XVIII Congreso Latinoamericano de Nutrición

ALIMENTACIÓN SALUDABLE PARA UN PLANETA SOSTENIBLE

DEL 11 AL 15 DE NOVIEMBRE, 2018 » GUADALAJARA, JALISCO, MÉXICO

Simposio: Asociación entre consumo de alimentos ultraprocesados y enfermedades crónicas: mecanismos, evidencias de estudios transversales y longitudinales e implicaciones para investigación y políticas públicas

El concepto de alimentos ultraprocesados y los mecanismos subyacentes a su asociación con enfermedades crónicas

Carlos A Monteiro

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SLAN Sociedad Latinoamericana de Nutrición

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ALIMENTACIÓN SALUDABLE PARA UN PLANETA SOSTENIBLE

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Declaración de Intereses:

No tengo ningún interés que declarar

SLAN
Sociedad Latinoamericana de Nutrición

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2015 • 2018

- ✓El concepto de alimentos ultraprocesados
- ✓Mecanismos subyacentes a su asociación con enfermedades crónicas

NOVA: una clasificación de alimentos basada en la **extensión** y el **propósito** del procesamiento industrial

Grupos NOVA	Ejemplos
1) Alimentos no o mínimamente procesados Partes comestibles de plantas y animales sin procesar o sometidas a procesos mínimos (sin adición de sustancias) visando aumentar su duración	   
2) Ingredientes culinarios procesados Sustancias extraídas de alimentos o de la naturaleza que sirven para preparar, cocinar y sazonar alimentos del Grupo 1	   
3) Alimentos procesados Alimentos del Grupo 1 adicionados de sustancias del Grupo 2 visando aumentar su duración y/o modificar sus cualidades sensoriales	   
3) Alimentos ultraprocesados	

Source: Monteiro et al *Public Health Nutrition* 2017

NOVA: una clasificación de alimentos basada en la **extensión** y el **propósito** del procesamiento industrial

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4) Alimentos ultraprocesados Formulaciones resultantes del fraccionamiento de alimentos y de la recombinación de sus partes añadida de aditivos cosméticos visando obtener productos de bajo costo, de alta duración, listos para consumo, hiperpalatables y con el potencial de reemplazar alimentos de los otros tres grupos y preparaciones culinarias	     

Source: Monteiro et al *Public Health Nutrition* 2017

Alimentos ultraprocesados son fabricados para reemplazar alimentos frescos, alimentos mínimamente procesados y preparaciones culinarias de esos alimentos







Alimentos ultraprocesados: definición compleja pero fácil reconocimiento!

Ingredientes: sal, gordura vegetal , amido, açúcar, alho, carne bovina, salsa, pimenta vermelha, louro, realçadores de sabor glutamato monossódico e inosinato dissódico, aromatizantes, corantes caramelo e natural urucum, acidulante ácido cítrico. Contém traços de leite, ovos, soja, aipo e mostarda.

Ingredientes: açúcar, farinha de milho, farinha de trigo, farinha de aveia, gordura vegetal hidrogenada, sal, ácido ascórbico, óxido de zinco, niacinamina, ferro reduzido, palmitado de retinol, cloridrato de piridoxina, riboflavina,mononitrato de tiamina, ácido fólico, cobalamina, corantes naturais (cúrcuma e beta-caroteno), aromas naturais corantes artificiais amarelo crepúsculo, vermelho 40 e azul brilhante FCF.

Ingredientes: farinha de trigo, açúcar, gordura vegetal, sal refinado, glúten, soro de leite em pó, conservador propionato de cálcio, estabilizantes lecitina de soja e estearoil 2 - lactil lactato de cálcio e acidulante ácido ascórbico.

Ingredientes: açúcar, maltodextrina, polpa de laranja desidratada, ferro, vitamina C, vitamina A, acidulante ácido cítrico, antiumectante fosfato tricálcico, regulador de acidez citrato de potássio, espessantes: gomas guar e xantana, aromatizante aroma sintético idêntico ao natural, edulcorantes: aspartame, ciclamato de sódio, acesulfame de potássio e sacarina sódica, corante inorgânico dióxido de titânio, espumante extrato de quiláia e corantes artificiais: tartrazina e amarelo crepúsculo. CONTÉM 1% DE POLPA DESIDRATADA

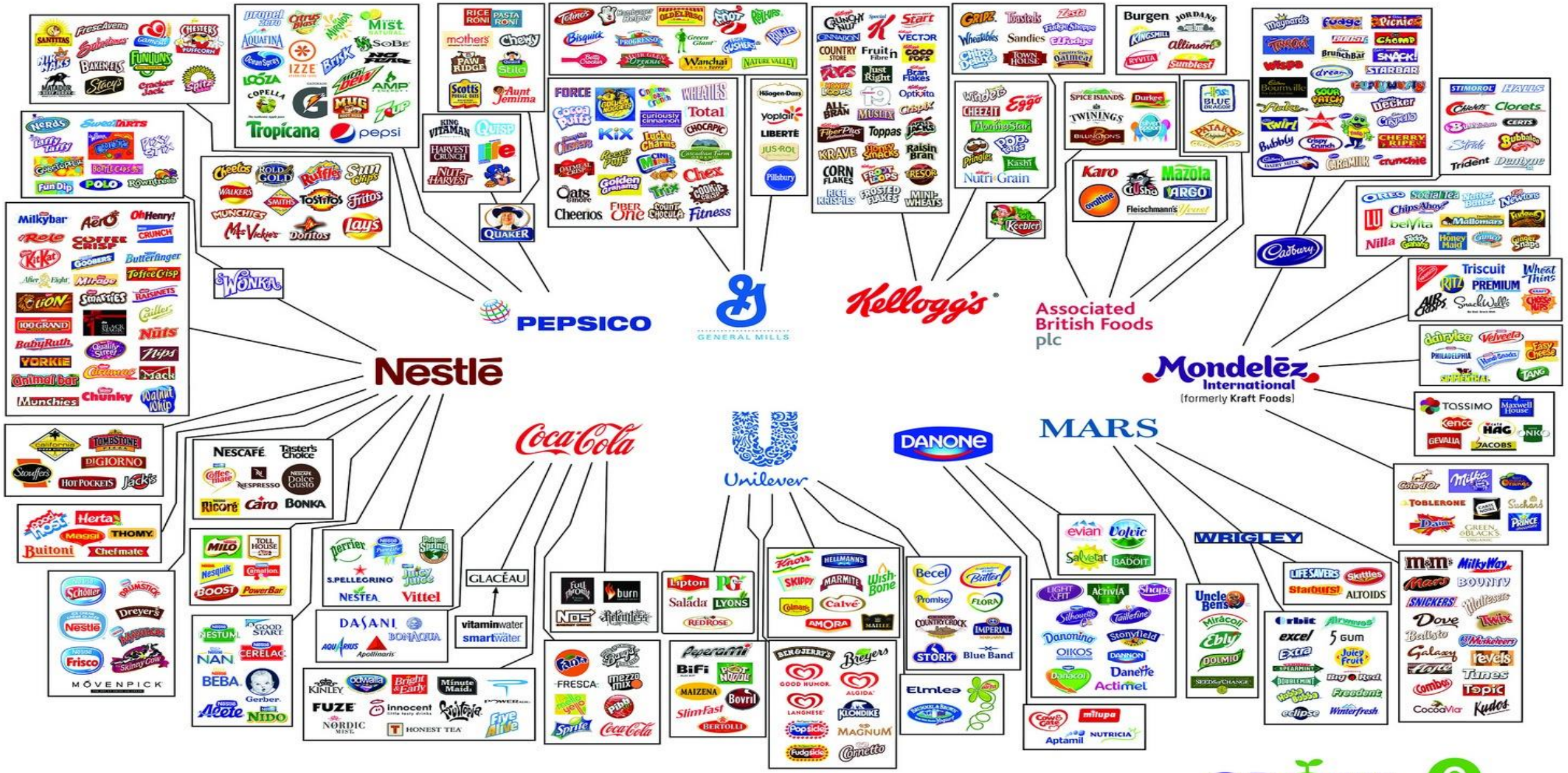
Alimentos processados: lista de ingredientes

Arvejas, papas, zanahorias, agua y sal

Duraznos , agua y azúcar

Harina de trigo, agua, sal y fermento natural

Leche, sal, cuajo y fermento láctico



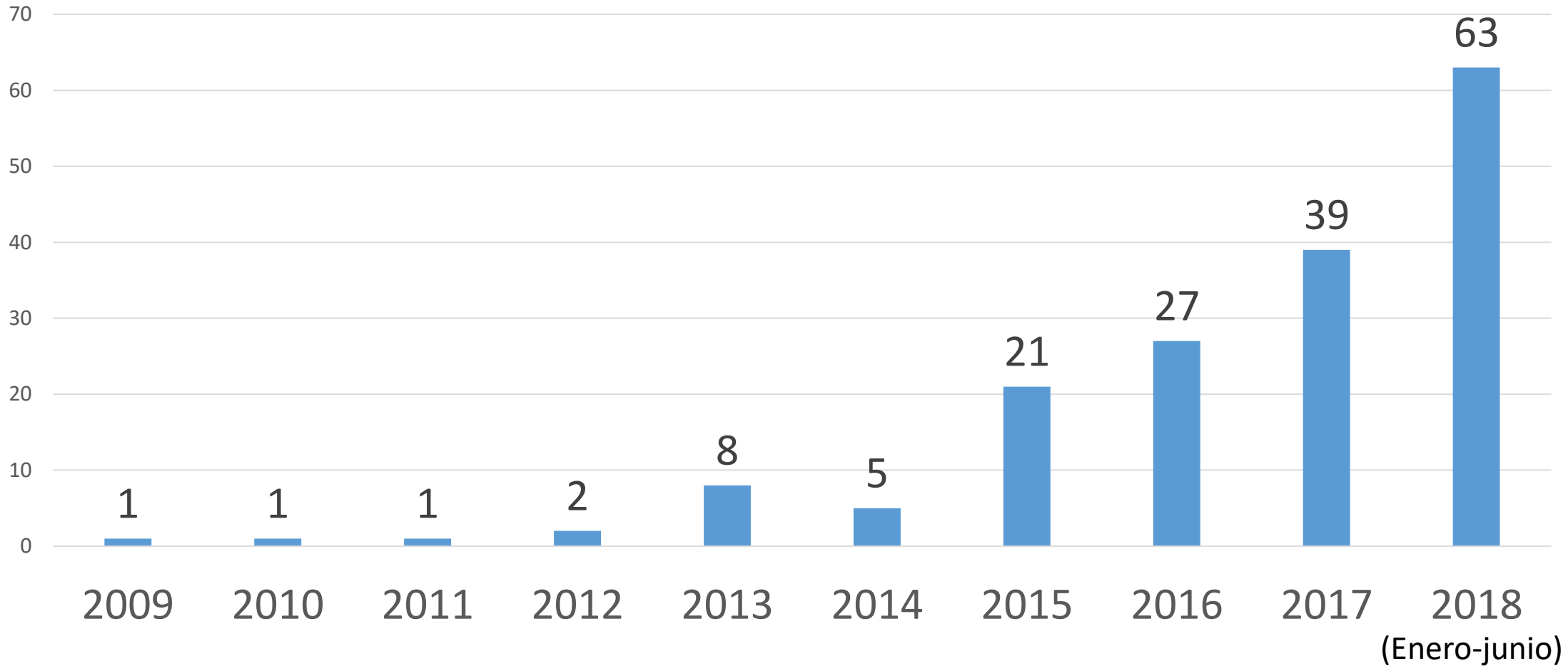
Ventas globales de estas compañías: US $ 1,1 bi / día (2013)

- ✓El concepto de alimentos ultraprocesados

- ✓Mecanismos subyacentes a su asociación con enfermedades crónicas:

  - ✓relacionados a su perfil de nutrientes
  - ✓relacionados a otros atributos

Artículos en PubMed con la palabra “Ultraprocesado”



Alimentos ultraprocesados y enfermedades crónicas: mecanismos relacionados a perfil de nutrientes

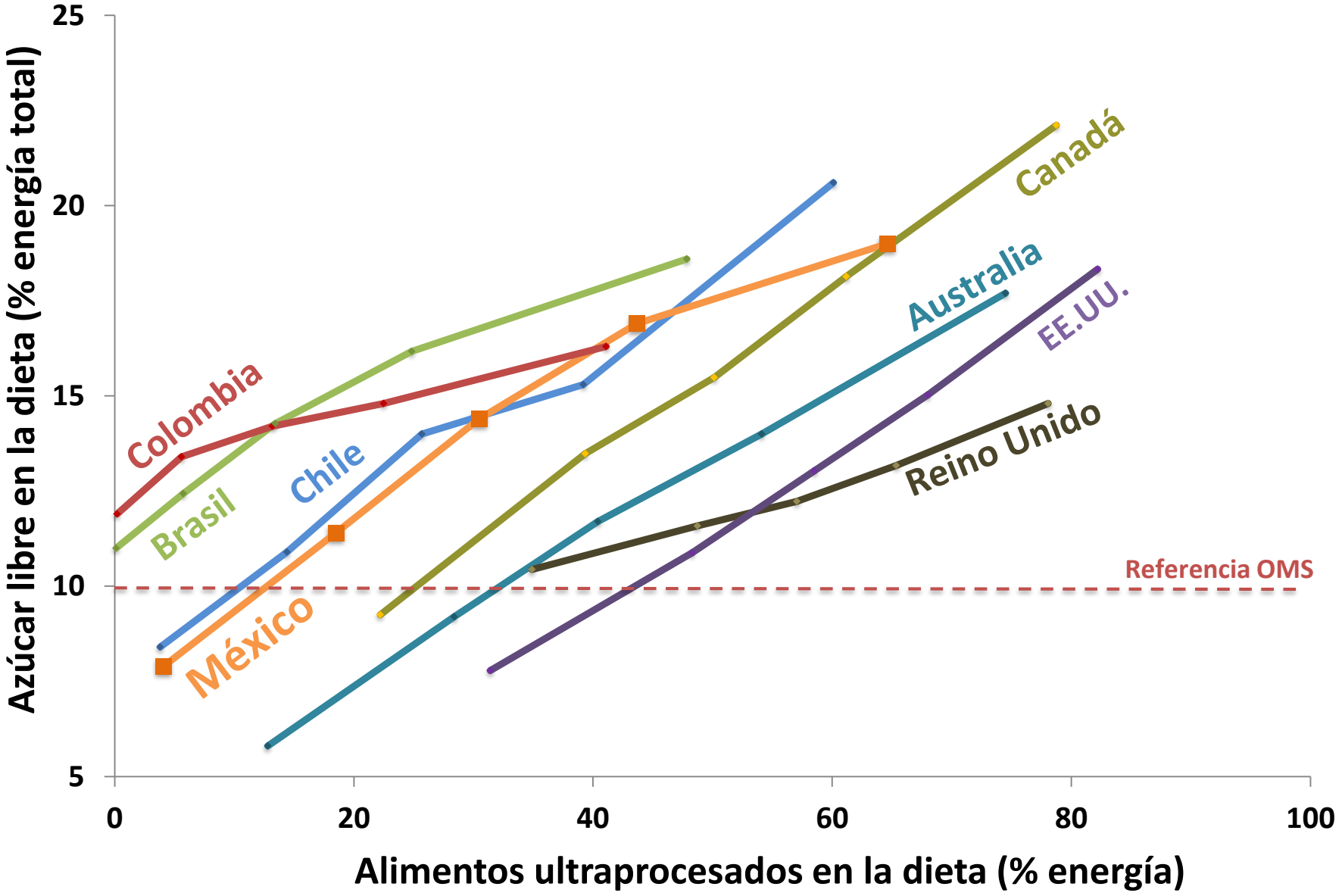
X

Estudios hechos en Brasil, Chile, Colombia, Argentina, México, US, Canadá, UK, Francia, Australia, Japón, Taiwán … muestran que AUP tienen:

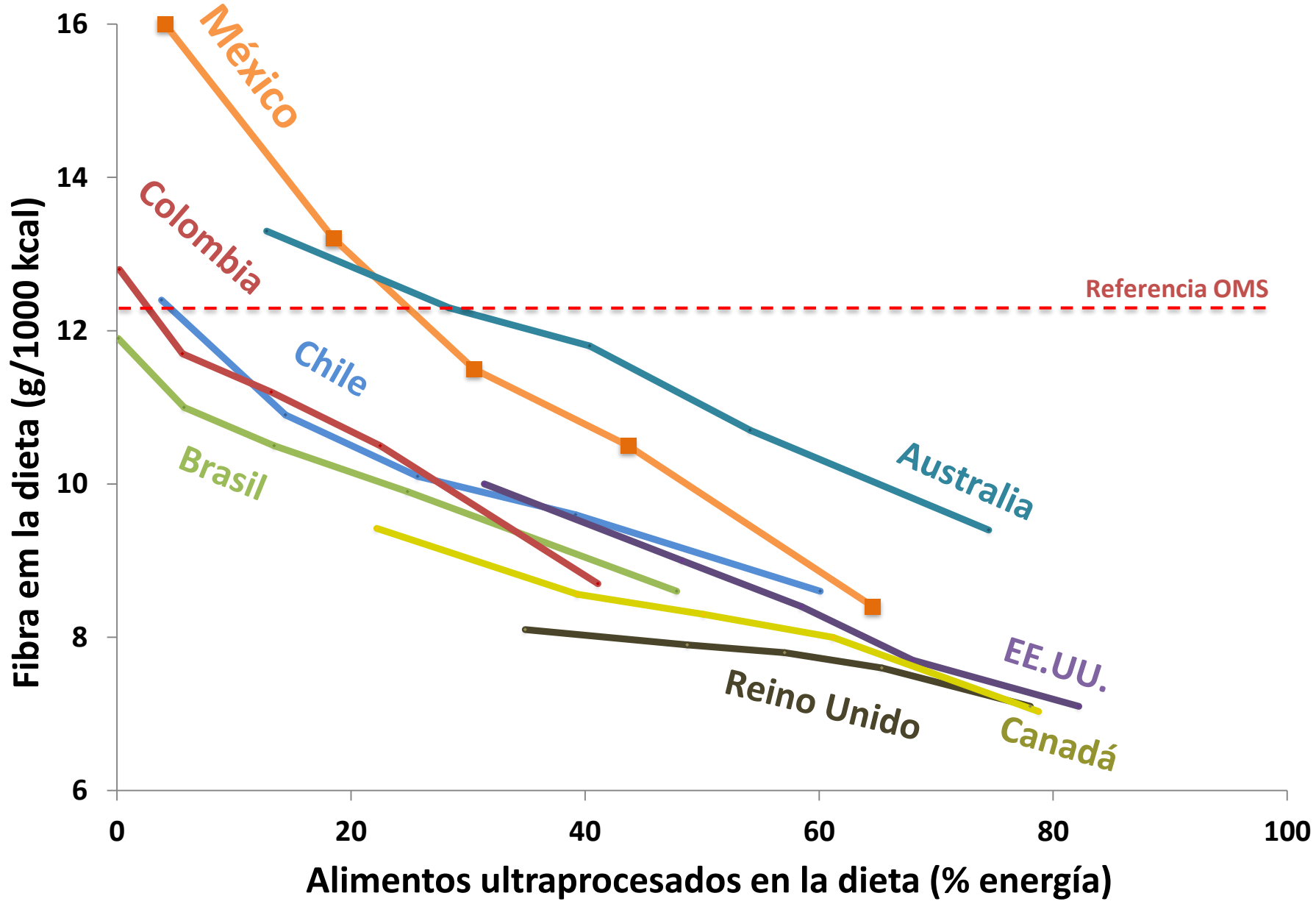
- mayor densidad energética
- mayor contenido en azúcar y grasas insalubres
- menor contenido en proteína y fibra
- menor contenido en vitaminas y minerales

Source: Monteiro et al Pub Health Nutr 2017

ESTUDIO NOVA MULTI-PAISES: **Azucar libre** en la dieta según quintiles de consumo de alimentos ultraprocesados en 8 países (2005-2014)



ESTUDIO NOVA MULTI-PAISES: **Fibra alimentaria** en la dieta según quintiles de consumo de alimentos ultraprocesados en 8 países (2005-2014)



Alimentos ultraprocesados y enfermedades crónicas: mecanismos extra-nutrientes

- Efectos sobre el microbioma (Zinocker and Lindseth 2018)
- Disminución de la ingesta de sustancias bioactivas (Martinez-Steele 2017)
- Baja saciedad (Fardet 2016)
- Hiperpalatabilidad (Kessler 2009; Brownell 2012; Moss 2013; Ifland 2018)
- Comer sin atención (Cohen & Farley 2008)
- Marketing agresivo y sofisticado

nutrients

MDPI

Efectos en el microbioma

Review

The Western Diet–Microbiome-Host Interaction and Its Role in Metabolic Disease

Marit K. Zinöcker [1,*] and Inge A. Lindseth [2]

[1] Department of Nutrition, Bjørknes University College, Lovisenberggata 13, 0456 Oslo, Norway
[2] Balderklinikken, Munchsgate 7, 0165 Oslo, Norway; inge.lindseth@balderklinikken.no

'Varias características de los alimentos ultraprocessados crean en el intestino un campo de selección evolutiva único para micro-organismos que promueven niveles bajos de inflamación que son responsables por diversas formas de enfermedades crónicas'
(esas características incluyen: nutrientes extra-celulares y aditivos)

nutrients

MDPI

Deficiencia de sustancias bioactivas

Article

Association between Dietary Share of Ultra-Processed Foods and Urinary Concentrations of Phytoestrogens in the US

Eurídice Martínez Steele [1,2] and Carlos A. Monteiro [1,2,*]

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Received: 9 December 2016; Accepted: 7 February 2017; Published: 28 February 2017

Abstract: The aim of this study was to examine the relationship between dietary contribution of ultra-processed foods and urinary phytoestrogen concentrations in the US. Participants from cross-sectional 2009–2010 National Health and Nutrition Examination Survey aged 6+ years, selected to measure urinary phytoestrogens and with one 24-h dietary recall were evaluated (2692 participants).

Food & Function

Baja saciedad

ROYAL SOCIETY OF CHEMISTRY

PAPER

View Article Online
View Journal

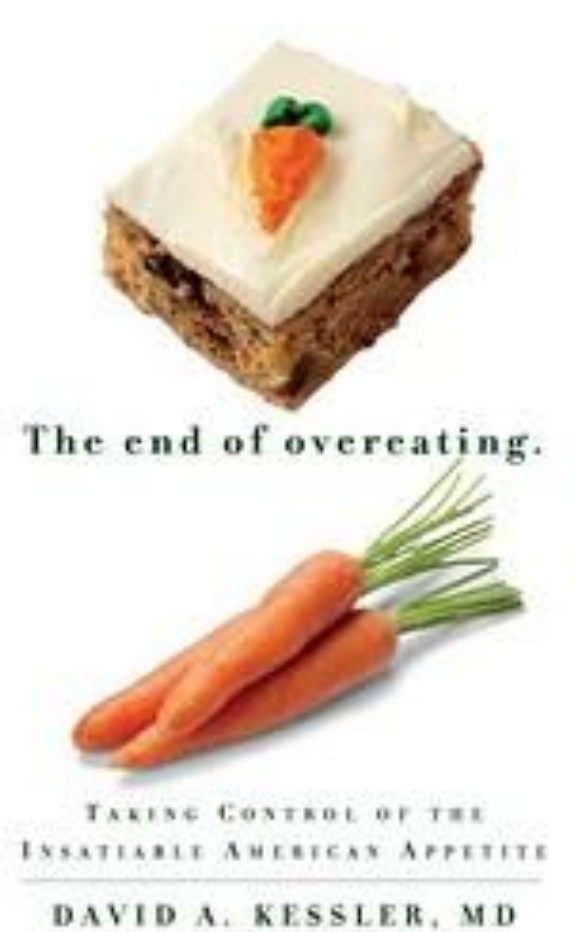
Cite this: DOI: 10.1039/c6fo00107f

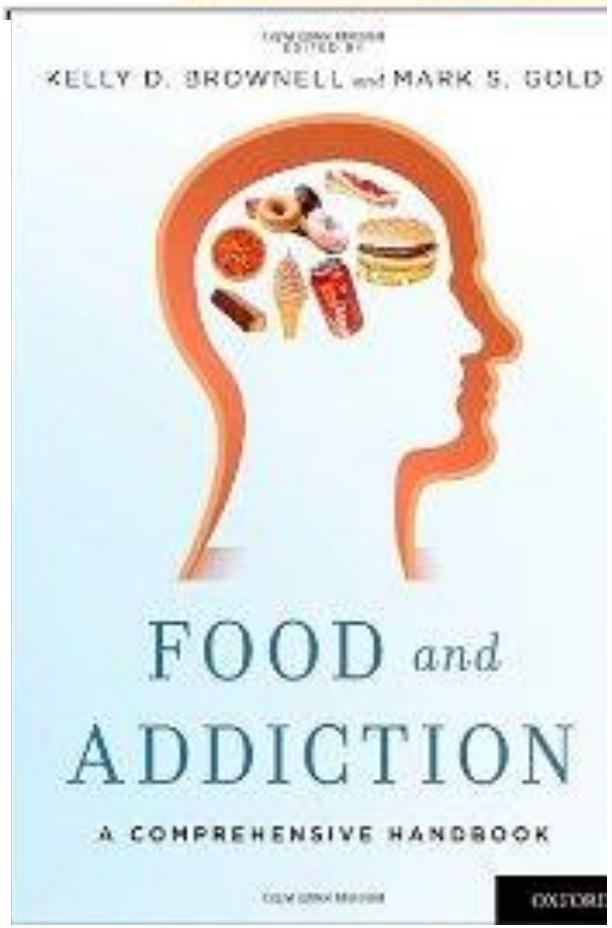
Minimally processed foods are more satiating and less hyperglycemic than ultra-processed foods: a preliminary study with 98 ready-to-eat foods

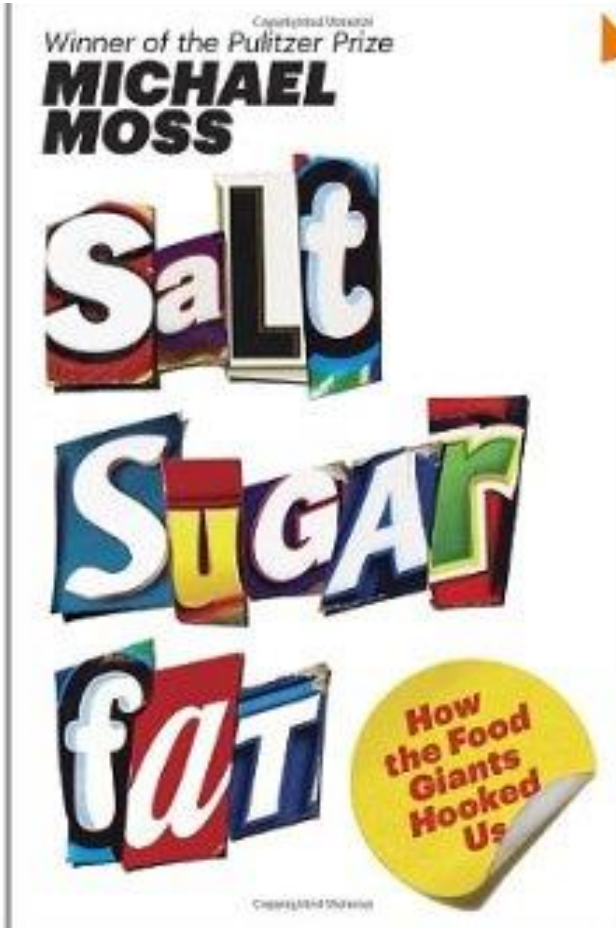
Anthony Fardet*

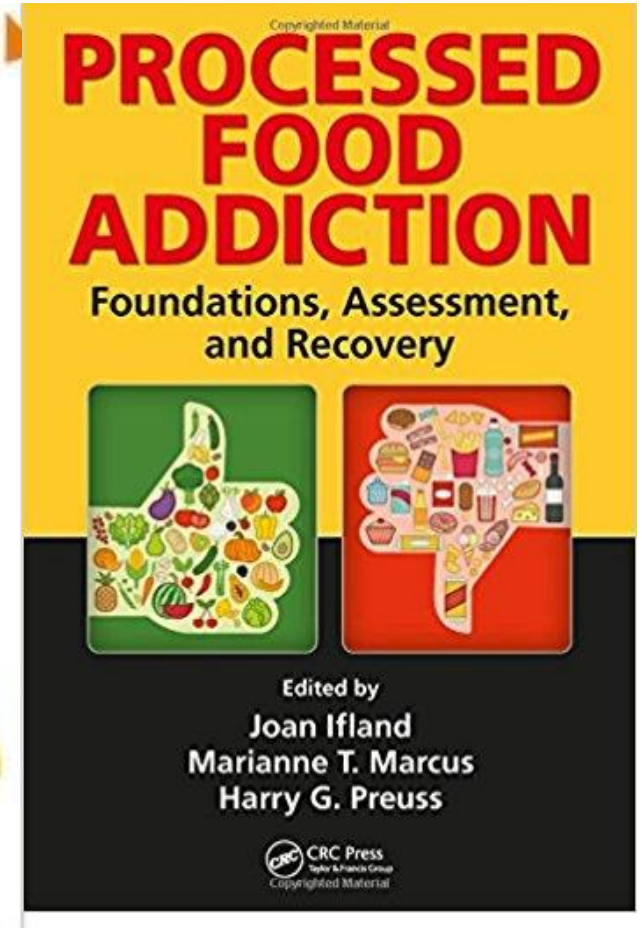
Beyond nutritional composition, food structure is increasingly recognized to play a role in food health potential, notably in satiety and glycemic responses. Food structure is also highly dependent on processing conditions. The hypothesis for this study is, based on a data set of 98 ready-to-eat foods, that the degree of food processing would correlate with the satiety index (SI) and glycemic response. Glycemic response was evaluated according to two indices: the glycemic index (GI) and a newly designed index, the glycemic glucose equivalent (GGE). The GGE indicates how a quantity of a certain food affects blood glucose levels by identifying the amount of food glucose that would have an effect equivalent to that of the food. Then, foods were clustered within three processing groups based on the international NOVA classification: (1) raw and minimally processed foods; (2) processed foods; and (3) ultra-processed foods.

Hiperpalatabilidad









Los alimentos ultraprocesados están diseñados para que sean consumidos en grandes cantidades: azúcar, sal, grasa, cafeína, monoglutamato de sodio, sabores, colores, textura, envases …

Comer sin atención

Los alimentos ultraprocesados están diseñados para que sean consumidos en cualquier momento, en cualquier lugar y haciendo otras cosas

See: Cohen DA, Farley TA. Eating as an automatic behavior. *Preventing Chronic Disease* 5: 1-7, 2008

Marketing agressivo y sofisticado

Es otro después de otro!

El nombre lo dice todo:
'Sin parar, es simplemente irresistible'.

La propaganda de alimentos ultraprocesados casi siempre promueve el comer de forma compulsiva

Marketing agressivo y sofisticado

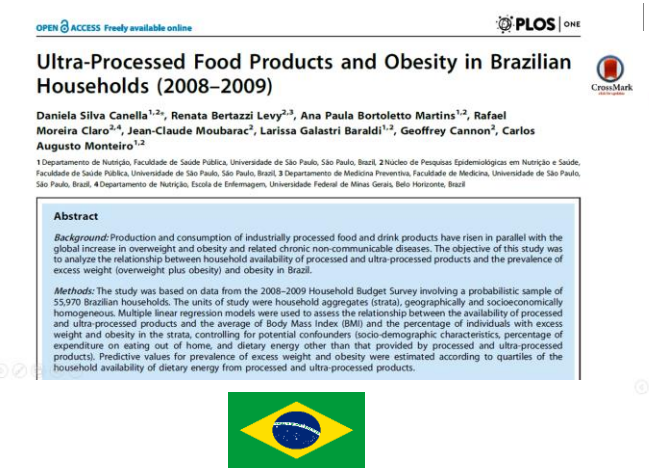
La propaganda de alimentos ultraprocesados para niños usa diversión para vender*

* **Marketing foods to kids: using fun to sell; the appeal of crazy colors, flavors, and more. Consumer Research Magazine 01 March 2002**

Marketing agressivo y sofisticado

La propaganda de alimentos ultraprocesados reformulados sugiere que estos son alimentos saludables que ya no necesitan ser limitados

Estudios transversales y longitudinales muestran que el consumo de alimentos ultraprocesados se asocia con obesidad, hipertensión, dislipidemias, síndrome metabólico, ataques cardíacos, apoplejía, cáncer de mama y cáncer total



OPEN ACCESS Freely available online

PLOS ONE

Ultra-Processed Food Products and Obesity in Brazilian Households (2008–2009)

Daniela Silva Canella[1,2]*, Renata Bertazzi Levy[2,3], Ana Paula Bortoletto Martins[1,2], Rafael Moreira Claro[4,4], Jean-Claude Moubarac[2], Larissa Galastri Baraldi[1,2], Geoffrey Cannon[3], Carlos Augusto Monteiro[1,2]

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Abstract

Background: Production and consumption of industrially processed food and drink products have risen in parallel with the global increase in overweight and obesity and related chronic non-communicable diseases. The objective of this study was to analyze the relationship between household availability of processed and ultra-processed products and the prevalence of excess weight (overweight plus obesity) and obesity in Brazil.

Methods: The study was based on data from the 2008–2009 Household Budget Survey involving a probabilistic sample of 55,970 Brazilian households. The units of study were household aggregates (strata), geographically and socioeconomically homogeneous. Multiple linear regression models were used to assess the relationship between the availability of processed and ultra-processed products and the average of Body Mass Index (BMI) and the percentage of individuals with excess weight and obesity in the strata, controlling for potential confounders (socio-demographic characteristics, percentage of expenditure on eating out of home, and dietary energy other than that provided by processed and ultra-processed products). Predictive values for prevalence of excess weight and obesity were estimated according to quartiles of the household availability of dietary energy from processed and ultra-processed products.

Contents lists available at ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

Consumption of ultra-processed foods and obesity in Brazilian adolescents and adults

Maria Laura da Costa Louzada [a,b,1,*], Larissa Galastri Baraldi [a,b], Euridice Martinez Steele [a,b], Ana Paula Bortoletto Martins [b], Daniela Silva Canella [b], Jean-Claude Moubarac [b,2], Renata Bertazzi Levy [b,c], Geoffrey Cannon [b], Ashkan Afshin [d], Fumiaki Imamura [e,3], Dariush Mozaffarian [d,4], Carlos Augusto Monteiro [a,b]

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ARTICLE INFO

Available online 29 July 2015

ABSTRACT

Objectives. The aim of this study was to evaluate the relationship between the consumption of ultra-processed foods and obesity indicators among Brazilian adults and adolescents.

British Journal of Nutrition, page 1 of 11
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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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[2]*School of Public Health, University of São Paulo, São Paulo, 03178-200, Brazil*
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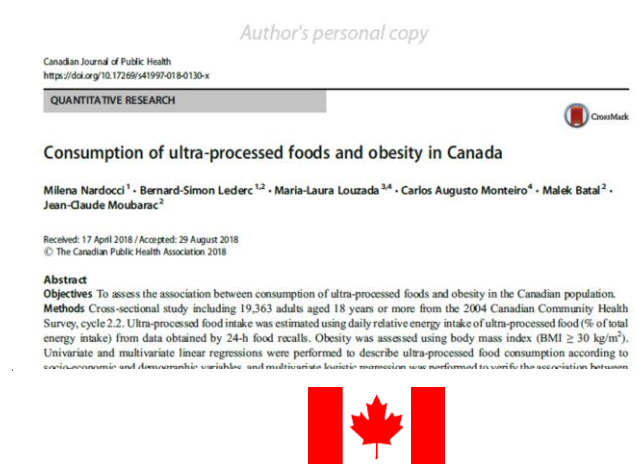
(Submitted 17 November 2017 – Final revision received 17 March 2018 – Accepted 24 March 2018)

Abstract

Ultra-processed foods provide 58% of energy intake and 89% of added sugars in the American diet. Nevertheless, the association between ultra-processed foods and excess weight has not been investigated in a US sample. The present investigation therefore aims to examine the association between ultra-processed foods and excess weight in a nationally representative sample of US adults. We performed a cross-sectional analysis of anthropometric and dietary data from 15 977 adults (20–64 years) participating in the National Health and Nutrition Examination Survey 2005–2014. Dietary data were collected by 24-h recall. Height, weight and waist circumference (WC) were measured. Foods were classified as ultra-processed/non-ultra-processed according to the NOVA classification. Multivariable linear and logistic regression was used to evaluate the association between ultra-processed food consumption (% energy) and BMI, WC and odds of BMI ≥ 25 kg/m², BMI ≥ 30 kg/m² and abdominal



Author's personal copy

Canadian Journal of Public Health
https://doi.org/10.17269/s41997-018-0130-x

QUANTITATIVE RESEARCH

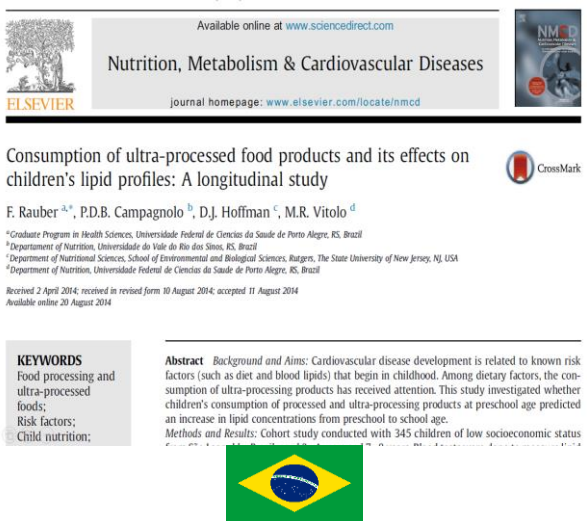
Consumption of ultra-processed foods and obesity in Canada

Milena Nardocci[1] · Bernard-Simon Lederc[1,2] · Maria-Laura Louzada[3,4] · Carlos Augusto Monteiro[4] · Malek Batal[2] · Jean-Claude Moubarac[2]

Received: 17 April 2018 / Accepted: 29 August 2018

Abstract

Objectives To assess the association between consumption of ultra-processed foods and obesity in the Canadian population.
Methods Cross-sectional study including 19,363 adults aged 18 years or more from the 2004 Canadian Community Health Survey, cycle 2.2. Ultra-processed food intake was estimated using daily relative energy intake of ultra-processed food (% of total energy intake) from data obtained by 24-h food recalls. Obesity was assessed using body mass index (BMI ≥ 30 kg/m²). Univariate and multivariate linear regressions were performed to describe ultra-processed food consumption according to



Available online at www.sciencedirect.com

Nutrition, Metabolism & Cardiovascular Diseases

journal homepage: www.elsevier.com/locate/nmcd

Consumption of ultra-processed food products and its effects on children's lipid profiles: A longitudinal study

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[b] Department of Nutrition, Universidade do Vale do Rio dos Sinos, RS, Brazil
[c] Department of Nutritional Sciences, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, NJ, USA
[d] Department of Nutrition, Universidade Federal de Ciencias da Saude de Porto Alegre, RS, Brazil

Received 2 April 2014; received in revised form 10 August 2014; accepted 11 August 2014
Available online 20 August 2014

KEYWORDS
Food processing and ultra-processed foods;
Risk factors;
Child nutrition;

Abstract *Background and Aims:* Cardiovascular disease development is related to known risk factors (such as diet and blood lipids) that begin in childhood. Among dietary factors, the consumption of ultra-processing products has received attention. This study investigated whether children's consumption of processed and ultra-processing products at preschool age predicted an increase in lipid concentrations from preschool to school age.
Methods and Results: Cohort study conducted with 345 children of low socioeconomic status

AJCN. First published ahead of print October 12, 2016 as doi: 10.3945/ajcn.116.135004.

The American Journal of CLINICAL NUTRITION

Ultraprocessed food consumption and risk of overweight and obesity: the University of Navarra Follow-Up (SUN) cohort study[1,2]

*Raquel de Deus Mendonça,[3,4,6] Adriano Marçal Pimenta,[3,5] Alfredo Gea,[3,7,8] Carmen de la Fuente-Arrillaga,[3,7,8] Miguel Angel Martinez-Gonzalez,[3,7–9] Aline Cristine Souza Lopes,[4] and Maira Bes-Rastrollo[1,7,8]**

[1]University of Navarra, Department of Preventive Medicine and Public Health, Pamplona, Spain; Departments of [4]Nutrition and [5]Maternal-Child Nursing and Public Health, School of Nursing, Federal University of Minas Gerais, Belo Horizonte, Brazil; [6]CAPES Coordination for the Improvement of Higher Education Personnel Foundation, Ministry of Education of Brazil, Brasília, Brazil; [7]Navarra Health Research Institute, Pamplona, Spain; [8]Biomedical Research Center Network in Physiopathology of Obesity and Nutrition, Carlos III Health Institute, Madrid, Spain; and [9]Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA

ABSTRACT

Background: Ultraprocessed food consumption has increased in the past decade. Evidence suggests a positive association between ultraprocessed food consumption and the incidence of overweight and obesity. However, few prospective studies to our knowledge have investigated this potential relation in adults.

were obese, and in the Eastern Mediterranean ~25% of women and 15% of men were obese (1).

Changes in the food system continuously promote obesity. There is now a greater availability of ready-to-eat or -heat foods known as ultraprocessed foods, which are products that have little, if any, whole foods and are manufactured with substances

ORIGINAL ARTICLE

American Journal of Hypertension 30(4) April 2017

Ultra-Processed Food Consumption and the Incidence of Hypertension in a Mediterranean Cohort: The Seguimiento Universidad de Navarra Project

Raquel de Deus Mendonça[1–3], Aline Cristine Souza Lopes[2], Adriano Marçal Pimenta[3,4], Alfredo Gea[1,5,6], Miguel Angel Martinez-Gonzalez[1,5–7], and Maira Bes-Rastrollo[1,5,6]

BACKGROUND
Some available evidence suggests that high consumption of ultra-processed foods (UPFs) is associated with a higher risk of obesity. Collectively, this association and the nutritional characteristics of UPFs suggest that UPFs might also be associated with hypertension.

METHODS
We prospectively evaluated the relationship between UPF consumption and the risk of hypertension in a prospective Spanish cohort, the Seguimiento Universidad de Navarra project. We included 14,790 Spanish adult university graduates who were initially free of hypertension at baseline who were followed for a mean of 9.1 years (SD, 3.9 years; total person-

hazards models were used to estimate adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) for hypertension incidence.

RESULTS
During follow-up, 1,702 incident cases of hypertension were identified. Participants in the highest tertile of UPF consumption had a higher risk of developing hypertension (adjusted HR, 1.21; 95% CI, 1.06, 1.37; *P* for trend = 0.004) than those in the lowest tertile after adjusting for potential confounders.

CONCLUSIONS
In this large prospective cohort of Spanish middle-aged adult university graduates, a positive association between UPF consumption and hypertension risk was observed. Additional longitudinal studies are needed to confirm our results.

BMJ 2018;360:k322 | doi: 10.1136/bmj.k322

RESEARCH

OPEN ACCESS

Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort

Thibault Fiolet,[1] Bernard Srour,[1] Laury Sellem,[1] Emmanuelle Kesse-Guyot,[1] Benjamin Allès,[1] Caroline Méjean,[2] Mélanie Deschasaux,[1] Philippine Fassier,[1] Paule Latino-Martel,[1] Marie Beslay,[1] Serge Hercberg,[1,4] Céline Lavalette,[1] Carlos A Monteiro,[3] Chantal Julia,[1,4] Mathilde Touvier[1]

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[2]INRA, UMR 1110 MOISA, 34000 Montpellier, France
[3]Department of Nutrition,

ABSTRACT

OBJECTIVE
To assess the prospective associations between consumption of ultra-processed food and risk of cancer.

DESIGN
Population based cohort study.

SETTING AND PARTICIPANTS
104 980 participants aged at least 18 years (median

statistically significant after adjustment for several markers of the nutritional quality of the diet (lipid, sodium, and carbohydrate intakes and/or a Western pattern derived by principal component analysis).

CONCLUSIONS
In this large prospective study, a 10% increase in the proportion of ultra-processed foods in the diet was associated with a significant increase of greater than 10% in risks of overall and breast cancer. Further