



Nutritional value of a plant-based diet: benefits and pitfalls

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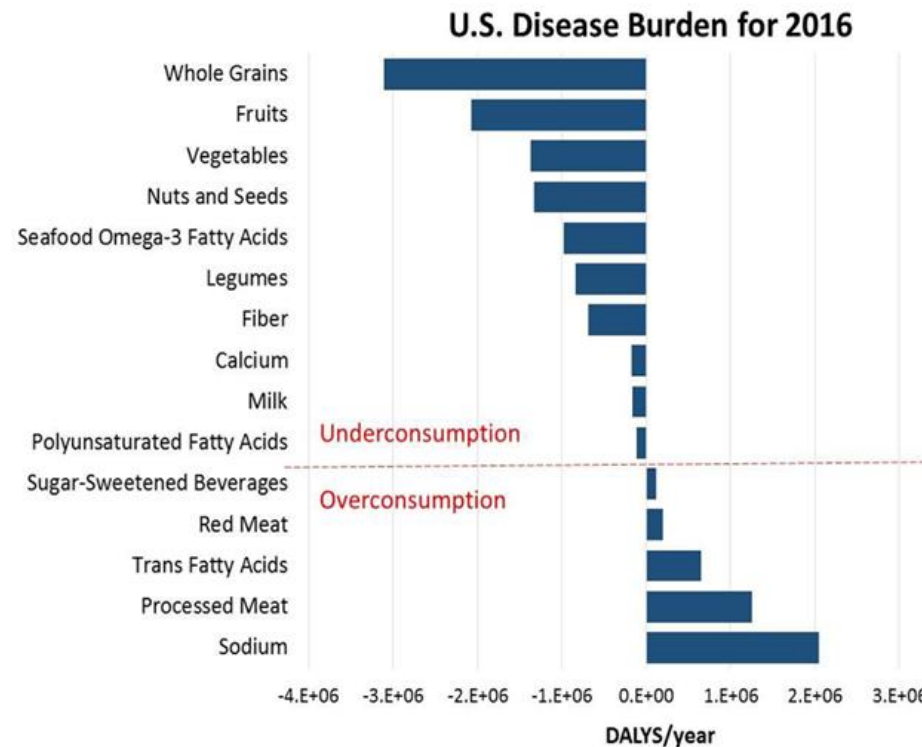
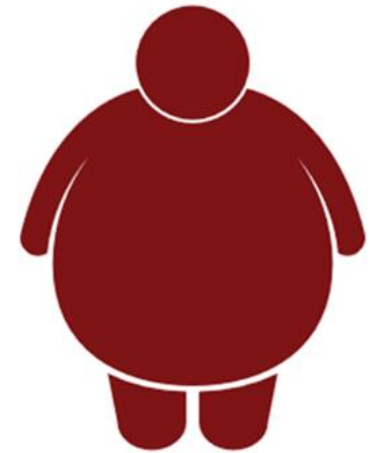
The world is suffering!



The global food system cannot meet the nutritional demands of a growing world population without irreversibly damaging the planet!

Global burden of disease

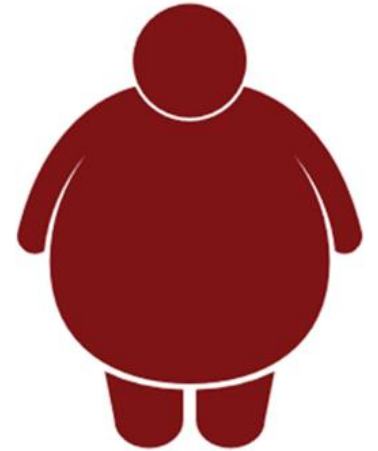
- Obesity is a global epidemic and main risk factor for metabolic diseases
- Unhealthy diets are the main contributor

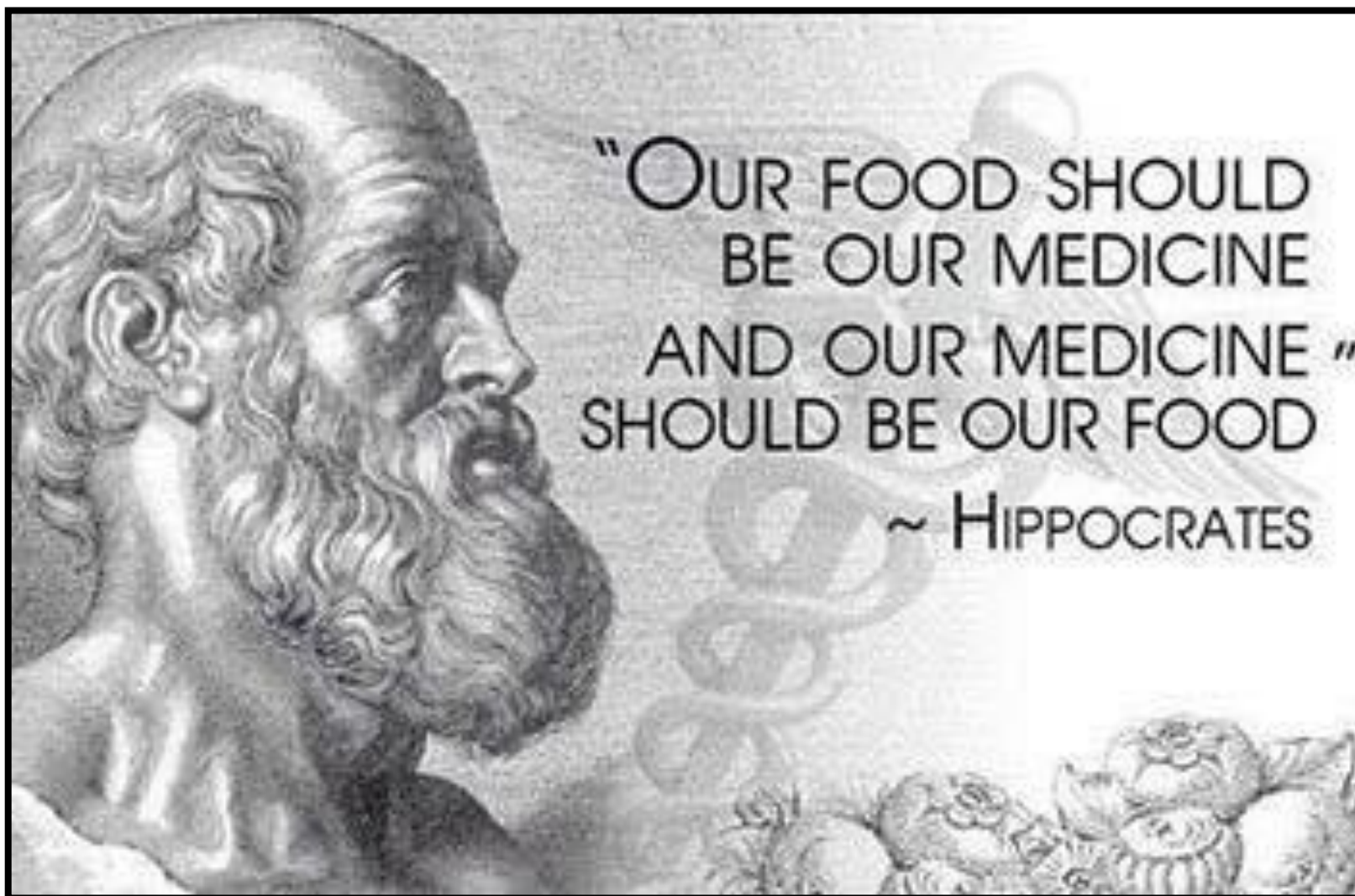


Global burden of disease

- Obesity is a global epidemic and main risk factor for metabolic diseases
- Unhealthy diets are the main contributor
- Often related to malnutrition – hidden hunger!
- High health care costs
- Current diets are detrimental to both human health and planetary health

Innovative, healthy, sustainable high-quality foods and diets needed





Healthy dietary patterns

1990: Mediterranean diet

- Prevention of cardiovascular diseases, type 2 diabetes

2005: Nordic diet

- Better adherence in the Nordic countries
- Healthy Nordic foods available – **environmentally friendly**
- Health benefits: cholesterol ↓, anti-inflammatory effects, weight loss (SYSDIET, OPUS, NORDIET)



Today and future: focus on plant-based, sustainable diets!

Definition plant-based diet

- “a diverse range of dietary patterns that emphasize foods derived from plant sources coupled with lower consumption or exclusion of animal products”
- “promote environmental sustainability”



fruits & berries



vegetables incl roots, legumes, leaves, mushrooms



whole grains



nuts & seeds

Whole food plant-based diets

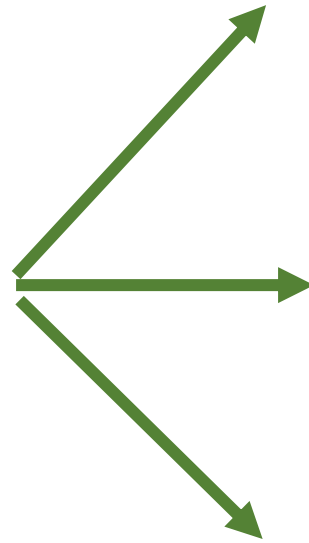


- Low in saturated fatty acids, added sugars and salt
- High in fibre, vitamins and minerals
- Strengthen immune system
- Maintain a healthy body weight
- Improved cardiovascular health and lower risk for metabolic diseases
- Improve gut health
- Reduced health care costs



Hooray! Hooray!

Protein shift: alternatives for meat and dairy products



Innovative proteins products from plants
Chickpeas, soy/fava beans, lentils, oats, quinoa

New protein ingredients
Yeast, fungi

A circular economy will be created by upcycling side-streams
Byproducts from pasta, bread, beer

 Livsmedelsverket
Swedish Food Agency



2023: plant-based
alternatives included

Plant-based meat-alternatives & dairy substitutes

High interest and demand! Growing market!

PITFALLS!?

Ultra-processed foods

- addition of sugars, fats, salt and food-additives to achieve sensorial properties
- “vegan junk”, mostly consumed by younger age group
- higher avoidance of animal-source foods was associated with higher consumption of UPFs
- need to improve labelling and restrict marketing of UPFs

“The longer the list of ingredients, the more sceptical you should be!”

Low nutritional quality in vegetarian meat



The availability of foods based on plant proteins to substitute for meat has increased dramatically as more people choose a plant-based diet. At the same time, there are many challenges regarding the nutritional value of these products. A study from Chalmers now shows that many of the meat substitutes sold in Sweden claim a high content of iron – but in a form that cannot be absorbed by the body.

Meyer Labba et al., *Nutrients* 2022, 14, 3903.

PITFALLS!?

Nutritional value?

Iron, vit B12, calcium
Absorption and digestion?
Fortification?



Conclusions

- Consumption of a whole food plant-based diet is good for human health and the planet.
- Increased interest and demand of plant-based foods
- Nutritional properties of animal-source alternatives depend on the processing and fortification. Avoid ultra-processed foods!
- More research on nutritional quality needed



Oats!

Sustainable crop

Whole grain cereal food with high nutrient density



nutrients

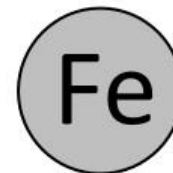


Article

Oat Polar Lipids Improve Cardiometabolic-Related Markers after Breakfast and a Subsequent Standardized Lunch: A Randomized Crossover Study in Healthy Young Adults

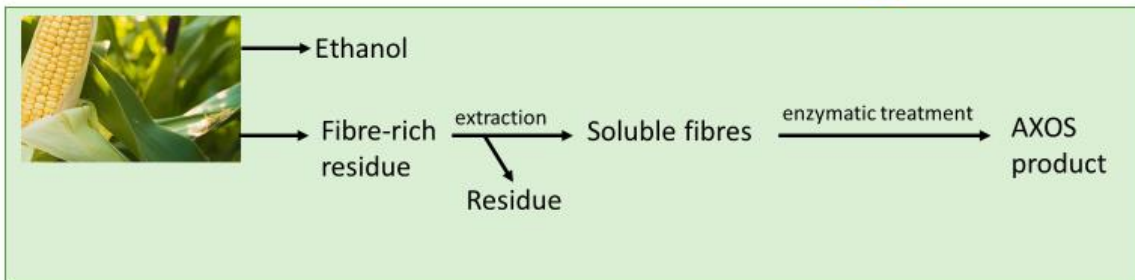
Mohammad Mukul Hossain ^{1,*}, Juscelino Tovar ¹, Lieselotte Cloetens ², Maria T. Soria Florido ², Karin Petersson ³, Frederic Prothon ³ and Anne Nilsson ¹

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