Thank you for joining!

- Your line is muted, but you will have the opportunity to post questions throughout the webinar. Please use Zoom's Q&A feature.
- The recording, slides, and bibliography will be available on the web site by Friday.
- RDNs – By Friday, you will receive a followup email with instructions on how to claim your CE certificate. Check spam!

We will begin in just a few minutes

Quick Update from Diet ID

Rachna Govani, COO

- New partnerships
  - Kaiser Permanente
  - Spectrum Health
  - ConferMed Telehealth Platform
- Strong, frictionless engagement
  - Accuracy rating of 90%+
  - Completion rate up to 98% (often in just 2 minutes)
- Coaching support
  - 30+ education handouts and growing
  - Weekly blog with encouragement & tips
- Sign up for Diet ID's Digital Diet Assessment

ULTRAPROCESSED FOODS:

IMPLICATIONS FOR NUTRTION POLICY AND RECOMMENDATIONS

Food Truths Webinar
Hosted by Diet ID
October 21, 2020

Marion Nestle, PhD, MPH
World-renowned nutrition expert, author, and lecturer

Kevin Hall, PhD
Senior Investigator at the NIDDK at the NIH

Carlos Monteiro, MD, PhD
Professor of Nutrition and Public Health, University of Sao Paulo

Intro from Dr. Katz

Dr. Monteiro

October 21, 2020

The NOVA food classification system

Carlos A. Monteiro

carlosam@usp.br

Center for Epidemiological Studies in Health and Nutrition
University of Sao Paulo, Brazil

www.DietID.com

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USP

Conflict of interest disclosures

No conflicts of interest
(no financial link with food producers, food processors or food sellers)

The NOVA food classification system

- Rationale
- Description
- Uses and applications

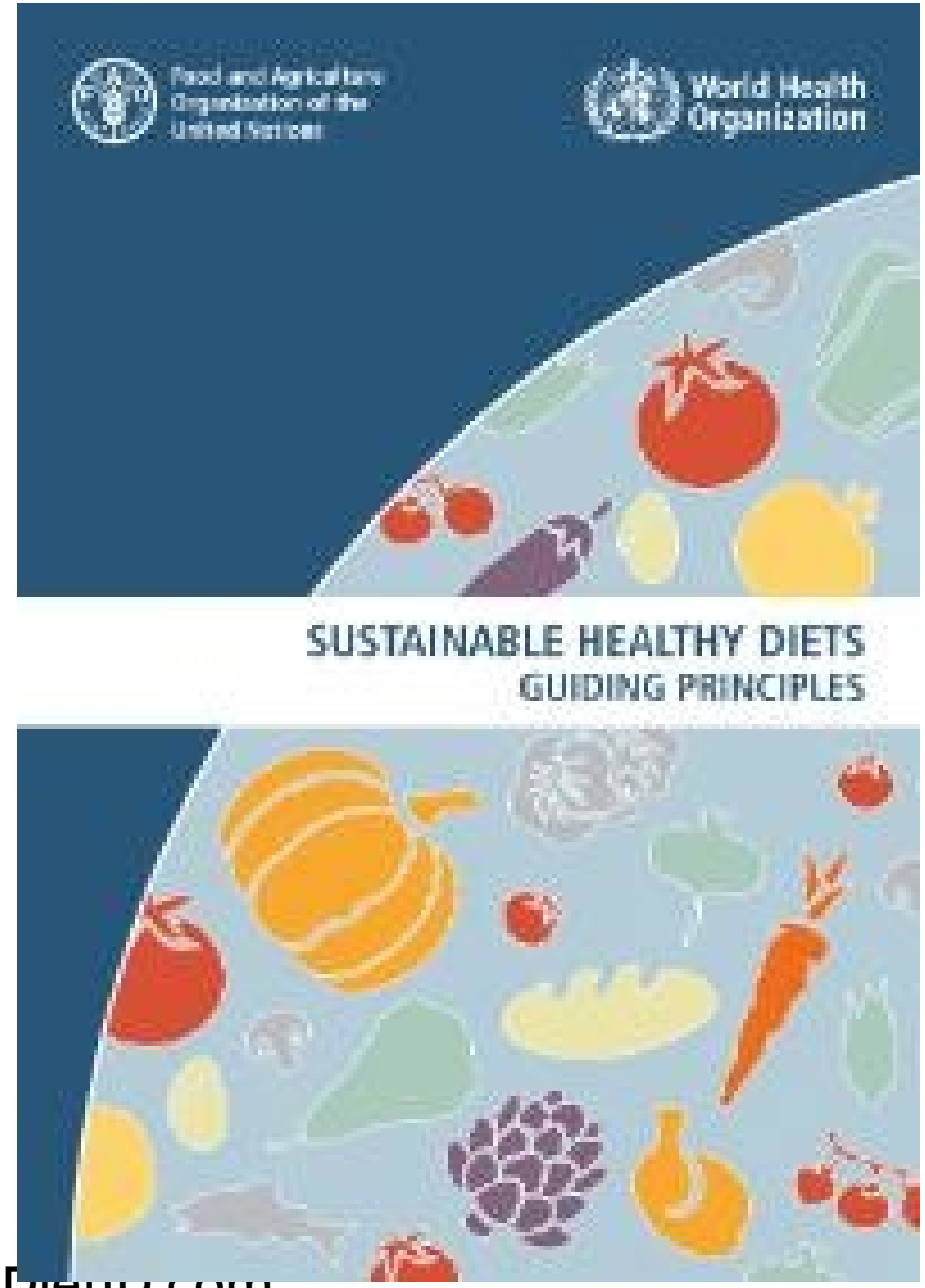
The NOVA food classification system

- **Rationale**

Why a contemporary health-oriented food classification must focus on food processing?

- Today, the nutrient content of foods (and diets) is largely driven by food processing
- Today, other health-relevant food attributes are also heavily influenced by food processing:

✓ **The food matrix**: physical and chemical interactions between food components
✓ **Health-protective non-nutrient** bioactive compounds
✓ **Health-risk non-nutrient** bioactive compounds
✓ **Texture, palatability, convenience**



2 … are based on a great variety of unprocessed or minimally processed foods, balanced across food groups, while restricting highly processed food and drink products.[10]

Public Health Nutrition: 12(5), 729–731, 2009 doi:10.1017/S1368980009005291

Invited commentary

Nutrition and health. The issue is not food, nor nutrients, so much as processing

Orthodox teaching and practice on nutrition and health almost always focuses on nutrients, or else on foods and drinks. Thus, diets that are high in folate and in green leafy vegetables are recommended, whereas diets high in saturated fat and in full-fat milk and other dairy products are not recommended. Food guides such as the US Food Guide Pyramid are designed to encourage consumption

Group 1 is of minimally processed foods. It is of whole foods that have been submitted to some process that does not substantially alter the nutritional properties of the original foods which remain recognisable as such, while aiming to preserve them and make them more accessible, convenient, sometimes safer, and more palatable. Such processes include cleaning, removal of inedible fractions,

The NOVA food classification system

- Rationale
- **Description**
- Uses and applications
- Developments/improvements

Food processing within the food system

Food Production (Agriculture) → Unprocessed foods → **Food processing (Industry)** → Food products → Food Preparation/ Cooking (Kitchen)

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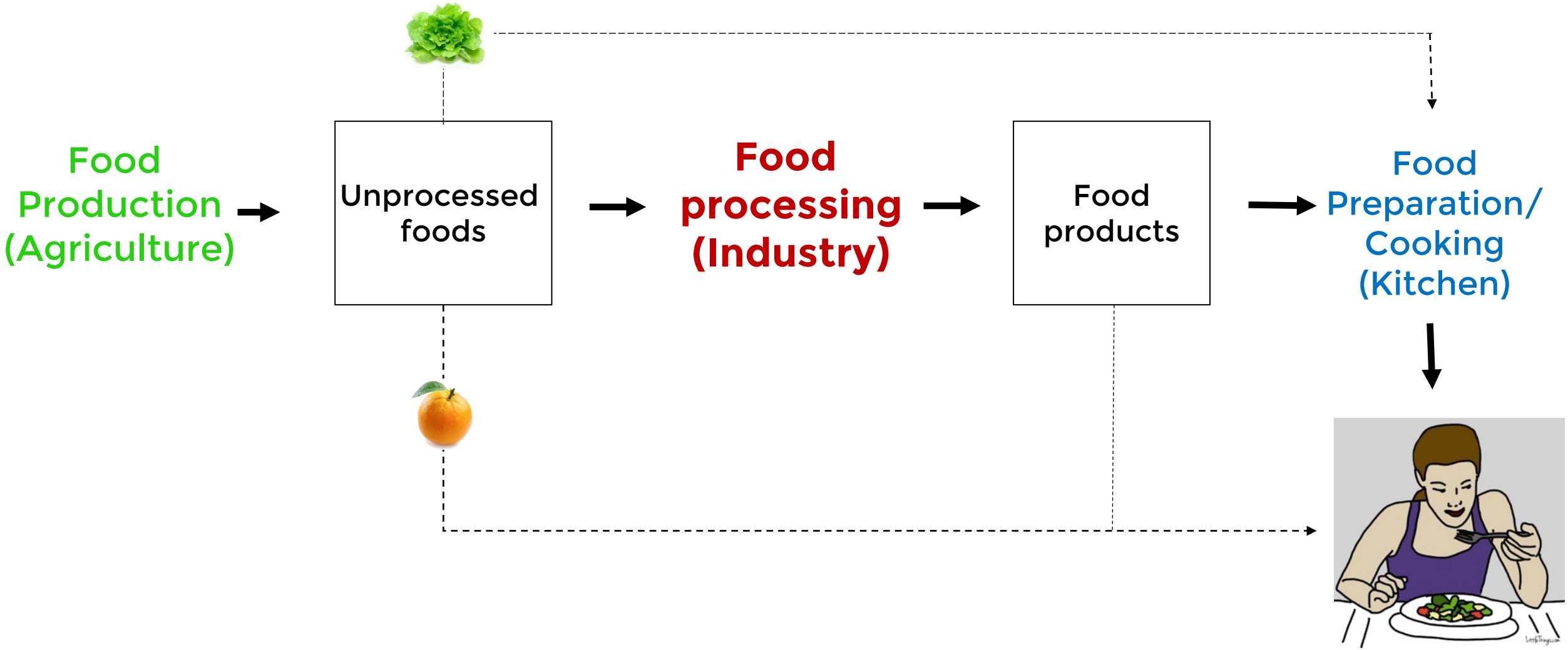
Only a few foods are not processed before being prepared or consumed



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Foods are processed in different ways and with different purposes

Food Production (Agriculture) → Unprocessed foods → **Food processing (Industry)** →

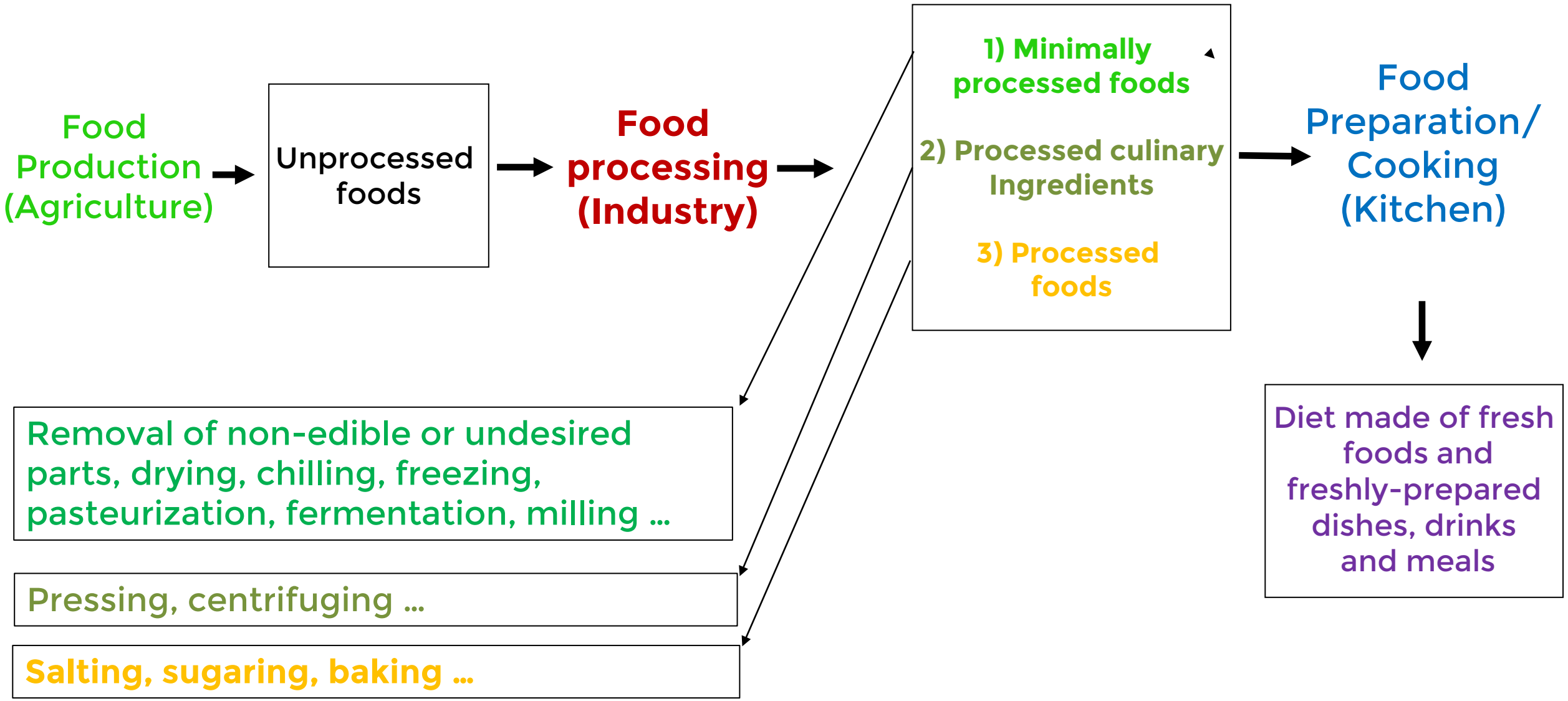
→ Food Preparation/ Cooking (Kitchen)

NOVA: a food classification based on extent and purpose of industrial processing

NOVA groups	Examples
1) Unprocessed or minimally processed foods Edible parts of plants and animals after separation from nature or preserved by minimal processes (no substances added)	   
2) Processed culinary ingredients Substances extracted from foods or nature and used to prepare, cook and season Group 1 foods	   
3) Processed foods Group 1 foods modified with the addition of Group 2 ingredients aiming food preservation and/or enhancement of its sensory qualities	   
4) Ultra-processed foods	

Source: **Monteiro et al** *Public Health Nutrition* **2017**

What are the processes involved?



Food processing to increase **food** duration, to make easier/more diverse **food** preparation, or to enhance **food** sensory properties

Food Production (Agriculture) → Unprocessed foods → **Food processing (Industry)** →  → Food Preparation/ Cooking (Kitchen) →

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Food processing to make convenient (ready-to-eat or heat, imperishable), tasteful, low cost (highly profitable) products liable to replace all other foods

Food Production (Agriculture) → Unprocessed foods → **Food ultra-processing (Industry)** → Ultra-processed foods → ~~Food Preparation/ Cooking (Kitchen)~~

Ultra-processed foods are manufactured and marketed to replace Group 1 foods and Group 1-based drinks, dishes and meals, and to make huge profits

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What are the processes involved?

Food Production (Agriculture) → Unprocessed foods → **Food ultra-processing (Industry)** → Ultra-processed foods → ~~Food Preparation/ Cooking (Kitchen)~~

Extraction of oils/fats/sugar/starches/protein contained in natural food matrices

↓

Chemical modifications of substances obtained from foods (hydrogenation etc.)

↓

Assembly of unmodified and modified food substances (extrusion, deep frying etc.)

↓

Use of cosmetic additives (flavours, colours, emulsifiers etc.)

↓

Sophisticated packaging often using synthetic materials.

NOVA: a food classification based on extent and purpose of industrial processing

NOVA groups	Examples
1) Unprocessed or minimally processed foods	
2) Processed culinary ingredients	
3) Processed foods	
4) Ultra-processed foods Formulations of several ingredients that include original or chemically modified food substances obtained with the fractioning of whole foods and additives used to make the final product palatable or hyper-palatable. The aim is to make convenient, tasteful and low cost products liable to replace all other NOVA food groups	

Ultra-processed food: detailed definition but easily identified by its list of ingredients

Ingredients: salt, plant fats, starch, sugar, garlic, meat, pepper, flavor enhancer sodium monoglutamate, flavors, colors caramel and natural urucum, citric acid.

Ingredients: sugar, corn flour, wheat flour, oat flour, hydrogenated fat, salt, ascorbic acid, zinc oxide, niacin, iron, retinol palmitate, piridoxin, riboflavina, thiamin, folic acid, cobalamin, colors, flavors.

Ingredients: wheat flour, sugar, plant fats, salt, gluten, milk whey, calcium propionanate, lecithin, calcium lactate, ascorbic acid.

Ingredients: sugar, maltodextrin, dehydrated orange pulp, iron, vitamin C, vitamin A, ascorbic acid, anti-humectant, caldium phosphate, gum shantan, flavors, aspartame, sodium cyclamate, potassium acesulfame, sacharine, colors.
IT CONTAINS 1% OF DEHYDRATED ORANGE PULP

Public Health Nutrition: 22(5), 936–941 doi:10.1017/S1368980018003762

Commentary

Ultra-processed foods: what they are and how to identify them

Carlos A Monteiro[1,2,*], Geoffrey Cannon[2], Renata B Levy[2,3], Jean-Claude Moubarac[4], Maria LC Louzada[2], Fernanda Rauber[2], Neha Khandpur[2], Gustavo Cediel[2], Daniela Neri[2], Euridice Martinez-Steele[2], Larissa G Baraldi[2] and Patricia C Jaime[1,2]
[1]Department of Nutrition, School of Public Health, University of São Paulo, São Paulo, Brazil: [2]Center for Epidemiological Research in Nutrition and Health, Department of Nutrition, School of Public Health, University of São Paulo, Av. Dr Arnaldo 715, São Paulo, SP 01246-904, Brazil: [3]Department of Preventive Medicine, School of Medicine, University of São Paulo, São Paulo, Brazil: [4]Département de Nutrition, Université de Montréal, Montréal, Canada

Submitted 3 September 2018: Final revision received 21 November 2018: Accepted 30 November 2018: First published online 12 February 2019

Abstract
The present commentary contains a clear and simple guide designed to identify ultra-processed foods. It responds to the growing interest in ultra-processed foods

UPF markers

- Food substances never or rarely used in kitchens

(protein isolates, gluten, casein, whey protein, 'mechanically separated meat', high-fructose corn syrup, 'fruit juice concentrate', invert sugar, maltodextrin, dextrose, lactose, soluble or insoluble fibre, hydrogenated or interesterified oil)

- Cosmetic additives

(flavors, flavor enhancers, colors, emulsifiers, sweeteners, thickeners, and anti-foaming, bulking, carbonating, foaming, gelling and glazing agents)

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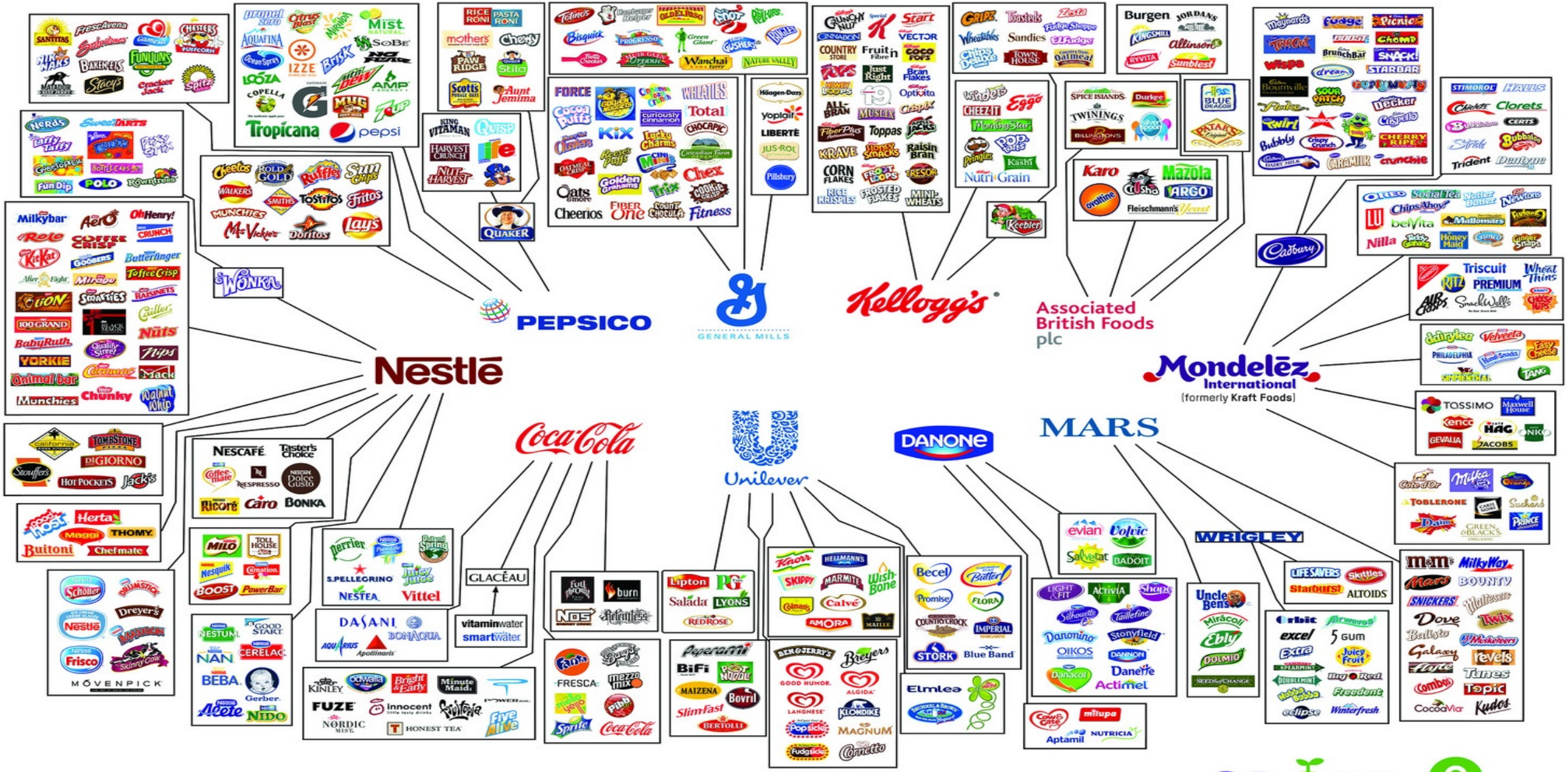


Global sales: US $ 1,1 bi a day (2013)

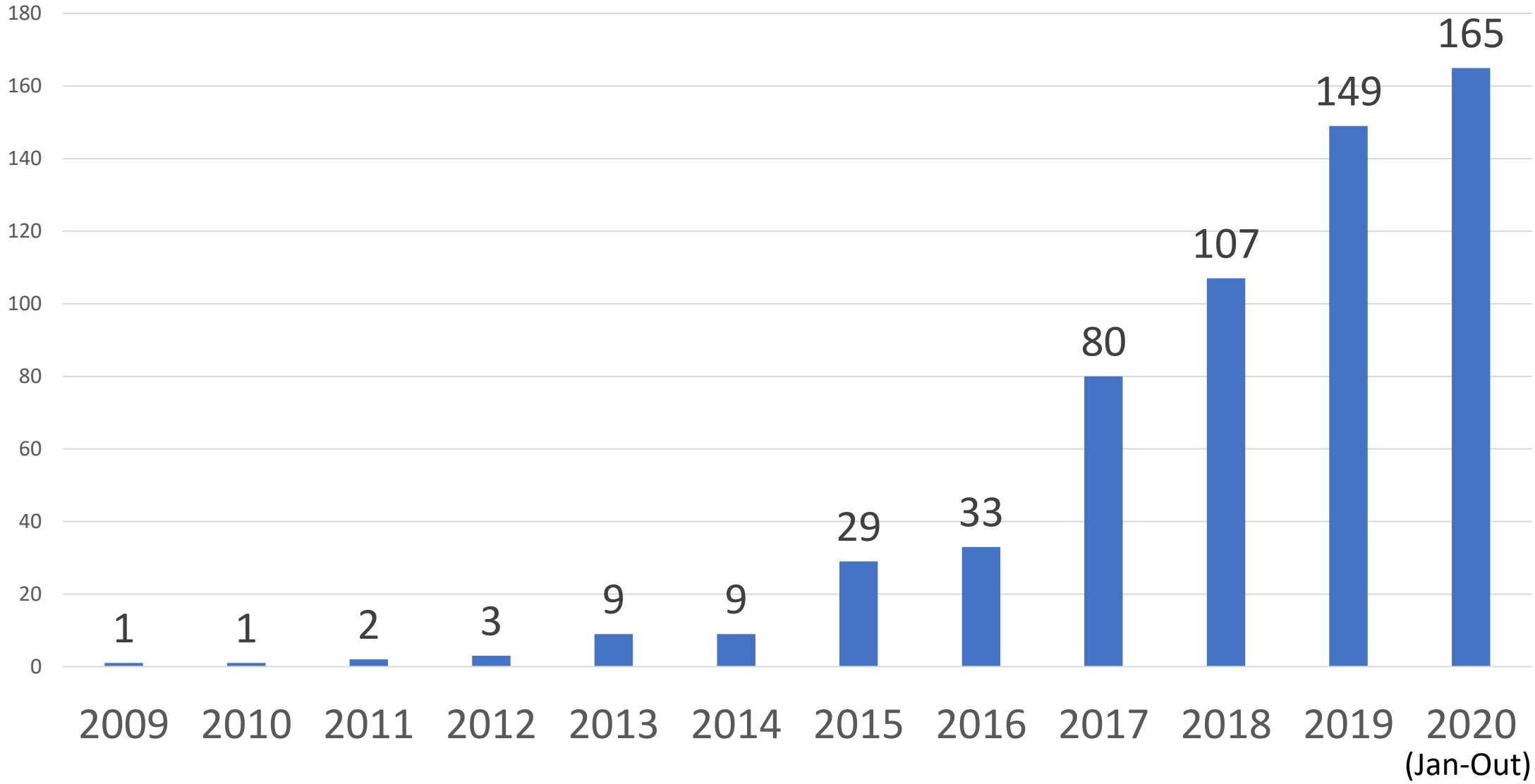
GROW
FOOD. LIFE. PLANET.

OXFAM

The NOVA food classification system

- Rationale
- Description
- Uses and applications:
  - **in describing population dietary patterns based on the share of UPF**
  - **in analyzing effects of dietary patterns on diet quality**
  - **in analyzing effects of dietary patterns on disease**
  - **in developing National Dietary Guidelines**
  - **in stablishing policy and program goals and regulations**

500 papers in PubMed with the term ‘ultra-processed’



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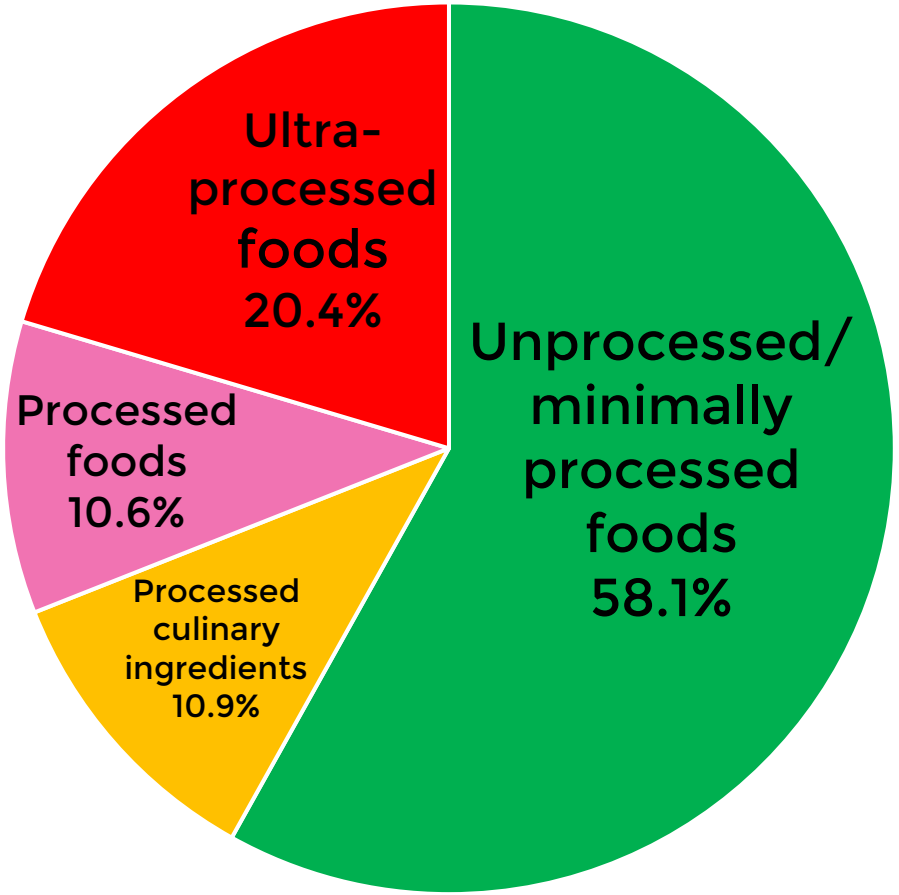
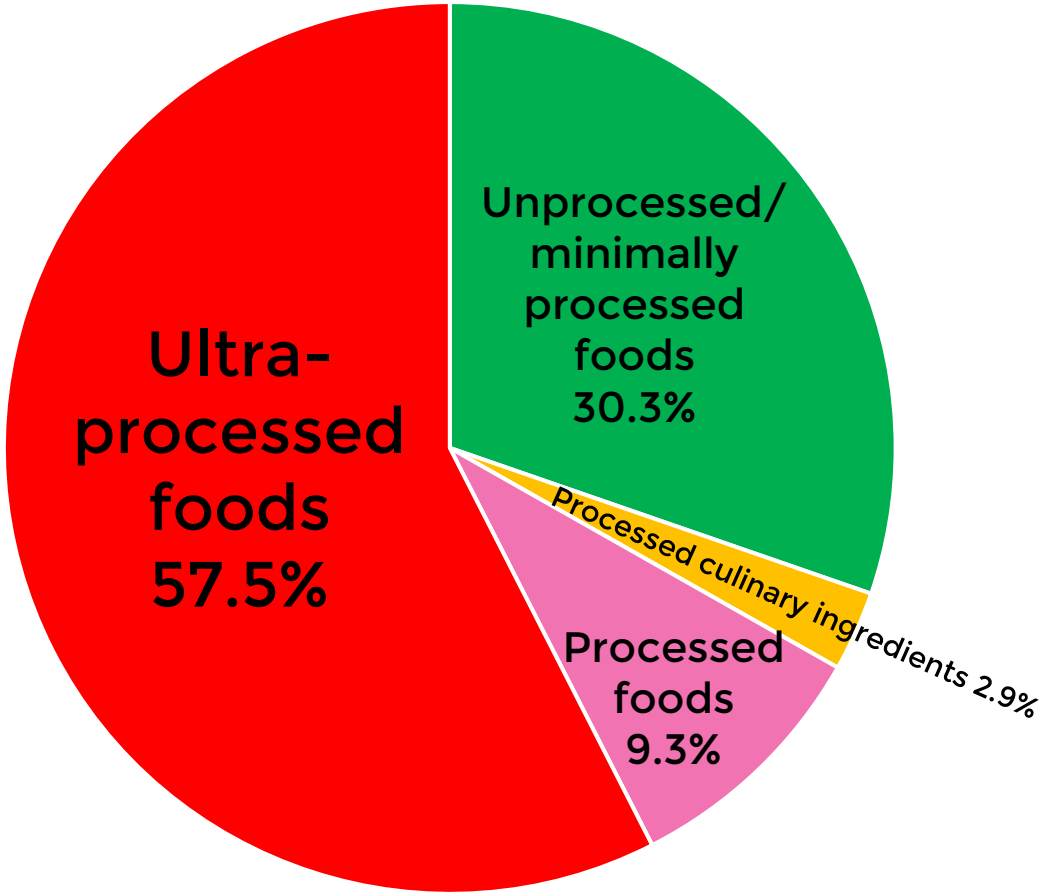
Distribution (%) of total energy intake according to NOVA food groups

DIET IN BRAZIL (2008/9)



DIET IN THE US 2009/10



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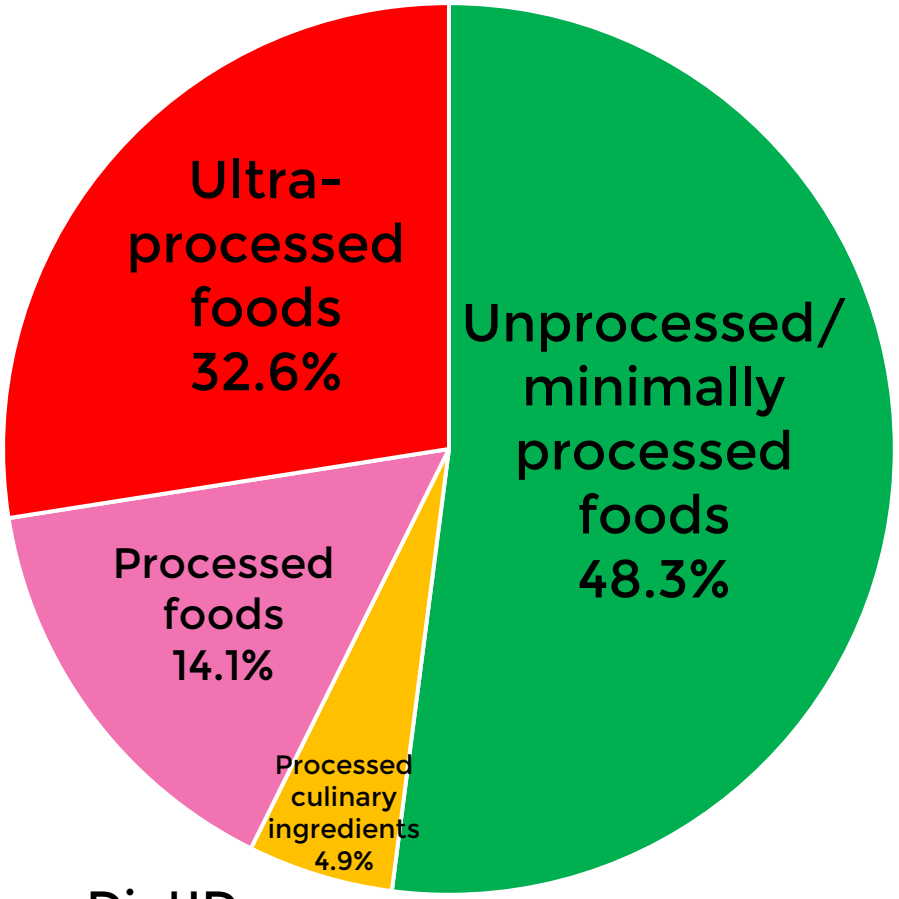
Sources: Louzada et al *PHN* 2017 and Steele et al *PHM* 2017

Distribution (%) of total energy intake according to NOVA food groups

US 2009/10
The 20% with lower UPF consumption



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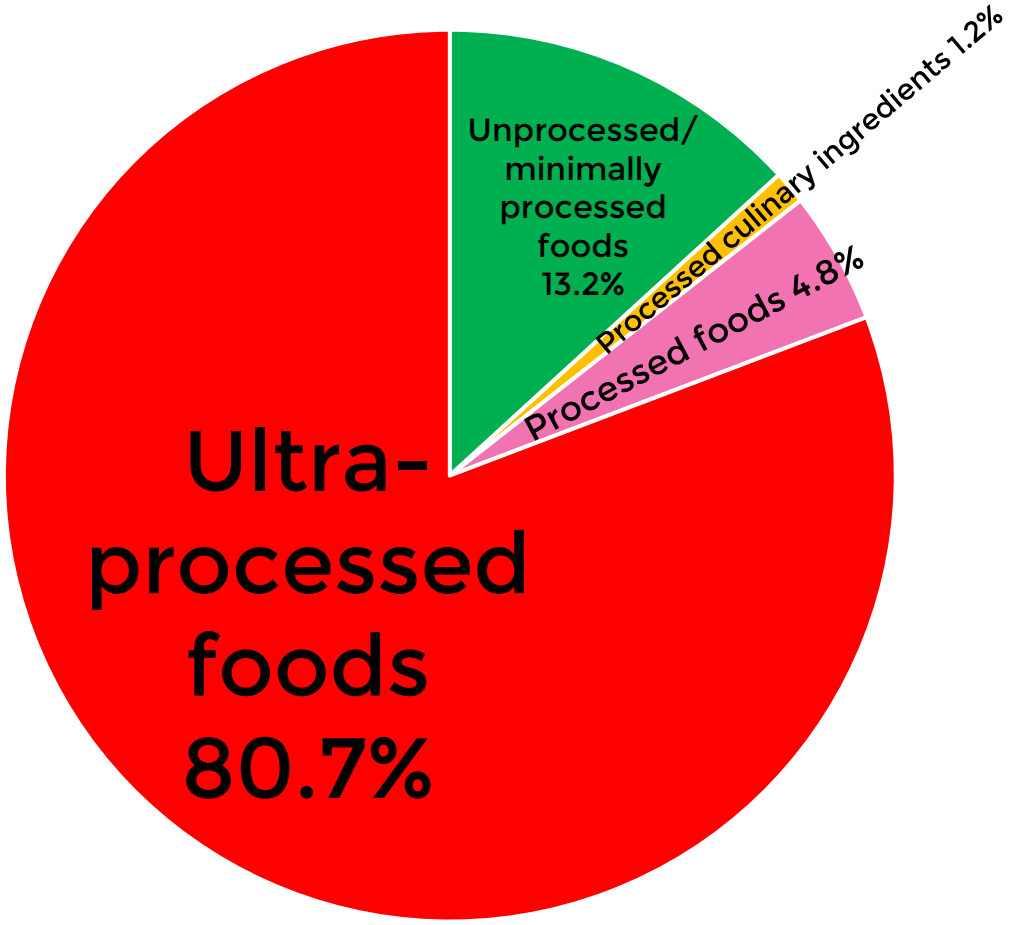
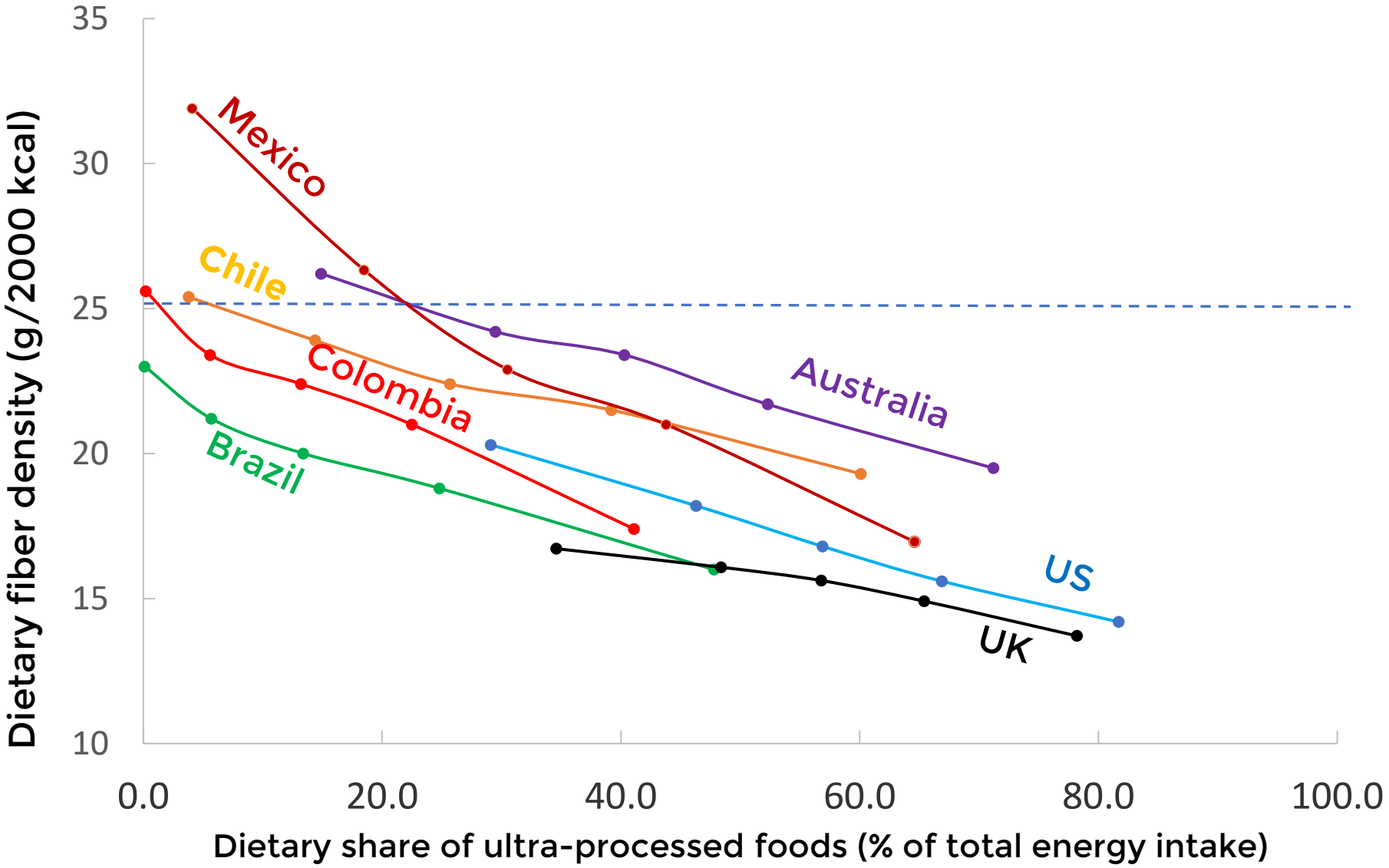
US 2009/10
The 20% with higher UPF consumption



Source: Steele et al *PHM* 2017

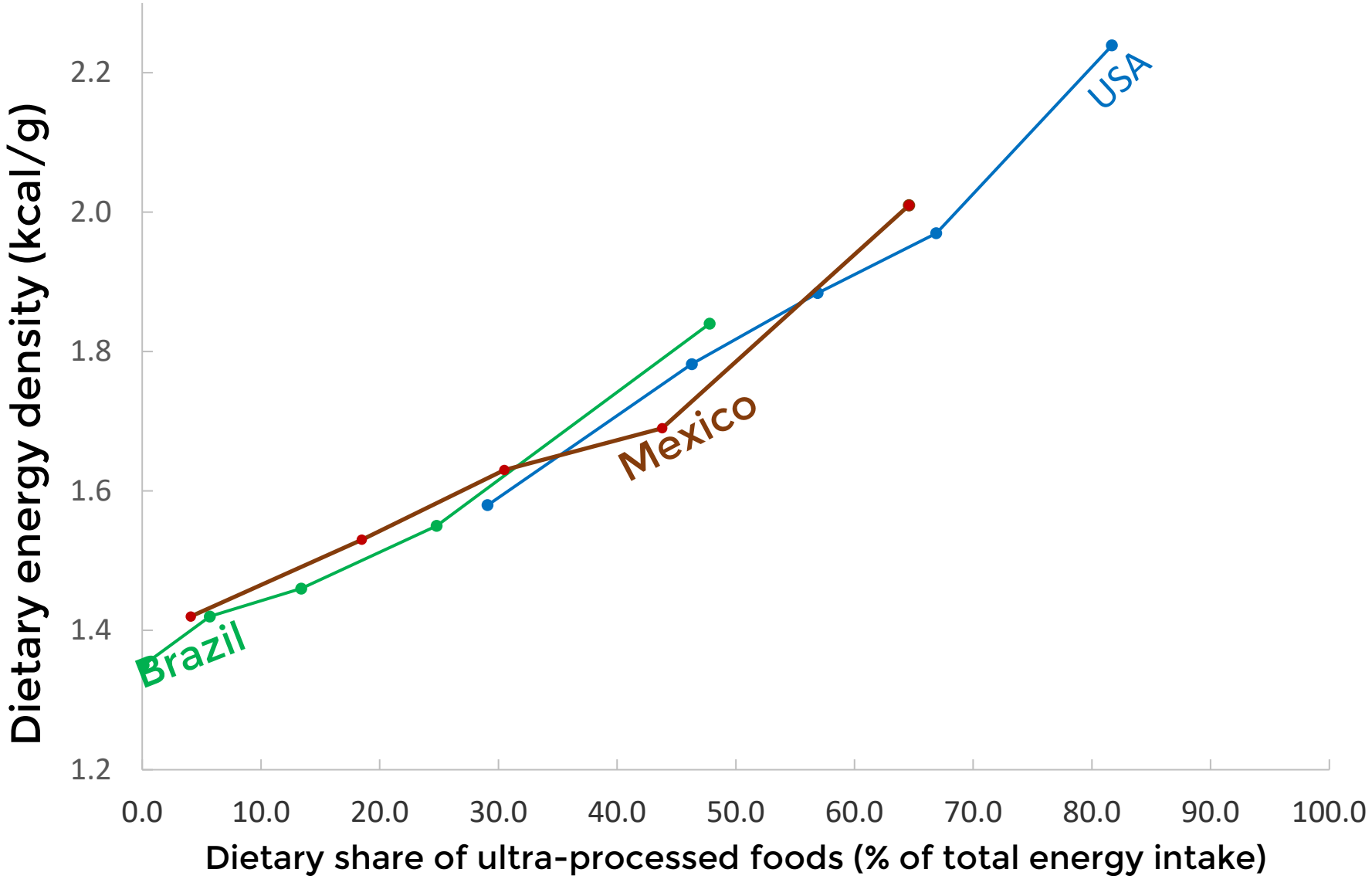
Dietary fiber density according to the dietary share of ultra-processed foods in seven countries



Source: FAO 2019

NUPENS USP

Dietary energy density according to the dietary share of ultra-processed foods in three countries



Source: FAO 2019

NUPENS USP

Dietary share of Ultra-processed food and diet quality: effects beyond the nutrient profile

- Reduced presence of bioactive non-nutrient compounds (Martines-Steele & Monteiro 2018)
- Increased presence of xenobiotics: neoformed substances, substances released from packaging materials and food additives (Buckley et al 2019; Martines-Steele et al. 2020)
- Diets with softer solid foods and more 'liquid foods - higher eating rate (Forde et al 2020)
- Low satiety (Fardet 2016, Dioneda et al 2020)
- Low thermic effect – positive energy balance (Dioneda et al 2020)
- Hyper-palatable diets – compulsive overeating (Ifland 2018; Small & DiFeliceantonio 2019)
- Pro-inflammatory microbiome (Zinocker & Lindseth 2018)

Six systematic reviews on food processing and health outcomes published in 2020

International Journal of Food Sciences and Nutrition

ISSN: 0963-7486 (Print) 1465-3478 (Online) Journal homepage: https://www.tandfonline.com/loi/iijf20

Food consumption by degree of processing and cardiometabolic risk: a systematic review

Talitha Silva Meneguelli, Jéssica Viana Hinkelmann, Helen Hermana Miranda Hermsdorff, M. Ángeles Zulet, J. Alfredo Martínez & Josefina Bressan

To cite this article: Talitha Silva Meneguelli, Jéssica Viana Hinkelmann, Helen Hermana Miranda Hermsdorff, M. Ángeles Zulet, J. Alfredo Martínez & Josefina Bressan (2020) Food consumption by

RSP Revista de Saúde Pública

http://www.rsp.fsp.usp.br/

Food processing and cardiometabolic risk factors: a systematic review

Francine Silva dos Santos[I], Mariane da Silva Dias[I], Gicele Costa Mintem[II], Isabel Oliveira de Oliveira[I], Denise Petrucci Gigante[I,II]

[I] Universidade Federal de Pelotas. Faculdade de Medicina. Programa de Pós-Graduação em Epidemiologia. Pelotas, RS, Brasil
[II] Universidade Federal de Pelotas. Faculdade de Nutrição. Departamento de Nutrição. Pelotas, RS, Brasil

ABSTRACT

OBJECTIVE: To systematically review the evidence for the association between food

International Journal of Obesity
https://doi.org/10.1038/s41366-020-00650-z

REVIEW ARTICLE

Epidemiology and Population Health

Ultra-processed food and the risk of overweight and obesity: a systematic review and meta-analysis of observational studies

Mohammadreza Askari[1] · Javad Heshmati[2] · Hossein Shahinfar[1] · Nishant Tripathi[3] · Elnaz

Received: 27 November 2019 / Revised: 1 July 2020 / Accepted: 5 August 2020

Abstract

Background Numerous studies have reported the association of ultra-processed foods with excess body the nature and extent of this relation has not been clearly established. This systematic review was condu

MDPI

Review

Ultra-Processed Foods and Health Outcomes: A Narrative Review

Leonie Elizabeth [1], Priscila Machado [1,2], Marit Zinöcker [3], Phillip Baker [1,2] and Mark Lawrence [1,2,*]

1 School of Exercise and Nutrition Science, Deakin University, Geelong 3217, Australia; lelizabe@deakin.edu.au (L.E.); p.machado@deakin.edu.au (P.M.); phil.baker@deakin.edu.au (P.B.)
2 Institute for Physical Activity and Nutrition, Deakin University, Geelong 3217, Australia
3 Department of Nutrition, Bjørknes University College, 0456 Oslo, Norway; marit.zinocker@bhioslo.no
* Correspondence: mark.lawrence@deakin.edu.au

Received: 26 May 2020; Accepted: 15 June 2020; Published: 30 June 2020

Abstract: The nutrition literature and authoritative reports increasingly recognise the concept of

Chen *et al. Nutrition Journal* (2020) 19:86
https://doi.org/10.1186/s12937-020-00604-1

Nutrition Journal

REVIEW Open Access

Consumption of ultra-processed foods and health outcomes: a systematic review of epidemiological studies

Xiaojia Chen[1,2†], Zhang Zhang[1,2†], Huijie Yang[1,2†], Peishan Qiu[1,2], Haizhou Wang[1,2], Fan Wang[1,2], Qiu Zhao[1,2*], Jun Fang[1,2*] and Jiayan Nie[1,2*]

Abstract

Background: Consumption of ultra-processed foods (UPFs) plays a potential role in the development of obesity and other diet-related noncommunicable diseases (NCDs), but no studies have systematically focused on this. This

British Journal of Nutrition, page 1 of 11 doi:10.1017/S0007114520002688

Consumption of ultra-processed foods and health status: a systematic review and meta-analysis

G. Pagliai[1,2], M. Dinu[1,2*], M. P. Madarena[1], M. Bonaccio[3], L. Iacoviello[3,4] and F. Sofi[1,2]

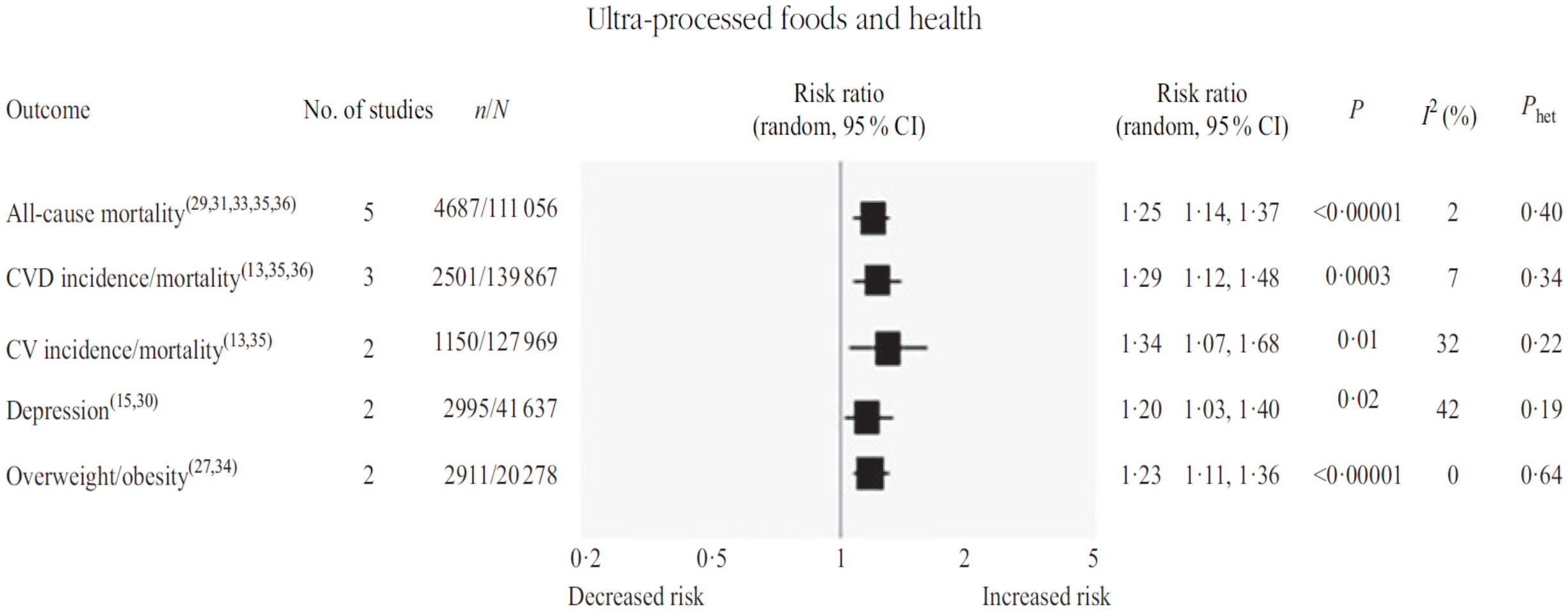
[1]*Department of Experimental and Clinical Medicine, University of Florence, 50134 Florence, Italy*
[2]*Unit of Clinical Nutrition, Careggi University Hospital, 50134 Florence, Italy*
[3]*Department of Epidemiology and Prevention, IRCCS Neuromed, Pozzilli, 86077 Isernia, Italy*
[4]*Department of Medicine and Surgery, Research Center in Epidemiology and Preventive Medicine (EPIMED), University of Insubria, 21100 Varese, Italy*

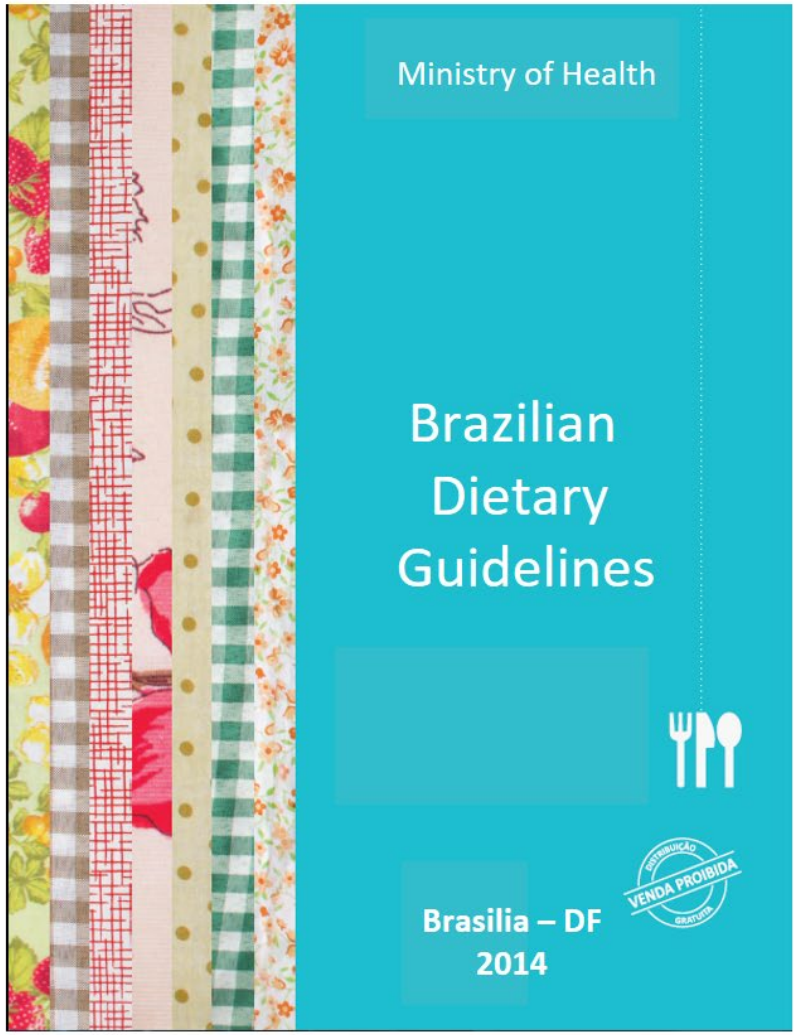
(Submitted 27 March 2020 – Final revision received 30 June 2020 – Accepted 9 July 2020)

Abstract

Increasing evidence suggests that high consumption of ultra-processed foods (UPF) is associated with an increase in non-communicable diseases, overweight and obesity. The present study systematically reviewed all observational studies that investigated the association between UPF

Pagliai G et al. Consumption of ultra-processed foods and health status: a systematic review and meta-analysis. *Br J Nutr*. 2020;1-11. doi:10.1017/S0007114520002688





Chapter 1 Principles

Chapter 2 Choosing foods (***considering food processing***)

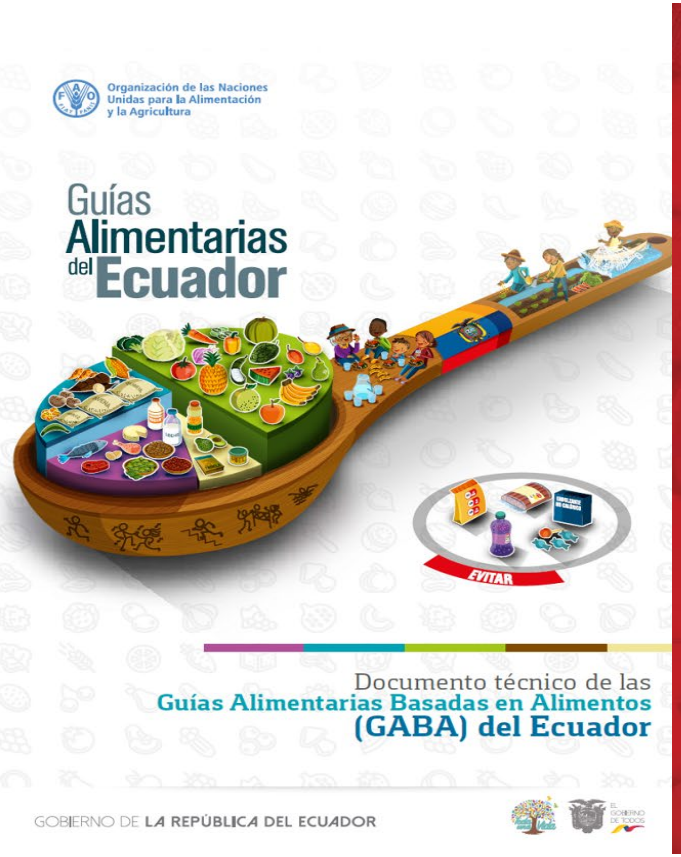
Chapter 3 From foods to meals

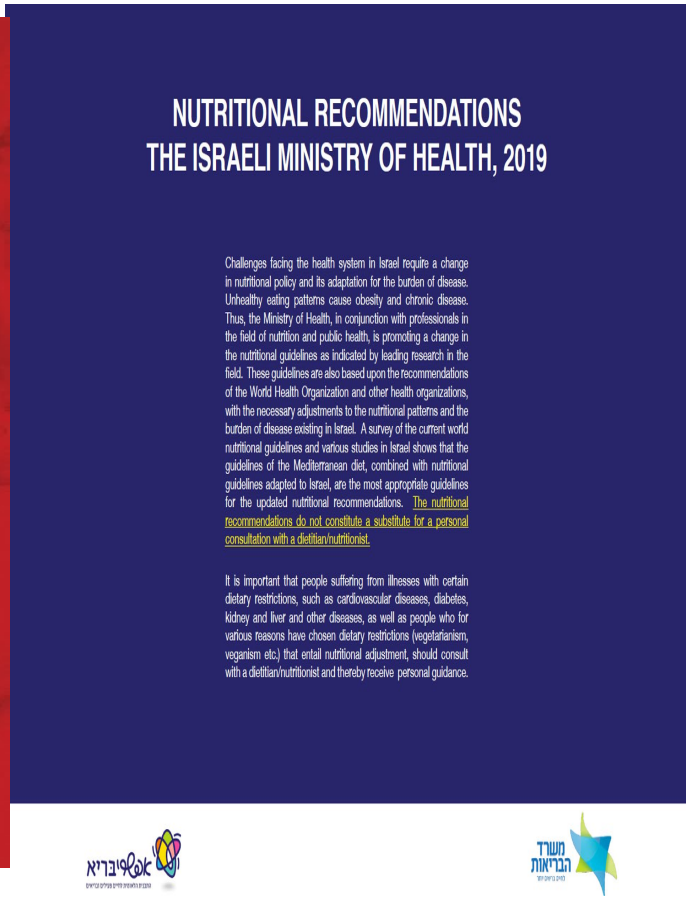
Chapter 4 Mindful eating and commensality

Chapter 5 Understanding and overcoming obstacles

http://bvsms.saude.gov.br/bvs/publicacoes/dietary_guidelines_brazilian_population.pdf

Uruguay (2016), **Ecuador** (2018), **Peru** (2019), and **Israel** also launched national dietary guidelines following the NOVA food classification system





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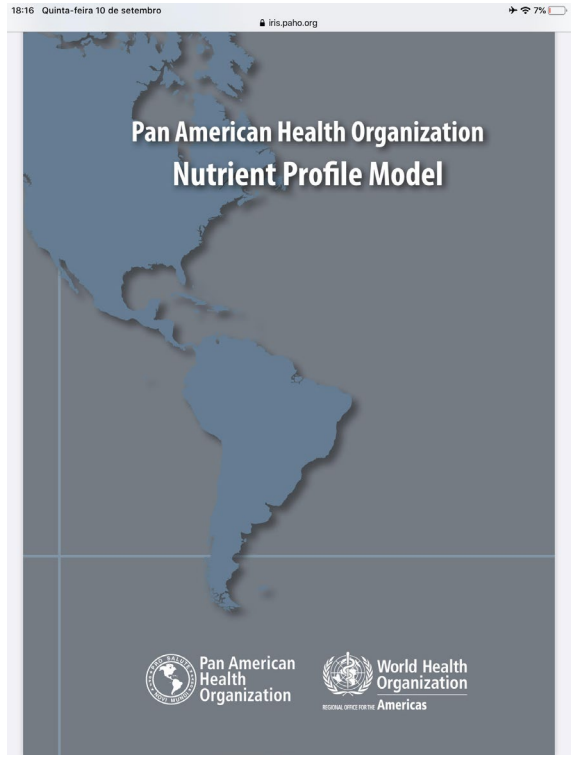

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Research on Ultra-processed Foods

Kevin D. Hall, Ph.D.
National Institute of Diabetes & Digestive & Kidney Diseases
National Institutes of Health

@KevinH_PhD

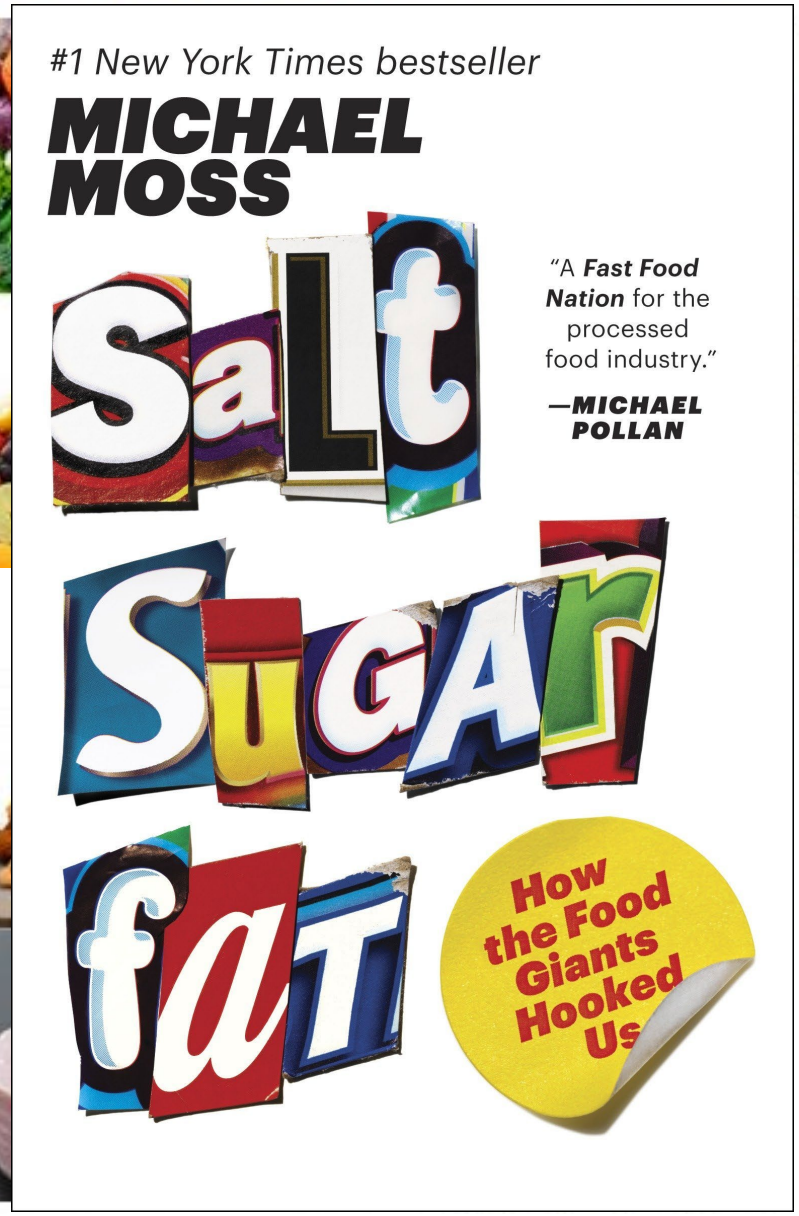
Intramural Research Program
Our Research Changes Lives

one program
many people
infinite possibilities

Conflict of Interest Disclosures

- None. Kevin Hall is a Senior Investigator at the National Institute of Diabetes and Digestive and Kidney Diseases at the National Institutes of Health

How Does Ultra-processed Food Cause Obesity?



Unprocessed or minimally processed foods include fresh, dried, or frozen vegetables, grains, legumes, fruits, meats, fish, eggs, and milk. They are the basis of healthy dishes and meals.

Ultra-processed foods include fast food, sugary drinks, snacks, chips, candies, cookies, sweetened milk products, sweetened cereals, and sauce and dressings. They are nutritionally poor.

www.

Heart&Stroke

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Ultra-processed vs Unprocessed Diets

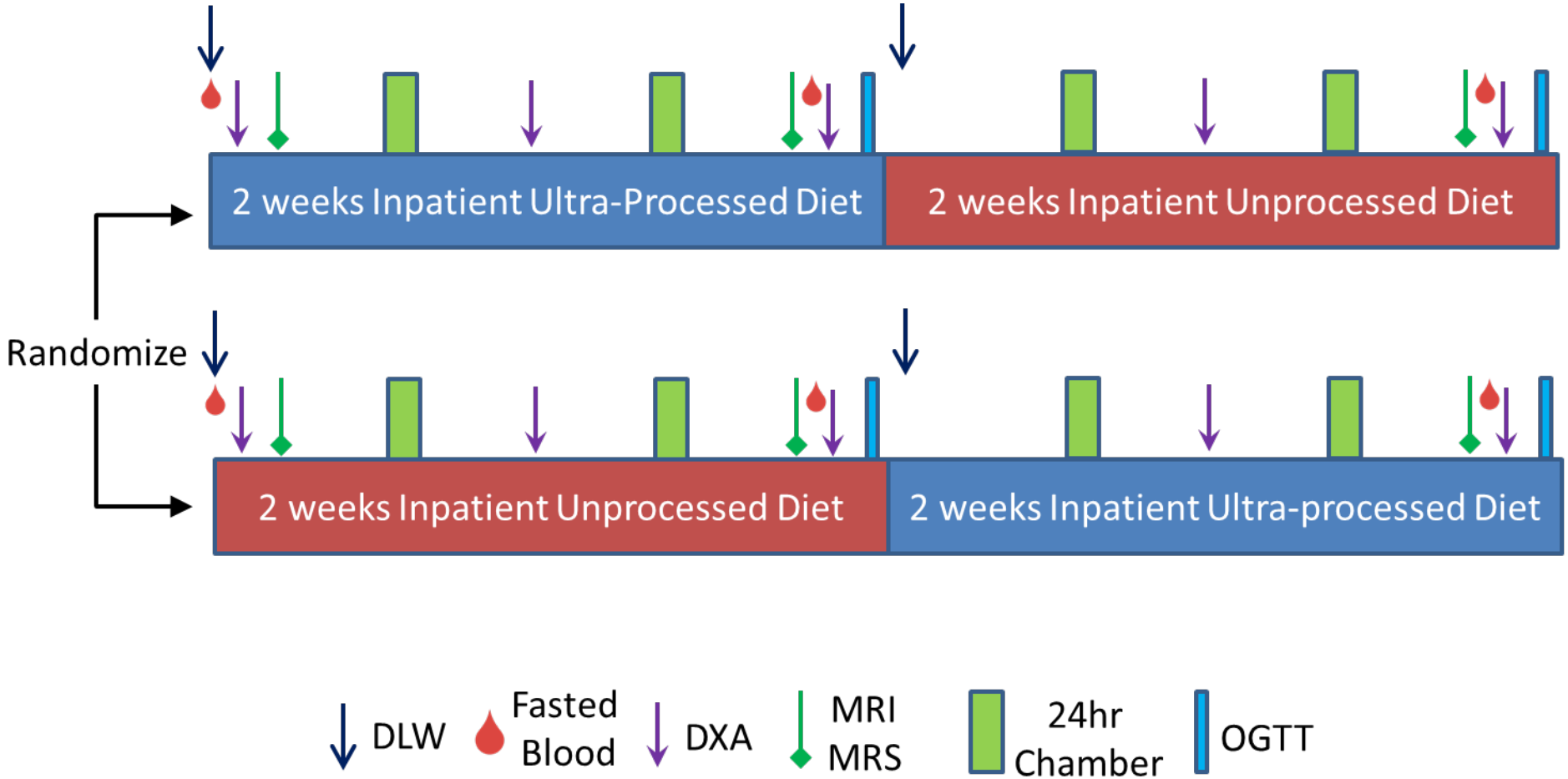
The meals had similar amounts of:
Calories, Carbs, Fat, Sugar, Sodium, Fiber

20 Adults were instructed to eat as much or as little as desired

Primary Outcome: Mean Daily Energy Intake Differences

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

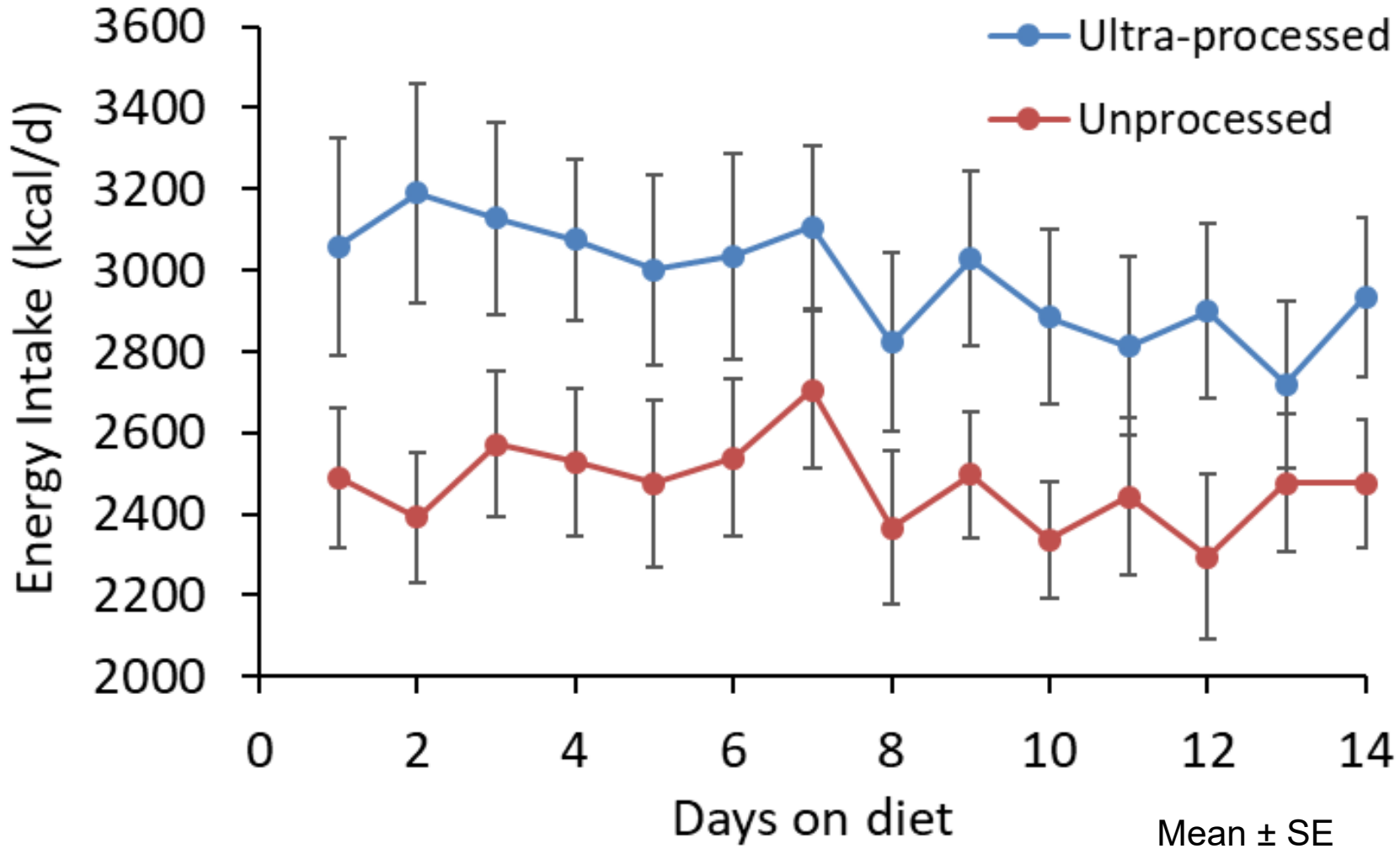
Ultra-processed vs Unprocessed Diet Study



KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

Ultra-processed Diets Cause Increased Intake

ΔEI = 508 ± 106 kcal/d; P=0.0001

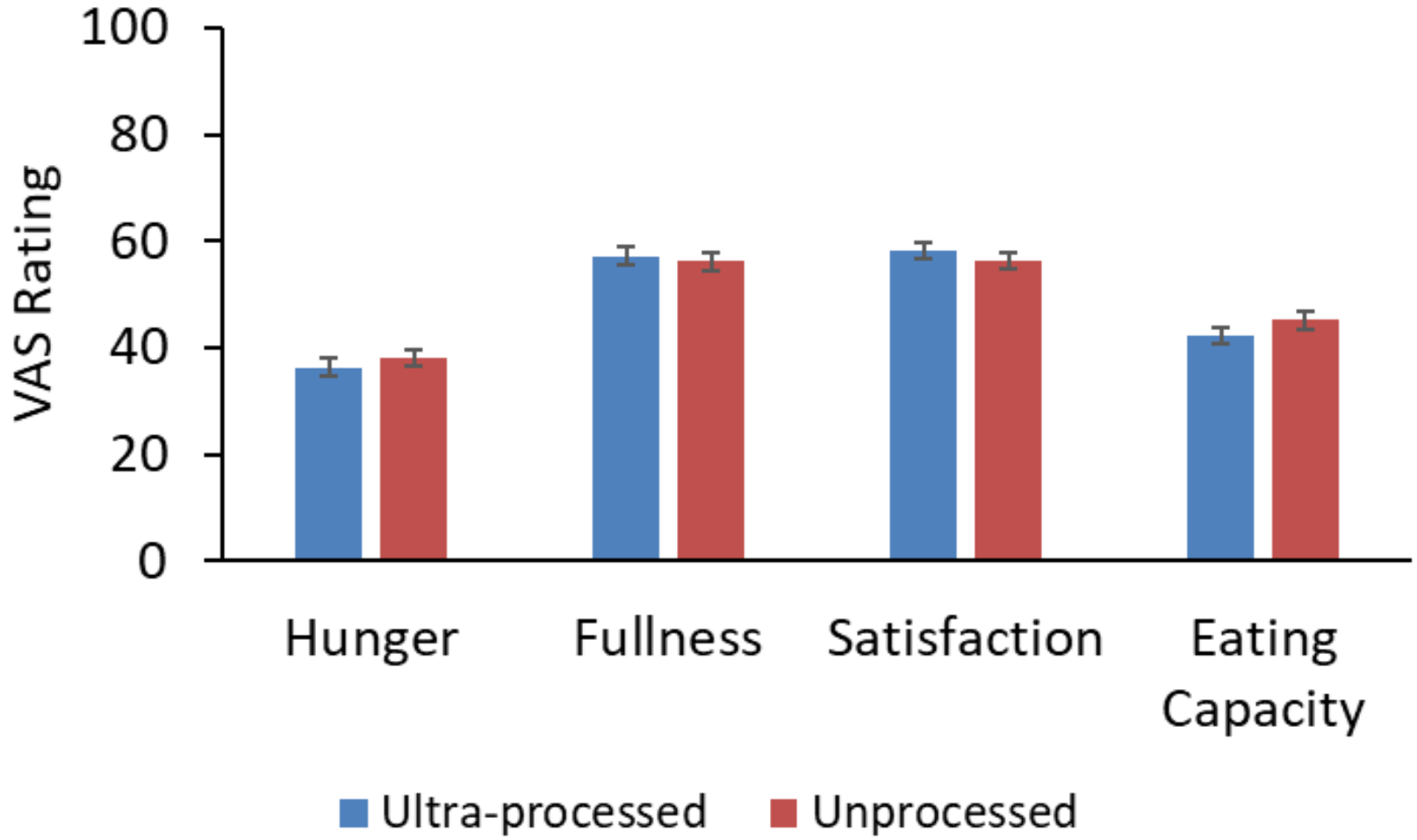


Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

www.DietID.com

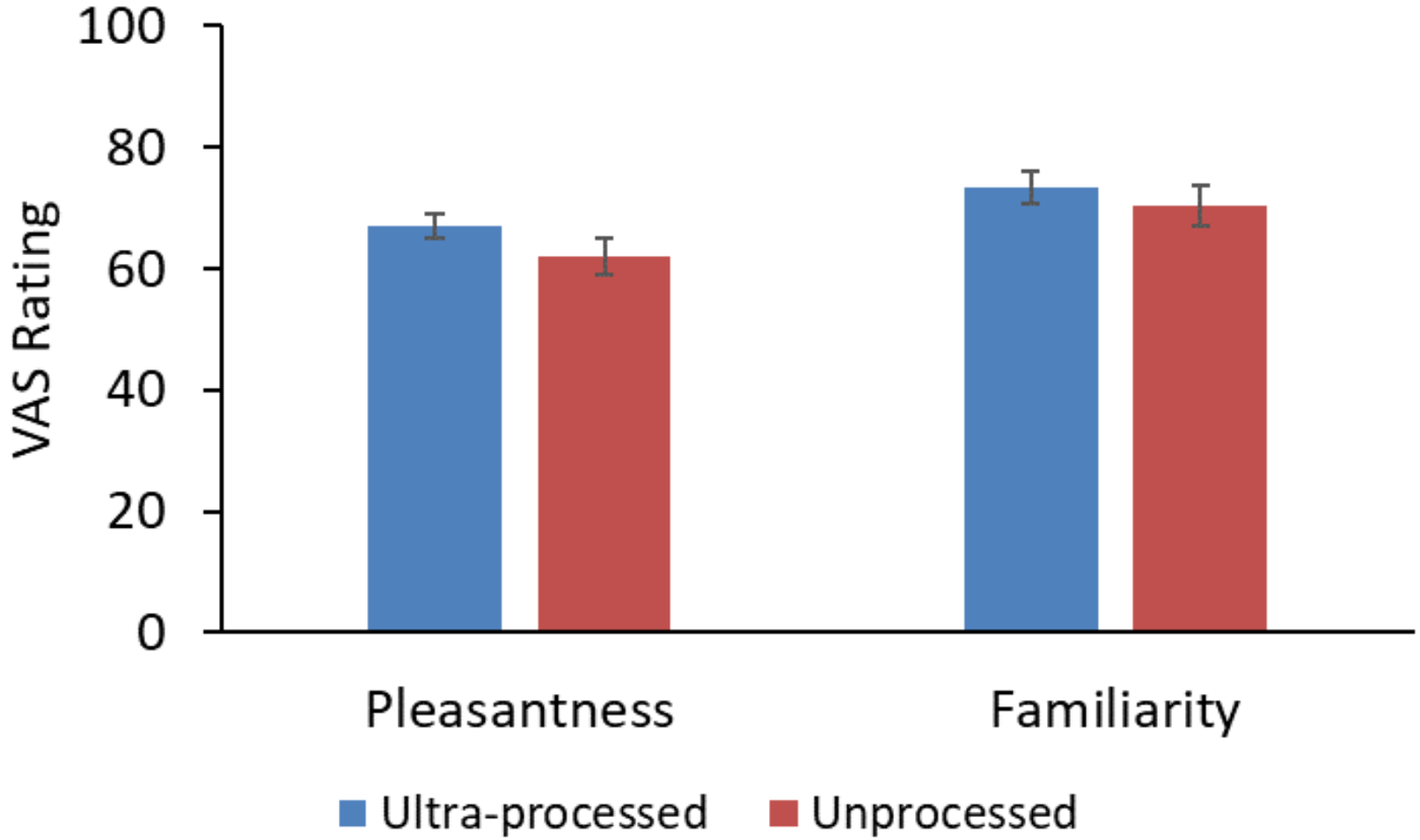
No Significant Differences in Self-Reported Appetite



Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

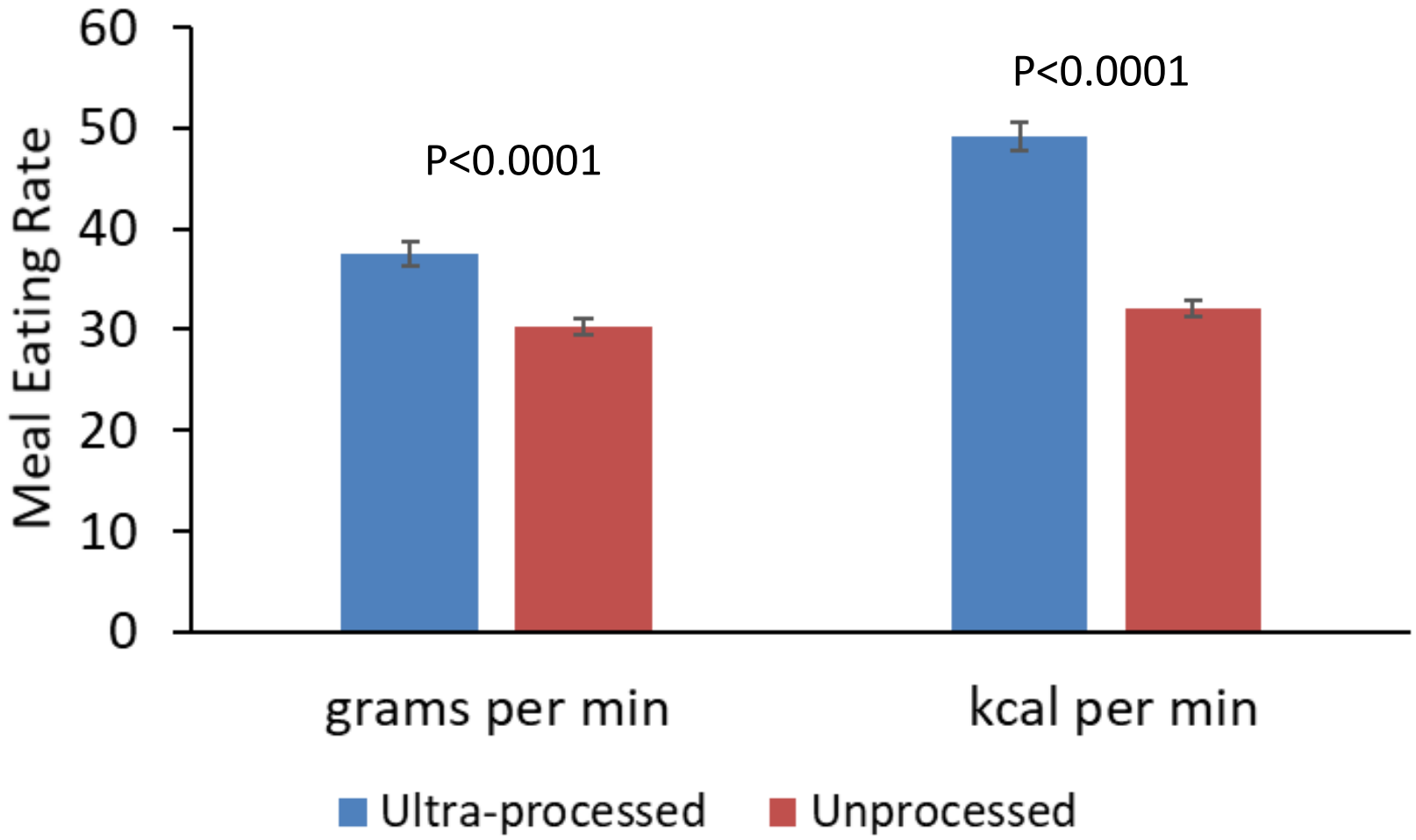
No Significant Differences in Pleasantness or Familiarity



Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

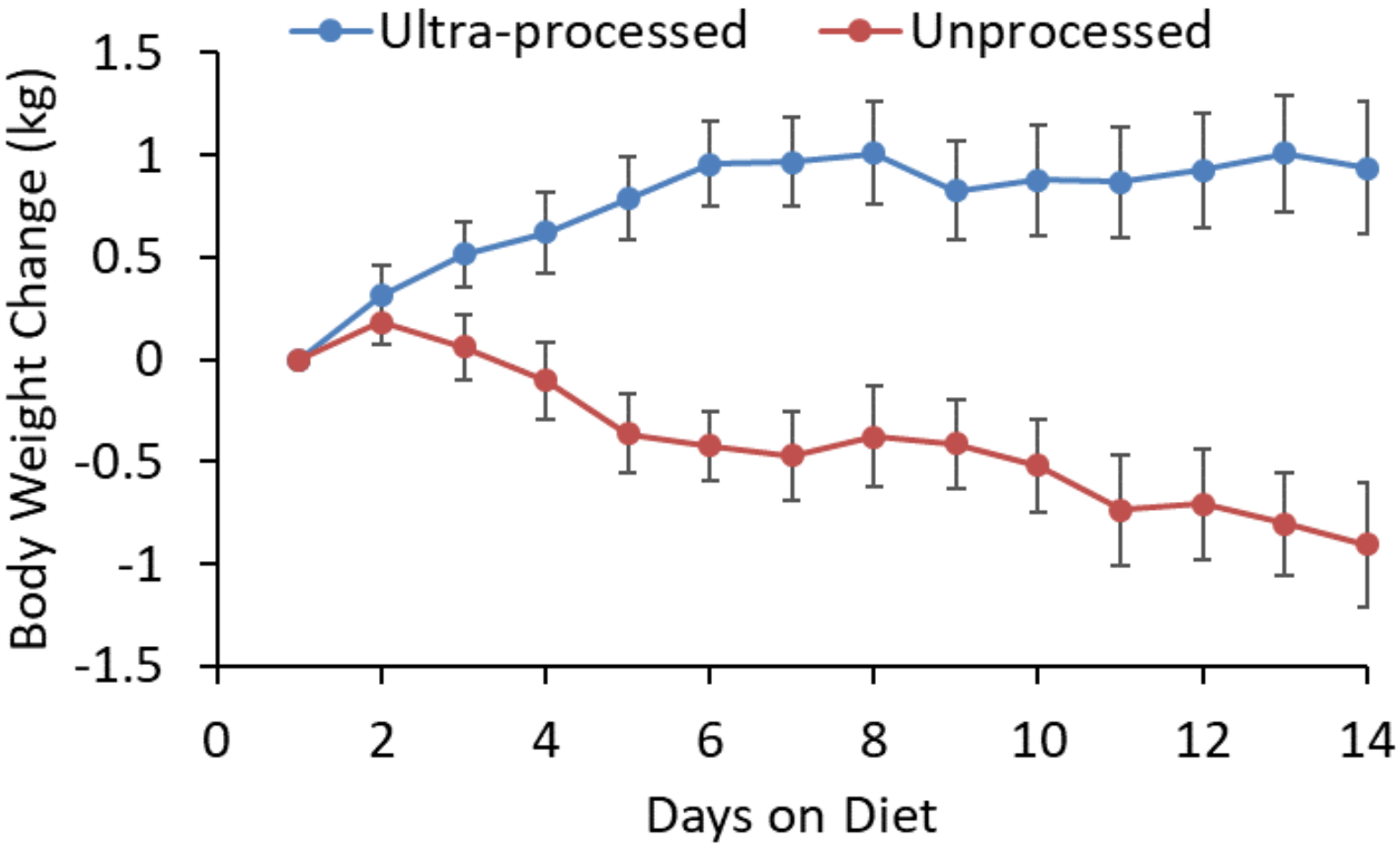
Faster Eating Rate for Ultra-processed Meals



Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

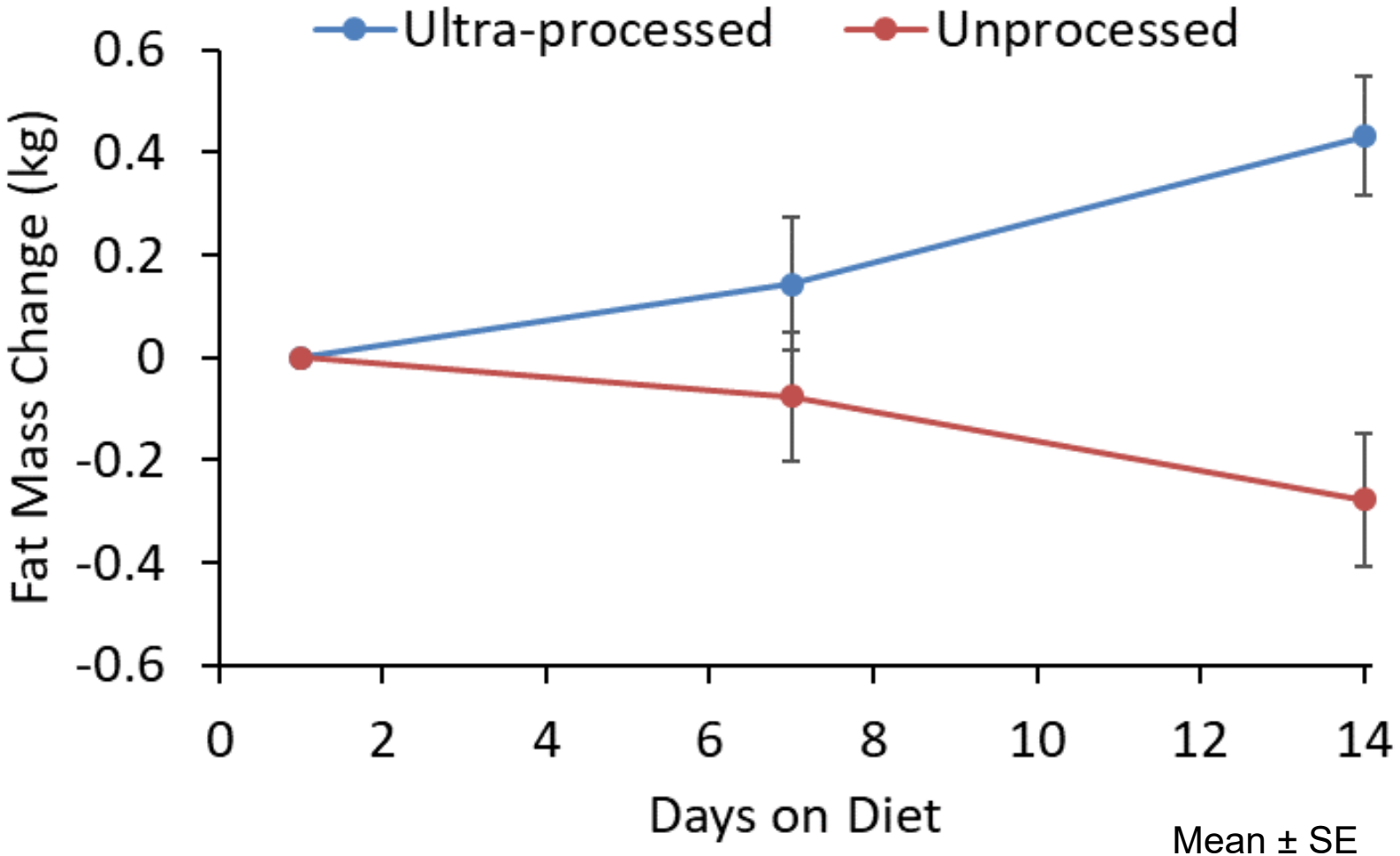
Ultra-processed Diet Caused Weight Gain



Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

Ultra-processed Diet Caused Body Fat Gain



Mean ± SE

KD Hall et al. *Cell Metabolism* 30:1-11 (2019).

Mechanisms?

Planned Ultra-processed vs Unprocessed Diet Study

- 6-week inpatient random order crossover feeding study in 24 adult volunteers without diabetes
- Three test diets (2 weeks each) matched for presented calories, carbs, fat, sugar, sodium, and fiber:
  - Ultra-processed, High Non-beverage Energy Density (Ultra-HED)
  - Unprocessed, Low Non-beverage Energy Density (Un-LED)
  - Ultra-processed, Low Non-beverage Energy Density (Ultra-LED)
- Primary Outcome: Mean daily *ad libitum* energy intake over 2 weeks on each test diet
- Hypothesis: Ultra-HED intake > Ultra-LED intake ≥ Un-LED intake

Intramural NIH

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Volunteer Study Subjects
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Ultraprocessed Foods: Societal Implications

Diet ID Webinar
October 21, 2020

Marion Nestle
Professor of Nutrition, Food Studies & Public Health, Emerita
New York University
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Ultra-processed food consumption and excess weight among US adults

Filippa Juul[1], Euridice Martinez-Steele[2,3], Niyati Parekh[1,4], Carlos A. Monteiro[2,3] and Virginia W. Chang[1,4]*

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(Submitted 17 November 2017 – Final revision received 17 March 2018 – Ac

Abstract

Ultra-processed foods provide 58 % of energy intake and 89 % of added
processed foods and excess weight has not been investigated in a US sa
between ultra-processed foods and excess weight in a nationally repres
anthropometric and dietary data from 15 977 adults (20–64 years) parti
2014. Dietary data were collected by 24-h recall. Height, weight and w
processed/non-ultra-processed according to the NOVA classification.
association between ultra-processed food consumption (% energy) anc
obesity (men: WC ≥ 102 cm, women: WC ≥ 88 cm). Prevalence of BMI
53·0 %, respectively. Consuming ≥74·2 *v.* ≤36·5 % of total energy from u
1·11, 2·10), 4·07 cm greater WC (95 % CI 2·94, 5·19) and 48, 53 and 62 %
respectively (OR 1·48; 95 % CI 1·25, 1·76; OR 1·53; 95 % CI 1·29, 1·81; OR
interaction between being female and ultra-processed food consumptio
and BMI ≥ 25 kg/m^2 ($F_{4,79}$ = 5·35, P < 0·001). As the first study in a US po
food is associated with excess weight, and that the association is more

**Key words: Ultra-processed foods: Food processing: BMI: Ov
Nutrition Examination Survey**

British Journal of Nutrition

JAMA Internal Medicine | Original Investigation

Association Between Ultraprocessed Food Consumption and Risk of Mortality Among Middle-aged Adults in France

Laure Schnabel, MD, MSc; Emmanuelle Kesse-Guyot, PhD; Benjamin Allès, PhD; Mathilde Touvier, PhD; Bernard Srour, PharmD; Serge Hercberg, MD, PhD; Camille Buscail, MD, PhD; Chantal Julia, MD, PhD

IMPORTANCE Growing evidence indicates that higher intake of ultraprocesse
associated with higher incidence of noncommunicable diseases. However, to
association between ultraprocessed foods consumption and mortality risk ha
investigated.

OBJECTIVE To assess the association between ultraprocessed foods consump
all-cause mortality risk.

DESIGN, SETTING, AND PARTICIPANTS This observational prospective cohort s
adults, 45 years or older, from the French NutriNet-Santé Study, an ongoing c
launched on May 11, 2009, and performed a follow-up through December 15,
of 7.1 years). Participants were selected if they completed at least 1 set of 3 we
24-hour dietary records during their first 2 years of follow-up. Self-reported d
collected at baseline, including sociodemographic, lifestyle, physical activity,
height, and anthropometrics.

EXPOSURES The ultraprocessed foods group (from the NOVA food classificat
characterized as ready-to-eat or -heat formulations made mostly from ingred
combined with additives. Proportion (in weight) of ultraprocessed foods in th
computed for each participant.

MAIN OUTCOMES AND MEASURES The association between proportion of ultr
foods and overall mortality was the main outcome. Mean dietary intakes from
24-hour dietary records available during the first 2 years of follow-up were ca
considered as the baseline usual food-and-drink intakes. Mortality was assess
CépiDC, the French national registry of specific mortality causes. Hazard ratio
95% CIs were determined for all-cause mortality, using multivariable Cox pro
hazards regression models, with age as the underlying time metric.

RESULTS A total of 44 551 participants were included, of whom 32 549 (73.1%) w
a mean (SD) age at baseline of 56.7 (7.5) years. Ultraprocessed foods accounted f
proportion of 14.4% (7.6%) of the weight of total food consumed, corresponding
proportion of 29.1% (10.9%) of total energy intake. Ultraprocessed foods consur
associated with younger age (45-64 years, mean [SE] proportion of food in weight,
P < .001), lower income (<€1200/mo, 15.58% [0.11%]; P < .001), lower educatio
diploma or primary school, 15.50% [0.16%]; P < .001), living alone (15.02% [0.0
higher body mass index (calculated as weight in kilograms divided by height in met
15.98% [0.11%]; P < .001), and lower physical activity level (15.56% [0.08%]; P <
602 deaths (1.4%) occurred during follow-up. After adjustment for a range of cor
an increase in the proportion of ultraprocessed foods consumed was associated
risk of all-cause mortality (HR per 10% increment, 1.14; 95% CI, 1.04-1.27; P = .00

CONCLUSIONS AND RELEVANCE An increase in ultraprocessed foods consump
to be associated with an overall higher mortality risk among this adult popula
prospective studies are needed to confirm these findings and to disentangle
mechanisms by which ultraprocessed foods may affect health.

JAMA Intern Med. doi:10.1001/jamainternmed.2018.7289
Published online February 11, 2019.

JAMA Internal Medicine | Original Investigation

Ultraprocessed Food Consumption and Risk of Type 2 Diabetes Among Participants of the NutriNet-Santé Prospective Cohort

Bernard Srour, PharmD, MPH, PhD; Léopold K. Fezeu, MD, PhD; Emmanuelle Kesse-Guyot, MSc, PhD; Benjamin Allès, PhD; Charlotte Debras, MSc; Nathalie Druesne-Pecollo, PhD; Eloi Chazelas, MSc; Mélanie Deschasaux, MSc, PhD; Serge Hercberg, MD, PhD; Pilar Galan, MD, PhD; Carlos A. Monteiro, MD, PhD; Chantal Julia, MD, MPH, PhD; Mathilde Touvier, PhD, MSc, MPH

Supplemental content

IMPORTANCE Ultraprocessed foods (UPF) are widespread in Western diets. Their consumption has been associated in recent prospective studies with increased risks of all-cause mortality and chronic diseases such as cancer, cardiovascular diseases, hypertension, and dyslipidemia; however, data regarding diabetes are lacking.

OBJECTIVE To assess the associations between consumption of UPF and risk of type 2 diabetes (T2D).

DESIGN, SETTING, AND PARTICIPANTS In this population-based prospective cohort study, 104 707 participants aged 18 years or older from the French NutriNet-Santé cohort (2009-2019) were included. Dietary intake data were collected using repeated 24-hour dietary records (5.7 per participant on average), designed to register participants' usual consumption for more than 3500 different food items. These were categorized according to their degree of processing by the NOVA classification system.

MAIN OUTCOMES AND MEASURES Associations between UPF consumption and risk of T2D were assessed using cause-specific multivariable Cox proportional hazard models adjusted for known risk factors (sociodemographic, anthropometric, lifestyle, medical history, and nutritional factors).

RESULTS A total of 104 707 participants (21 800 [20.8%] men and 82 907 [79.2%] women) were included. Mean (SD) baseline age of participants was 42.7 (14.5) years. Absolute T2D rates in the lowest and highest UPF consumers were 113 and 166 per 100 000 person-years, respectively. Consumption of UPF was associated with a higher risk of T2D (multi-adjusted hazard ratio [HR] for an absolute increment of 10 in the percentage of UPF in the diet, 1.15; 95% CI, 1.06-1.25; median follow-up, 6.0 years; 582 252 person-years; 821 incident cases). These results remained statistically significant after adjustment for several markers of the nutritional quality of the diet, for other metabolic comorbidities (HR, 1.13; 95% CI, 1.03-1.23), and for weight change (HR, 1.13; 95% CI, 1.01-1.27). The absolute amount of UPF consumption (grams per day) was consistently associated with T2D risk, even when adjusting for unprocessed or minimally processed food intake (HR for a 100 g/d increase, 1.05; 95% CI, 1.02-1.08).

CONCLUSIONS AND RELEVANCE In this large observational prospective study, a higher proportion of UPF in the diet was associated with a higher risk of T2D. Even though these results need to be confirmed in other populations and settings, they provide evidence to support efforts by public health authorities to recommend limiting UPF consumption.

TRIAL REGISTRATION ClinicalTrials.gov Identifier: NCT03335644

JAMA Intern Med. 2020;180(2):283-291. doi:10.1001/jamainternmed.2019.5942
Published online December 16, 2019.

nutrients

MDPI

Review

Ultra-Processed Foods and Health Outcomes: A Narrative Review

Leonie Elizabeth [1], Priscila Machado [1,2], Marit Zinöcker [3], Phillip Baker [1,2] and Mark Lawrence [1,2,*]

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check for updates

Abstract: The nutrition literature and authoritative reports increasingly recognise the concept of ultra-processed foods (UPF), as a descriptor of unhealthy diets. UPFs are now prevalent in diets worldwide. This review aims to identify and appraise the studies on healthy participants that investigated associations between levels of UPF consumption and health outcomes. This involved a systematic search for extant literature; integration and interpretation of findings from diverse study types, populations, health outcomes and dietary assessments; and quality appraisal. Of 43 studies reviewed, 37 found dietary UPF exposure associated with at least one adverse health outcome. Among adults, these included overweight, obesity and cardio-metabolic risks; cancer, type-2 diabetes and cardiovascular diseases; irritable bowel syndrome, depression and frailty conditions; and all-cause mortality. Among children and adolescents, these included cardio-metabolic risks and asthma. No study reported an association between UPF and beneficial health outcomes. Most findings were derived from observational studies and evidence of plausible biological mechanisms to increase confidence in the veracity of these observed associations is steadily evolving. There is now a considerable body of evidence supporting the use of UPFs as a scientific concept to assess the 'healthiness' of foods within the context of dietary patterns and to help inform the development of dietary guidelines and nutrition policy actions.

doi:10.1017/S1368980017000234

Commentary

The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing

Carlos Augusto Monteiro[1,2,*], Geoffrey Cannon[2], Jean-Claude Moubarac[2,3], Renata Bertazzi Levy[2,4], Maria Laura C Louzada[2] and Patrícia Constante Jaime[1,2]

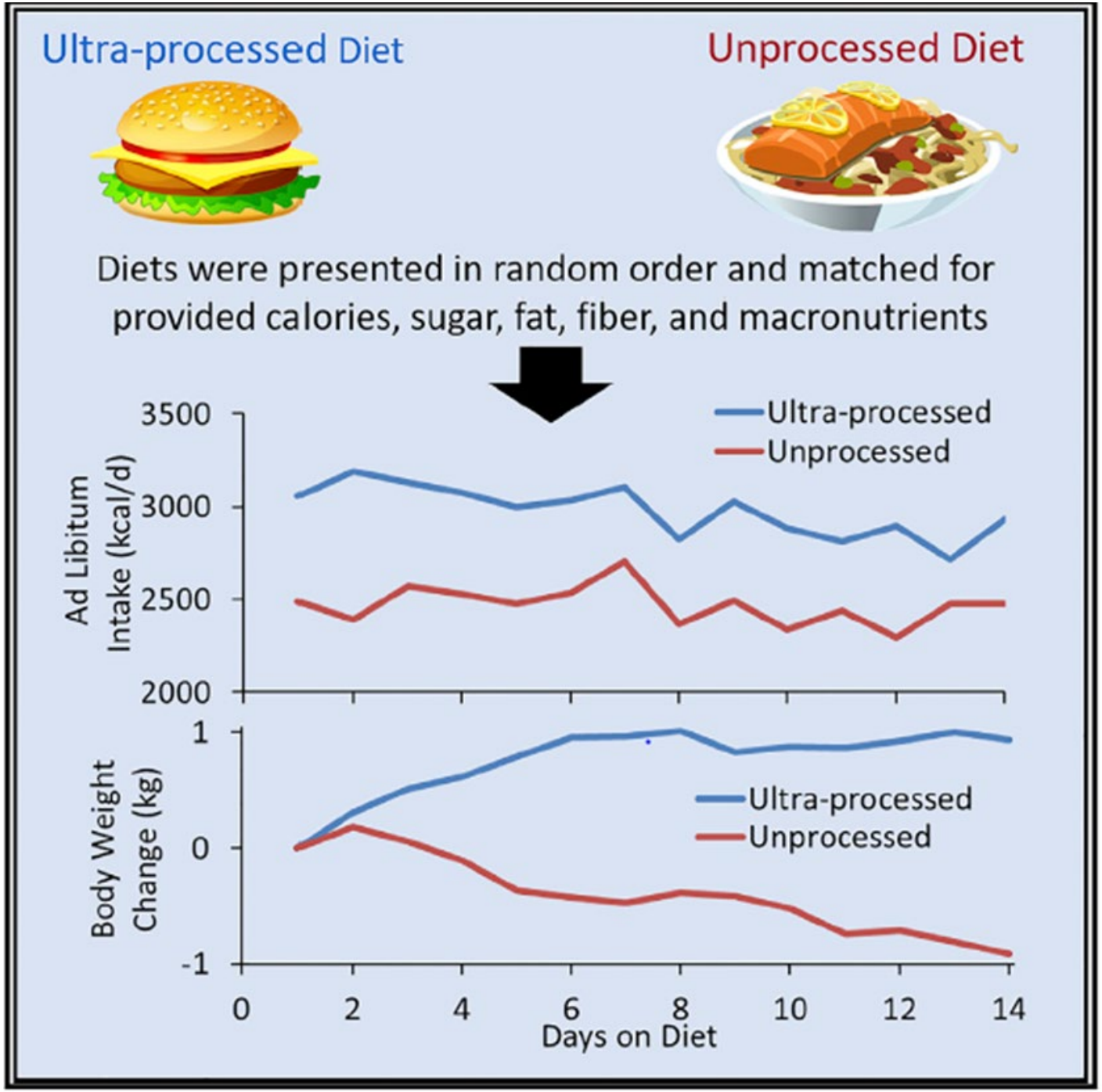
[1]Department of Nutrition, School of Public Health, University of São Paulo, Av. Dr Arnaldo 715, São Paulo 01246-904, Brazil: [2]Center for Epidemiological Research in Nutrition and Health, University of São Paulo, São Paulo, Brazil: [3]Département de Nutrition, Université de Montréal, Montréal, Canada: [4]Department of Preventive Medicine, School of Medicine, University of São Paulo, São Paulo, Brazil

Submitted 27 October 2016: Final revision received 18 January 2017: Accepted 23 January 2017

Abstract

Given evident multiple threats to food systems and supplies, food security, human health and welfare, the living and physical world and the biosphere, the years 2016–2025 are now designated by the UN as the Decade of Nutrition, in support of the UN Sustainable Development Goals. For these initiatives to succeed, it is necessary to know which foods contribute to health and well-being, and which are unhealthy. The present commentary outlines the NOVA system of food classification based on the nature, extent and purpose of food processing. Evidence that NOVA effectively addresses the quality of diets and their impact on all forms of malnutrition, and also the sustainability of food systems, has now accumulated in a number of countries, as shown here. A singular feature of NOVA is its identification of ultra-processed food and drink products. These are not modified foods, but formulations mostly of cheap industrial sources of dietary energy and nutrients plus additives, using a series of processes (hence 'ultra-processed'). All together, they are energy-dense, high in unhealthy types of fat, refined starches, free sugars and salt, and poor sources of protein, dietary fibre and micronutrients. Ultra-processed products are made to be hyper-palatable and attractive, with long shelf-life, and able to be consumed anywhere, any time. Their formulation, presentation and marketing often promote overconsumption. Studies based on NOVA show that ultra-processed products now dominate the food supplies of various high-income countries and are increasingly pervasive in lower-middle- and upper-middle-income countries. The evidence so far shows that displacement of minimally processed foods and freshly prepared dishes and meals by ultra-processed products is associated with unhealthy dietary nutrient profiles and several diet-related non-communicable diseases. Ultra-processed products are also troublesome from social, cultural, economic, political and environmental points of view. We conclude that the ever-increasing production and consumption of these products is a world crisis, to be confronted, checked and reversed as part of the work of the UN Sustainable Development Goals and its Decade of Nutrition.

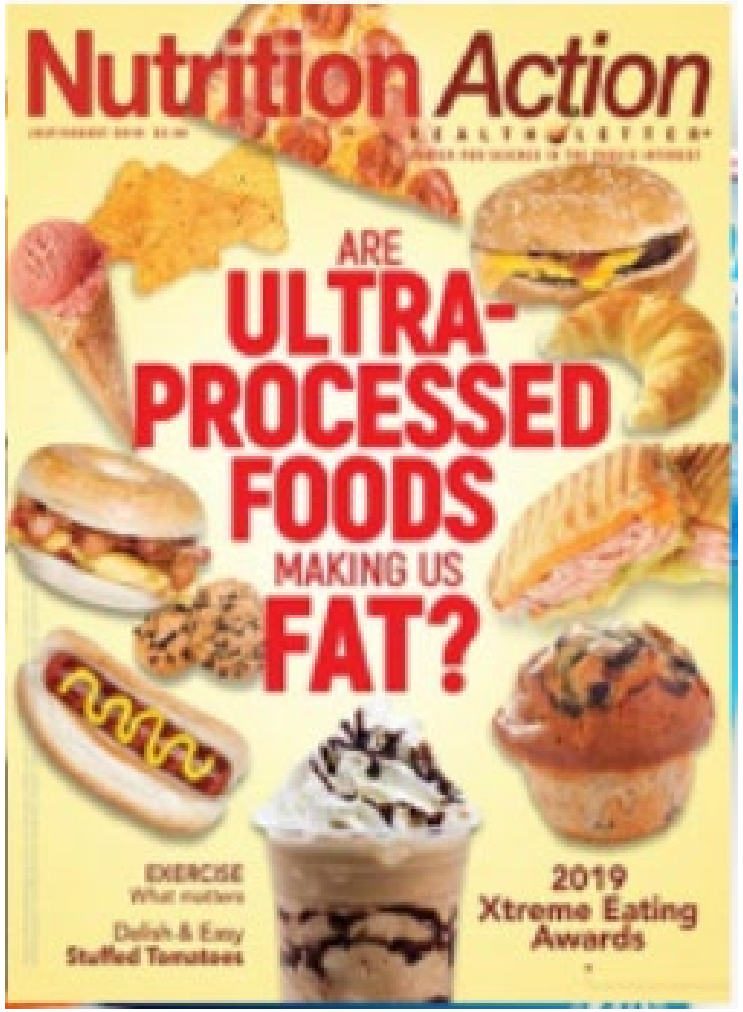
Keywords
Sustainable Development Goals
Decade of Nutrition
Food processing
Ultra-processed food
NOVA
The Anthropocene



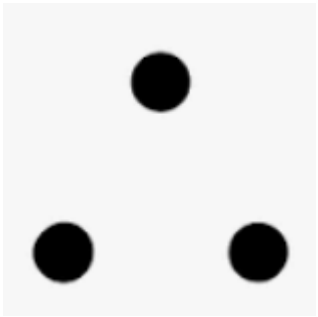
Researchers tracked how much people ate on “ultraprocessed” (left) and “minimally processed” (right) diets that were matched for calories and nutrients. HALL *ET AL./CELL METABOLISM*

‘Ultraprocessed’ foods may make you eat more, clinical trial suggests

By Kelly Servick | May. 16, 2019 , 11:00 AM



The Answer is SO obvious…



Eat less of ultra-processed foods

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How the Trump administration limited the scope of the USDA's 2020 dietary guidelines

The 80 topics that will be addressed exclude the health effects of consuming red and processed meat, ultraprocesse foods and sodium

The federal government's dietary guidelines are the road map to how the government administers school lunches as well as food assistance programs. And many manufacturers formulate their products based on these guidelines so they can participate in those programs, which buy $100 billion of food a year. (Calla Kessler/The Washington Post)

By **Laura Reiley**

August 30, 2019

The Washington Post
Democracy Dies in Darkness

Excluded topics

- Ultraprocessed
- Meat
- Sodium/salt
- Sustainability

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Scientific Report of the

2020 Dietary Guidelines Advisory Committee

Advisory Report to the Secretary of Agriculture and Secretary of Health and Human Services

First Print: July 2020

This is the first print of the Scientific Report of the 2020 Dietary Guidelines Advisory Committee and is being provided to the public online. The report will be formatted for publication and available in hard copy later this year. Online-only supplementary materials for data analysis, food pattern modeling, and NESR systematic reviews can be found through DietaryGuidelines.gov.

835 pages

"Ultra-processed" mentioned once (p. 34)

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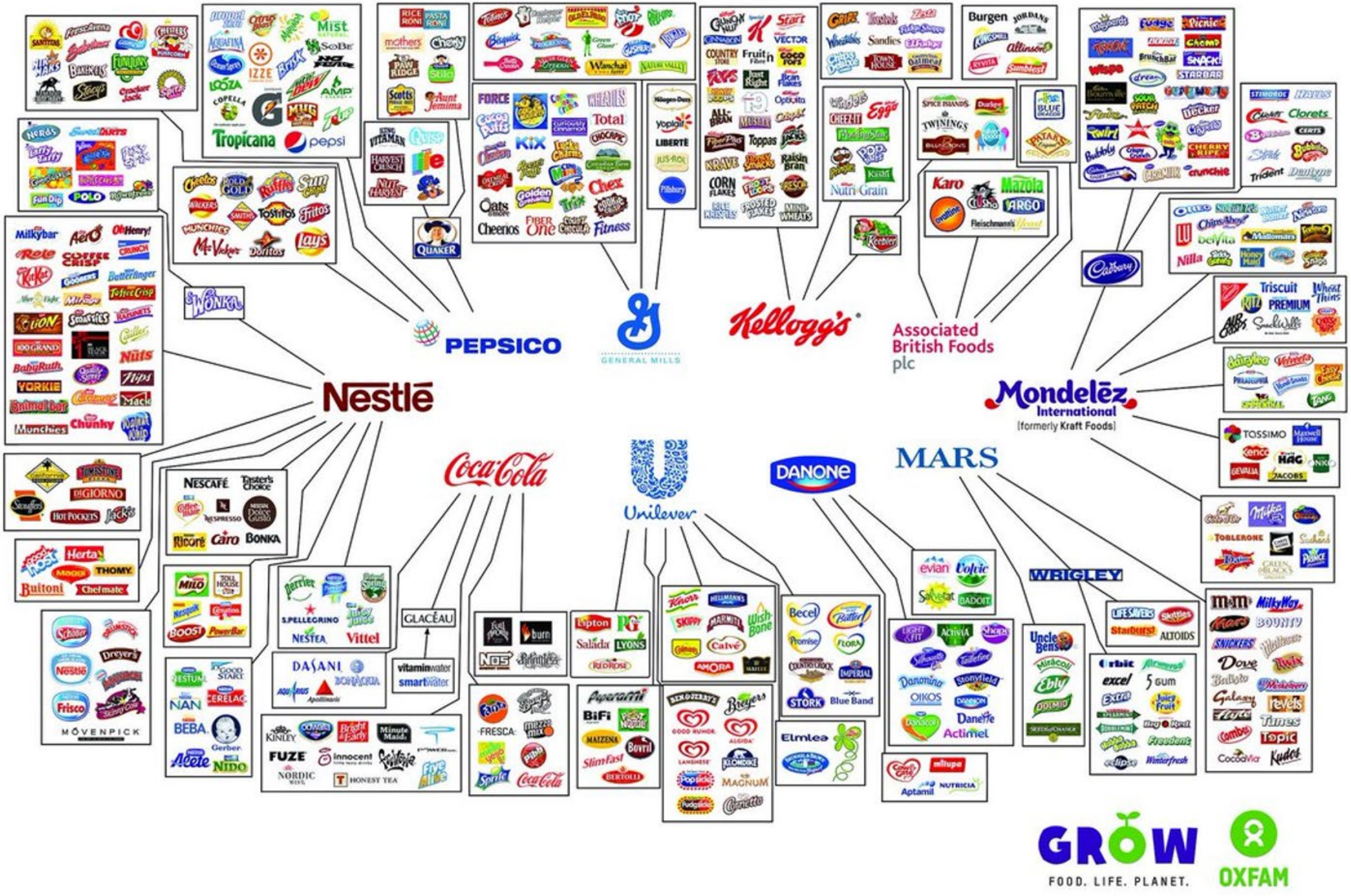
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▲ Illustration: Guardian Design

The Guardian
February 12, 2020

The long read

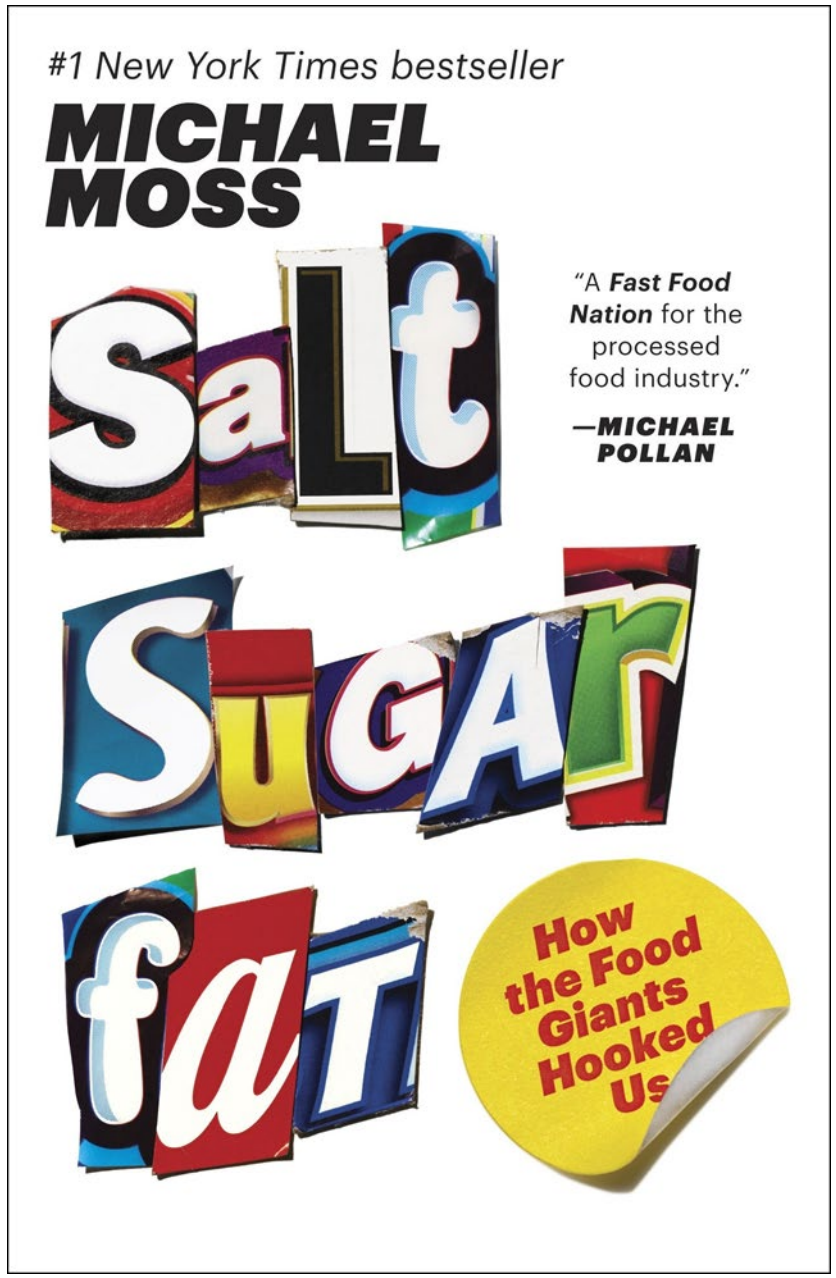
How ultra-processed food took over your shopping basket

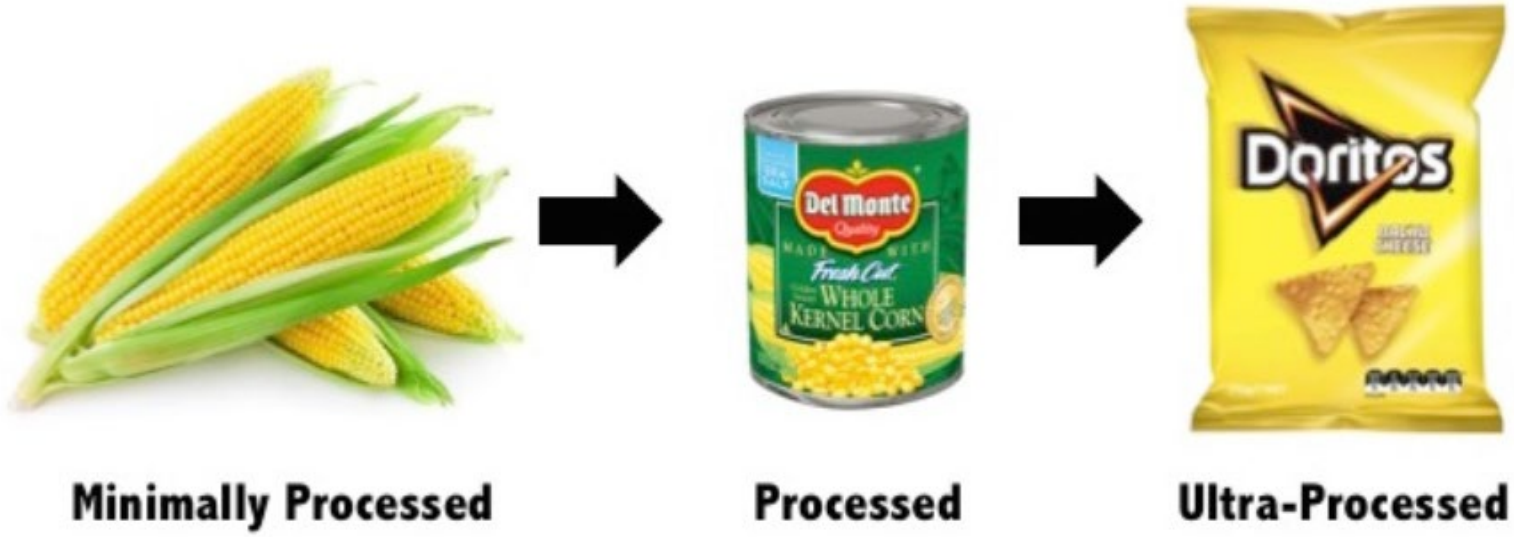
It's cheap, attractive and convenient, and we eat it every day – it's difficult not to. But is ultra-processed food making us ill and driving the global obesity crisis?

By Bee Wilson

Why 21st Century Capitalism Loves Ultra-processed Food

- Easy to ship, store
- Easy to market globally
- Aura of modernization, Westernization
- Taste good, “addictive”
- Easy to extend product lines
- Highly profitable





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Martínez Steele et al. Population Health Metrics (2017) 15:6
DOI 10.1186/s12963-017-0119-3

Population Health Metrics

RESEARCH Open Access

The share of ultra-processed foods and the overall nutritional quality of diets in the US: evidence from a nationally representative cross-sectional study

Euridice Martínez Steele[1,2], Barry M. Popkin[3], Boyd Swinburn[4] and Carlos A. Monteiro[1,2*]

Abstract

Background: Recent population dietary studies indicate that diets rich in ultra-processed foods, increasingly frequent worldwide, are grossly nutritionally unbalanced, suggesting that the dietary contribution of these foods largely determines the overall nutritional quality of contemporaneous diets. Yet, these studies have focused on individual nutrients (one at a time) rather than the overall nutritional quality of the diets. Here we investigate the relationship between the energy contribution of ultra-processed foods in the US diet and its content of critical nutrients, individually and overall.

Methods: We evaluated dietary intakes of 9,317 participants from 2009 to 2010 NHANES aged 1+ years. Food items were classified into unprocessed or minimally processed foods, processed culinary ingredients, processed foods, and ultra-processed foods. First, we examined the average dietary content of macronutrients, micronutrients, and fiber across quintiles of the energy contribution of ultra-processed foods. Then, we used Principal Component Analysis (PCA) to identify a nutrient-balanced dietary pattern to enable the assessment of the overall nutritional quality of the diet. Linear regression was used to explore the association between the dietary share of ultra-processed foods and the balanced-pattern PCA factor score. The scores were thereafter categorized into tertiles, and their distribution was examined across ultra-processed food quintiles. All models incorporated survey sample weights and were adjusted for age, sex, race/ethnicity, family income, and educational attainment.

Results: The average content of protein, fiber, vitamins A, C, D, and E, zinc, potassium, phosphorus, magnesium, and calcium in the US diet decreased significantly across quintiles of the energy contribution of ultra-processed foods, while carbohydrate, added sugar, and saturated fat contents increased. An inverse dose–response association was found between ultra-processed food quintiles and overall dietary quality measured through a *nutrient-balanced-pattern* PCA-derived factor score characterized by being richer in fiber, potassium, magnesium and vitamin C, and having less saturated fat and added sugars.

Conclusions: This study suggests that decreasing the dietary share of ultra-processed foods is a rational and effective way to improve the nutritional quality of US diets.

Keywords: NHANES, Ultra-processed, Dietary nutrient profile, PCA, Dietary patterns, Diet quality, Macronutrients, Micronutrients

Canadians get half their daily calories from ultra-processed foods

on 2017-12-07 with NO COMMENTS

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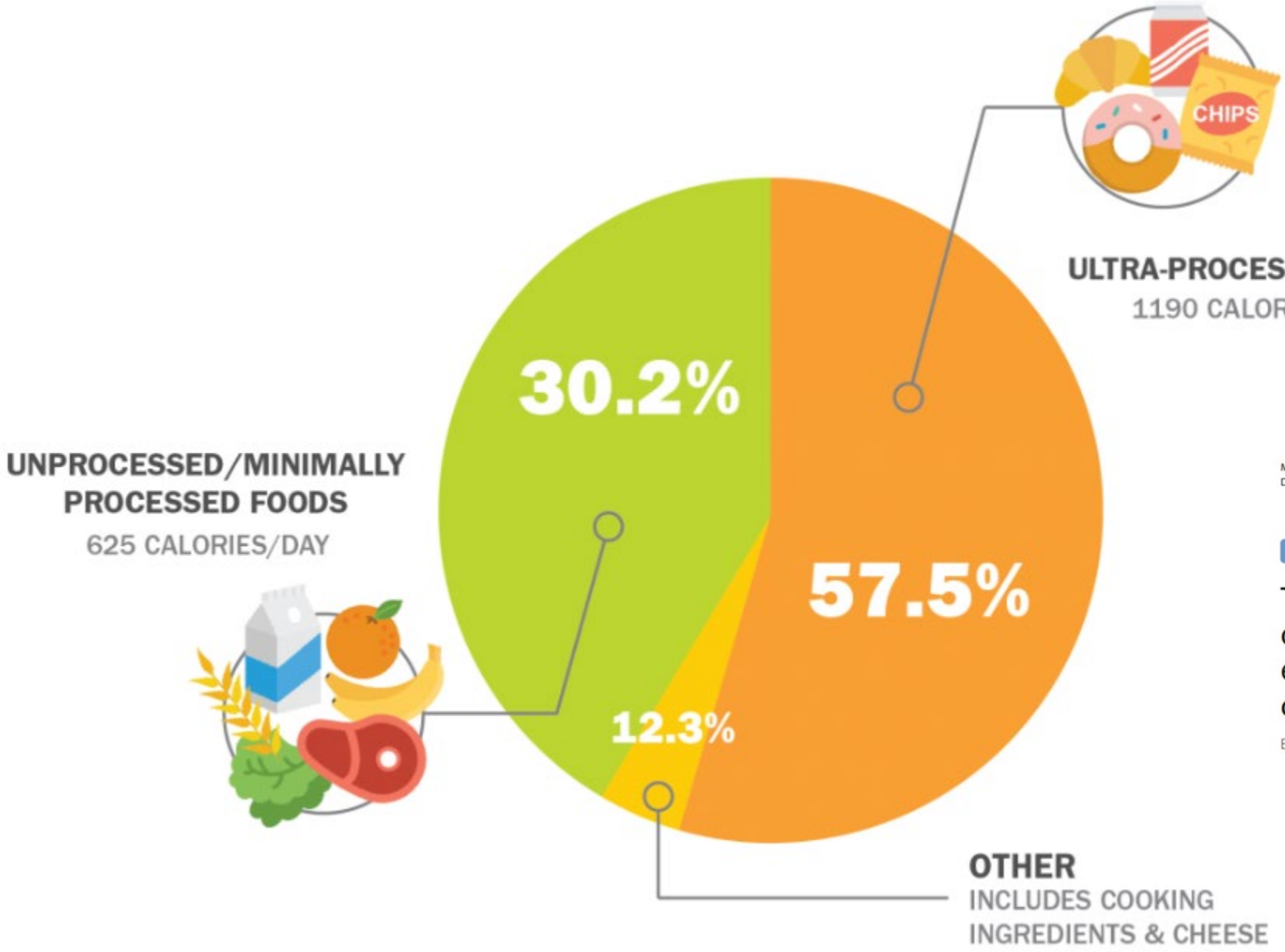

Martínez Steele *et al. Population Health Metrics* (2017) 15:6
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Population Health Metrics

RESEARCH Open Access

The share of ultra-processed foods and the overall nutritional quality of diets in the US: evidence from a nationally representative cross-sectional study

Euridice Martínez Steele[1,2], Barry M. Popkin[3], Boyd Swinburn[4] and Carlos A. Monteiro[1,2*]

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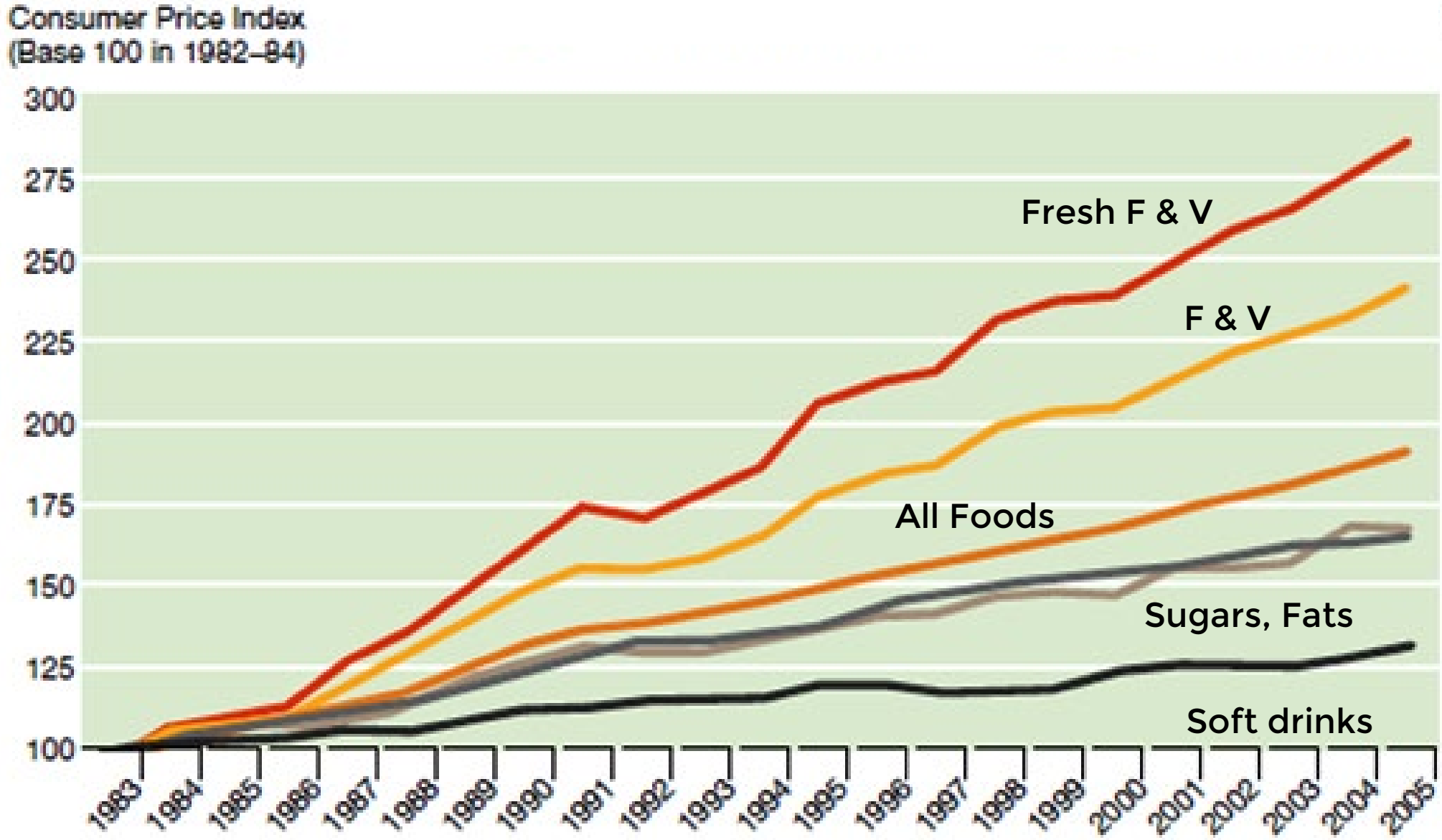
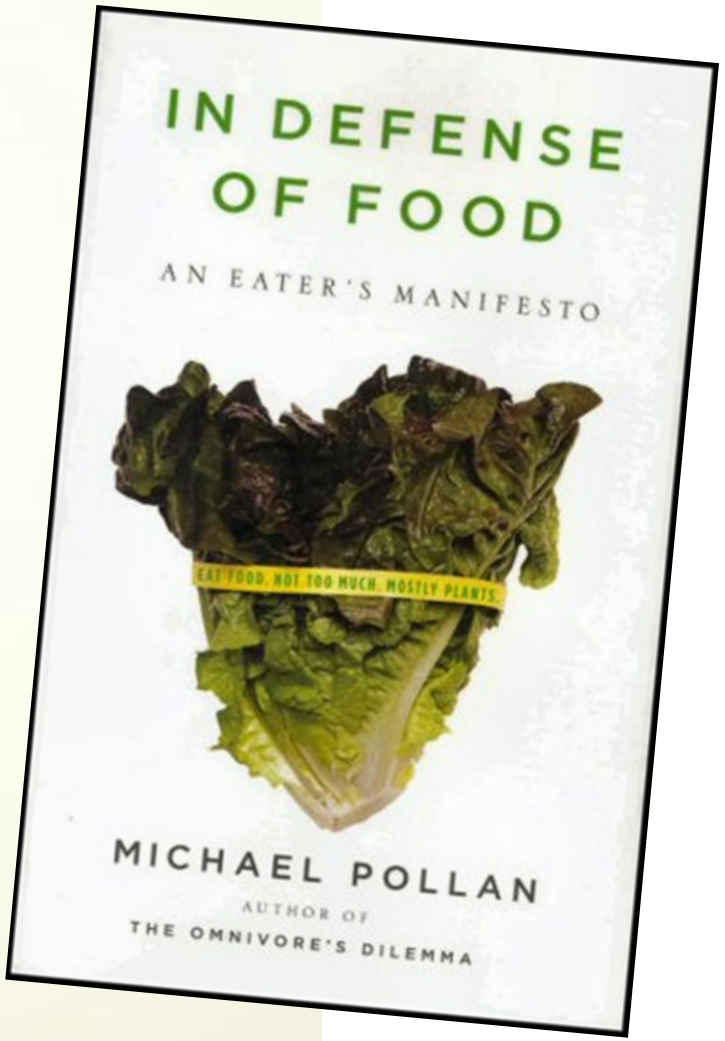
Relative change in prices, 1980 - 2005



Eat food.
Not *too* much.
Mostly plants.

Michael Pollan,
In Defense of Food



Strategies to Reduce UPF Demand and Consumption

1. Tax sugar, fat or other unhealthy products
2. End subsidies and tax breaks for UPF
3. Restrict and regulate marketing of UPF
4. Educate and raise consciousness among consumers
5. Promote and subsidize healthy, affordable food and food production
6. Pressure investors and businesses to disinvest from UPF

--Nick Freudenberg

https://www.youtube.com/channel/UCT_y1QRMKq0y-saxNgOxCJg?feature=emb_ch_name_ex

QUESTION & ANSWER

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