Obesity and food education: the urgency to promote healthy diets

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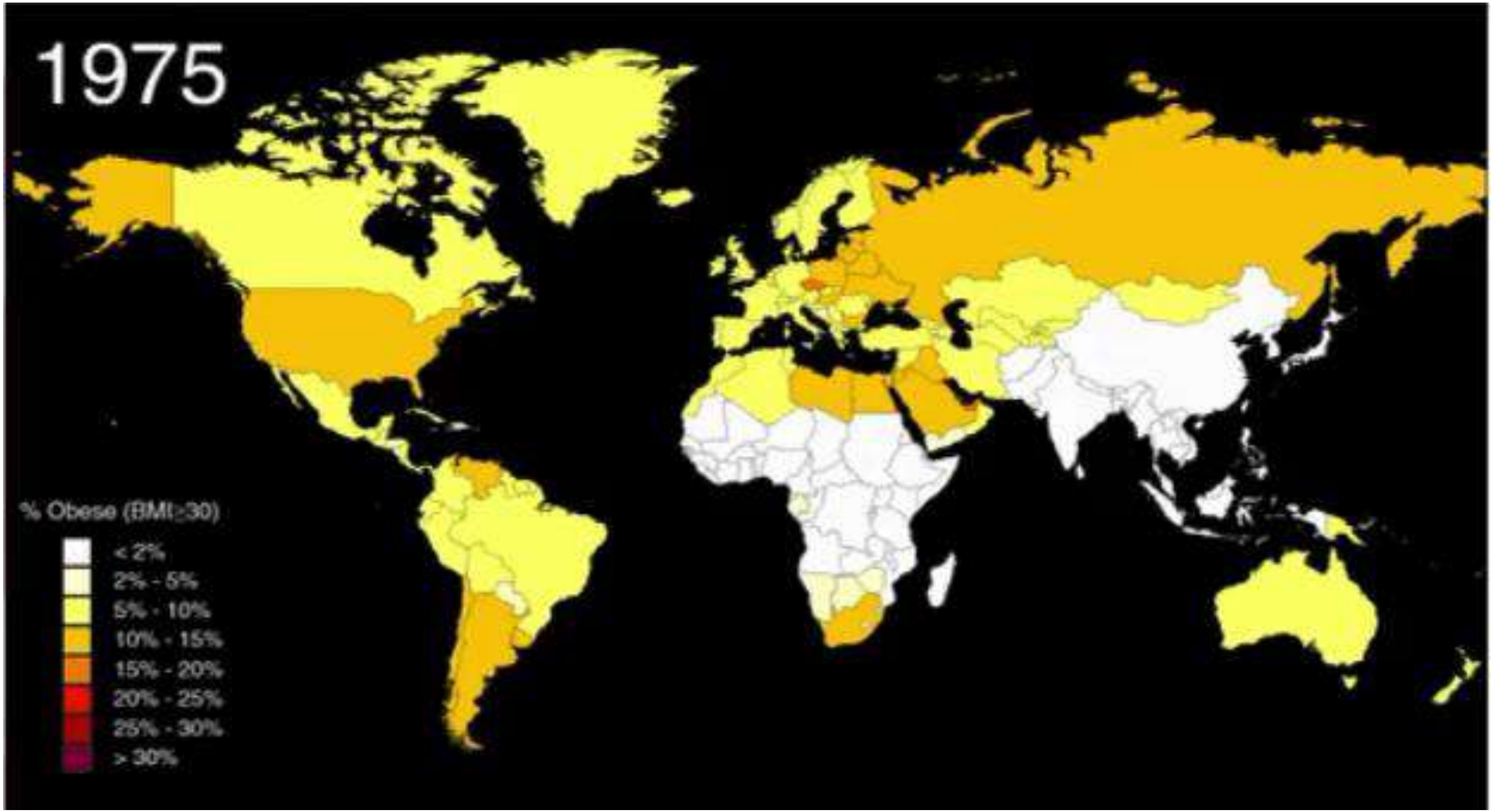
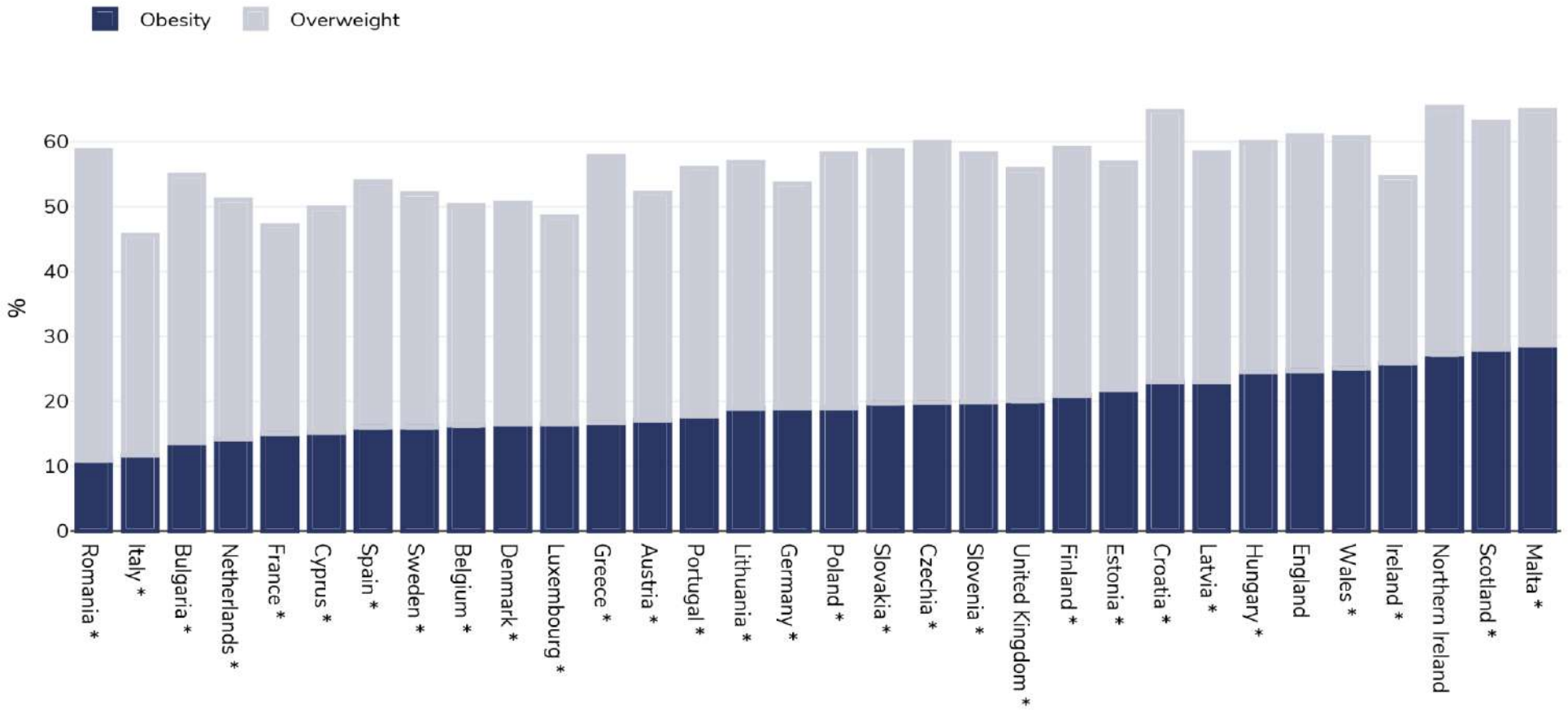


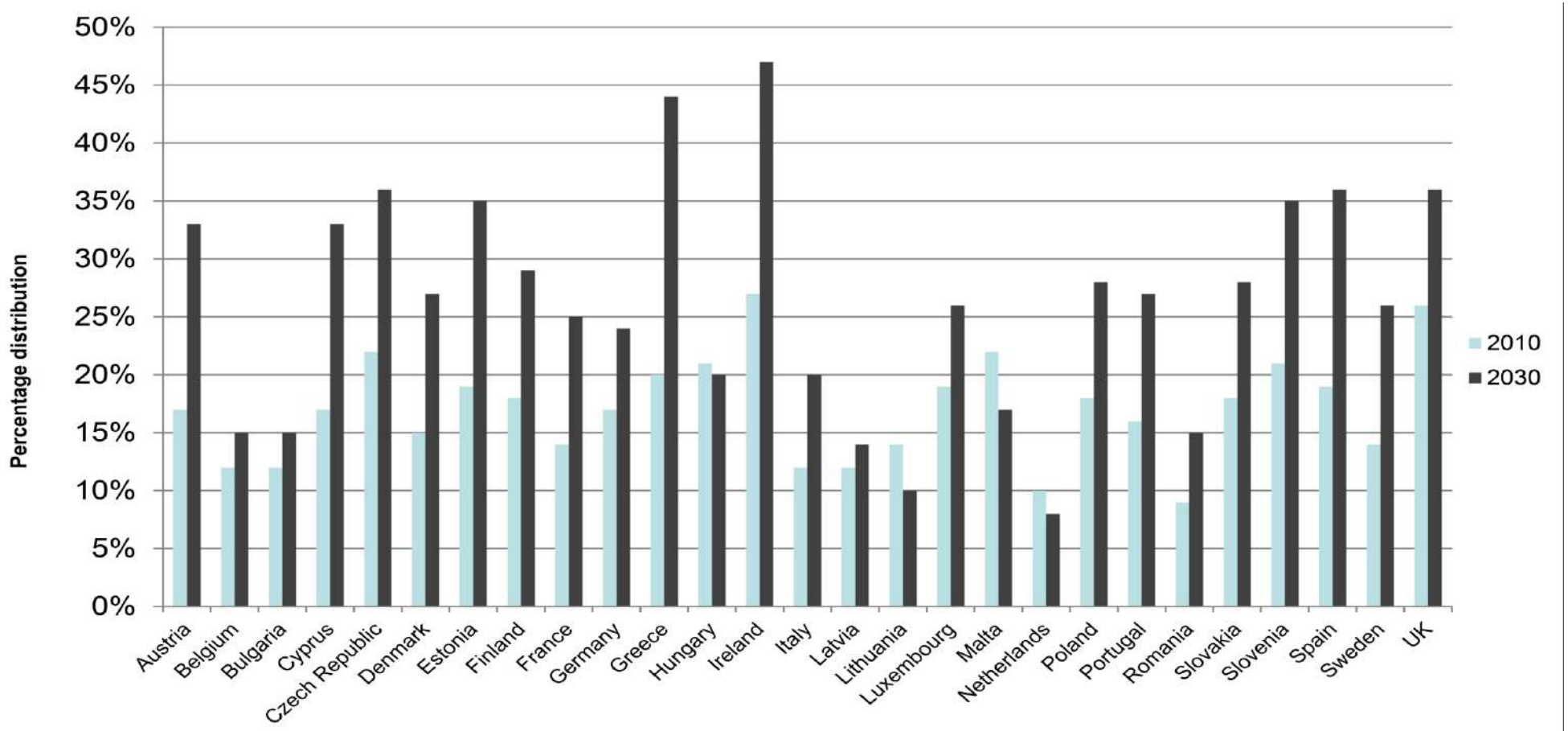
European Union + UK: Obesity prevalence

Adults



Survey type:	Countries marked with a * are using self-reported data.
Notes:	Different methodologies have been used to collect this data and so it is not strictly comparable.
	Unless otherwise noted, overweight refers to a BMI between 25kg and 29.9kg/m², obesity refers to a BMI greater than 30kg/m².

Projected obesity for 2030



World Health Organization
REGIONAL OFFICE FOR Europe

WHO Modelling obesity Project 2013 – submitted
As per NOPA II

Complications of Obesity

Pulmonary disease
abnormal function
obstructive sleep apnea
hypoventilation syndrome

Nonalcoholic fatty liver disease
steatosis
steatohepatitis
cirrhosis

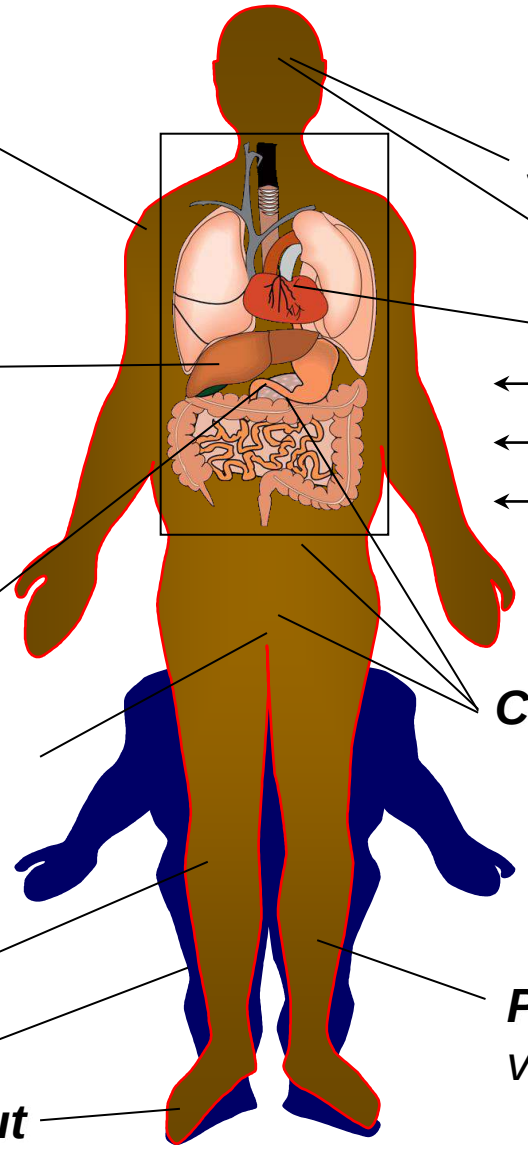
Gall bladder disease

Urinary incontinence
Erectile disfunction

Osteoarthritis

Skin

Gout



Stroke

Cataracts

Coronary heart disease

Diabetes

Dyslipidemia

Hypertension

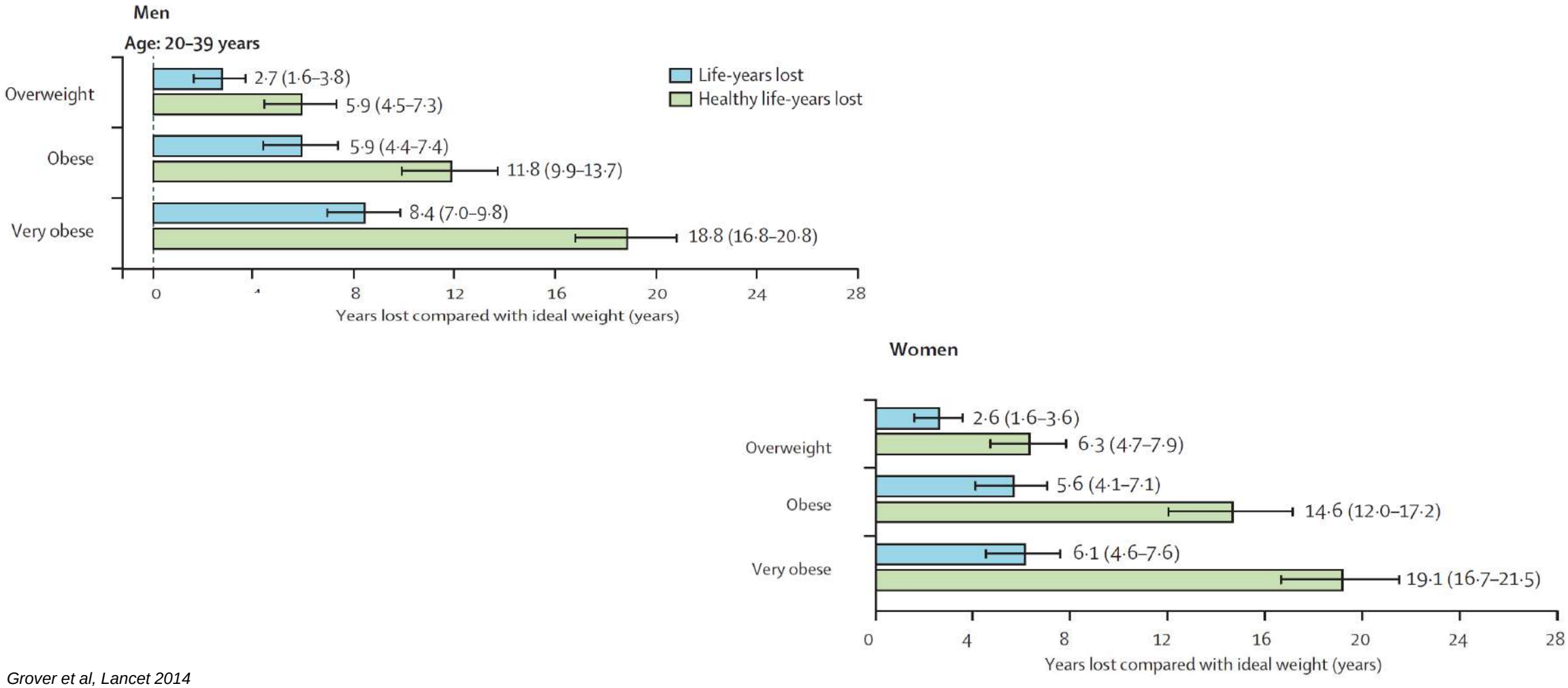
Renal disease

Cancer

Disability
Frailty

Phlebitis
venous stasis

Years of life lost and **healthy life-years lost** in people with **overweight** and **obesity**: a modelling study



Grover et al, Lancet 2014

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL REPORT

A Potential Decline in Life Expectancy in the United States in the 21st Century

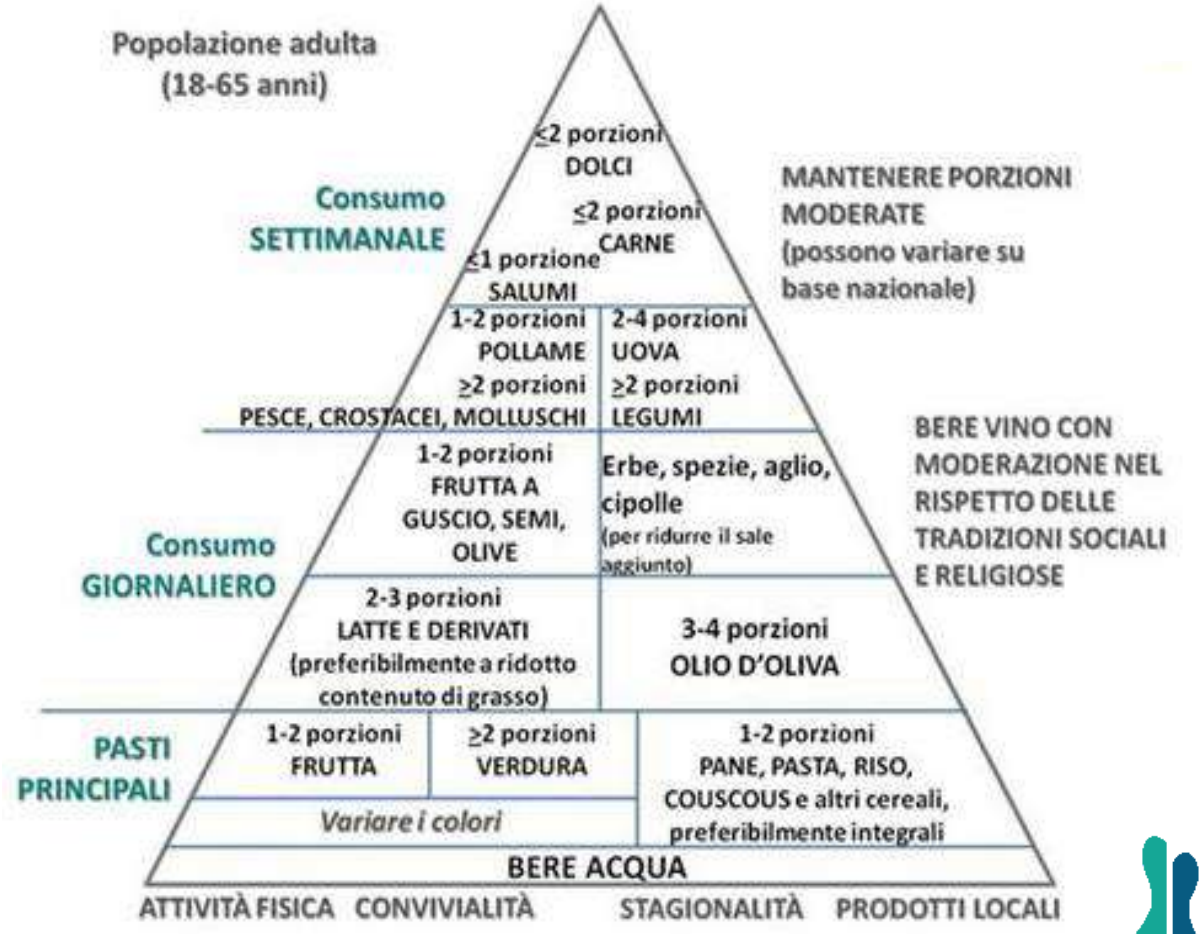
"Unless effective population-level interventions to reduce obesity are developed, the steady rise in life expectancy observed in the modern era may soon come to an end and the youth of today may, on average, live less healthy and possibly even shorter lives than their parents."

N ENGL J MED 352;11 WWW.NEJM.ORG MARCH 17, 2005

Mediterranean Diet

International guide lines for caloric assumption:

Carbohydrates: 60%
Lipids: 30%
Proteins: 10 %



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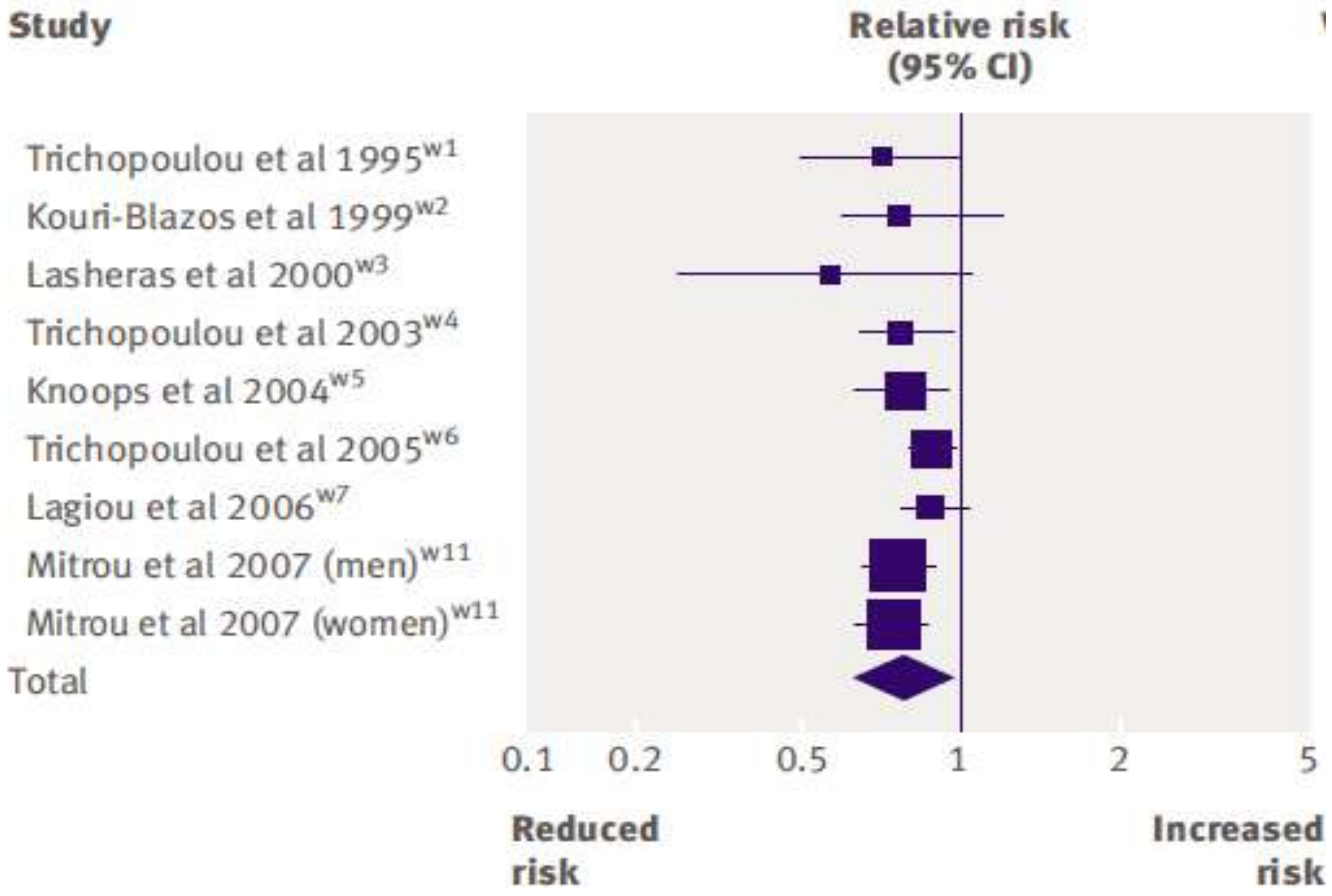
Prof. **Michele Carruba**

Characteristics food choices of the Mediterranean diet

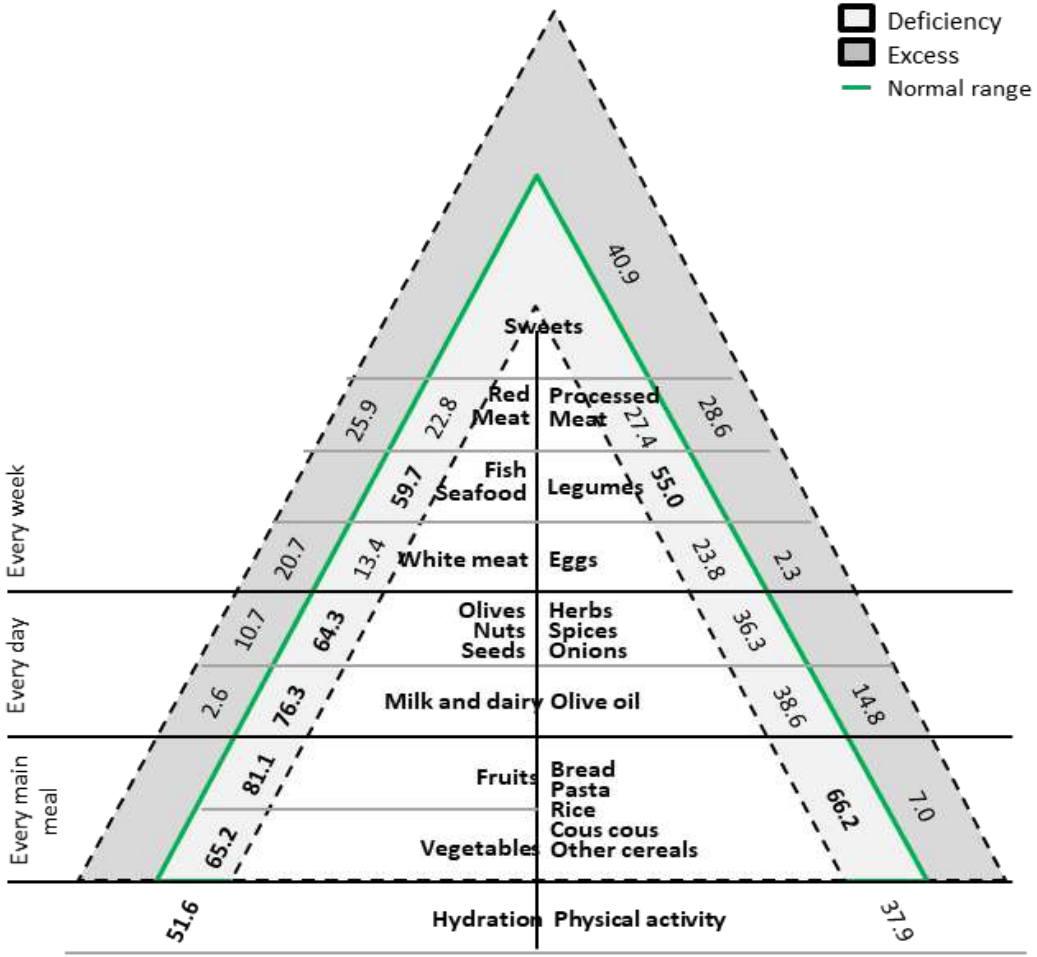
⇓ **Eggs and cheese**
⇓ **Red meat and processed meat**
⇓ **Animal fats**
⇑ **Sea food**
⇑ **Whole grains**
⇑ **Vegetables and legumes**
⇑ **Olive oil**
⇑ **Fresh fruits and nuts**

Implementation of two of the food choices characteristic of the traditional Mediterranean diet is associated with a 20% reduction in all-cause mortality



Sofi F et al BMJ 2008

Most common deficiencies and excesses in today western diet



International Journal of *Environmental Research and Public Health*

MDPI

Article

Role of the portion size in the context of a healthy, balanced diet: a case study of European countries

Michele O. Carruba [1], Maurizio Ragni [1], Chiara Ruocco [1], Sofia Aliverti [2], Marco Silano [3], Andrea Amico [4], Concetta M. Vaccaro [4], Franca Marangoni [2], Alessandra Valerio [5], Andrea Poli [2] and Enzo Nisoli [1,*]

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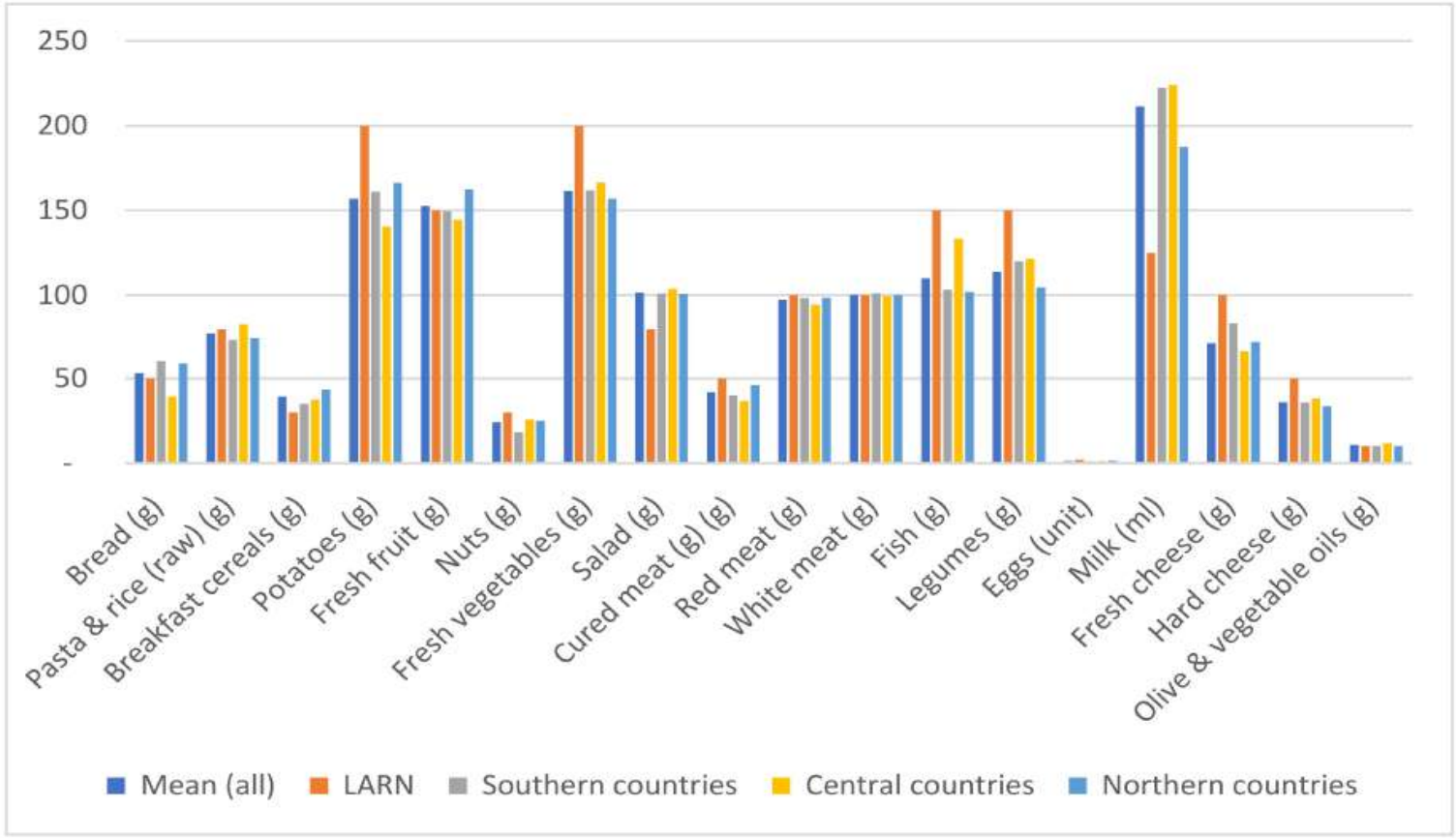
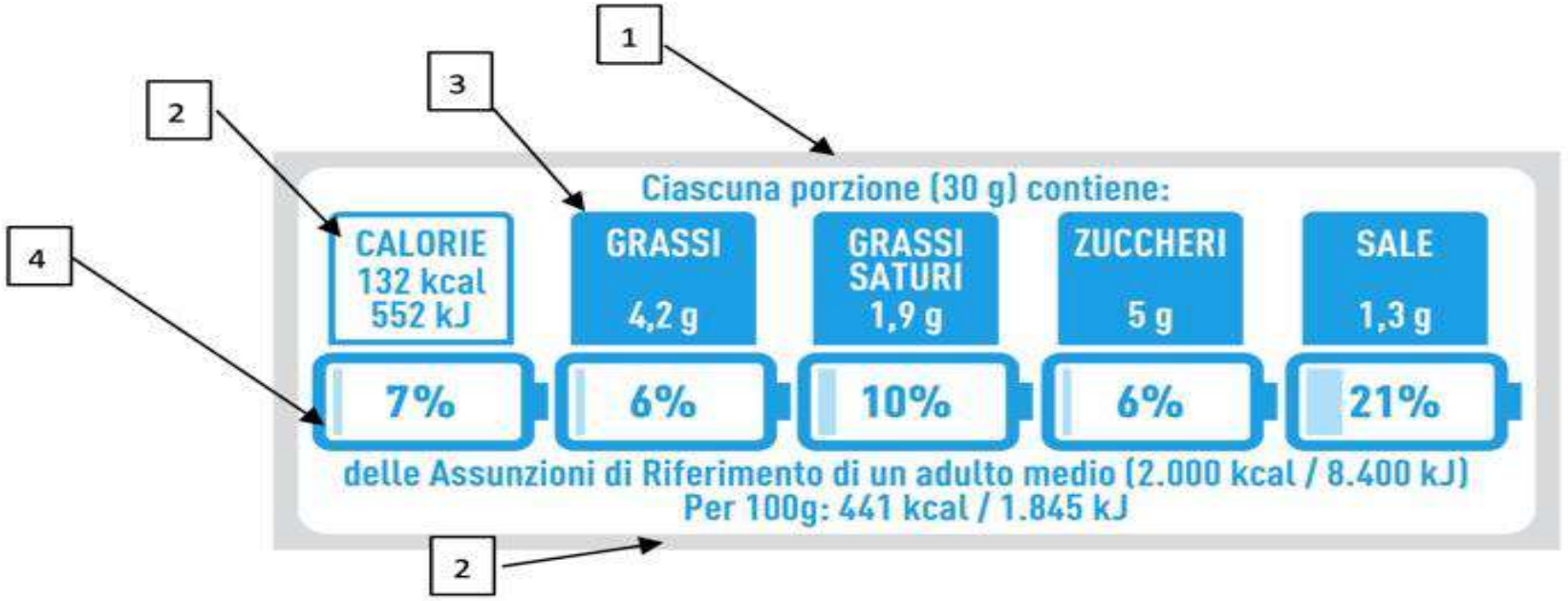
Mean portion sizes in the considered countries (overall mean; Southern, Central, and Northern countries) **and reference standard portions defined by the Italian Society of Human Nutrition** (SINU)



Nutrinform Battery



1. Informations on the serving size of the product (in g or ml).
2. Informations on the energy value (in kJ and kcal) per serving and per 100 g/ml.
3. Informations on the amount (in g) of lipids, saturated lipids, sugars and salt in one serving.
4. Informations on the percentage reference intake, based on the amount of each nutrient and energy value contained in a serving.

Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity
https://doi.org/10.1007/s40519-021-01316-z

REVIEW

Front-of-pack (FOP) labelling systems to improve the quality of nutrition information to prevent obesity: NutrInform Battery vs Nutri-Score

Michele O. Carruba[1] · Antonio Caretto[2] · Antonino De Lorenzo[3] · Giuseppe Fatati[4] · Andrea Ghiselli[5] · Lucio Lucchin[6] · Claudio Maffeis[7] · Alexis Malavazos[8,9] · Giuseppe Malfi[10] · Enrica Riva[11] · Chiara Ruocco[1] · Ferruccio Santini[12] · Marco Silano[13] · Alessandra Valerio[14] · Andrea Vania[15] · Enzo Nisoli[1]

The European Commission has explicitly called for such a nutrition information system to be part of the European “strategy on nutrition, overweight and obesity-related issues” to “facilitate consumer understanding of the contribution or importance of the food to the energy and nutrient content of a diet”.

This document was endorsed by:

- Italian Association of Dietetics and Clinical Nutrition (ADI) Foundation
- Italian Obesity Network (IO-NET)
- Italian Society for the Study of Eating Disorders (SISDCA)
- Italian Society of Alimentary Sciences (SISA)
- Italian Society of Paediatric Endocrinology and Diabetology (SIEDP)
- Italian Association of Dietetics and Clinical Nutrition (ADI)
- Italian Society of Pediatric Nutrition (SINUPE)
- Italian Obesity Society (SIO)

Carruba et al., Eat Weight Disord. 2021 Oct 19

Nutri-Score criticism

Nutri-Score is a supplementary nutrition labelling system of foods, developed by French researchers, based on a specific algorithm, assigning negative points to products based on their content in calories, sodium, sugar and saturated fats (per 100 g) and positive points based on their content of fibres, proteins and selected ingredients (fruit, vegetables, legumes, nuts and seeds, olive and walnut oils).

Based on the obtained final score, each food is classified into five categories: from the best (A, dark green) to the worst (E, red)

- **"*a priori*" classification of nutrients and foods as favourable and unfavourable, whereas the effect of food depends on the quantity and the frequency with which they are consumed.**
- **highly focussed on the content of nutrients with "unfavourable" effects (up to 40 negative points), with an impact on the final score much larger than nutrients with "favourable" effects (a maximum of 15 positive points);**
- **evaluate 100 g of a product instead of a food serving;**
- **It does not provide helpful indicators to people with specific nutritional needs**

Nutri-Score is a merely interpretative and non-educational/informative system: it does not improve the consumer's knowledge or nutritional information. Furthermore, it does not provide any assistance in deciding the overall diet composition, nor does it facilitate in any way an appropriate combination of various foods.

No study document any favourable effect in adopting Nutri-Score on BMI at the beginning of the study

Carruba et al., Eat Weight Disord. 2021 Oct 19

Effects of environmental impact and nutrition labelling on food purchasing: An experimental online supermarket study

Comparison of the environmental impact score, health score, cost, and nutrient composition of the shopping basket between trial groups

	Control	Ecolabel only vs Control	Nutrition label only vs Control	Both labels vs Control
N	*309*	*812*	*802*	*807*
Environmental Impact Score	62.6 + 5.9	-1.3 (-2.3, -0.4)*	-0.2 (-1.2, 0.7)	-2.0 (-3.0, -1.0)**
Health Score	40.8 ± 3.3	0.1 (-0.5, 0.6)	-0.1 (-0.6, 0.5)	-0.2 (-0.7, 0.4)
Energy, kcal/g	1.8 ± 0.4	0.0 (-0.1, 0.1)	0.0 (-0.1, 0.1)	0.0 (-0.1, 0.1)
Fat, %energy	45.4 ± 8.8	-0.5 (-1.7, 0.6)	-0.6 (-1.7, 0.6)	-1.3 (-2.5, -0.2)*
Saturated fat, %energy	19.4 ± 4.8	-0.3 (-0.9, 0.3)	-0.3 (-1.0, 0.3)	-0.7 (-1.3, -0.1)*
Carbohydrate, %energy	35.7 ± 10.3	0.7 (-0.7, 2.0)	0.6 (-0.8, 1.9)	1.7 (0.3, 3.0)*
Sugar, %energy	10.9 ± 3.6	-0.0 (-0.5, 0.5)	-0.1 (-0.6, 0.4)	-0.2 (-0.7, 0.3)
Protein, %energy	19.7 ± 4.1	-0.1 (-0.7, 0.4)	-0.02 (-0.6, 0.5)	-0.3 (-0.9, 0.2)
Fibre, g/100g	1.4 ± 0.5	-0.0 (-0.1, 0.1)	0.0 (-0.1, 0.1)	0.0 (-0.1, 0.1)
Salt, *g/100g*	0.2 ± 0.2	0.0 (-0.0, 0.0)	0.0 (-0.0, 0.0)	0.0 (-0.0, 0.0)
Cost, *£/100 g*	0.53 ± 0.15	0.00 (-0.02, 0.03)	0.00 (-0.02, 0.02)	0.00 (-0.02, 0.02)

Note. Values are means ± SDs in column 1 and mean differences (95% CIs) in the other three columns. Analyses for Environmental Impact Score and Health Score are adjusted for covariates, with Bonferroni-corrected 95% CIs (i.e. 97.5 CIs). Other analyses are unadjusted, with standard CIs. *p <.05 **p <.001

Christina Potter,
Rachel Pechey,
Brian Cook,
Paul Bateman,
Cristina Stewart,
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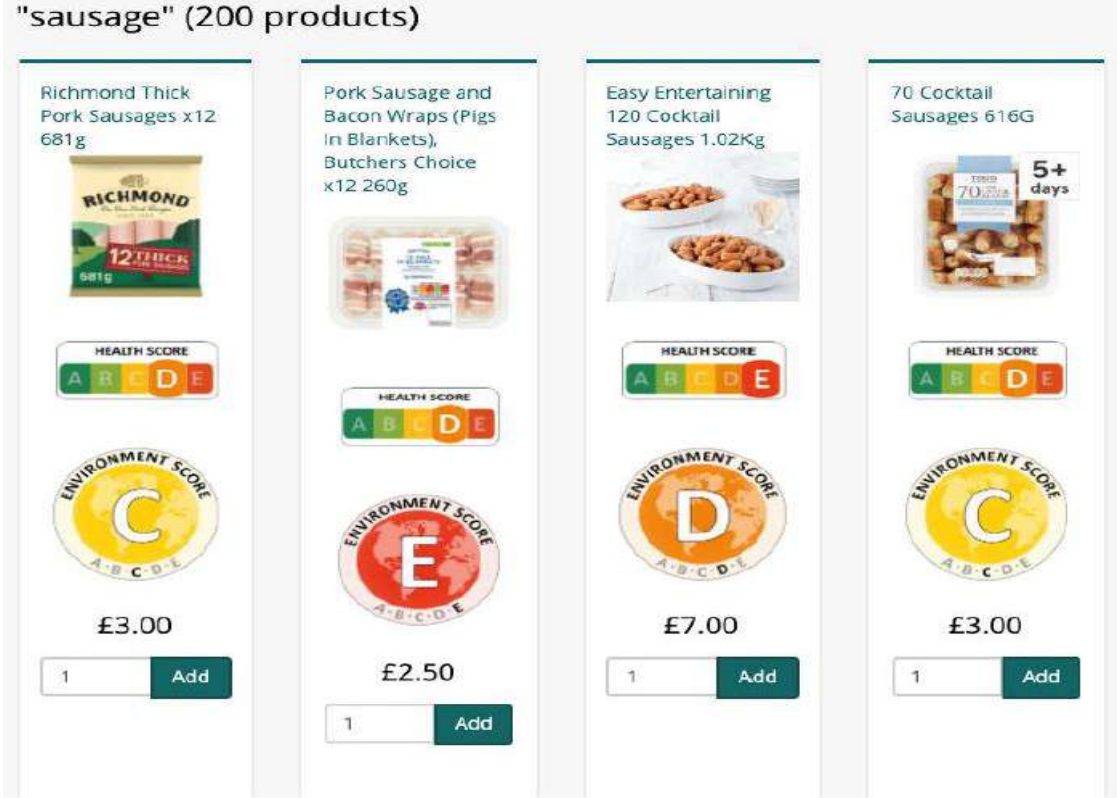
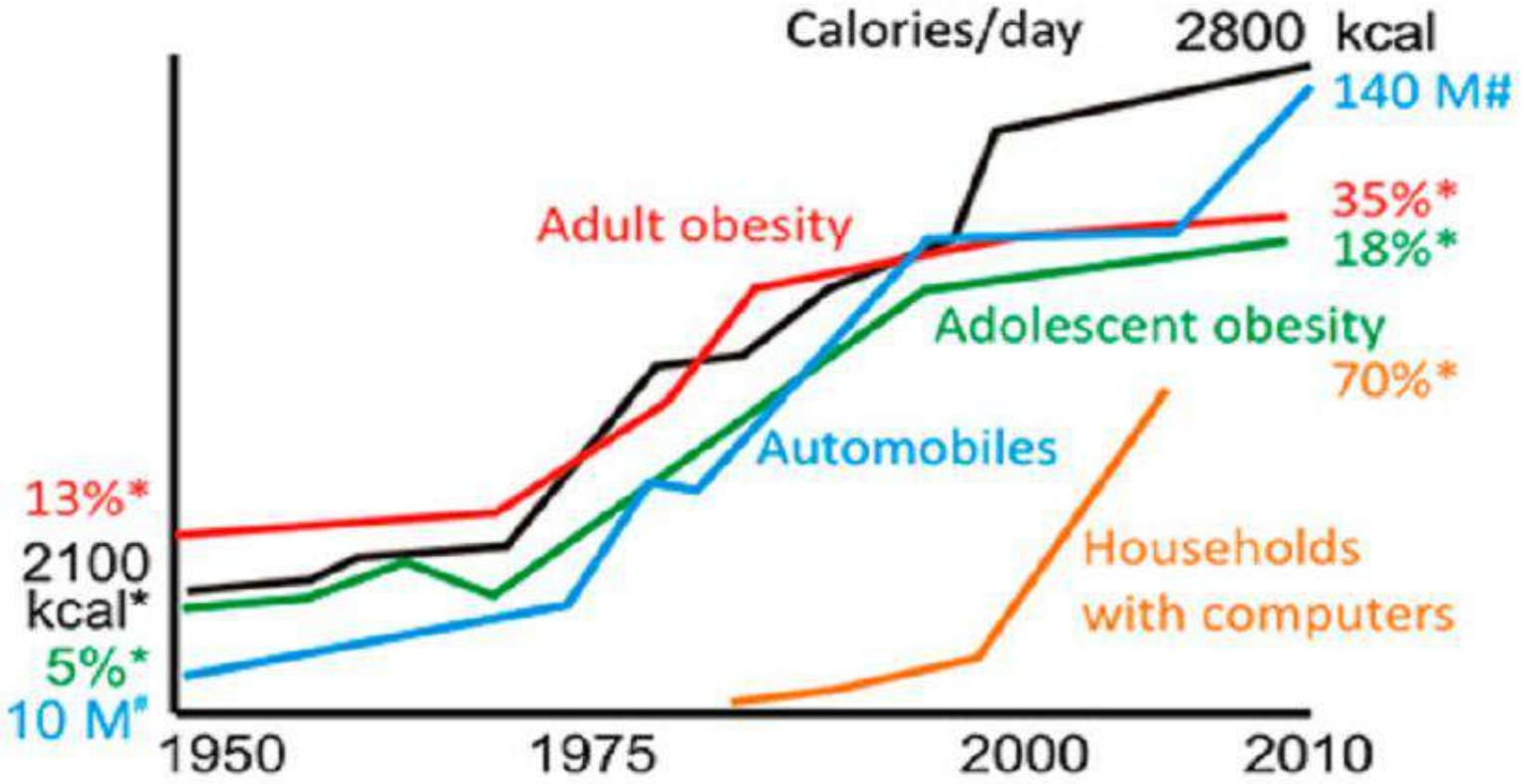
Effects of environmental impact and nutrition labelling on food purchasing: An experimental online supermarket study

Example screenshot of labels on experimental online supermarket platform



In this study there was no evidence that the nutrition labels had any impact on the healthiness of products in the basket as measured by mean product NutriScore.

The rising tide of obesity is strongly associated with daily calorie intake and sedentary lifestyle-promoting



Mattson et al., PNAS 111: 16647–16653, 2014