98th AF meeting: 3-4 December 2025

The Application of Risk-Benefit Assessment in a Regulatory Context: Insights from DTU Food

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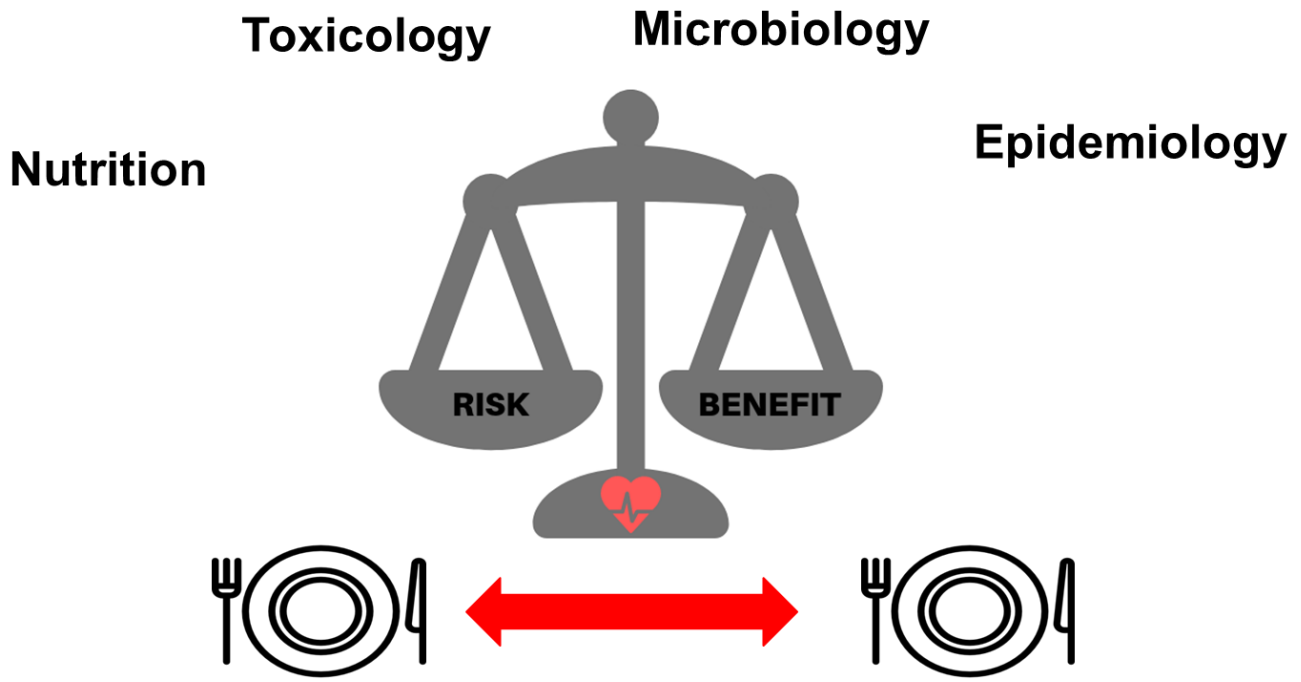
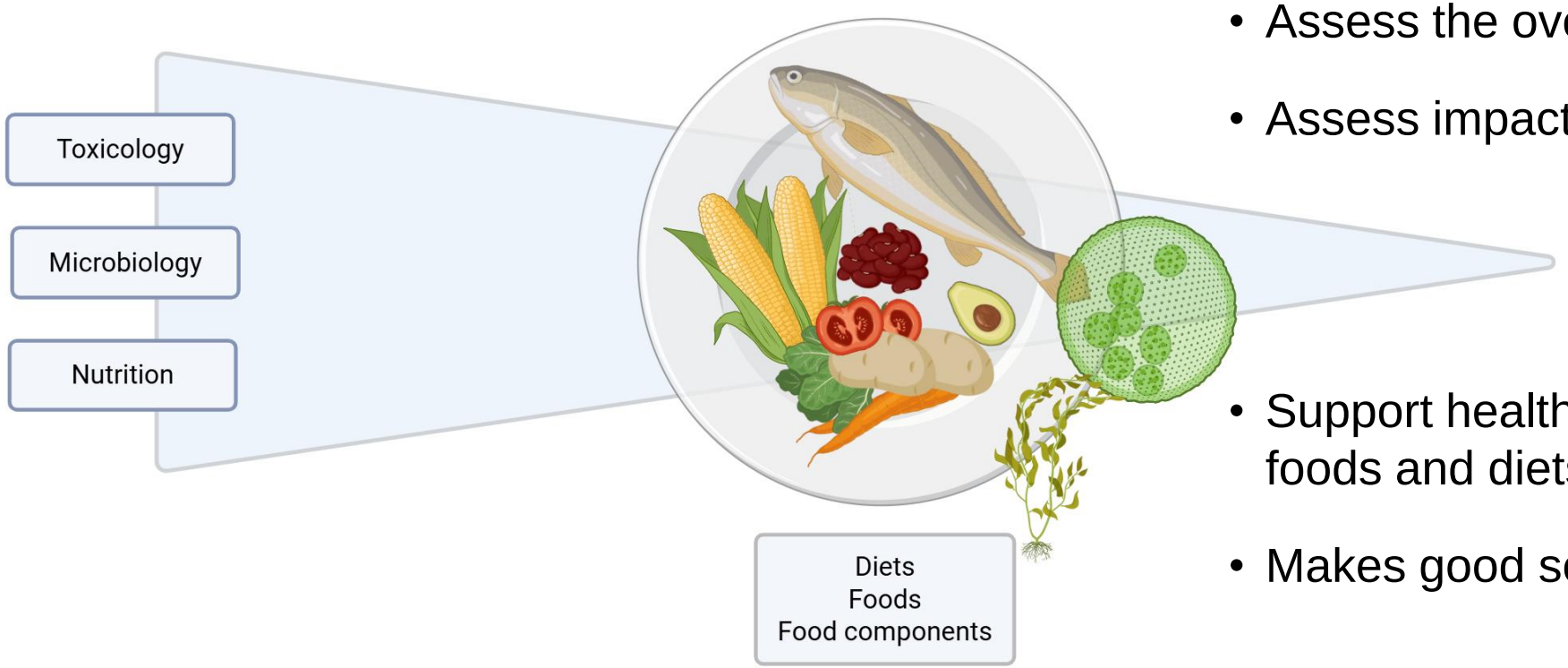
Risk-Benefit Assessment of foods

Quantitative comparison of **human health risks** and **benefits** of foods and food compounds based on a **common scale of measurement**



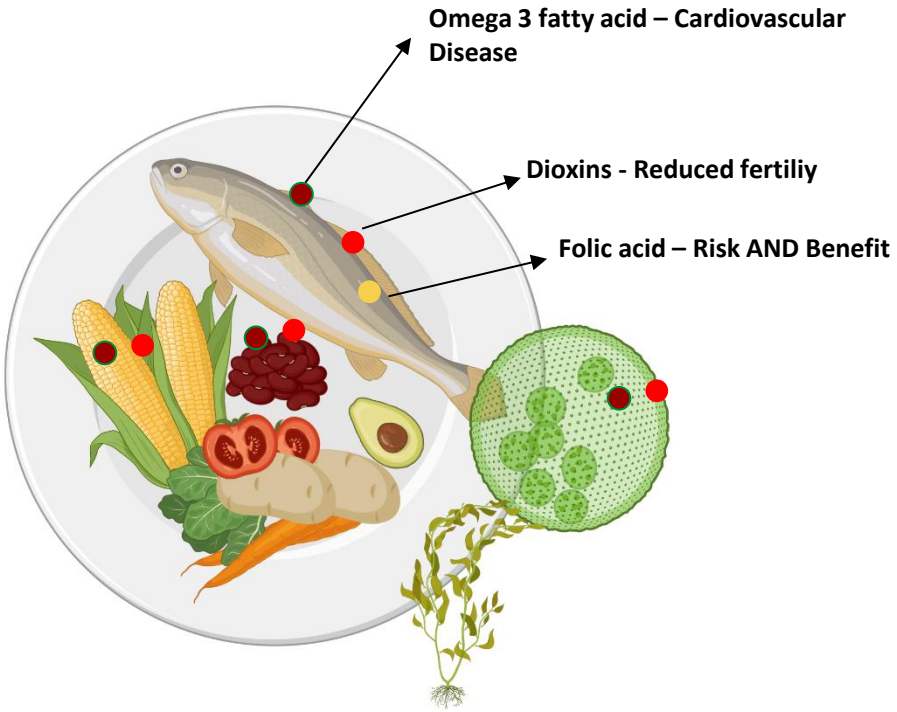
Why Risk-Benefit Assessment?



- Assess the overall health impact
- Assess impact of dietary interventions
- Support healthy, safe, and sustainable foods and diets
- Makes good sense!

Risk-Benefit Assessment of Foods

- A decision support tool
- A relatively new research discipline
- Do not replace risk assessment
- Requires an integrated and multi-disciplinary approach



The Risk-Benefit Research Group at DTU

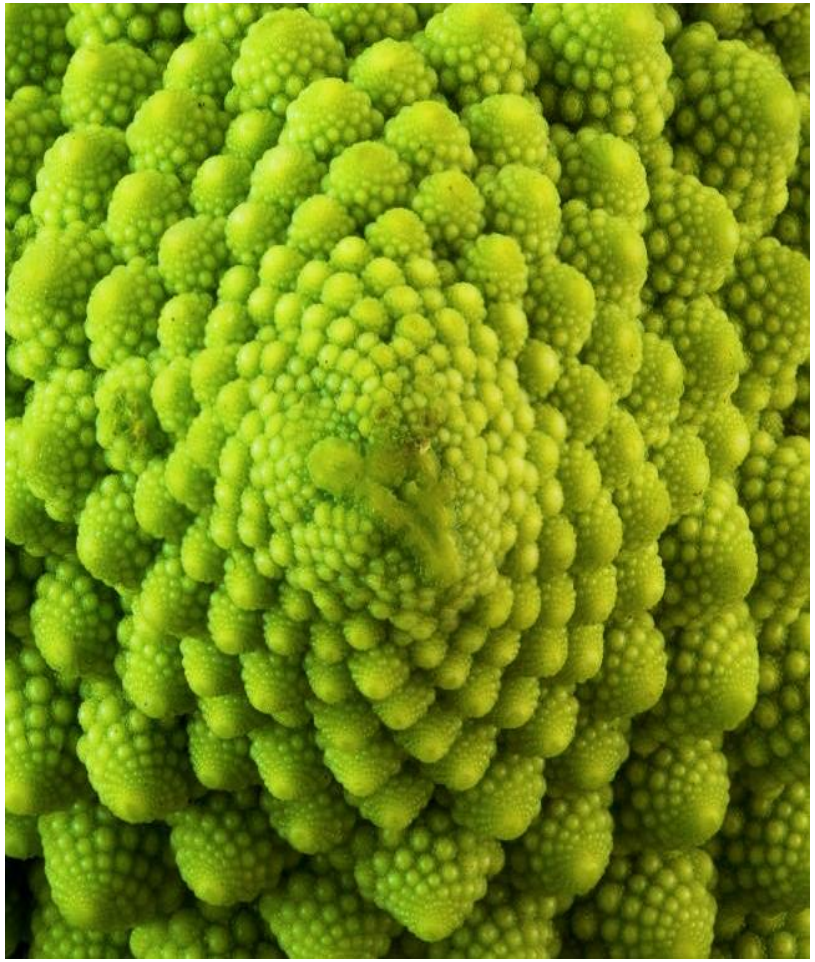
Background:

A multidisciplinary research group (Toxicology, Epidemiology, Nutrition, Microbiology, Mathematical Modelling) founded in 2015 with the aim to perform interdisciplinary research.

Research aim:

Quantifying health effects associated with food consumption and the environment, which include

- Evaluate health impacts using **Risk-Benefit Assessment**
- **Risk Ranking** based on burden of disease estimates
- **Integrate Sustainability** Assessment



The Risk-Benefit Research Group at DTU - 2025

RBA is a valuable tool in forming dietary guidelines – can estimate the health impact of..

- Eating up to **30 grams of nuts/**day?
- Decreasing **dairy consumption from 500g/day** to **250g/day?**
- Increasing **iodine fortification** of salt?
- **Substituting** some of our **meat** consumption **by insects**? Or by **pulses**?
- **Increasing fish** and **decreasing meat** consumption?

And the more complicated questions…

- What is the optimal fish consumption pattern that fulfils nutritional requirements and safe hazard exposure limits?
- (…) and food price constrains?
- What are the integrated health and sustainability impacts of (specific) dietary transitions?

Use of Risk-Benefit Assessment in a regulatory context

- What are the challenge

Food Safety and Nutrition are traditionally separated domains – both in way of thinking and physically!

How to translate RBA findings (DALY) into food-related decisions and policies

Lack of harmonized RBA approach

Comprehensive amount of data (and time) needed

Communication – outcome, assumptions and uncertainties

Use of Risk-Benefit Assessment in a regulatory context – Our experience

The RBA approach is accepted by the authorities, but….

Whole-grain, linseeds, **fish**/meat, **nuts**, brown vs white rice,
Vitamin D, smoked salmon, iodine, transition to a plant-based diet

Issues regarding data and time

The authorities has increased interest in holistic assessment
including sustainability

How to improve the Risk-Benefit Assessment framework

Increase the speed by use of AI in literature search and use of the FSKX-platform (RAKIP-initiative) for more efficient model sharing and data handling

Use of a harmonized approach / **guidance**

Do not expect a **new metric** that will cover everything, so far Disability-Adjusted Life Year (DALY) seems to be the preferred choice

Case studies and networking to **expand knowledge capacity**

Better use of **communication tools** e.g. dashboards

How to improve the Holistic Assessment Framework

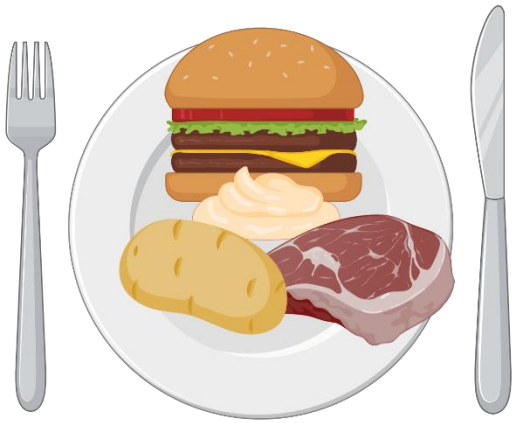
- it is not just about health - and the more complicated cases

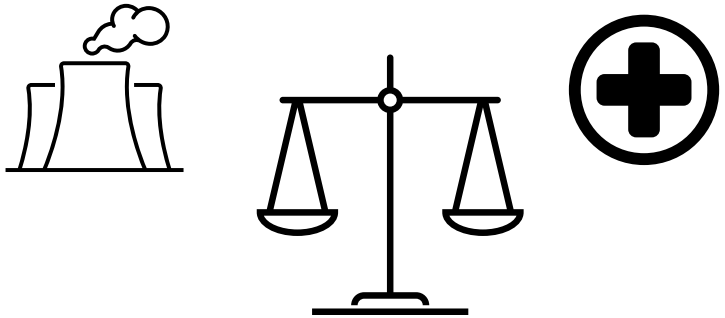
The assessment of **dietary transitions** are difficult as it include both health, sustainability, economy and societal acceptance – DTU Food have three ongoing PhD-projects on this

Multi-criteria Decision Analysis (MCDA) - Decision-support tool that tackles problems with a high degree of complexity

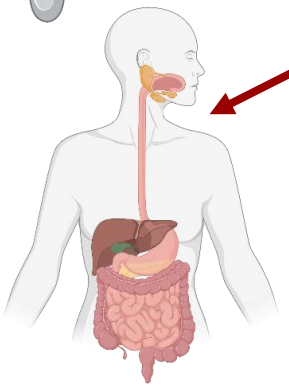
Expand **collaboration** and initiate case studies

Health Impacts of Sustainable Diet Transitions in Denmark

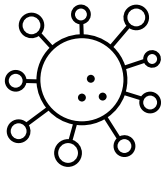




HEALTH

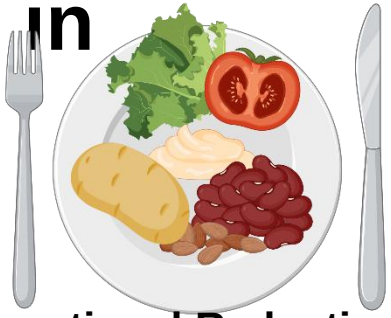


Nutritional

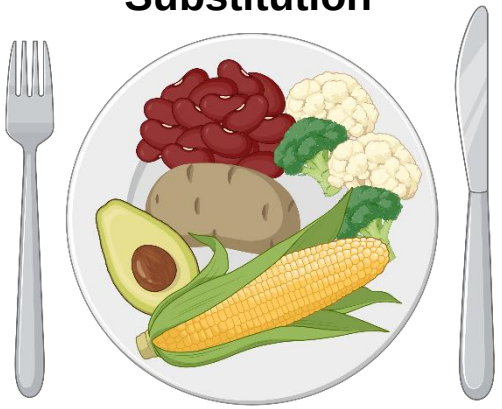


Microbiological

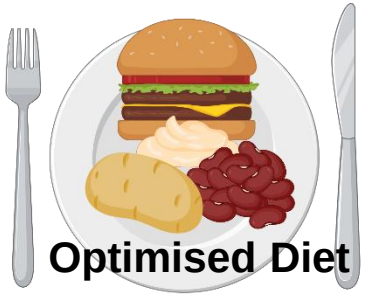
Chemical



Proportional Reduction and Substitution



EAT-Lancet Danish-Adapted Diet



Optimised Diet

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Thank you

Acknowledgement

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