



DANISH MEAT
RESEARCH INSTITUTE

Global winners produce healthy meat products

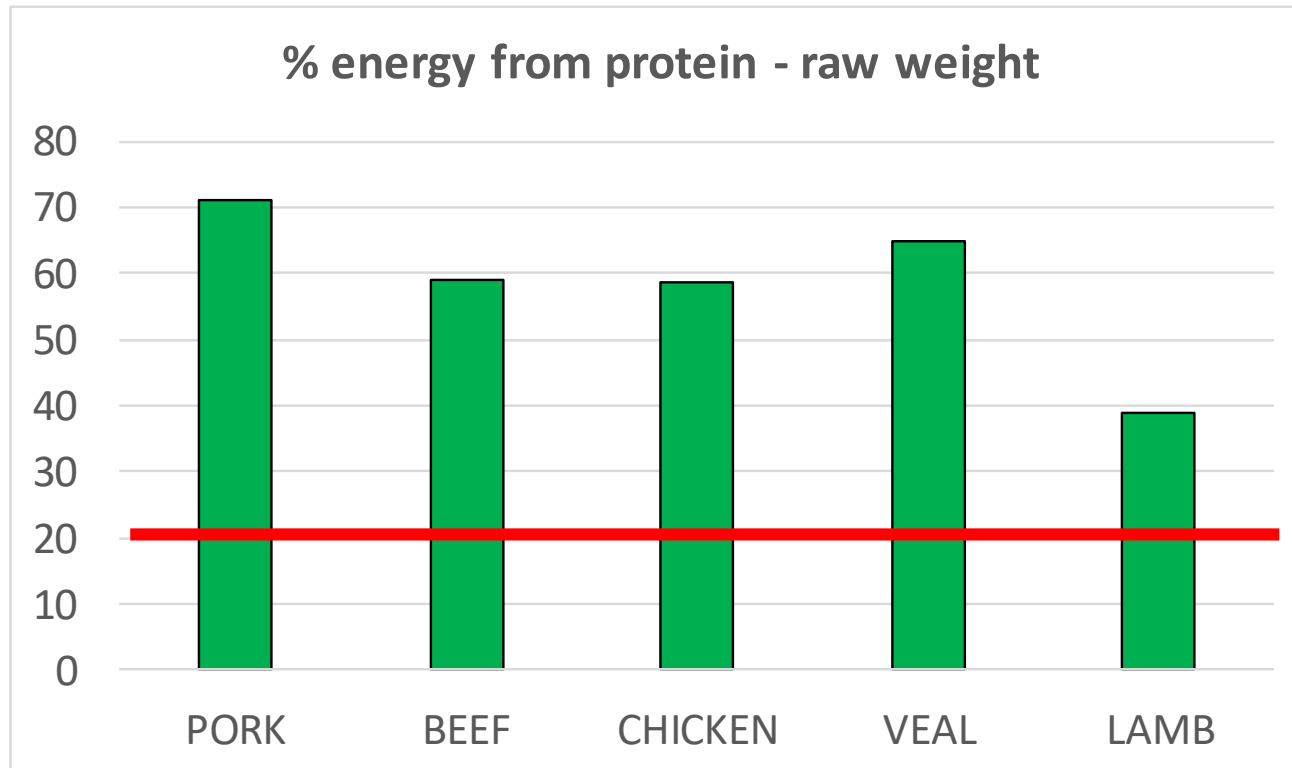
Ursula Kehlet, PhD,
consultant

unk@teknologisk.dk

IMS symposium 2017



Meat is an important source of proteins



**Also an excellent source of
B vitamins, iron and zinc**

"High protein content"

**All types of meat qualify for
EU claims on protein**

Protein and health



Increased protein needs in

- Satiety and weight management
- Healthy ageing
- Muscle building and recovery



28 g protein on each plate



DANISH MEAT
RESEARCH INSTITUTE



Chicken breast

585 kJ



Pork chop

without fat

600 kJ



Beef

695 kJ



Eggs

1320 kJ

28 g protein on each plate



Chicken breast
585 kJ



Pork chop
without fat
600 kJ



Beef
695 kJ



Eggs
1320 kJ



Kidney beans
1625 kJ



White beans
1810 kJ



Green beans
1540 kJ



Hazelnuts
4705 kJ

28 g protein on each plate



Chicken breast
585 kJ



Pork chop
without fat
600 kJ



Beef
695 kJ



Eggs
1320 kJ



Tofu
1150 kJ



Rye bread
4760 kJ



Crispbread
4510 kJ

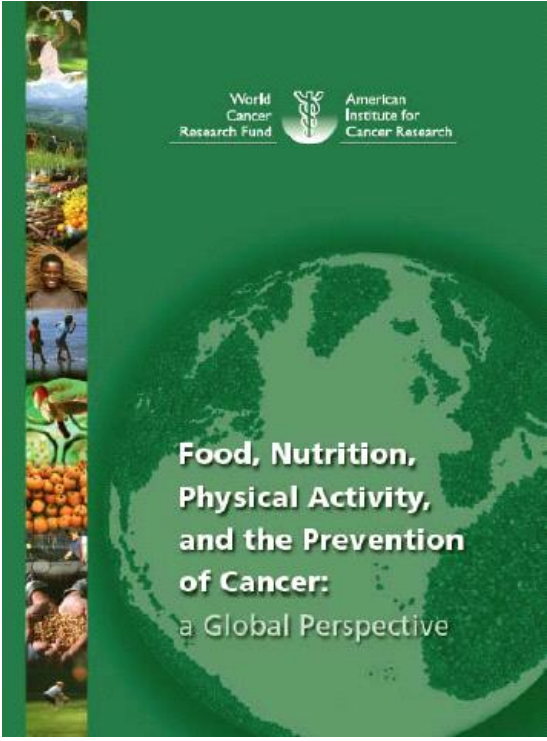


Parboiled spelt
3330 kJ

Nutritional challenges when eating too much processed meat



DANISH MEAT
RESEARCH INSTITUTE

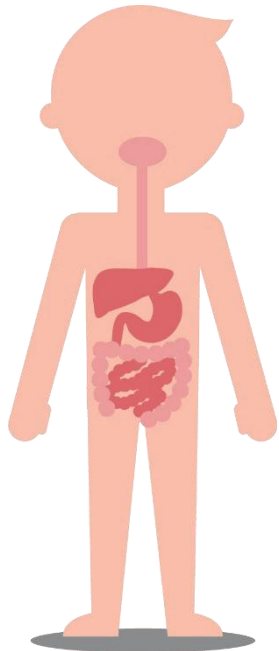


The new generation of meat products



Fibre ingredients

- Functionality
- Easy to use
- Keep production cost down
- Health benefits



Frankfurters with fibres



"Source of fibre"

	Sausages w/rye bran	Normal sausage
Energy	669 kJ/ 160 kcal	1128 kJ/ 272 kcal
Protein	13.5	13.0
Carbohydrates (available)	2.7	2.5
Dietary fiber	3.0	-
Fat	10.0	23.0

per 100 gram

Sensory quality

Sensory quality

- ↑ cereal odour
- ↑ grainy mouthfeel
- ↑ brown appearance
- ↑ pricked appearance
- ↑ coarse structure



Sensory quality

- ↑ firmness
- ↑ gritty texture
- ↑ crumbly texture



Consumer attitudes towards fibre Frankfurters

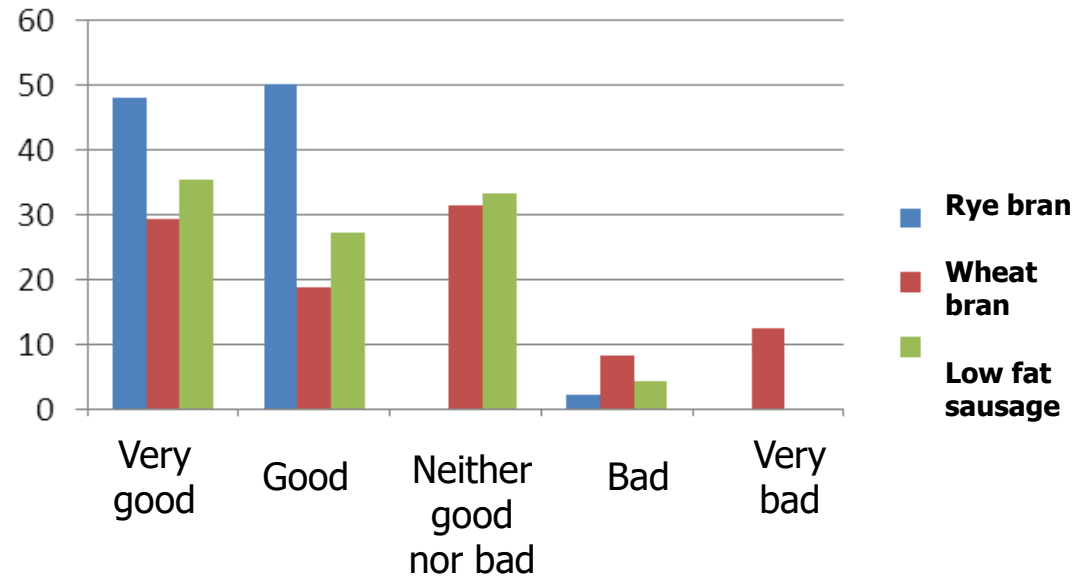
Children:
7-10 years old
(n=49)



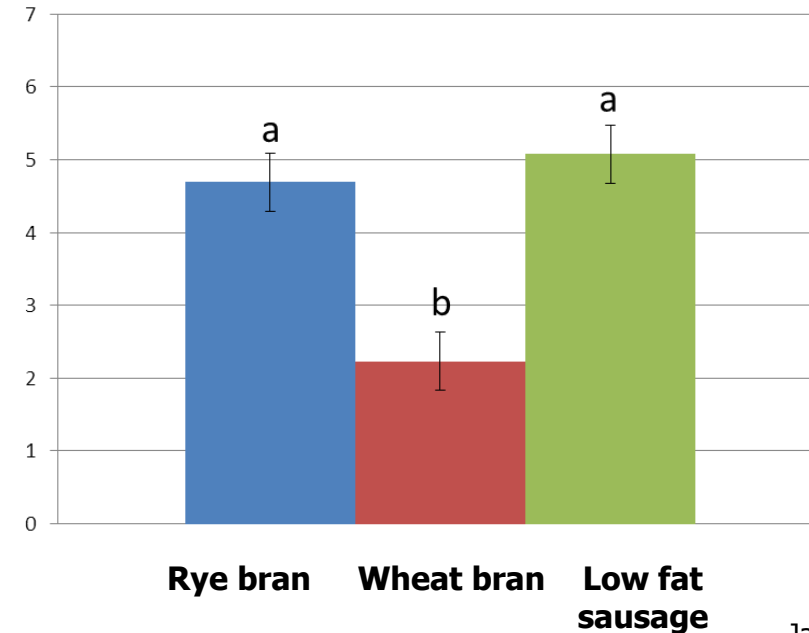
Adults:
34-52 years old
(n=24)



Consumer responses as %



Liking on a 10-point scale

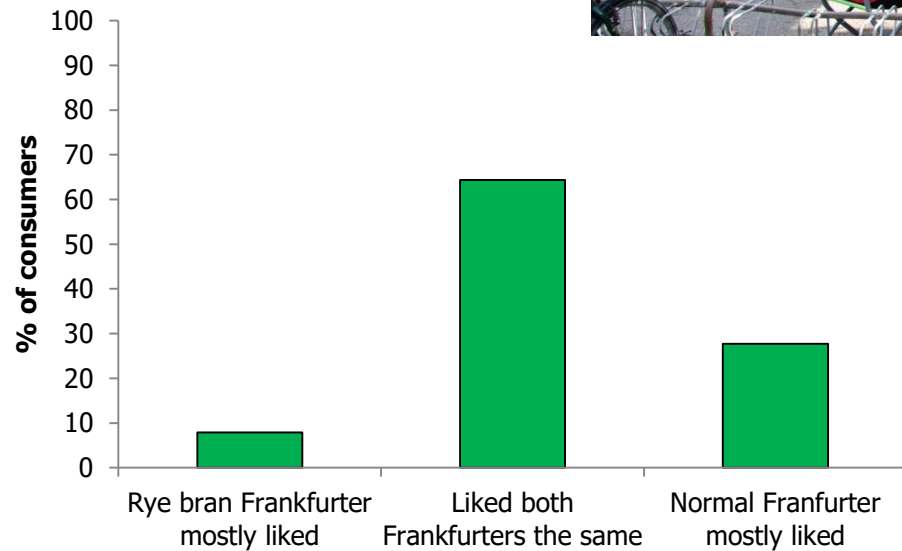


Customers at the traditional Danish sausage wagon

101 consumers

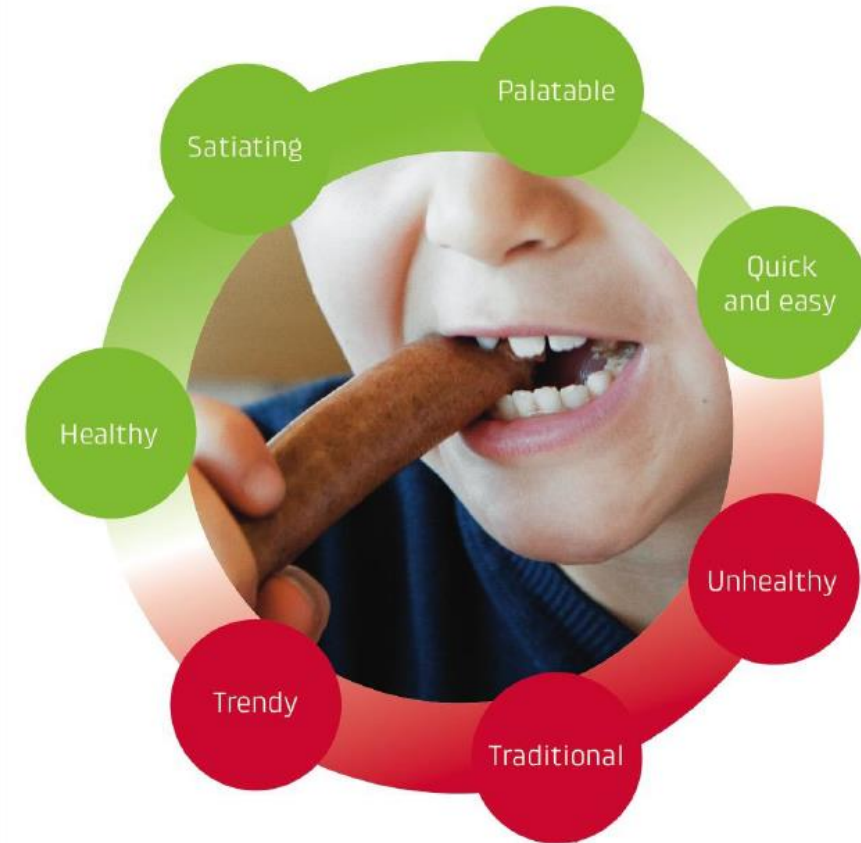
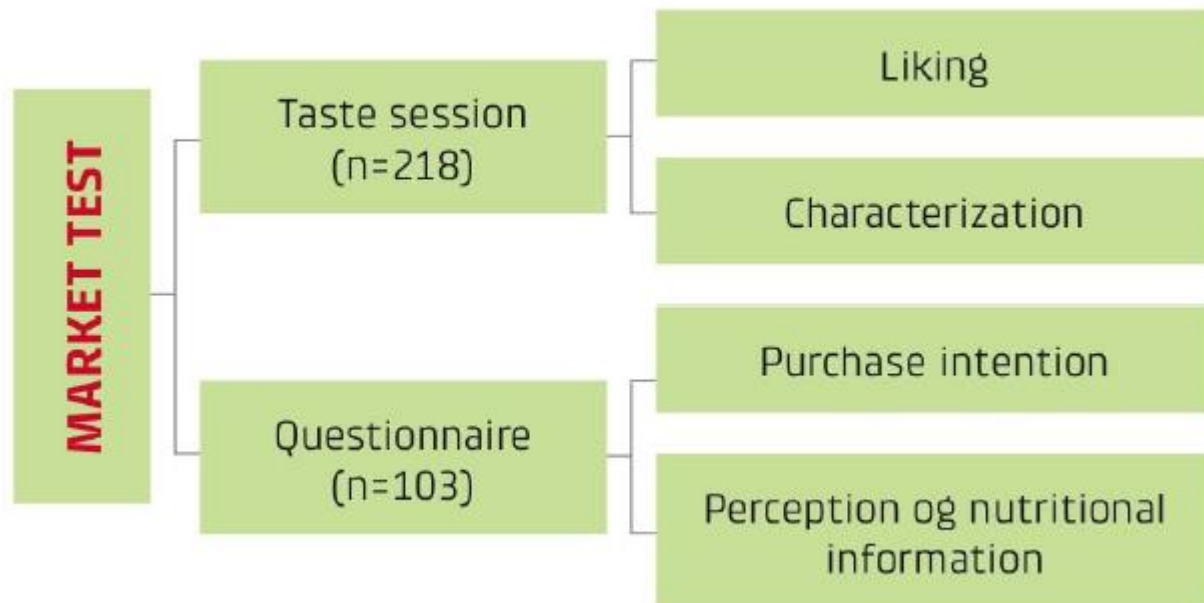
Two Frankfurters tested

- Rye bran (10% fat)
- Traditional (25% fat)



Potential to be marketed to retail stores

"Source of fibre"



Figur 3. Characterization of healthy rye bran sausages evaluated by Danish customers (n=218). Words in green were described by $\geq 60\%$ of the consumers whereas words in red were seldom used to characterize the sausages.

Today's market of processed meat products



DANISH MEAT
RESEARCH INSTITUTE



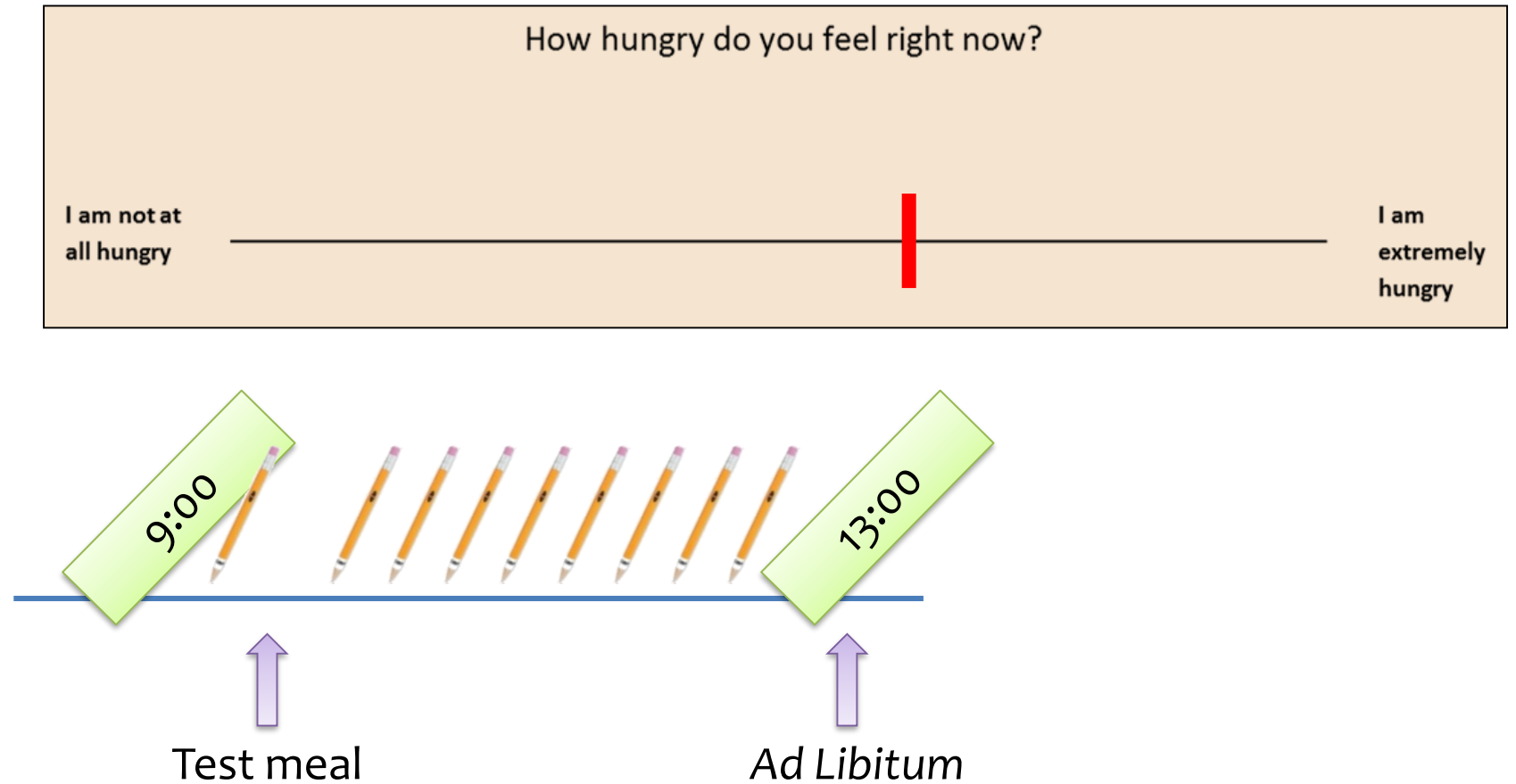
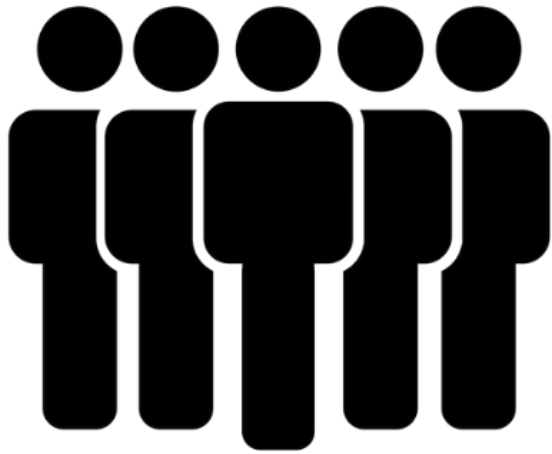


Food that target appetite control
is an important aspect of weight management

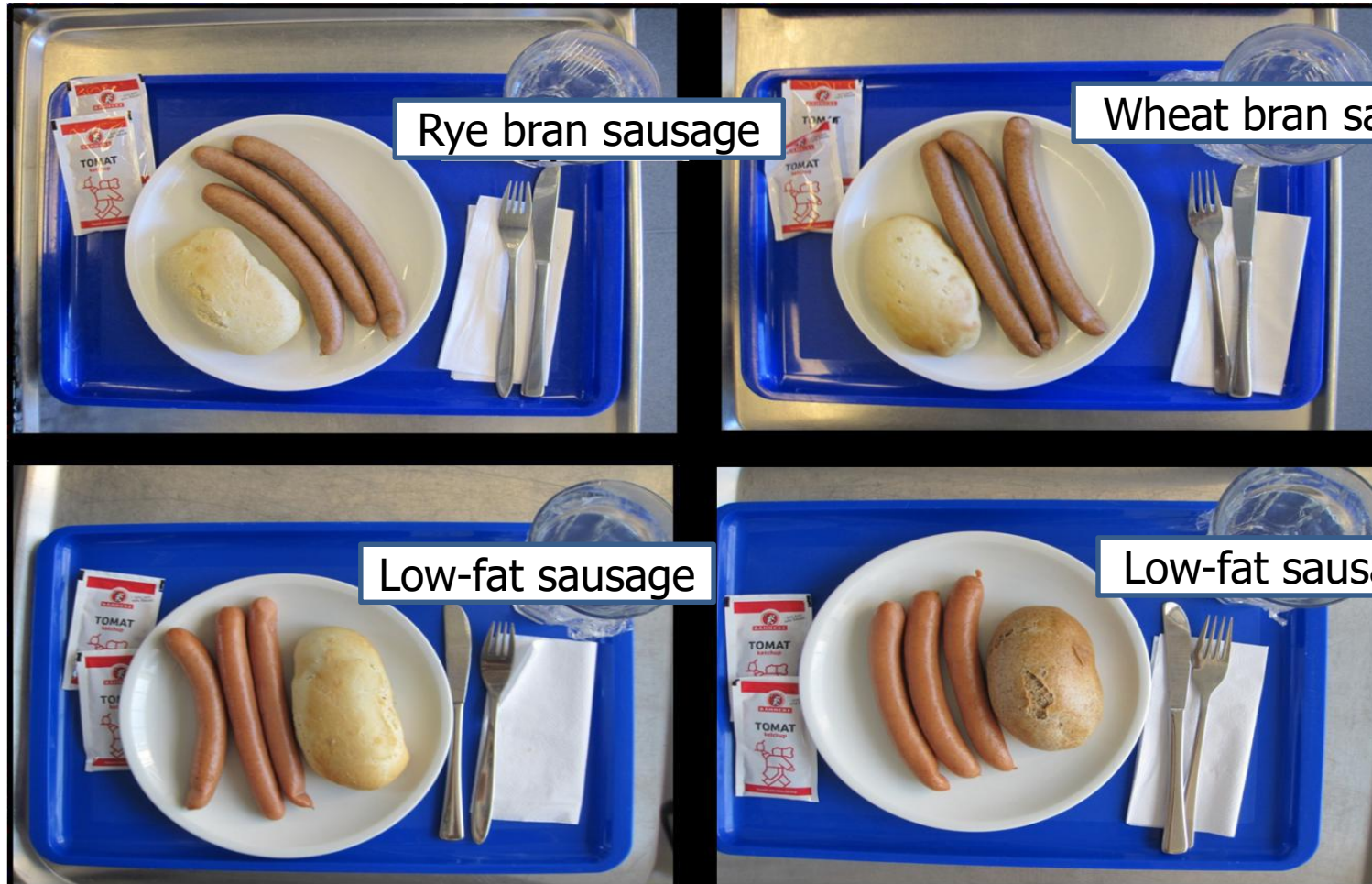


Meal tests

- to determine a food's impact on satiety

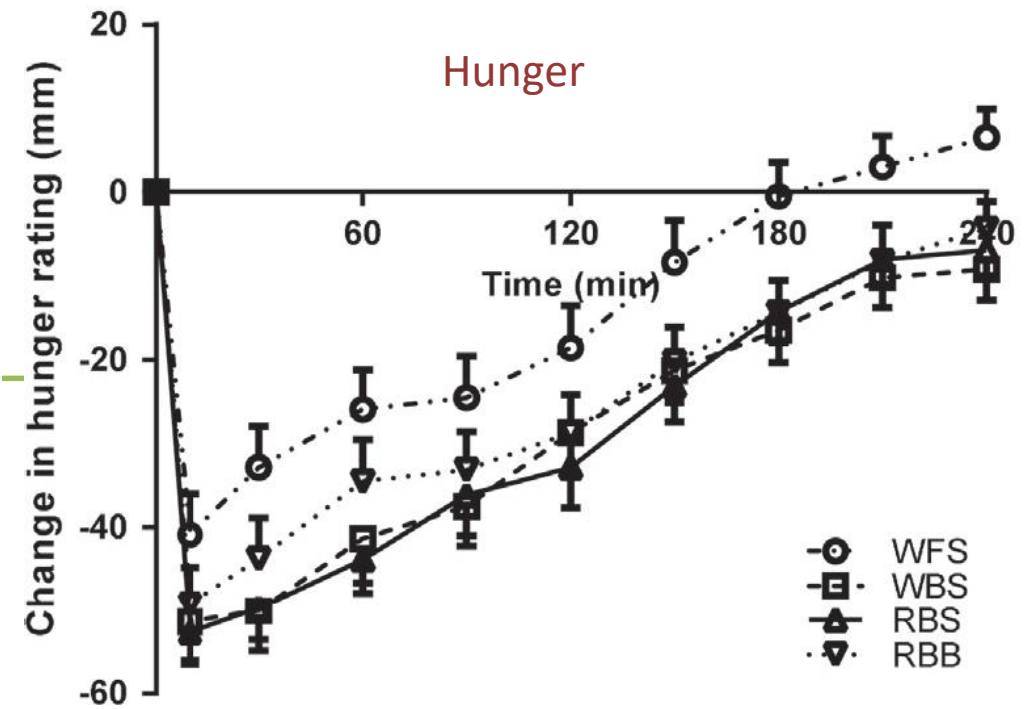
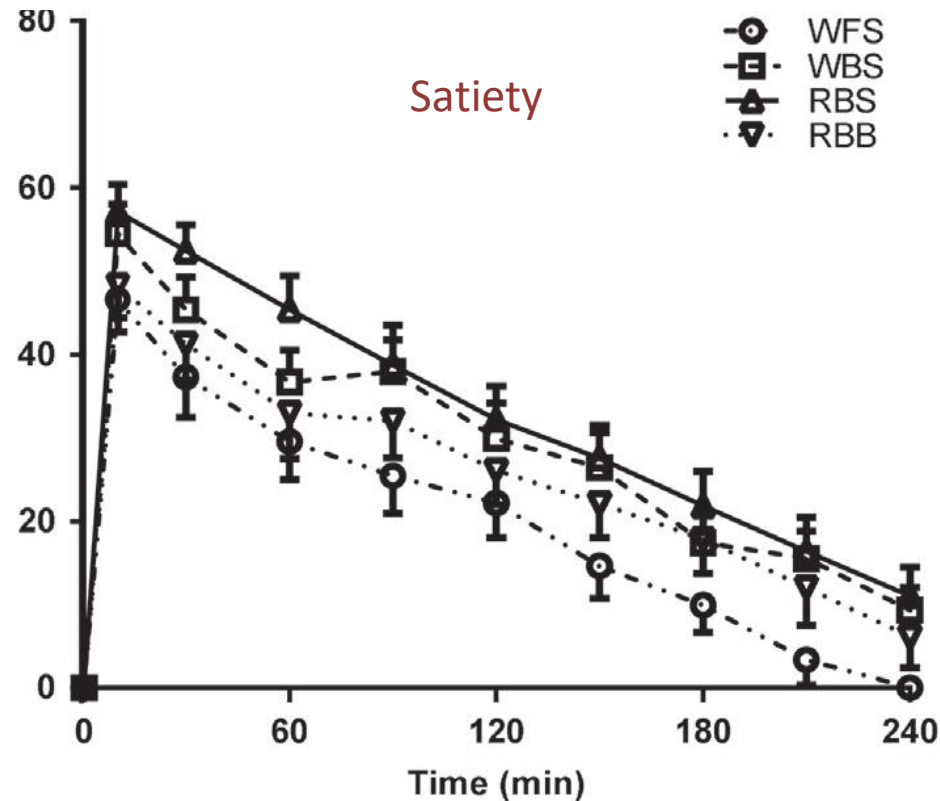


Meal test with fibre sausages



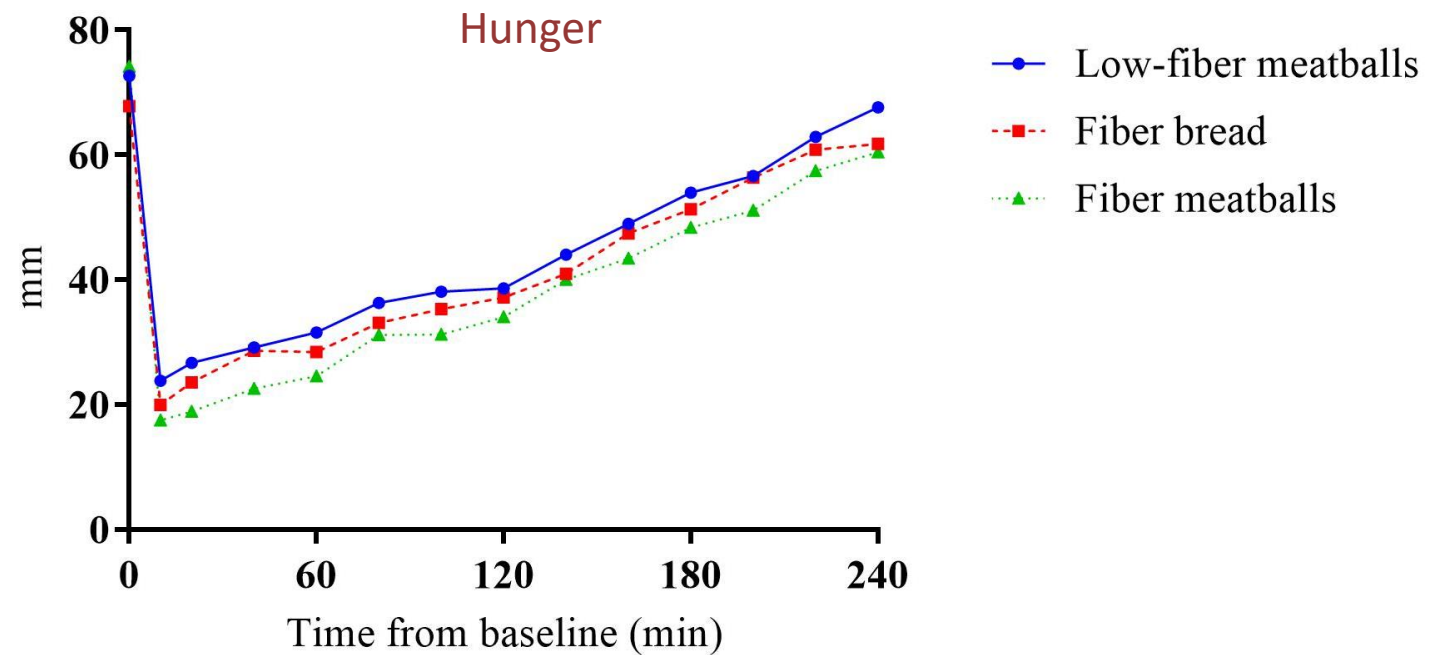
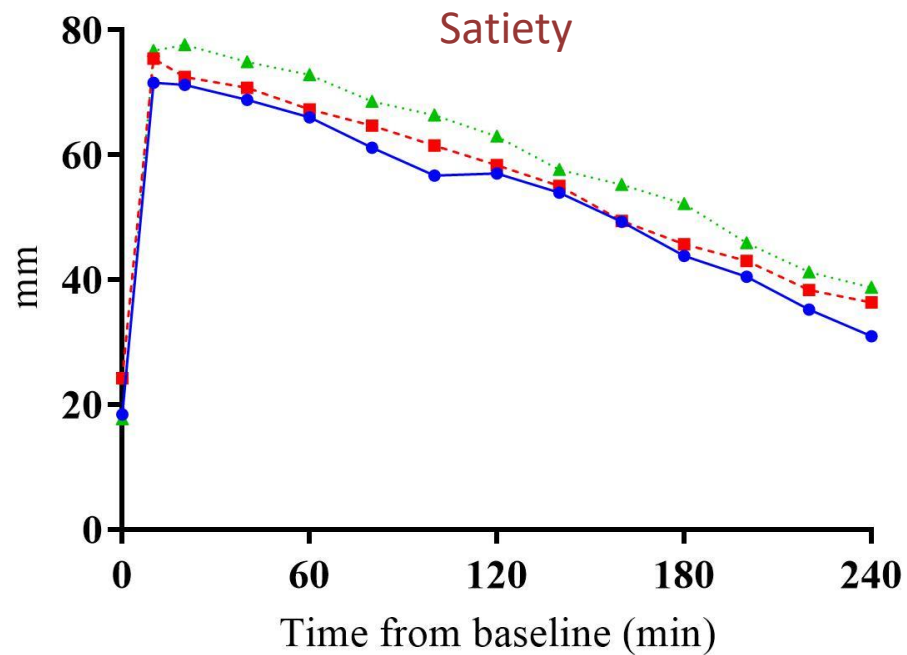
Satiating rye bran sausages

Addition of 3% fibre to sausages increased satiety and lowered hunger
Fibres in meat were more satiating than fibres in bread



Satiating fibre meatballs

3% fibre from pea fibre and rye bran to meatballs increased satiety and lowered hunger



Take home messages

- Meat is an important source of high-quality proteins
- Fibre can be used in meat products without compromising consumer acceptability and at the same time improve the nutritional value and increase satiety
- The meat industry can contribute with nutritionally improved meat products to control appetite targeted consumers who want to maintain or loose weight

