

Whole grain rye bread – “old” becomes “new” again



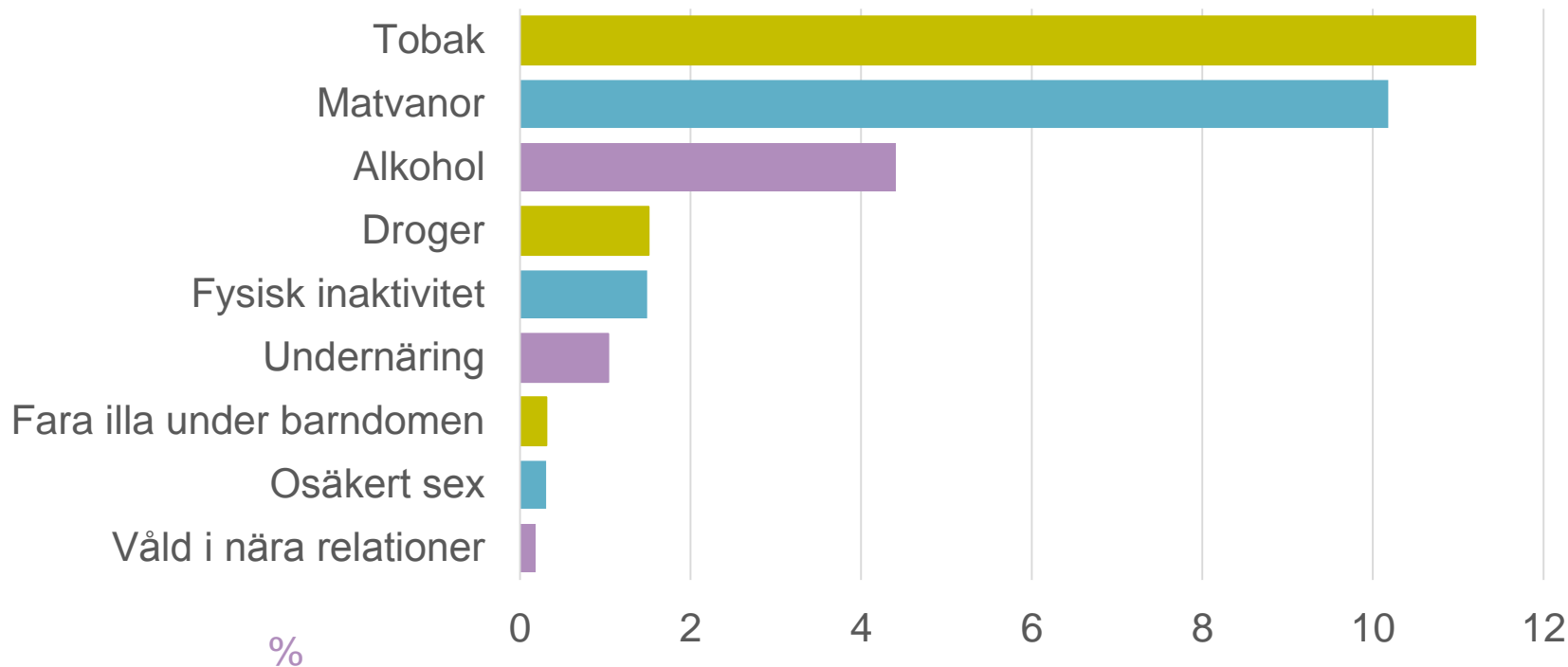
Galia Zamaratskaia, Associate Professor
Swedish University of Agricultural Sciences
Swedish Food Agency

Global health challenges



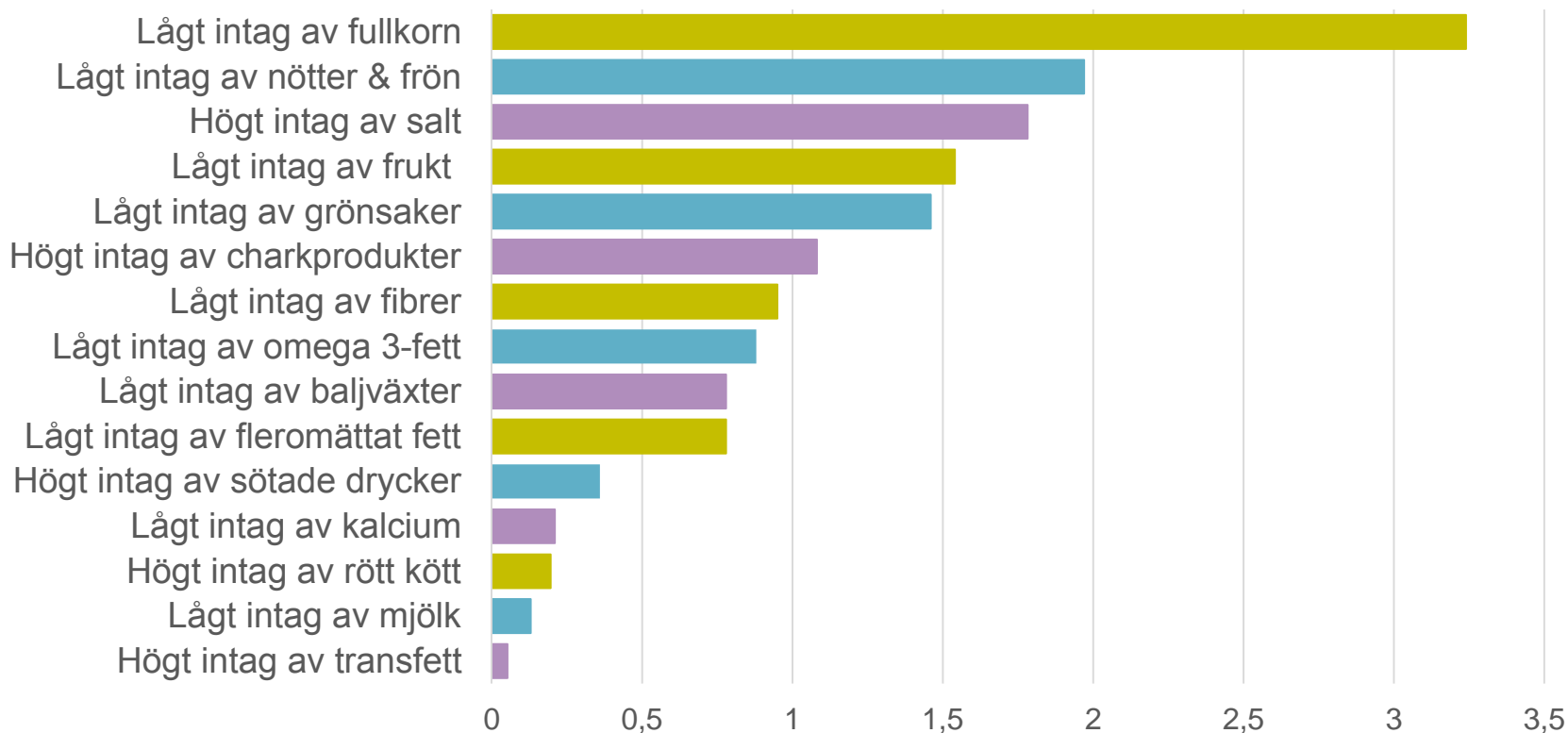
- By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
- Healthy food choice is important!

Lifestylefactors affecting global health



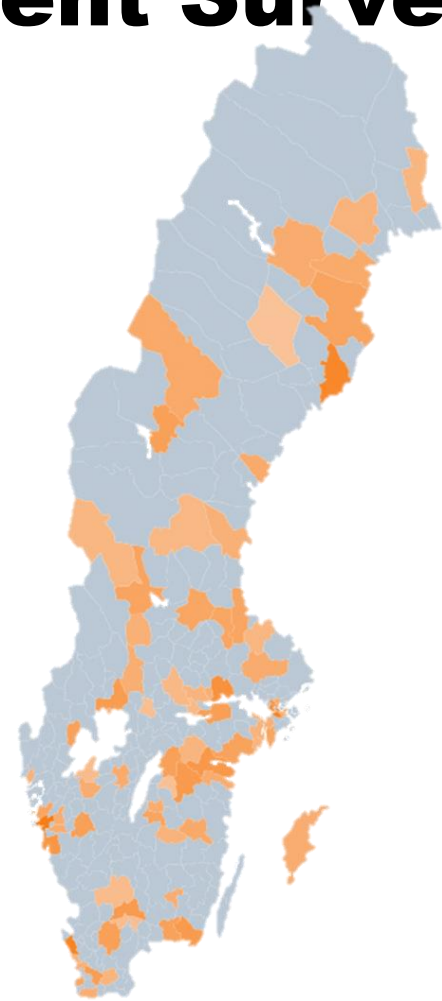
[Source: Institute for Health Metrics and Evaluation](#)

The largest risk factors in Swedish population 2017



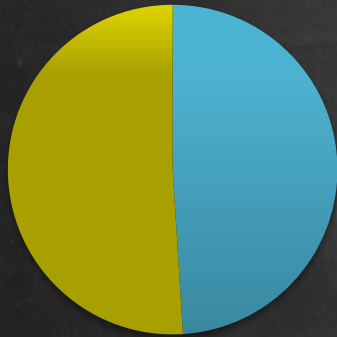
The Riksmaten Adolescent Survey

- Adolescents recruited through schools
years 5, 8 and 11, approx. 3000 student
- Web-based 2 x 24h recall, questionnaires
- Weight and height, accelerometers 7 days
- Blood and urine, 1100 students
- Data collection Sept 2016 – May 2017



Carbohydrates

Fiber



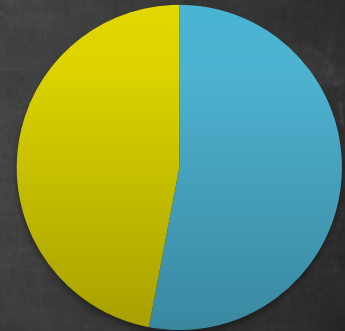
■ < 2g/MJ ■ > 2g/MJ

Whole grain



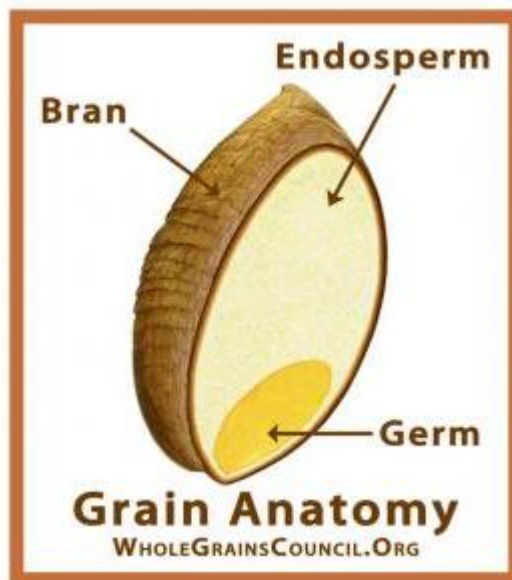
■ < 7,5g/MJ ■ > 7,5g/MJ

Added sugar



■ > 10 E% ■ < 10 E%

What is whole grain?



Whole grains or foods made from them contain all the essential parts and naturally-occurring nutrients of the entire grain seed in their original proportions. If the grain has been processed (e.g., cracked, crushed, rolled, extruded, and/or cooked), the food product should deliver the same rich balance of nutrients that are found in the original grain seed.

Bran and germ have a high content of fibre, micronutrients (vitamins, minerals, trace-elements) and bioactive plant compounds (antioxidants, sterols, etc).

Sources of dietary fibers



Bread and breakfast cereals are the largest source of whole grains and contributed to 27% and 13% of whole grain intake in adolescents

Major source of dietary fibers in Sweden is bread (21%)

Rye – one of the best sources



The dietary fiber content in whole grain rye bread is 8 - 10 g/100 g.
This amount gives approximately 3.5 g of dietary fiber per serving of 35 g.

Impact of sourdough fermented rye crisp on appetite

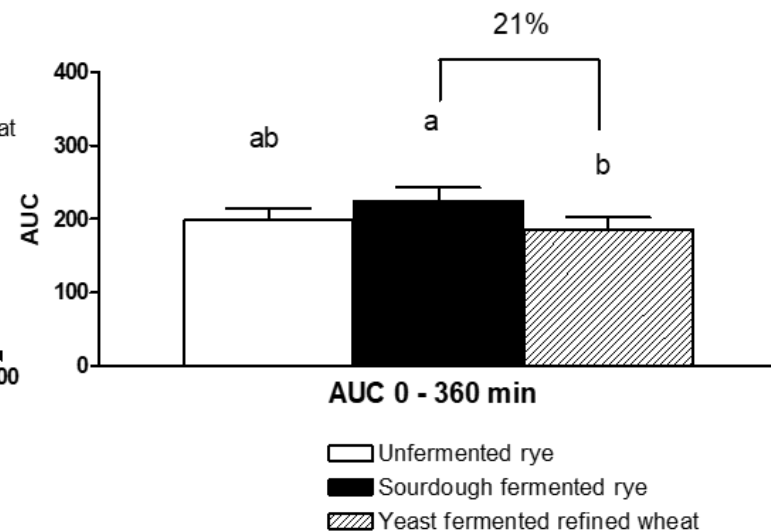
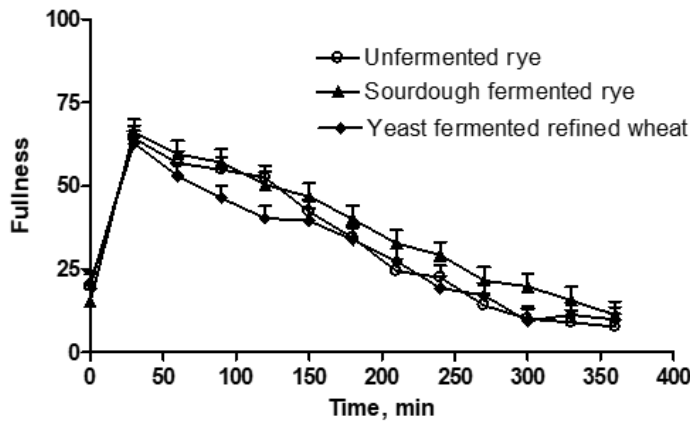
Impact of sourdough fermented rye crisp on appetite and postprandial glucose, insulin and GLP-1 responses. Comparison with unfermented rye crisp bread and with a refined wheat crisp bread



Prof Rikard Landberg, PI,
Chalmers University of Technology

Impact of sourdough fermented rye crisp on appetite

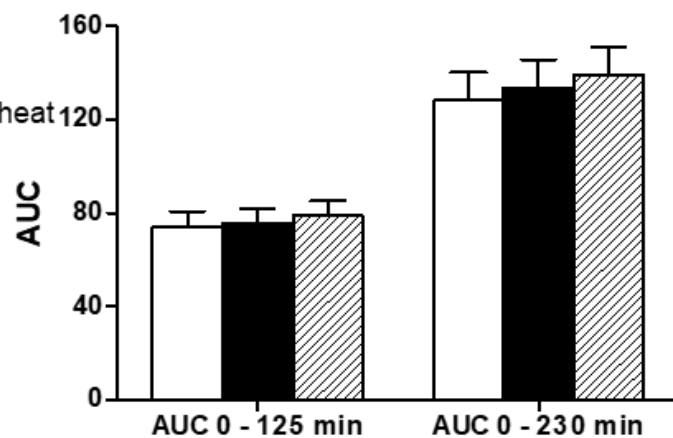
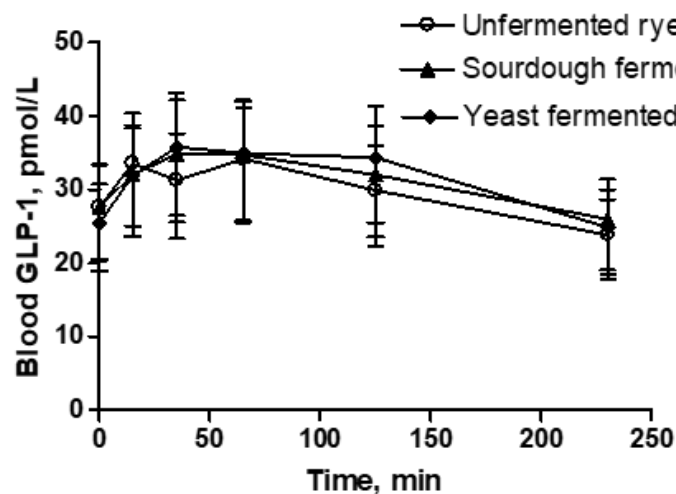
Impact of sourdough fermented rye crisp on appetite



Rye crispbread induces higher satiety than soft bread of wheat
The composition and amount of fibre are both responsible for the effects

Impact of sourdough fermented rye crisp on GLP-1

No differences in GLP-1 concentrations after consumption of sourdough fermented rye crisp, unfermented rye crisp bread and refined wheat crisp bread




Unfermented rye
 Sourdough fermented rye
 Yeast fermented refined wheat

[Article](#)[Metrics](#)

Volume 118, Issue 9 14 November 2017, pp. 686-697

Cited by

 [Acce](#)

Impact of sourdough fermentation on appetite and postprandial metabolic responses – a randomised cross-over trial with whole grain rye crispbread

Galina Zamaratskaia ^(a1), Daniel P. Johansson ^(a1), Matheus Antunes Junqueira ^(a1), Linda Deissler ^(a1)  ... DOI: <https://doi.org/10.1017/S000711451700263X> Published online by Cambridge University Press: 29 November 2017

Abstract

Sourdough fermentation is considered to have beneficial effects on postprandial satiety and metabolic responses, but studies demonstrating effects at physiological conditions are lacking. The aim of this acute breakfast intervention

Articles

Carbohydrate quality and human health: a series of systematic reviews and meta-analyses

Andrew Reynolds, Jim Mann, John Cummings, Nicola Winter, Evelyn Mete, Lisa Te Morenga

Lancet. 2019 Jan 10.

doi: 10.1016/S0140-6736(18)31809-9.

How much is enough?

The Swedish recommendation of whole grain intake is approx.
70 g per day for women and
90 g per day for men
Dietary fiber intake should be at
least 25–35 g per day, or
approximately 3 g/MJ (adults)

”Chose whole grain whenever you eat
bread, flakes, pasta or rice”
/Swedish Food Agency

MORE

Vegetables, fruit and berries
fish and shellfish
nuts and seeds
exercise



SWITCH TO

wholegrain
healthy fats
low-fat dairy products



LESS

red and processed meat
salt
sugar
alcohol



Example with 30 g dietary fiber

- 1 small (140 g) pear (5.5 g fiber)
- 2 slices of rye crispbread (5 g fiber)
- 1.5 dl green peas (5 g fiber)
- 1.5 parts boiled quinoa (8.5 g fiber)
- 1 dl blackberry (7 g fiber)



From: <https://www.styrkelabbet.se/hur-mycket-kostfibrer/>



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Swedish University of Agricultural Sciences



Livsmedelsverket
Swedish Food Agency

Thank you!