

Superior Health Council

**Safe and sustainable food
put into practice**

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of the Food Chain*

General Assembly 12 May 2021



Objectives

- Safe and sustainable food : links with agricultural production methods
- Implementation of the concept by the SHC - Examples of advisory reports
- Compatibility of healthy diets with sustainability requirements according to the work of the Lancet Commission and the Intergovernmental Panel on Climate Change (IPCC) of the United Nations





- **15 to 30%** of greenhouse gas emissions come from the food production sector*
- Almost one in five (**19%**) die from a poor diet** !
- On the earth, **1.9 billion** are overweight and 1 billion are undernourished (so one in two Earth people is concerned!)**

* IPCC, August 2019 ,

** The Lancet, January 2019



Under-
nourishment

Obesity

Climate
change



Sustainable
agriculture & safe
food



To be sustainable agriculture must ...

- Respect the environment and capture greenhouse gases rather than emitting them!
- Provide the society with all the desired services:
 - food production in quantity and quality,
 - landscape management,
 - erosion control,
 - etc.
- Provide a decent income for the different actors in the food production chain



For many a healthy diet is first of all a diet **lacking in ...**

Contaminants

- Pesticide residues and additives
- Heavy metals, PCB, dioxins, etc.
- Salmonella, norovirus, etc.

Toxic & deleterious constituents

- Toxins from moulds, plants, algae, etc.
- Allergens
- Substances causing food intolerance (lactose, gluten, sulfites, ...)



SHC advisory reports on food contaminants

- Arsenic in food for infants and young children (November 2018) (SHC 9252)
- Arsenic and other elements in algae and dietary supplements based on algae (1 April 2015) (SHC 9149)
- In progress : Risks/Benefits balance for seafood products



But quality food is also food that **provides**

Nutrients:

- Macronutrients (proteins, lipids, carbohydrates, Ca, P,)
- Micronutrients (vitamins, minerals, **phytonutrients** and **fibers !**)

A balance between several nutrients :

- Proteins/lipids/carbohydrates
- Saturated/(poly)unsaturated fats ; n-6/n-3
- Appropriate glycemic index (single versus complex carbohydrates)
- Avoid any excess of calories/salt/alcohol
- Balance between calorie-rich and healthy (fibres !) foods



Publications from SHC

- Safety of oils and fats - Opinion N° 8310
- The problem of atherogenic saturated fatty acids and palm oil - Opinion N° 8464
- Trans fatty acids of industrial origin - Opinion N° 8666
- Risks associated with alcohol consumption - Opinion N° 9438
- Food Based Dietary Guidelines - Opinion N° 9285 and opinion N° 9552
- Vegetarian diet - Opinion N° 9445



Environmental footprint of food

Used to estimate the environmental "cost" of food consumed from cradle to grave

Includes 3 indicators relating to:

- The amount of greenhouse gases emitted per kg of food
- The global space necessary for the production of food
- The amount of water needed for the production of a food

Applicable to primary production but also to products that are processed, packaged, transported, preserved, etc.



Examples of environmental footprints

(Pussemier & Goeyens, 2017)

	C footprint (in kg CO ₂ /kg)	Ecologic footprint (Glob. Surf. in gha/T)	Water footprint (in m ³ of water/kg)
Beef	27	15,7	16,7
Pork	12,1	1,9	5,5
Poultry	6,9	1,6	3,8
Thuna	6,1	10,1	Not applicable
Milk	1,9	1,4	0,7
Cheese	13,5	11,1	3,2
Eggs	4,8	1,2	3,5
Wheat	1,0	0,5	0,5
Rice	2,9	1,2	2,6
Soy	1,0	0,6	2,4



Health aspects

- According to WHO (2016), transformed meat is classified in group 1 (evidence of **carcinogenicity for humans**) and red meat in group 2A (**probably carcinogenic for humans**)
- The optimal consumption of red meat lies between **126 and 189** g/week and that of transformed meat between **0 and 30** g/week (GBD, 2017)



SHC reports on animal product consumption

- Food dietary guidelines for the Belgian adult population - 2019 - Advisory report N°9552
- Red meat, processed red meats and the prevention of colorectal cancer. Brussels: Advisory report N° 8858
- Food safety of insects for human consumption - Advisory report N°9160 (jointly with the Scientific Committee of the Federal Food Agency)
- The place of "milk and dairy products" in a healthy diet. Issue examined in conjunction with a review of the literature on a possible link with breast cancer. Report N°8918



SHC reports on animal product consumption

Vegetarian diet - Advisory report N° 9445

- In this scientific advisory report, which offers guidance to public health policy-makers, the SHC provides recommendations for the Belgian population whose food profile is essentially or totally restricted to plant foods.
- This report aims at providing infants, children, pregnant woman, nursing mothers and seniors with specific recommendations that allow them to avoid nutritional deficiencies or toxic risks related to their food choices.



Environmental aspects

C-footprint of animal products > plant products, but ...

- Beef, lamb > Pork
- Red meat > Poultry and Fish
- Meat > Dairy- and Ovo- products

Possible to reduce ecological footprint :

- Grass-fed cows (outdoors) instead of grains or silage (indoors)
- Local feed production instead of imported feed



Quality of animal products when using agro-ecological production methods

- Increased organoleptic quality of products when livestock have access to the pasture (or when fed on hay)
- Better nutritional and sanitary properties (Elgerma (2015) Eu J. Lipid Sci Tech, 117(9), 1345-139)
 - Increased levels of oméga-3
 - Better n-6/n-3 ratio
 - Less antibiotics and veterinary drugs residues
- Contribution to an increased animal wellbeing



A safe or a sustainable diet ?

The Lancet Commission

IPCC - GIEC

HGR - CSS



The Lancet Commissions

Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems



Walter Willett, Johan Rockström, Brent Loken, Marco Springmann, Tim Lang, Sonja Vermeulen, Tara Garnett, David Tilman, Fabrice DeClerck, Amanda Wood, Malin Jonell, Michael Clark, Line J Gordon, Jessica Fanzo, Corinna Hawkes, Rami Zurayk, Juan A Rivera, Wim De Vries, Lindiwe Majele Sibanda, Ashkan Afshin, Abhishek Chaudhary, Mario Herrero, Rina Agustina, Francesco Branca, Anna Lartey, Shenggen Fan, Beatrice Crona, Elizabeth Fox, Victoria Bignet, Max Troell, Therese Lindahl, Sudhvir Singh, Sarah E Cornell, K Srinath Reddy, Sunita Narain, Sania Nishtar, Christopher J L Murray



Reference safe diet (for 2 500 kcal/j) according to the Lancet Commission (1/2)

Food (category)	g/day	Range
Cereals	232	(0 - 232)
Tubes	50	(0 - 100)
Vegetables	300	(200 - 600)
Fruit	200	(100 - 300)
Dairy products (full fat equivalents))	250	(100 - 300)
Sugars	31	(0 - 31)



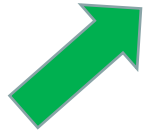
Reference safe diet (for 2 500 kcal/j) according to the Lancet Commission (2/2)

Food (category)	g/day	Range
Beef / lamb	7	(0 - 14)
Pork	7	(0 - 14)
Poultry	29	(0 - 58)
Eggs	13	(0 - 25)
Legumes	100	(0 - 175)
Nuts	25	
Fats (unsaturated)	40	(20 - 80)
Other fats	12	(0 - 12)



IPCC proposal ...

More :



- (++) Secondary cereals (spelt, rye, oats)
- (++) Nuts and grains
- (++) Legumes
- (++) Local fruit and vegetables
- (+) Poultry and alternatives for meat
(e.g. insects)

Less :



- (- -) Beef, lamb
- (- -) Sugary drinks
- (- -) Rice, wheat and corn



And in Belgium ?

According to the food based dietary guidelines (FBDG) for the adult population (SHC report N°9284) :

Five priorities for a safe and sustainable diet

1. More whole grain cereals (at least 125 g/d)
2. More fruits (at least 250g/j) and vegetables (at least 300g/j)
3. More legumes (at least once a week as a meat substitute)
4. More nuts (15 à 25g/j)
5. No added salt !



Conclusions

- If safe food is recognized as a priority goal since long time, it appears equally important, nowadays, to preserve the sustainability of our diet ;
- Some foods, such as animal products, are considered to be less sustainable, being characterized by an important environmental footprint ;
- Not only the animal origin of some foodstuffs is put into question but also the way to produce them (industrial farms, chemical inputs, long range transport, heavy packaging, etc)



Conclusions

- It appears, fortunately, that it is possible to make our diet more sustainable and safe by :
 - **integrating more plant products in our diet such as whole grain cereals, fruits and vegetables, nuts and legumes**
 - **avoiding some specific foodstuffs such as transformed meat products and red meat**
- Key parameter to keep our diet safe and sustainable all together are :
 - **Preference for plant based products rich in fibers**
 - **Limitation in the use of (ultra)transformed foodstuffs rich in (saturated) fats, added sugars and salt**

