature’s best-tasting multivitamins**



# Pork, beef and meat products

According to "Dietary habits in Denmark 2003-2008", the intake per day is:

- Girls aged 4-9 years 76 g
- Girls aged 10-17 years 79 g
- Women aged 18-75 years 82 g
  
- Boys aged 4-9 years 90 g
- Boys aged 10-17 years 119 g
- Men aged 18-75 years 140 g
  
- Mean intake adults 109 g



# Nutrients from meat

	Contribution %
Energy	10
Protein	25
Fat, total	20
Fat, saturated (SFA)	18
Fat, mono-unsaturated (MUFA)	25
Fat, poly-unsaturated (PUFA)	11
Trans-fatty acids *	11
Carbohydrate (CHO), total	0
Vit. A **	33
Vit. D	19
Vit. E	3
Vit. B1	31
Vit. B2	15

\* Mostly from beef

\*\* Mostly from liver and liver paste

	Contribution%
Niacine	24
Vit. B <sub>6</sub>	20
Folate	7
Vit. B <sub>12</sub>	34
Vit. C	6
Calcium	1
Phosphor	14
Magnesium	6
Iron	18
Zinc	30
Iodine	1
Selenium	25
Potassium	10

Source: Dietary habits in Denmark 2003-2008  
Danish Agriculture & Food Council

# Meat – Nature’s best-tasting Multivitamins

## The best source of:

Protein 33 %

### *Vitamins*

B12 39 %

Folate

Thiamine, B1 32 %

A 30 %

B6 26 %

### *Minerals*

Zinc 34 %

Selenium 27 %

## The second best source of:

Energy 12 %

### *Vitamins*

D 28 %

B2 16 %

### *Mineral*

Iron 20 %

(The iron bioavailability is not taken into account)

# Zinc

- **Vital for body growth and development**
- **Maintenance of the immune system**
- **Wound healing**
- **Appetite control**
- **Cognitive development and functioning**



# Iron

## Iron helps

- to produce red blood cells
- to carry oxygen from the lungs to blood cells and tissue

## Iron is important for

- brain development
- intellectual performance
- healthy pregnancies
- support of the immune system



**Iron deficiency is a critical public health issue – in women and children**

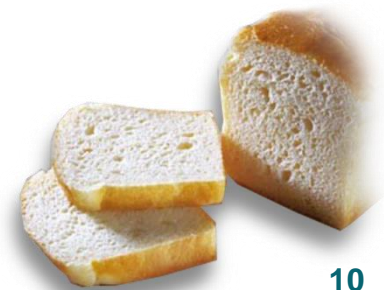
# SFA vs. PUFA / SFA vs. CHO

- Cohort studies suggest a lower risk of IHD associated with substitution of PUFA for SFA



- Recent findings suggest that substitution of CHO with low-GI values for SFA is associated with a lower risk of IHD whereas substitution of CHO with high-GI values for SFA is associated with a higher risk of IHD

Jakobsen *et al.* (2010) *AJCN*



# Protein

- Support growth and maintenance of bones, muscles and tissues
- More satisfying than carbohydrates – lose and maintain weight

*Maintaining a healthy weight – building muscles*



# Protein for life-long health

- **Protein quantity and quality throughout the day**
- **To maintain skeletal muscle mass and body composition**
- **> 1.2 g protein / kg bw**
  - min. 30 g of protein in each meal
  - min. 2.5 g leucine in each meal

Protein and leucine



Donald Layman

Danish Agriculture & Food Council

# Effect of a high protein meat diet on muscle and cognitive functions

## Men

- NP: 1.5 g protein / kg bw – 35 % from meat
- HP: 3.0 g protein / kg bw – 55 % from meat

NP = normal protein

HP = high protein

## Conclusion

- HP improved their reaction time significantly – and higher intake of vitamin D, B<sub>2</sub>, B<sub>6</sub> and B<sub>12</sub>
- No adverse effects of the HP diet

Jakobsen *et al.* (2011) *Clinical Nutrition*



# Protein dose-response effects on appetite

## Men

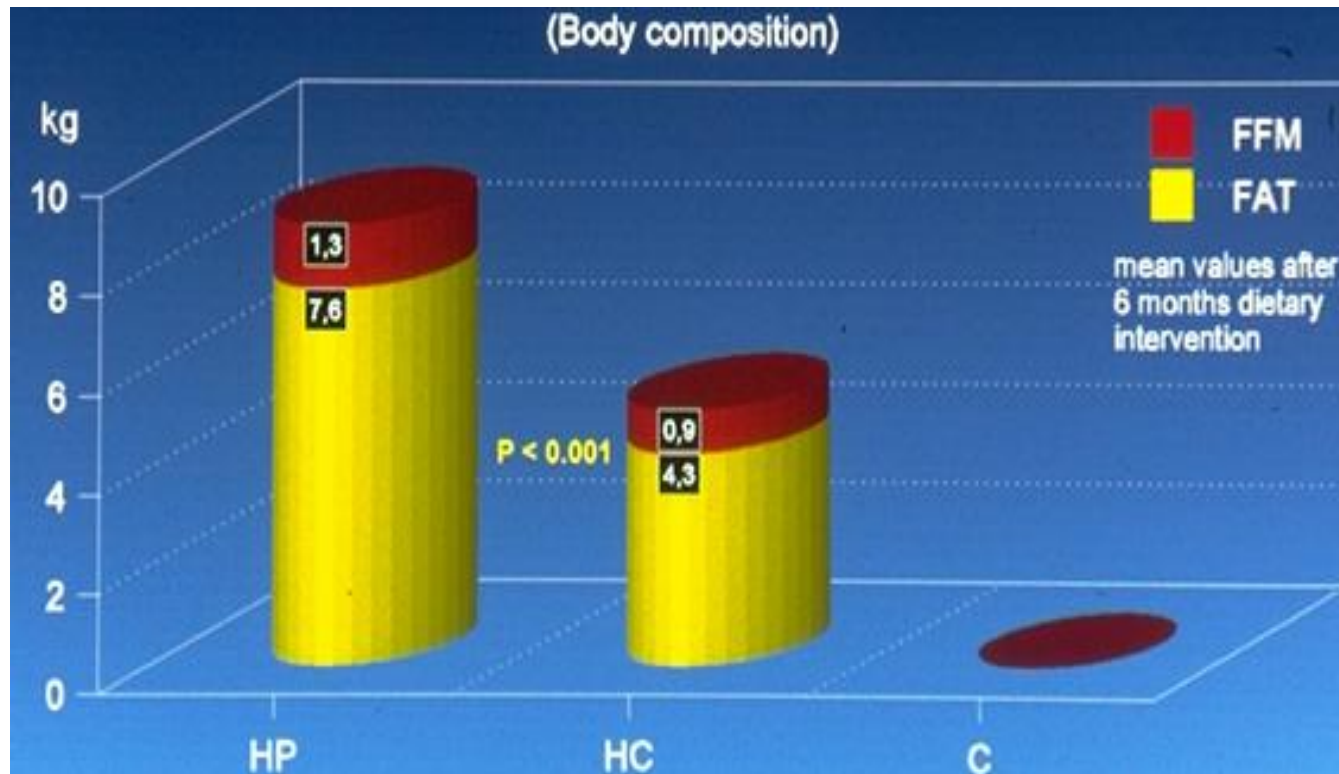
- NP: 14 % protein NP = normal protein
- MHP: 25 % protein MHP = medium-high protein
- HP: 50 % protein HP = high protein

## Conclusion

- Dose-dependent effect of protein was observed on subjective appetite ratings of satiety. Moreover, the large intake of meat-based protein seemed to increase satiety without causing health risk in regard to diabetes.

Belza *et al.* (2010) KU-LIFE

# High Protein (25 %) vs. Low Protein (12 %)



HP= High Protein

HC= High Carbohydrate

C= Control

Skov et al. (1999) *Int. J. Obes.*

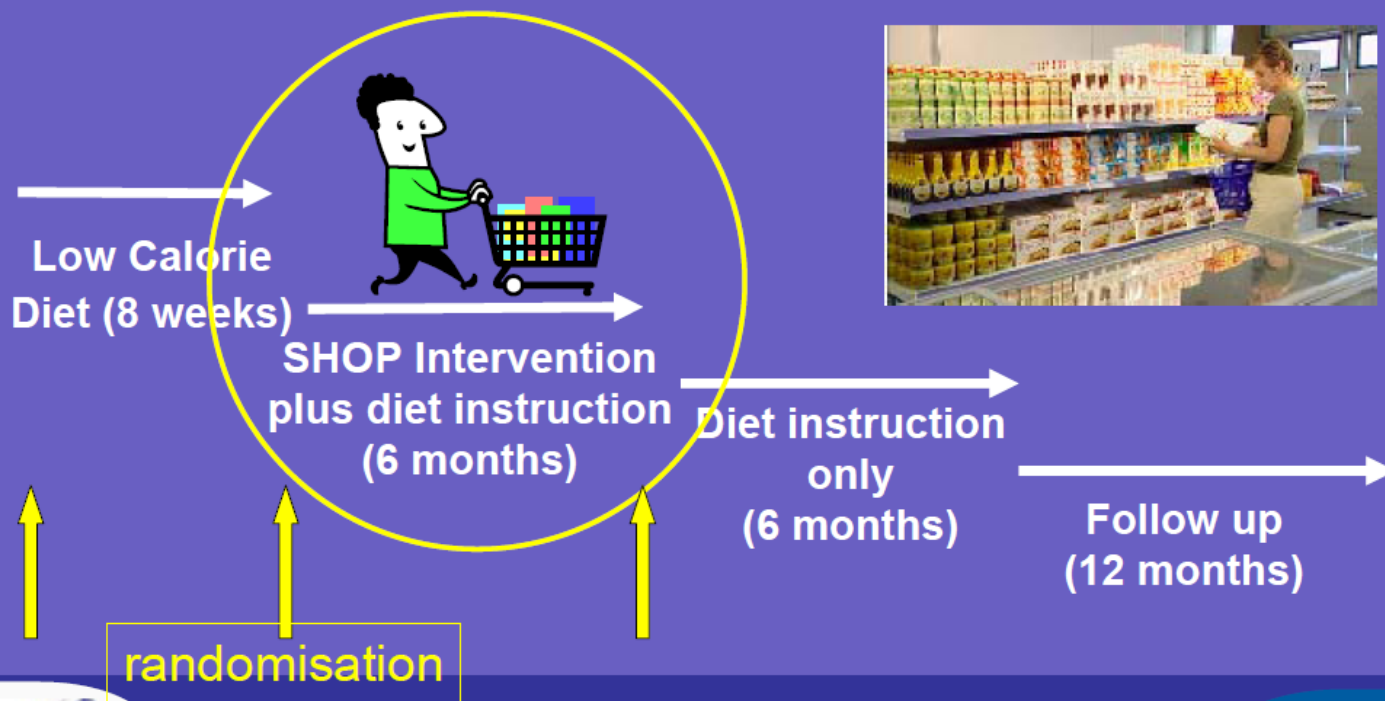
# DIOGENES

- **772 families – 938 adults and 827 children**
  
- **Intervention groups**

• Low protein – low GI:	protein 10-15 %	CHO 60 %
• Low protein – high GI:	protein 10-15 %	CHO 60 %
• High protein – low GI:	protein 23-28 %	CHO 48 %
• High protein – high GI:	protein 23-28 %	CHO 48 %
  
- Fat content constant in all intervention groups 27 %
  
- **Control group**
  - Fat 25 %, Protein 15 %, CHO 60 %

# Diogenes diet intervention

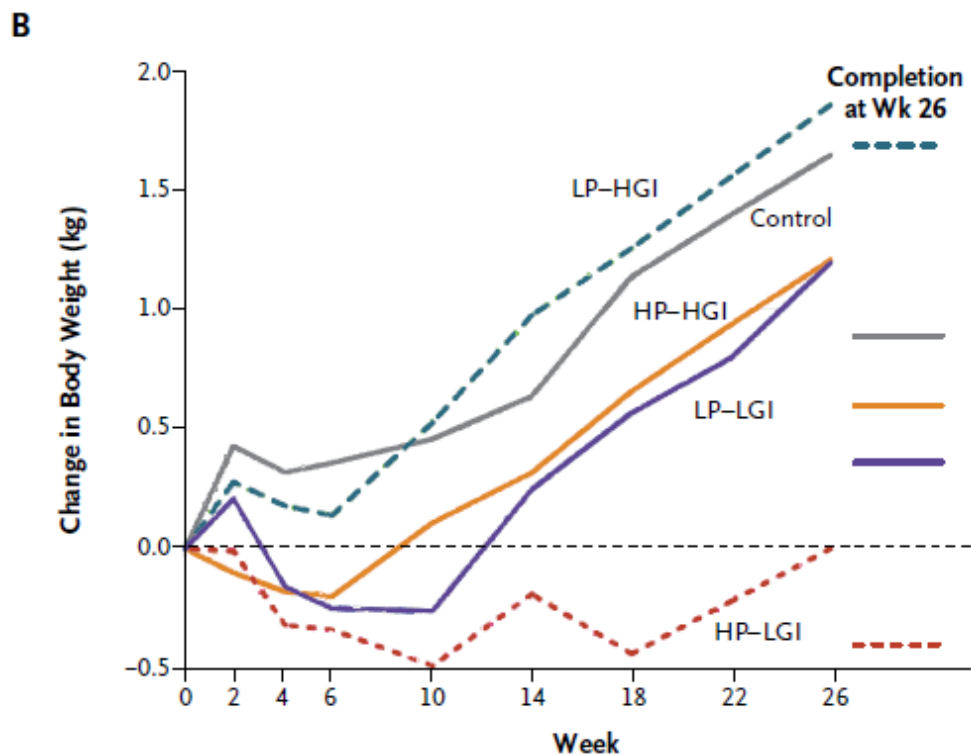
## 2 SHOP model centres (Maastricht & Copenhagen)



[www.diogenes-eu.org](http://www.diogenes-eu.org)



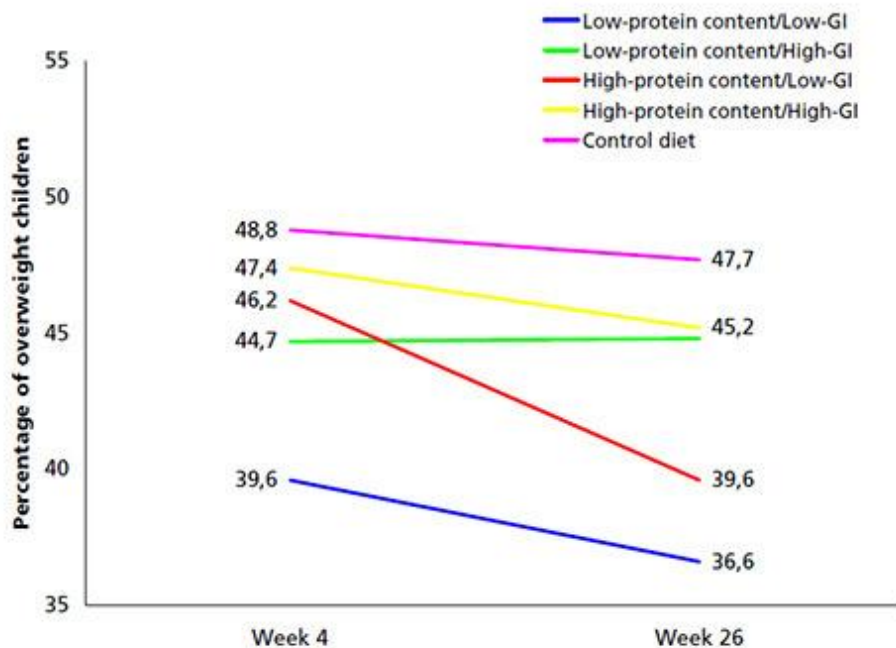
# DIOGENES



Meinert Larsen *et al.* (2010) *N. Engl. J. Med.*

# DIOGENES

Development in share of overweight children in the five diet types



Source: Papadaki et al., *Pediatrics*, vol. 126, no. 5, November 2010

Papadaki et al. (2010) *Pediatrics*

# DIOGENES

## Conclusion

- A low GI diet providing 23 % of calories from protein prevented weight regain after a 12 % weight loss, and had a beneficial effect on glucose metabolism.
- The high protein/low GI diet was associated with lower drop-out rate



Meinert Larsen *et al.* (2010) *N. Engl. J. Med.*

# Meat and cancer

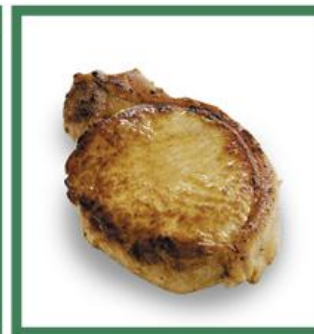
- **Given the complexities and conflicting research findings, it is inconceivable that WCRF could draw definitive conclusions and make such precise recommendations about red meat and processed meat.**
- **Eat red meat and processed meat in a responsible way as part of a balanced diet**

# Know your product

- Cuts that fit consumer needs
- Nutrition content in raw and cooked cuts
- Update of food composition tables
- Consumption data – amount of meat eaten
- Cooking methods that give the best culinary experience
- Research



Raw  
15 grams of fat



Fried  
15 grams of fat



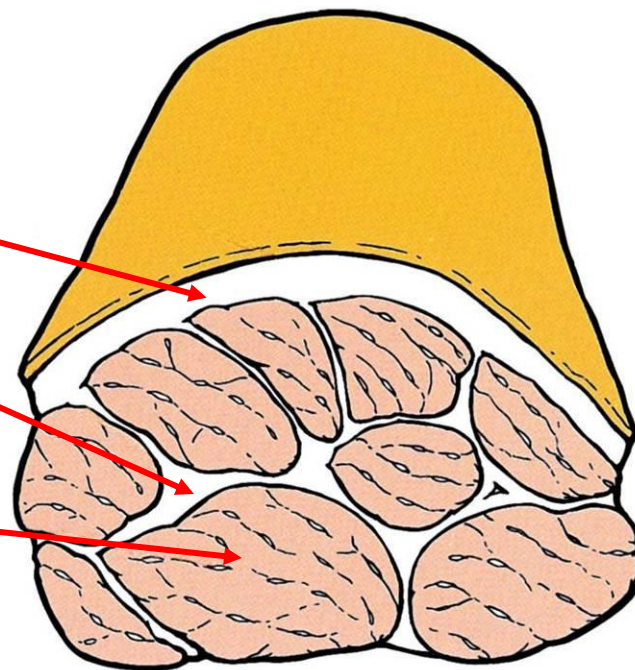
Visible fat removed  
8 grams of fat

# Raw meat – where is the fat?

Subcutaneous fat –  
e.g. lard

Intramuscular fat – between muscles

Intramuscular fat – within  
the muscles (marbling)



**Frying without adding fat, or frying in deeper fat has no influence on nutrition**

# Know your product

- **Recipes – respect the consumer**
- **Portion size**
- **Healthy plate / part of a balanced diet**
- **Easy to get the information**
- **Reducing food waste**



# The future

- **Consumption of red meat as part of a healthy and sustainable diet**
- **Cook the meat in the best possible way – ensure greatest possible pleasure**

**Thank you for your attention!**