

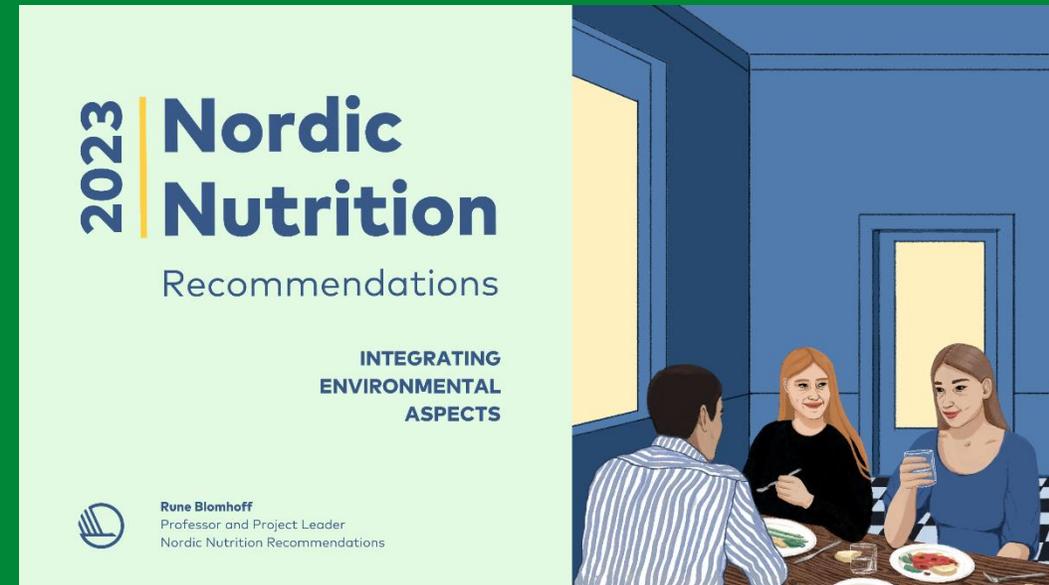
# Nordiske råd om fødevarergrupper. Sundhed og bæredygtighed

Ellen Trolle, Seniorforsker,  
DTU Fødevarerinstitutionen  
Forskningsgruppen:  
Ernæring, Bæredygtighed  
og Sundhedsfremme

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DTU Food



# Outline

- Lidt mere om baggrund og metoder
- Guidelines/råd - overblik
- Eksempler evidensen bag råd om
  - Cerealier
  - Bælgfrugter
  - Rødt kød
  - Fjerkræ
  - Mælk og mælkeprodukter
- Forarbejdede produkter
- Kostmønstre
- Next step: de nationale myndigheder

# Integrating environmental aspects

From preface:

“This new edition, the NNR 2023, is our bravest step yet. It will present the best available data for how to eat for the health of our bodies and for our planet.

The decision to let this edition integrate environmental aspects is well aligned with our global commitments, and with the Nordic Vision to be the most sustainable and integrated region by 2030.

We cannot, and will not, turn a blind eye to the scientific evidence of how our consumption impacts our planet.”

*Karen Ellemann, Secretary General,  
Nordic Council of Ministers*





*“There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all.”*

*“A diet featuring plant-based foods, such as one based on whole grains, legumes, fruits and vegetables, nuts and seeds, and animal-sourced food produced in resilient, sustainable, and low-GHG emission systems, present major opportunities for adaptation and mitigation while generating significant co-benefits in terms of human health.”*

*IPCC report #6, 2023*



# Science advice on health and environmental effects of food

A framework for national authorities to set national SFBDGs

## 14 food groups for first time in NNR

- beverages; cereals; vegetables, fruits & berries; potatoes; fruit juice; pulses; nuts and seeds; fish; red meat; poultry; milk & dairy; eggs; fats and oils; sweets;
- + alcohol;
- + breastfeeding; complementary feeding
- ultra-processed foods did not get a recommendation/ science advice

## Dietary patterns

- Dietary pattern received recommendation/science advice
- Meal pattern did not

# Principles for scientific advice Nordic FBDGs

1. Health effects of food groups were given priority

**NNR2023 – background papers**

- 34 health effects of nutrient
- 17 health effects of food groups and dietary pattern

2. The food group contributes w/significant amounts of essential nutrients in the general population

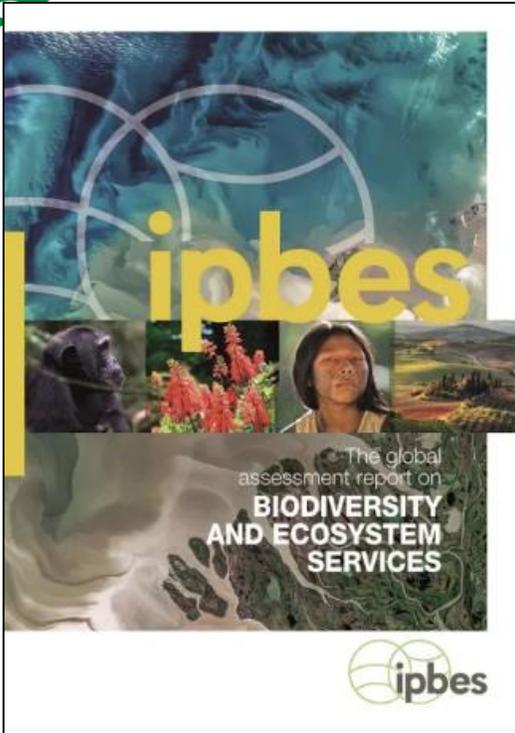
3. Public health challenges related to health effects of the food group

The NNR2023 **general background papers** on health and food intake

- 1 physical activity
- 1 burden of diseases
- 1 body weight
- 1 food & nutrient intakes

4. Environmental impact of consumption of the food groups

- Priority to changes in dietary patterns that reduce the environmental impact of the food group
- Narrowing the health defined ranges of intakes can contribute to reducing the environmental impact without compromising the beneficial health effects.



The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services (2019)

- Declarations from the Nordic Council of Ministers:
- Action plan 2021-2024
- Biodiversity (03.05.22)
- Sustainable food systems (24.06.21)
- Global climate agenda (30.04.20)
- Nordic carbon neutrality (25.01.19)



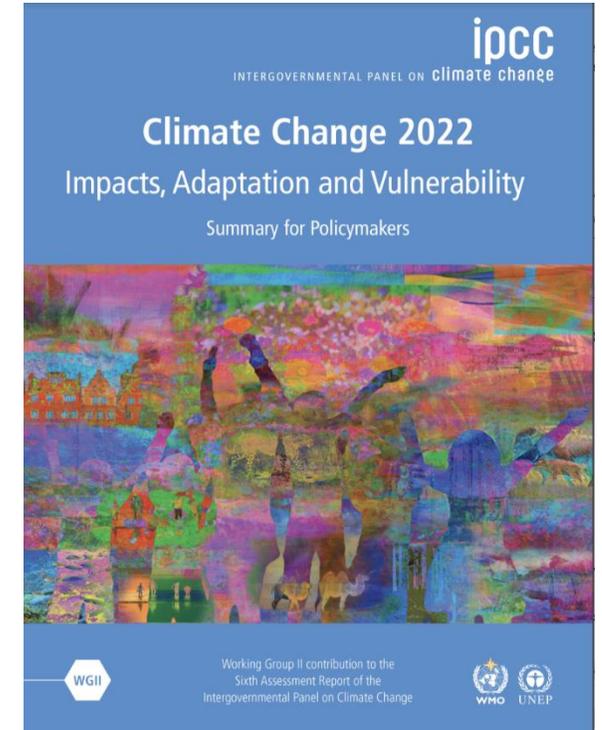
## Evidence synthesis on environmentally sustainable food consumption



Science advice for policy by European academies (SAPEA), A sustainable food system for the European Union (2020)



5 NNR background papers on sustainability



The Intergovernmental Panel on Climate Change (IPCC) - SIXTH ASSESSMENT REPORT

- Part 1: The Physical Science Basis (8/2021)
- Part 2: Impacts, Adaptation and Vulnerability (2/2022)
- Part 3: Mitigation of Climate Change (4/2022)
- AR6 Synthesis Report (3/2023)

# 5 background papers on sustainability:

**Benton et al.**  
Assessing the environmental sustainability of diets – a global overview of approaches and identification of 5 key considerations for comprehensive assessments

**Harwatt et al.**  
Overview of food consumption and environmental sustainability considerations in the Nordic and Baltic region

**Trolle et al.**  
Integrating environmental sustainability into food based dietary guidelines in Nordic countries

**Meltzer et al.**  
Moving food consumption toward sustainable diets in the Nordics: Challenges and opportunities

**Jackson & Holm**  
A sustainable food system for the European Union. The SAPEA report – a summary with focus on the Nordic and Baltic countries

## Environmental impact

- GHG emissions
- water use
- land use
- nitrogen & phosphorus use
- chemical pollution
- biodiversity impact

Global overview  
5 key considerations:  
the thresholds,  
the system,  
the variables,  
the context,  
the spill-over

Suggestions for overall and food group specific changes in consumption and opportunities for production in the Nordic and Baltic countries.

An overview of recent studies in the Nordics on the environmental impact of our diets.  
Approaches for developing national sustainable FBDGs.

Challenges and opportunities with current Nordic food systems with emphasis on food production  
FAO/WHO principles #9-16.

Social and economic dimensions of sustainability including 'good practice' examples from the Nordic and Baltic countries.

# Healthy and environment-friendly dietary guidelines NNR2023

↑ Increased consumption. Evidence: health, nutrients and environment

## Cereals



At least 90 g/d of whole grains (incl. whole grains in products) for health and environmental reasons.  
Likely benefits of higher amounts.

## Vegetables, fruits, berries



500 – 800 g/d or more for health and environmental reasons.  
A variety of different types  
Emphasis on fibre-rich products & limiting products with added or free sugars.

## Pulses (legumes)



Pulses should be included as a significant part in the regular dietary pattern. For nutrient and environmental reasons. May protect against cancer and premature mortality

## Nuts and seeds



20-30 g/d (nuts) also include seeds in the diet due to the nutrient content;  
Increased intake supported for nutrient, health and environmental reasons.

## Fish and seafood



300–450 g/w, of which at least 200 g/w should be fatty fish.  
Increased intake supported for health & environmental reasons if from sustainably managed stocks

Images: AI Midjourney, PP and Colourbox

# Healthy and environment-friendly dietary guidelines NNR2023

Evidence: health and environment

Evidence: nutrients and environment

**Limit consumption.**

**Limit Moderate consumption.**

**Red and processed meat**

**Sweets**

**Alcohol**

**White meat (poultry)**

**Milk and dairy**



**Also health evidence**

Images: A.M. Journey, PP and Colourbox

**Red meat**

Max 350 g/w + processed red meat as little as possible for health reasons .

For environmental reasons the consumption should be considerably lower.

**Sweets**

No/limited intake for health and environmental reasons.

Limited consumption of SSB for health and environmental reasons

**Alcohol**

No/limited intake for health and environmental reasons.

No safe lower limit. For children, adolescents and pregnant women total abstinence from alcohol is advised.

**White meat (poultry)**

Low intake supported for environmental reasons.

Consumption should not be increased from current levels, preferentially lower.

**Milk & Dairy**

350 - 500 ml/d of low fat products.

The intake depends on Ca, iodine & B12 in total diet.

Moderate intake supported for nutrient & health reasons.

Incl. cheese, use milk conversion factor

# Healthy and environment-friendly dietary guidelines NNR2023

Evidence: nutrients and environment

↑ Increased consumption

→ limit / moderate consumption

Potatoes



Potatoes can be part of a healthy and environmentally friendly diet as a significant part, supported for nutrient and environmental reasons.  
Potatoes prepared with low fat and salt should be preferred.

Eggs



A moderate intake of egg may be part of a healthy and environment-friendly diet.

Fats and oils



A minimum of 25 g/day vegetable oil (or similar amounts from whole foods) for nutrient adequacies.  
Limited amounts of butter and tropical oils for nutrient and environmental reasons.

Fruit juice



Low to moderate intake of fruit juice may be part of a healthy diet. Intake of fruit juice should be limited for children.

Other beverages



Moderate consumption of filtered coffee (about 1-4 cups/day) and tea may be part of a healthy diet. Consumption of unfiltered coffee, SSB and energy drinks should be limited.  
High-quality tap water should be the preferred choice before SSB, LNCSB and bottled water.

Also health evidence

Images: Al Midjourney, PP and Colourbox

Cereals most consumed in the Nordics

- Wheat
- Oats
- Rice
- Rye
- Barley

110-270 g/d



≥ 90 g/d of whole grains (including whole grains in products) reduces the risk of CVD, CRC, T2D and premature mortality.

n = 7 qSRs

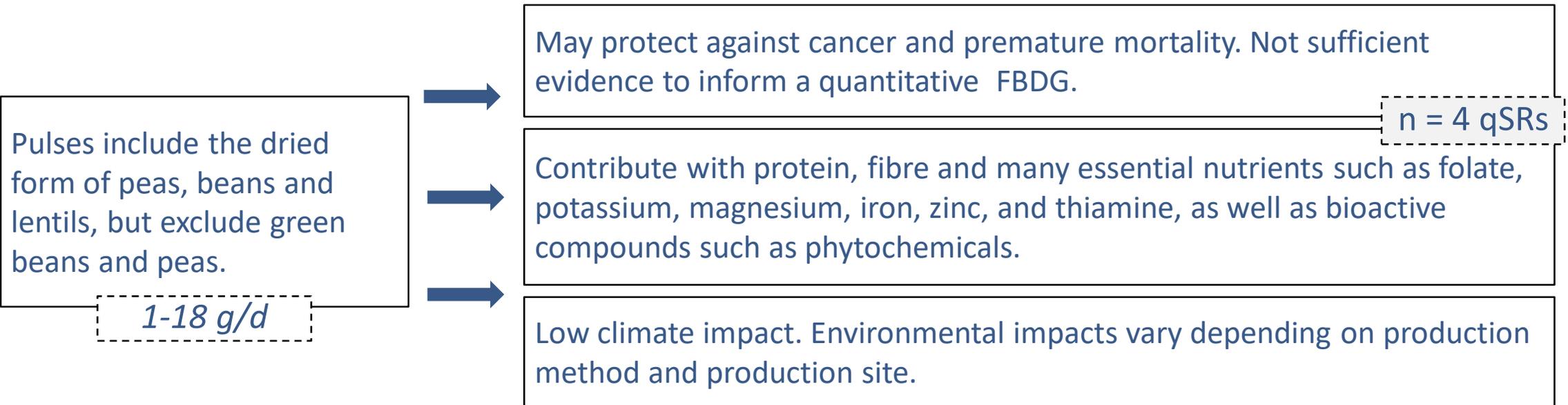


Contribute with fibre and many essential nutrients, such as thiamin, folate, vitamin E, iron, zinc and protein.



Low climate impact (except for rice). Key foods in the transition to an environment-friendly diet.

*It is recommended to have an intake of at least 90 grams/day of whole grains (including whole grains in products), with likely further benefits of higher intakes. Whole-grain cereals other than rice should preferentially be used.*



*Pulses should be included as a significant part in the regular dietary pattern in the Nordic and Baltic countries. Pulses are important providers of nutrients such as dietary fibre, protein iron and zinc.*



# Red meat

## Ruminants

- Cattle
- Sheep
- Goat
- Game: Moose, deer, reindeer

## Non-ruminants

350-1050 g/week



Increases risk of CRC (>350 g/week). Processed meat increases risk of CRC. May increase risk of CVD and T2DM.

n = 2 qSRs + DPs



Contributes essential nutrients (protein, iron, zinc, vitamin B12 ++).



Most important contributor to GHG emissions (ruminants > non-ruminants). Methane emissions (ruminants), feed production (fertilizer, pesticide, water and land use, reduced biodiversity). Grazing and biodiversity. Manure management.

*For health reasons, it is recommended that consumption of red meat (including red meat in products and processed foods) should be low and not exceed 350 grams/week ready-to-eat (cooked) weight. Processed red meat should be as low as possible. For environmental reasons, the consumption of red meat should be considerably lower than 350 grams/week (ready-to-eat weight). The choice of meat should comply with the recommendations for fatty acids. The reduction of red meat consumption should not result in an increase in white meat consumption. To minimize environmental impact, meat consumption should be replaced by increased consumption of plant foods, such as legumes and fish from sustainably managed stocks.*

# Red meat: environmental impact (1)

- High production and consumption of ruminant meat is a major contributor to GHG emissions, especially methane (Harwatt et al., 2023; Poore & Nemecek, 2018), in total being approximately 4- and 7-fold higher on protein basis compared with pork and poultry, respectively (FAO, 2013).
- Meat from dairy cows has lower GHG emissions than meat from suckler cows.
- Nordic/European beef production has lower GHG emissions per kg meat produced compared to other regions of the world (FAO, 2013; Poore & Nemecek, 2018; Trolle et al., 2023). However, the high consumption of red meat is the most important contributor to GHG emissions from the diet in the Nordic and Baltic countries.

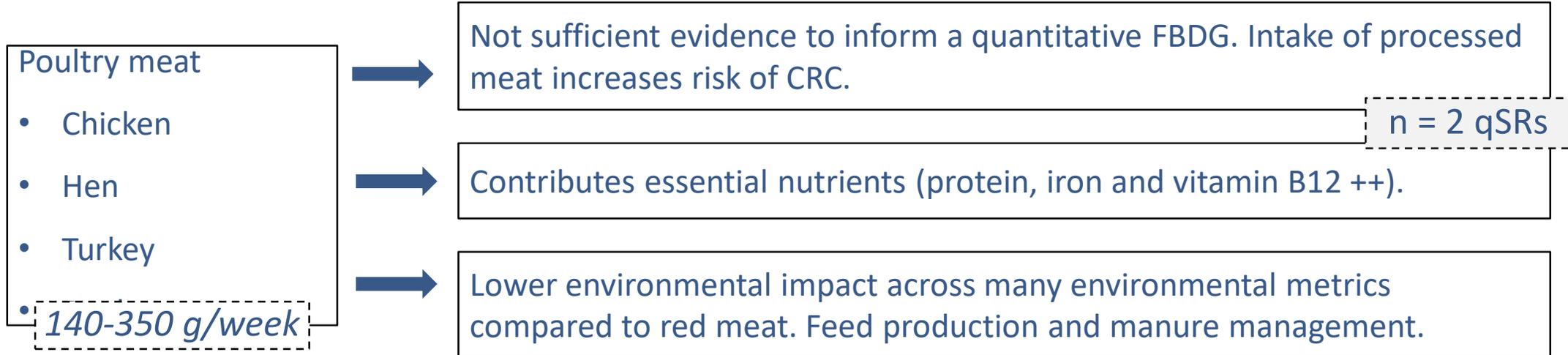
## Red meat: environmental impact (2)

- Feed ingredients contribute to environmental impacts through fertilizer, pesticide, water and land use.
- Their ability to utilize grass make ruminants important for resource utilization (including outfields). If well managed and avoiding overgrazing, grazing ruminants contribute to biodiversity and keeping cultural landscapes open in some settings in the Nordics
- If we are to consume milk and dairy, a certain amount of beef from milk producing cattle needs to be consumed in order for the food system to be resource efficient.

## Red meat: environmental impact (3)

- The largest proportions of overall environmental impacts from pig meat production tend to come from feed production and manure management (Harwatt et al., 2023). Feeds for pigs compete for land with food for direct human consumption. However, pigs can also make use of residual products which can contribute to an efficient food system.
- The amount of animal waste should be minimized to reduce its environmental impact; the inclusion of some processed meat products is justified from an environmental perspective.

# White meat (poultry)



*It is recommended that consumption of processed white meat should be as low as possible. To minimize environmental impact, consumption of white meat should not be increased from current levels, and may be lower. Instead, total meat consumption should be replaced by increased consumption of plant foods, such as legumes and fish from sustainably managed stocks.*

# Milk and dairy

Milk, yoghurt, cheese

Moderate consumption may reduce risk of CRC. High consumption of high-fat milk may increase risk of CVD.

Contributes with many essential nutrients, such as protein, calcium, iodine, riboflavin and vitamin B12.

Dairy, especially concentrated products such as hard cheese, is associated with high environmental impact. Important contributor to GHG emissions from the diet in the Nordic and Baltic countries. Methane emissions from the enteric fermentation of ruminants. Feed (fertilizer, pesticide, water and land use, and thereby reduced biodiversity). Positive environmental impact is related to grazing and biodiversity.

*Intake of between 350 ml to 500 ml low fat milk and dairy products per day is sufficient to meet dietary requirements of calcium, iodine and vitamin B12 if combined with adequate intake of legumes, dark green vegetables and fish (varies among different species). The range depends on national fortifications programs and diets across the Nordic and Baltic countries. If consumption of milk and dairy is lower than 350 gram/day, products may be replaced with fortified plant-based alternatives or other foods.*

Health effects: Filippa Juul and Elling Bere

Environmental impacts: Benton et al., 2022; Harwatt et al., 2023; Meltzer et al., 2023; Trolle et al., 2023

n = 0 SRs

*Despite the observed association between ultra-processed food and health outcomes, the NNR2023 Committee decided not to formulate any specific recommendations on ultra-processed foods. NNR2023 includes several recommendations related to specific processing of foods. The NNR committee's view is that the current categorization of foods as ultra-processed foods does not add to the already existing food classifications and recommendations in NNR2023.*

# Forarbejdede fødevarer i råd om fødevarer i NNR2023

- Breastfeeding should be preferred compared to infant formulas
- Consumption of SSB and energy drinks should be limited
- Whole grain cereal products should preferentially be used instead of refined cereal products
- Fruit and vegetable products with added sugar should be limited
- Intake of deep-fried potatoes and potato products with added fat and salt should be limited
- High intake of fruit juices should be avoided
- Intake of processed red and white meat (poultry) should be limited
- Milk and dairy products with high amounts of saturated fat should be limited
- Some vegetable oils should be preferred over butter and butter-mixes, hard margarine and tropical oils.
- Sweets, confectioneries and other sugary foods should be limited
- Advice on selecting more whole foods instead of processed foods for environmental reasons
- A dietary pattern with limited amounts of added total fat, saturated fat, salt and sugar is recommended
- In addition to these FBDGs, several DRVs also have high relevance for food processing, including limitation of trans fatty acids, saturated fatty acids, salt and added sugar.

- Dietary patterns attempts to describe the totality of the diet over a given time period
- A dietary pattern can be defined as the quantities, proportions, variety, or combination of foods and drinks typically consumed



Healthy dietary patterns are associated with beneficial health outcomes, such as reduced risk of CVD, T2D, obesity, cancer, bone health, and premature death.

n = 8 qSRs

Healthy dietary patterns are often micronutrient dense, including high intake of unsaturated fats and fibre, and low intake of saturated fats, added/free sugars and sodium.

Transitioning towards a healthy dietary pattern, i.e., a more plant-based dietary pattern, will reduce several negative environmental effects of the diet. However, the environmental impact of dietary patterns depends on the specific foods included.

*A dietary pattern, characterized by high intakes of vegetables, fruits, whole grains, fish, low-fat dairy, and legumes and low in red and processed meats, sugar-sweetened beverages, sugary foods, and refined grains, would benefit health and will lower the climate impacts. Food group-specific considerations are essential to simultaneously reduce the environmental impacts and achieve nutritional adequacy of dietary patterns.*

# NNR2023 provide authorities a framework for national FBDG

Thank you  
?

- Strong inter-connectivity between the science advices of different food groups → always interpret in relation to **the whole diet**
- Science advice to the national authorities
- A framework the national authorities in the eight countries are suggested to follow when developing their country-specific FBDGs
- We recommend that national authorities perform calculations and modelling to assess macro- and micronutrient adequacy related to the new updated DRVs.

Thanks to the NNR2023 committee  
for sharing slides on the NNR topics

