VALOR NUTRICIONAL DEL HUEVO

Sandra Wages Young
Nutricionista ILH
www.ilhala.org
ala.ilh@avicolatina.com

Agenda

- Valor nutricional del huevo
- Temores sobre el consumo de huevos
- Conclusión

Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Instituto Latinoamericano del Huevo

Tabla 1.
Valor Nutritivo de un Huevo de 50 Gramos

Componente	Huevo Entero	Clara	Yema
Agua (g)	37.5	17.28	13.9
Energía (Kcal)	75	17	59
Proteína (g)	6	4	3
Grasa (g)	5	-	5.28
Ácidos Grasos Saturados (g)	1.6	-	1.68
Ácidos Grasos Polinsaturados (g)	0.7	-	0.72
Ácido Graso Linoleico	0.57	-	0.57
ÁcidosGrasos Monoinsaturados (g)	1.9	-	1.9
Ácido Graso Oleico	1.73	-	1.77
Colesterol (mg)	213	-	213
Carbohidratos (g)	1	0.30	0.30
Fósforo (mg)	89	3.7	84.3
Hierro (mg)	0.7	-	0.6
Magnesio (mg)	6	4	1
Zinc (mg)	0.57	-	0.57
Vitamina A (ER)	96	-	97
Vitamina D (UI)	0.87	-	0.83
Riboflavina (mg)	0.25	0.15	0.11
Acido Folico (mg)	24	0.54	25
Vitamina B12 (mg)	0.77	0.02	0.64
Biotina(μg)	12.2	-	12.2
Colina(mg)	125	-	-

Fuente: USDA National Nutrient Database for Standar Reference (2007)

Equivalencia del Contenido Proteico

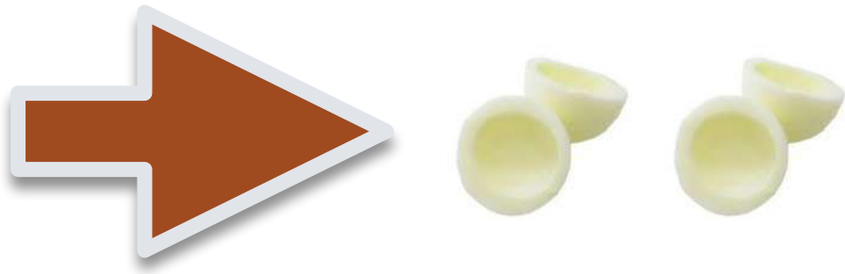
1 vaso

100 g

100 g

Equivalencia del Contenido Proteico

1 vaso



100 g

100 g

Calidad proteica

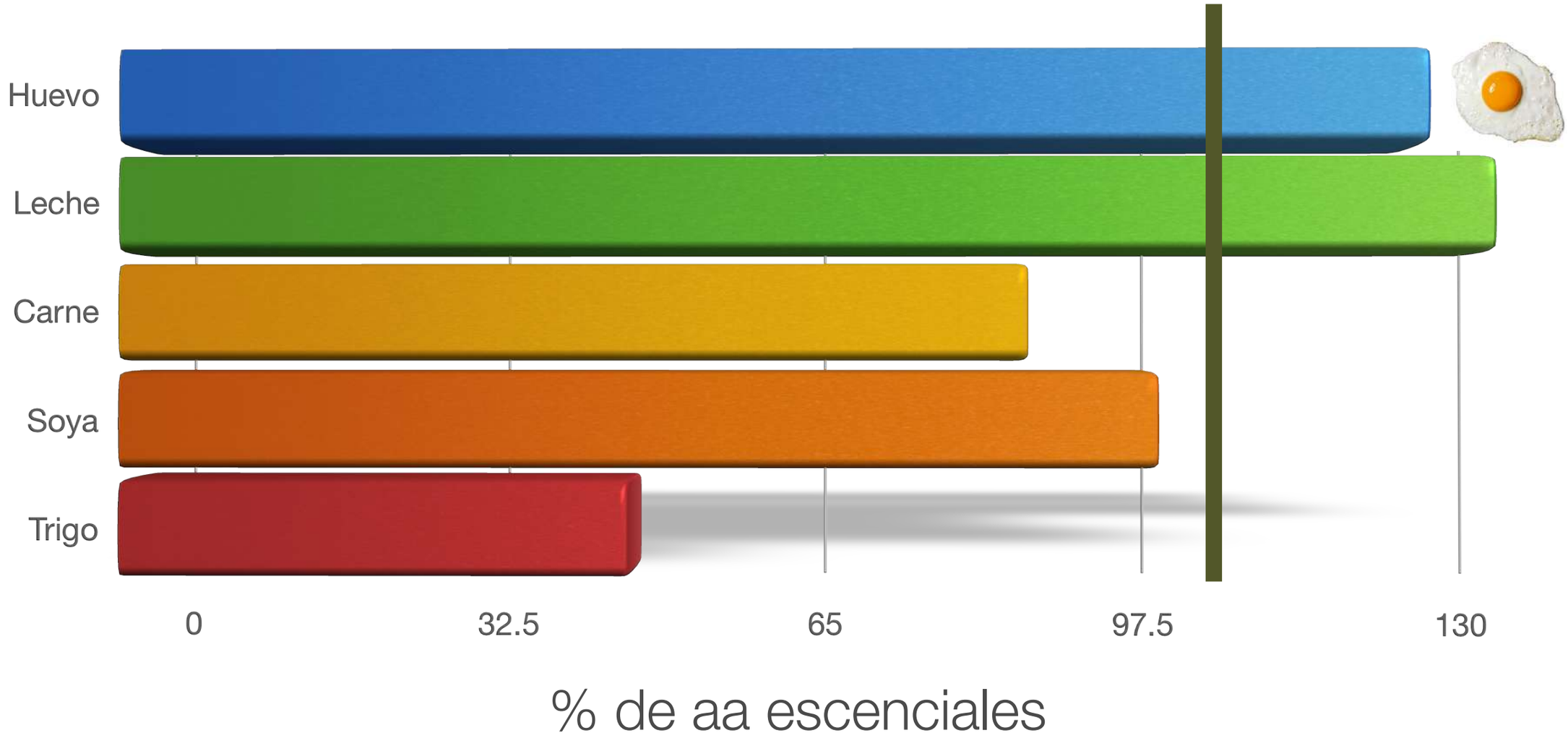
True fecal digestibility, amino acid score and PDCAAS for selected proteins[1]

Protein	PER	Digestibility	AAS	PDCAAS
			%	
Huevo	3.8	98	121	118
Leche de vaca	3.1	95	127	121
Carne de res	2.9	98	94	92
Soya	2.1	95	96	91
Trigo	1.5	91	47	42

[1] Data from FAO/WHO Expert Consultation 1990, European Dairy Association 1997, and Renner 1983.

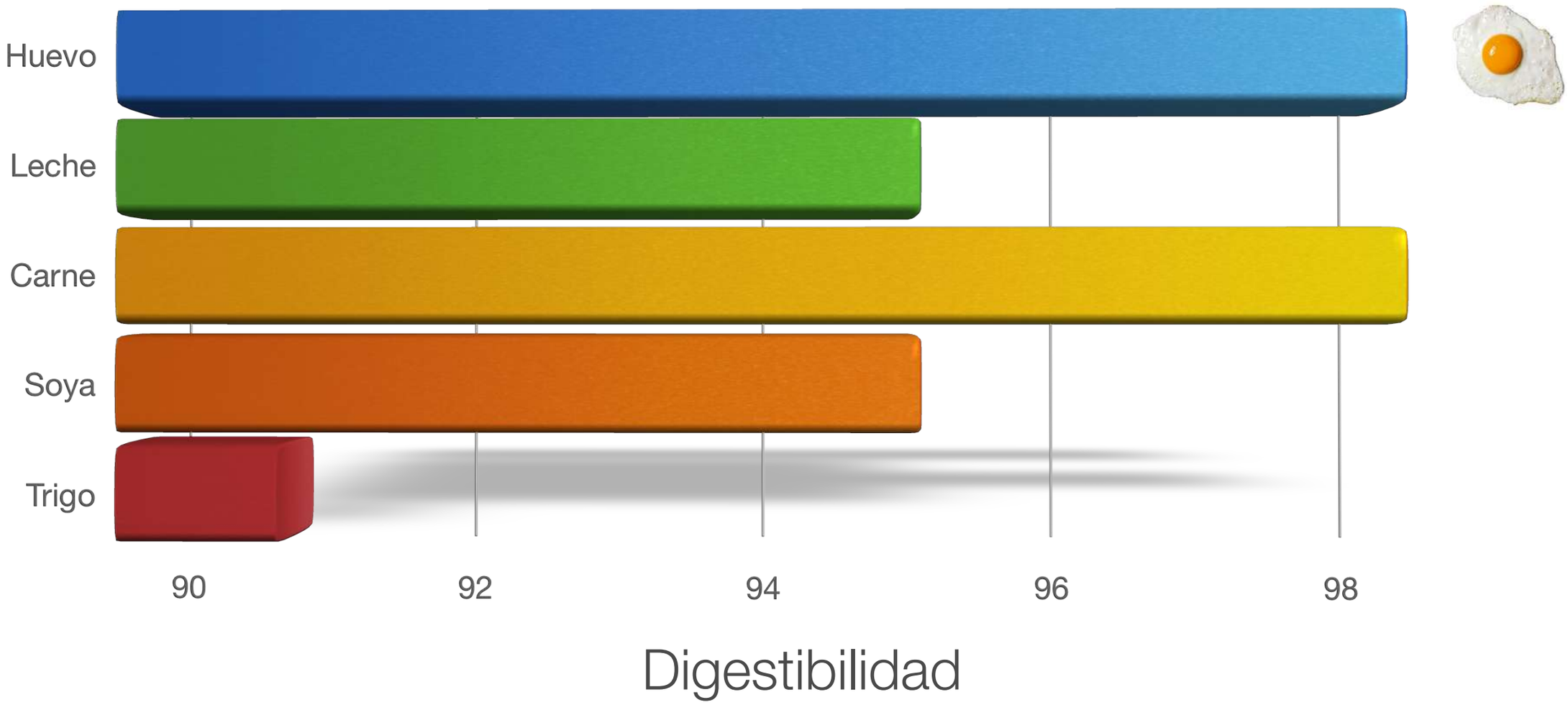
Fuente: J. Nutr. July 1, 2000 vol. 130 no. 7 1865S-1867S

Calidad proteica



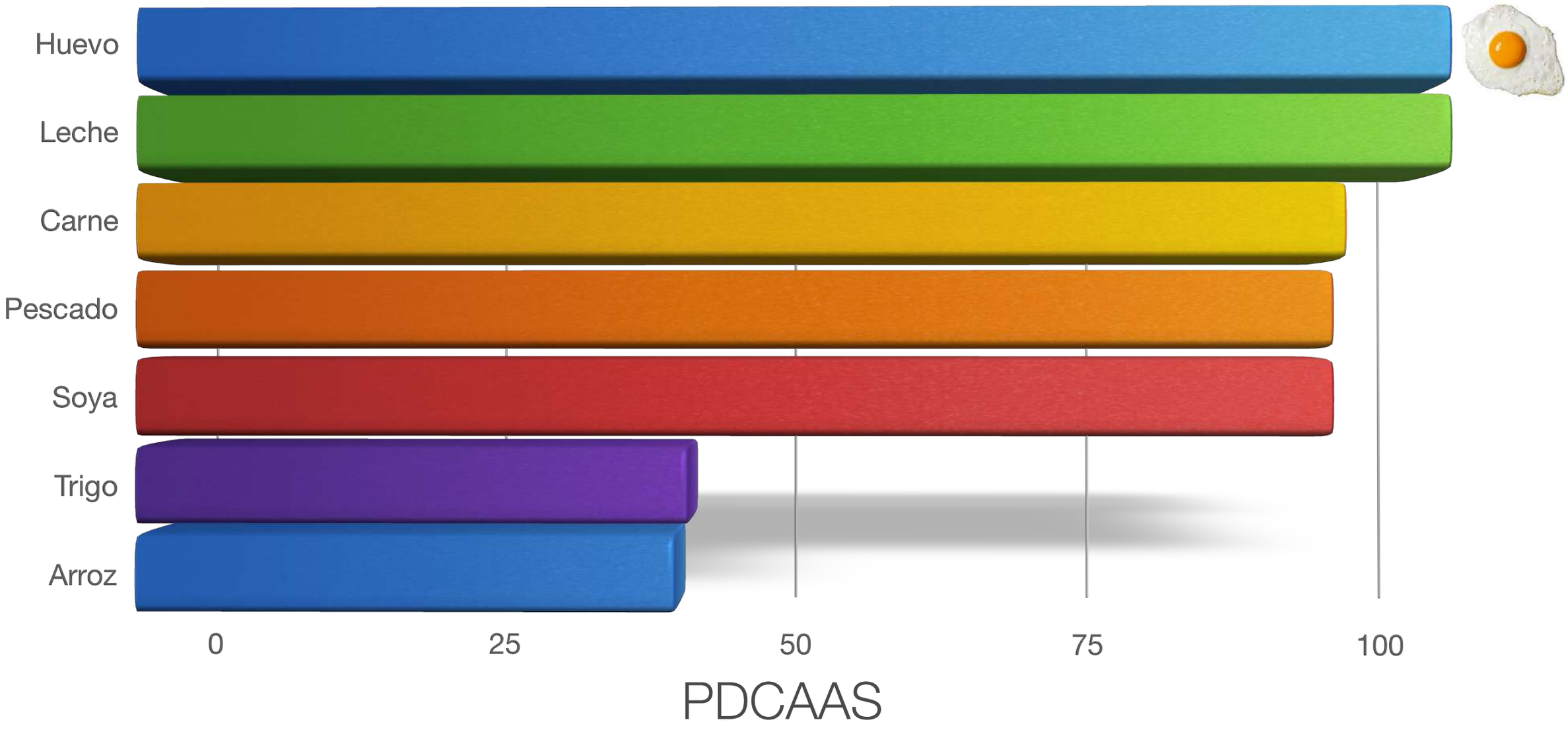
Datos: FAO/WHO Expert Consultation 1990 , European Dairy Association 1997 , and Renner 1983
Fuente: Elaboración Propia

Calidad proteica



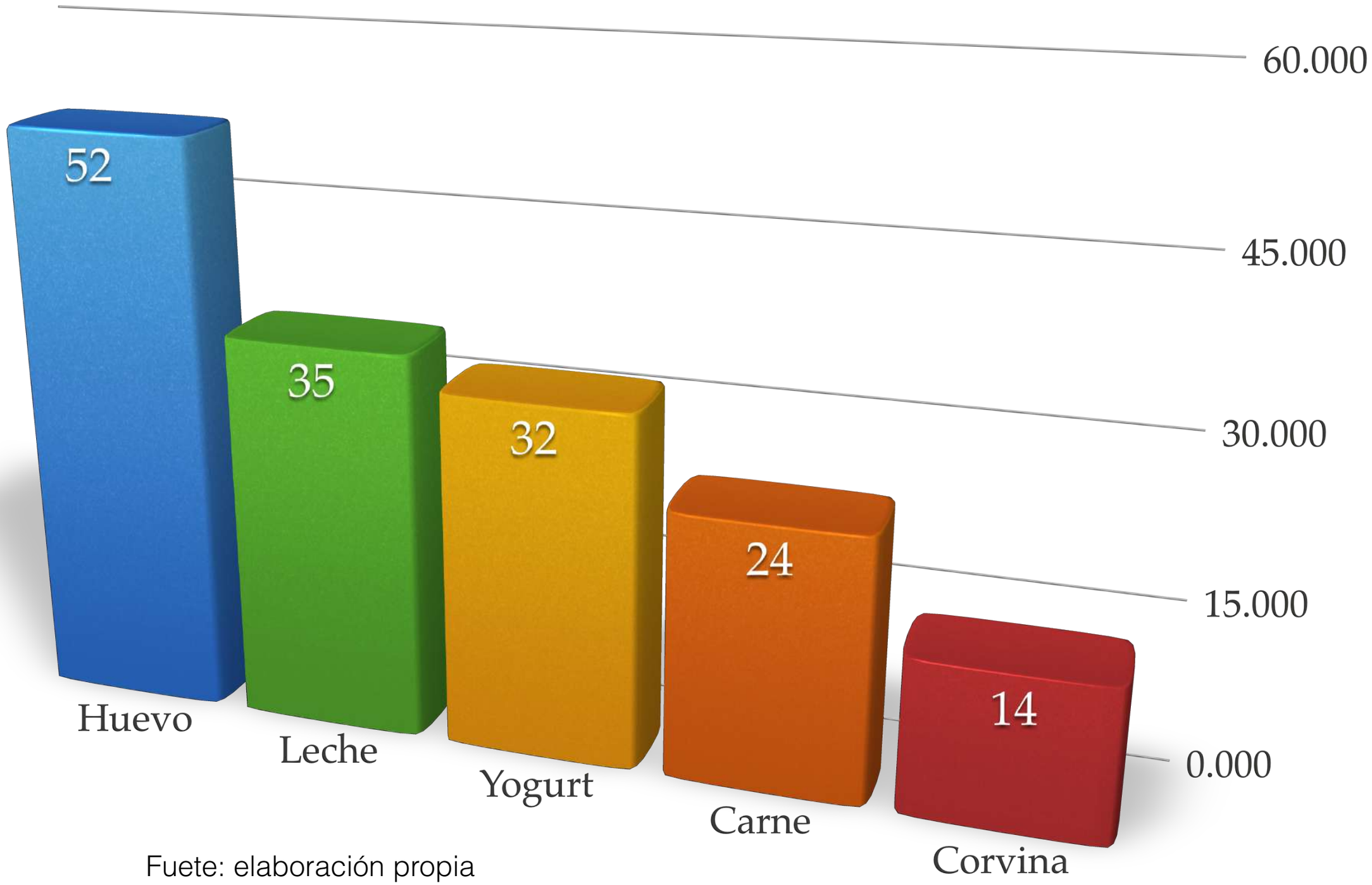
Datos: FAO/WHO Expert Consultation 1990 , European Dairy Association 1997 , and Renner 1983
Fuente: Elaboración Propia

Calidad proteica



Datos: FAO/WHO Expert Consultation 1990 , European Dairy Association 1997 , and Renner 1983
Fuente: Elaboración Propia

Relación precio/proteína



Fuete: elaboración propia

Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Antioxidantes

- 1 yema (17g) contiene 186 µg de Luteína y Zeaxantina

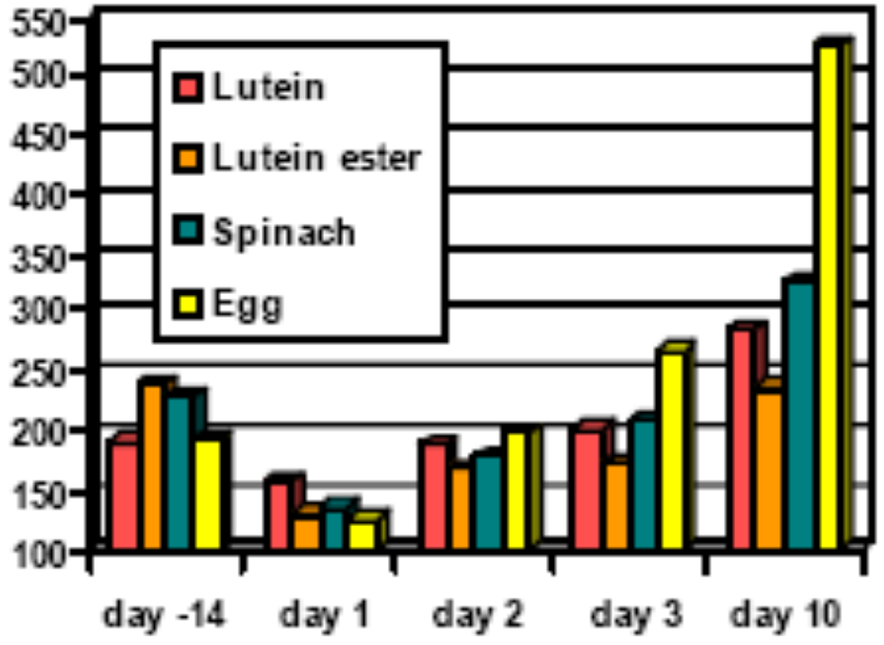
Fuente: USDA Natinal Nutrient Databse for Standard Reference (2012)

Antioxidantes

Instituto Latinoamericano del Huevo

Human Nutrition and Metabolism

Lutein Bioavailability Is Higher from Lutein-Enriched Eggs than from Supplements and Spinach in Men[1,2]



Triple de biodisponibilidad de luteina y zeaxantina del huevo vs otros alimentos

Fuente: Nutr. 134:1887-1893, August 2004

Antioxidantes

Visión normal

Degeneración macular

Degeneración macular grave

Carotenoides del huevo

Instituto Latinoamericano del Huevo

Review

Lutein and Zeaxanthin and Their Potential Roles in Disease Prevention

Judy D. Ribaya-Mercado, ScD, Jeffrey B. Blumberg, PhD, FACN

- Enfermedades cardiovasculares
- Cataratas y degeneración macular
- Cáncer
  - Pulmón
  - Colon
  - Mama
  - Próstata
  - Vejiga
  - Estómago

Journal of the American College of Nutrition, Vol. 23, No. 6, 567S–587S (2004)
Published by the American College of Nutrition

Instituto Latinoamericano del Huevo

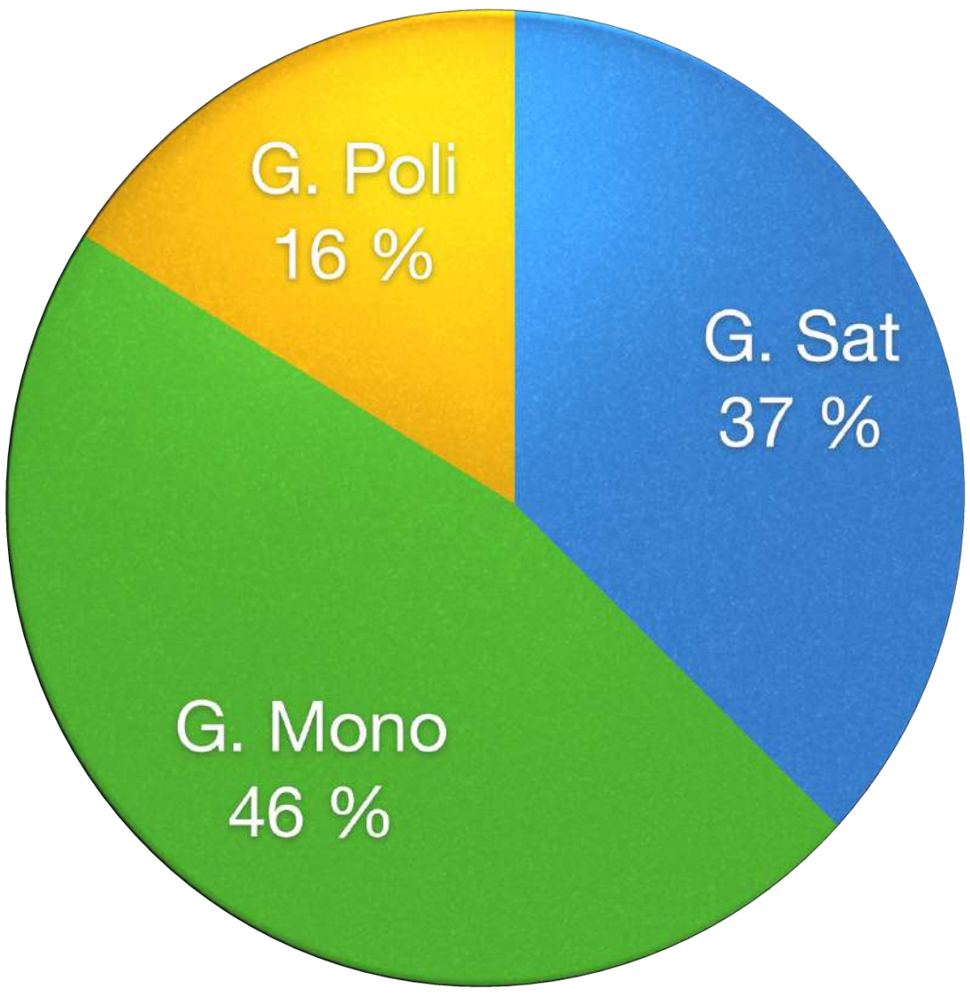
Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Instituto Latinoamericano del Huevo

4.3 g ➡️ < 1 cucharadita

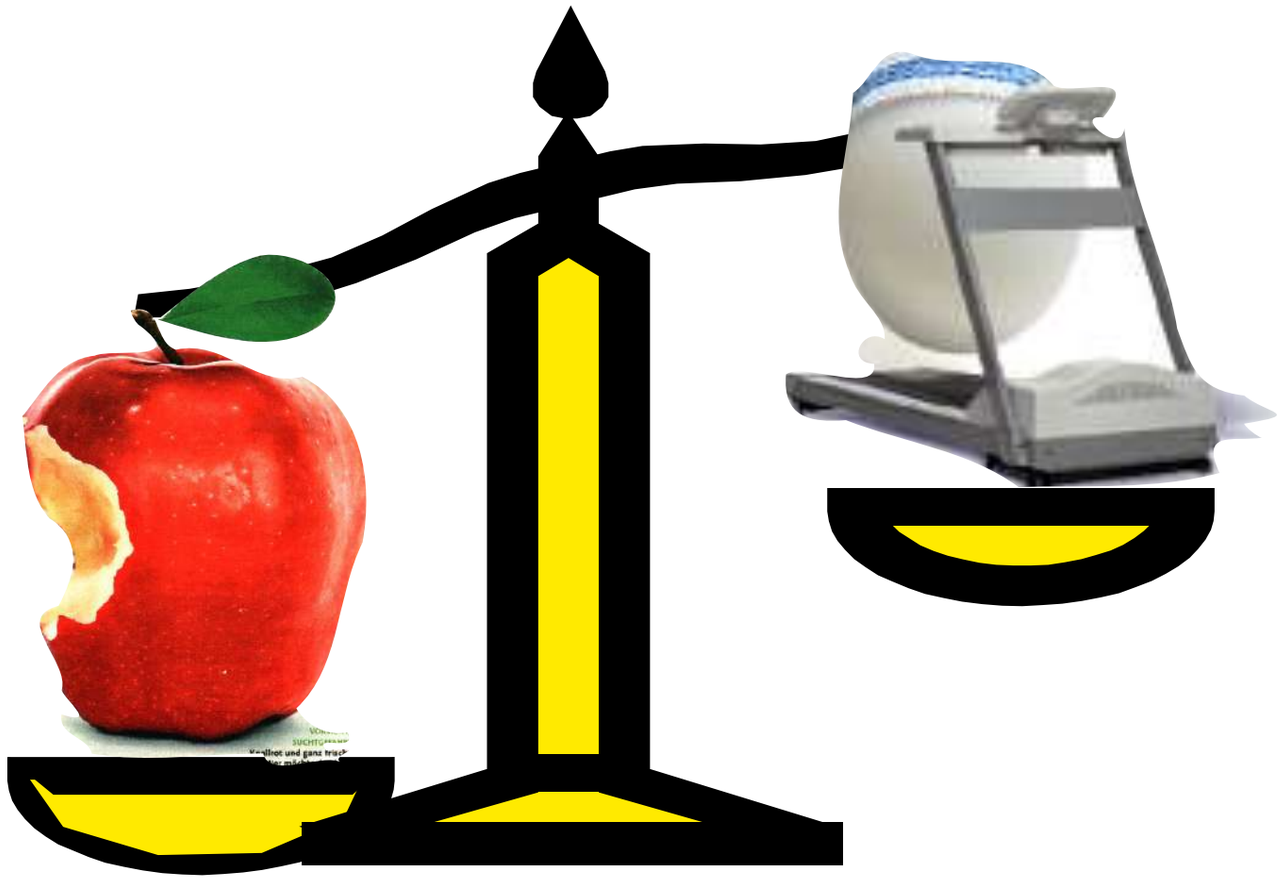
Grasa



Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

¿Engorda?



- Energía: 75 kcal
- Alta densidad de nutrientes
- Alto poder de saciedad

Egg Nutrition Center: Abril 29 - 2007

Published in final edited form as:
Int J Obes (Lond). 2008 October ; 32(10): 1545–1551. doi:10.1038/ijo.2008.130.

Egg breakfast enhances weight loss

JS Vander Wal[1], **A Gupta**[2], **P Khosla**[3], and **NV Dhurandhar**[2]

[1]Department of Psychology, Saint Louis University, Saint Louis, MO, USA

[2]Pennington Biomedical Research Center, Baton Rouge, LA, USA

[3]Department of Nutrition and Food Science, Wayne State University, Detroit, MI, USA

Abstract

Objective—To test the hypotheses that an egg breakfast, in contrast to a bagel breakfast matched for energy density and total energy, would enhance weight loss in overweight and obese participants while on a reduced-calorie weight loss diet.

Subjects—Men and women (n=152), age 25–60 years, body mass index (BMI) ≥25 and ≤50 kg m^{-2}.

Design—Otherwise healthy overweight or obese participants were assigned to Egg (E), Egg Diet (ED), Bagel (B) or Bagel Diet (BD) groups, based on the prescription of either an egg breakfast containing two eggs (340 kcal) or a breakfast containing bagels matched for energy density and total energy, for at least 5 days per week, respectively. The ED and BD groups were suggested a 1000 kcal energy-deficit low-fat diet, whereas the B and E groups were asked not to change their energy intake.

Results—After 8 weeks, in comparison to the BD group, the ED group showed a 61% greater reduction in BMI (−0.95±0.82 vs −0.59±0.85, P<0.05), a 65% greater weight loss (−2.63±2.33 vs −1.59±2.38 kg, P<0.05), a 34% greater reduction in waist circumference (P<0.06) and a 16% greater reduction in percent body fat (P=not significant). No significant differences between the E and B groups on the aforementioned variables were obtained. Further, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol and triglycerides, did not differ between the groups.

Conclusions—The egg breakfast enhances weight loss, when combined with an energy-deficit diet, but does not induce weight loss in a free-living condition. The inclusion of eggs in a weight management program may offer a nutritious supplement to enhance weight loss.

Keywords

satiety; hunger; proteins; bagels

Introduction

Nearly 7% of the world population is obese[1] and about 66% of the adults in the United States are overweight or obese.[2] Obesity is associated with a number of adverse medical conditions including increased risk of gallbladder disease, hypertension, type 2 diabetes mellitus, coronary heart disease (CHD), osteoarthritis, cancer death and reduced life expectancy.[3–8] Obesity is

Correspondence: Dr NV Dhurandhar, Pennington Biomedical Research Center, Louisiana State University System, Baton Rouge, LA 70808, USA. nikhil.dhurandhar@pbrc.edu.

Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Minerales

50 g

Minerals		
Calcium	28 mg	3%
Iron	0.88 mg	5%
Magnesium	6 mg	2%
Phosphorus	99 mg	10%
Potassium	69 mg	2%
Zinc	0.65 mg	4%
Copper	0.04 mg	2%
Manganese	0.01 mg	1%
Selenium	15.3 mcg	22%

17 g

Minerals		
Calcium	21.9 mg	2%
Iron	0.46 mg	3%
Magnesium	0.85 mg	0%
Phosphorus	66.3 mg	7%
Potassium	18.5 mg	1%
Zinc	0.39 mg	3%
Copper	0.01 mg	1%
Manganese	0.01 mg	1%
Selenium	9.5 mcg	14%

Fuente: MyFood. Pomegranate Software (2012)

ILH
Instituto Latinoamericano del Huevo

Vitaminas

50 g

Vitamins		
Vitamin A	270 IU	5%
Thiamin	0.02 mg	1%
Riboflavin	0.23 mg	14%
Niacin	0.04 mg	0%
Vitamin B5	0.77 mg	8%
Vitamin B6	0.09 mg	4%
Folate	23.5 mcg	6%
Vitamin B12	0.45 mcg	7%
Vitamin C	0 mg	0%
Vitamin D	1 mg	0%
Vitamin E	0.53 mg	3%
Vitamin K	0.15 mcg	0%

17 g

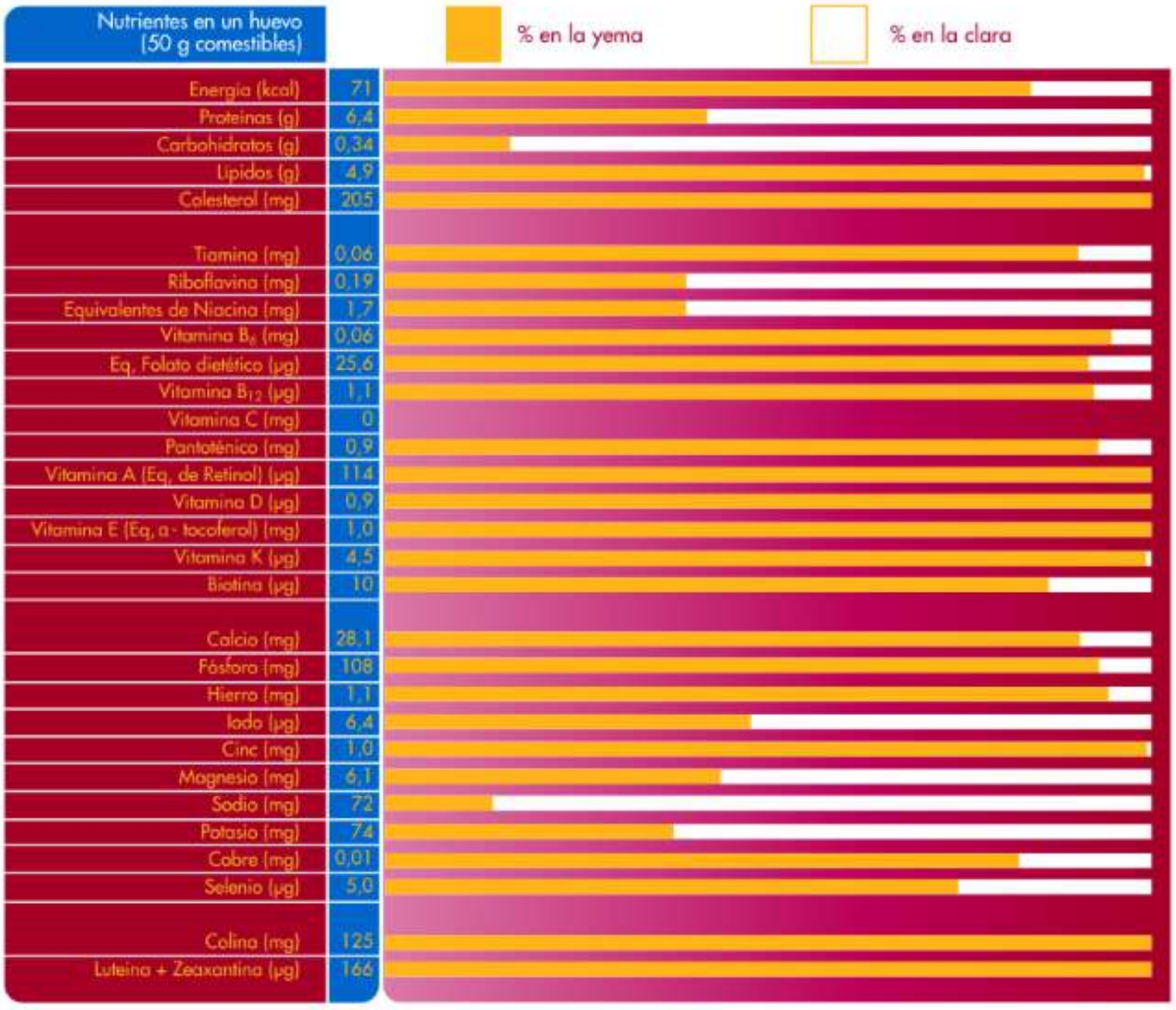
Vitamins		
Vitamin A	245 IU	5%
Thiamin	0.03 mg	2%
Riboflavin	0.09 mg	5%
Niacin	0 mg	0%
Vitamin B5	0.51 mg	5%
Vitamin B6	0.06 mg	3%
Folate	24.8 mcg	6%
Vitamin B12	0.33 mcg	6%
Vitamin C	0 mg	0%
Vitamin D	0.92 mg	0%
Vitamin E	0.44 mg	2%
Vitamin K	0.12 mcg	0%

Fuente: MyFood. Pomegranate Software (2012)

Instituto Latinoamericano del Huevo

Instituto Latinoamericano del Huevo

Figura 1. Composición de un huevo de tamaño medio y porcentaje de nutrientes aportados por la yema y por la clara *



* Ortega RM, López-Sobaler AM, Andrés P, Requejo AM, Aparicio A, Molinero LM (2010). Programa DIAL para valoración de dietas y cálculos de alimentación. Departamento de Nutrición (UCM) y Alce Ingeniería, S.A. Madrid. http://www.alceingenieria.net/nutricion.htm

* Ortega RM, López-Sobaler AM, Requejo AM, Andrés P. La composición de los alimentos. Herramienta básica para la valoración nutricional. Ortega RM, López-Sobaler AM, Requejo AM y Andrés P., eds. Ed. Complutense, Madrid, 2010

Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Colina

Choline: Needed for Normal Development of Memory

Steven H. Zeisel, MD, PhD

- Un huevo aporta 300 mg de colina, el 66% de las necesidades de una gestante

- Vital para el desarrollo cerebral fetal e infantes

- Déficit: daño hepático, pancreático, renal, desórdenes en memoria

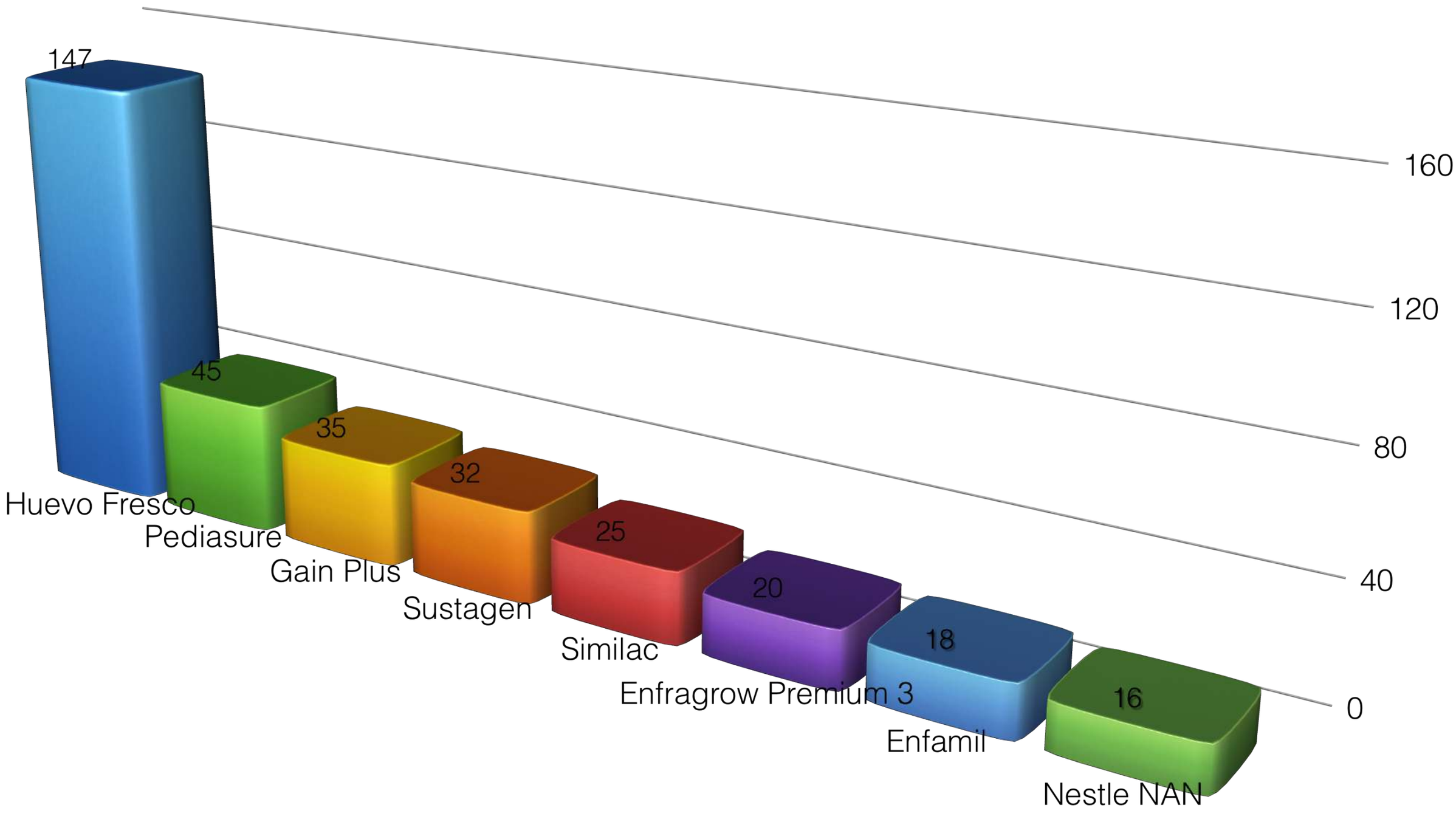
Journal of the American College of Nutrition, Vol. 19, No. 5, 528S–531S (2000)
Published by the American College of Nutrition

Colina

Tabla 1: Requerimiento de colina y porcentaje del requerimiento cubierto por uno y dos huevos según edad y sexo

	% del requerimiento cubierto por:		Requerimiento (mg/ día)
	1 huevo	2 huevos	
Bebes de 6 a 12 meses	98%	196%	150
Niños/as de 1 a 3 años	73%	147%	200
Niños/as de 4 a 8 años	59%	118%	250
Hombres de 9 a 13 años	39%	78%	375
Hombres de 14 a > 70 años	27%	53%	550
Mujeres de 9 a 13 años	39%	78%	375
Mujeres de 14 a 18 años	37%	73%	400
Mujeres de 19 a > 70 años	35%	69%	425
Embarazo (1er a 3er trimestre)	33%	65%	450
Lactancia	27%	53%	550

Contenido de Colina



Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Fosfolípidos

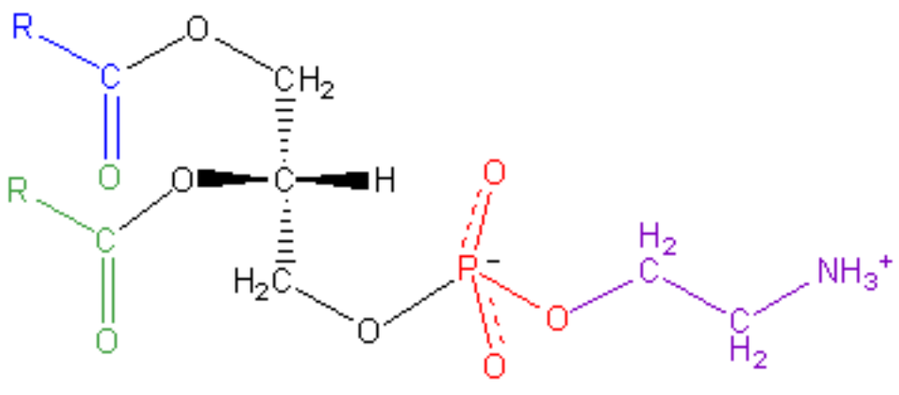
	Fosfolípidos mg/g
LDL	1,73 +/- 0.51
Infranadante	0.79 +/- 0.59

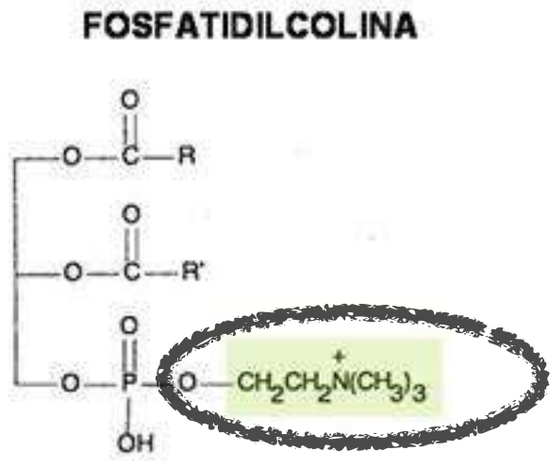
Fuente: Braz J Med Biol Res. 1992;25(4):327-9.

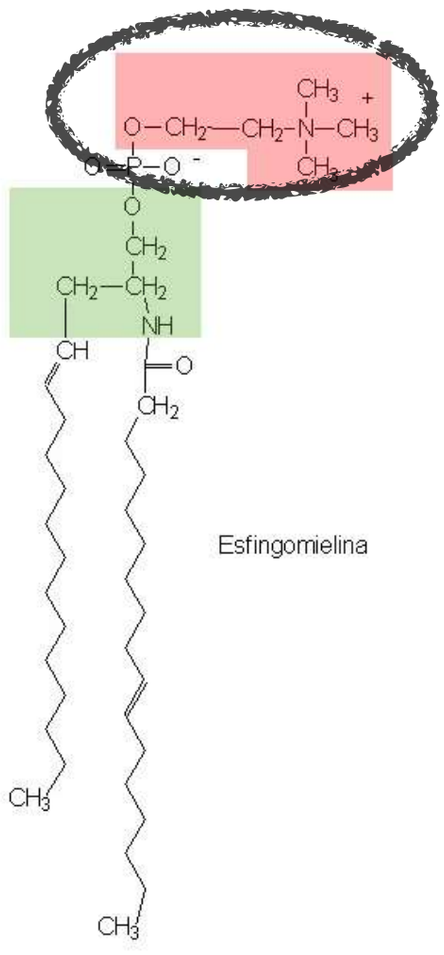
Fosfolípidos

Fosfolípidos	%
Fosfatidilcolinas	70
Fosfatidiletanolaminas	28
Esfingomielinas	3

Fuente: J. Agric. Food Chem., 2004, 52 (13), pp 4289–4295







Fosfolípidos

Instituto Latinoamericano del Huevo

Egg Phosphatidylcholine Decreases the Lymphatic Absorption of Cholesterol in Rats[1]

Yongzhi Jiang, Sang K. Noh, and Sung I. Koo[2]

Author Affiliations

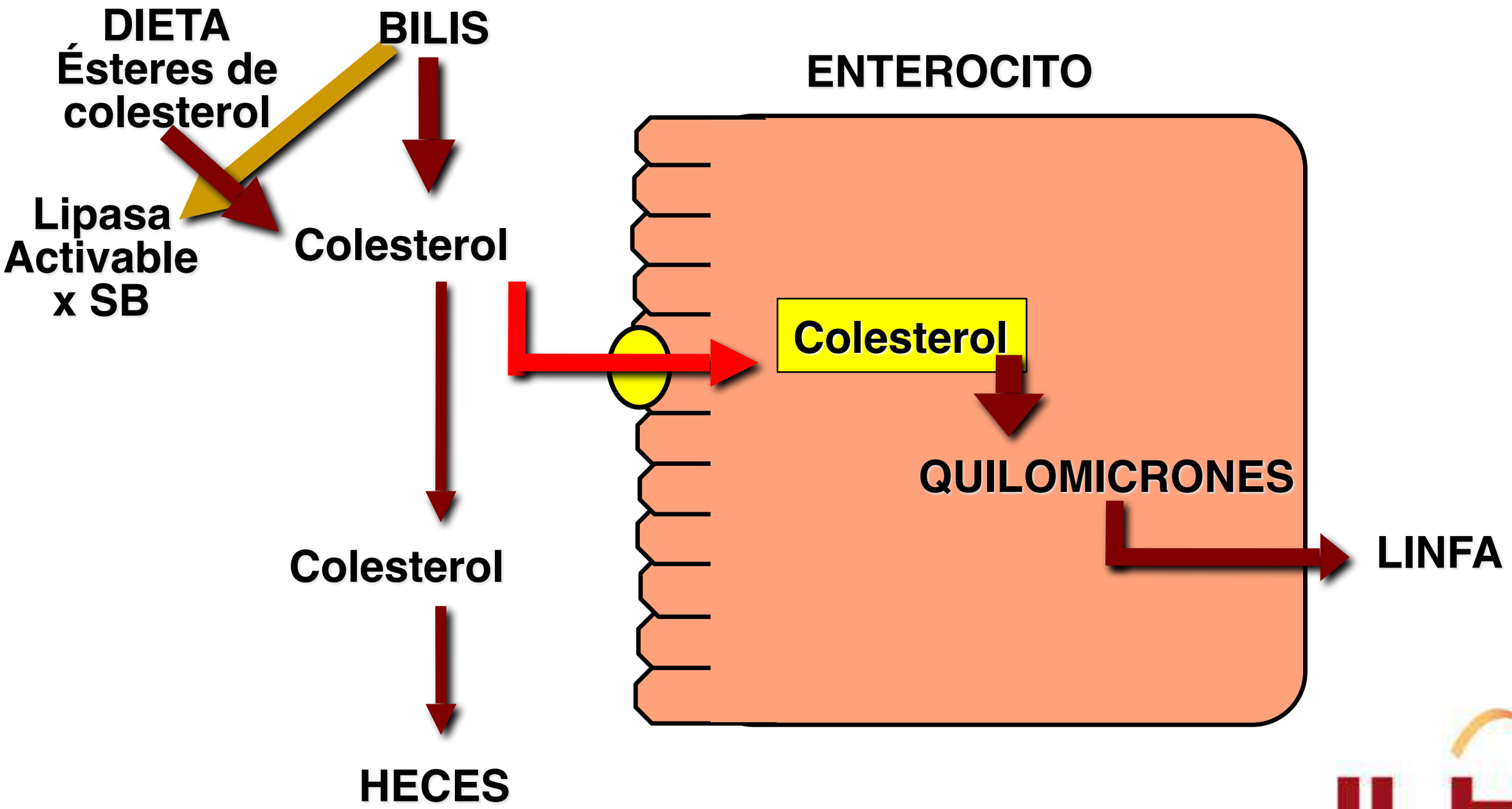
[2]To whom correspondence should be addressed. E-mail: koo@humec.ksu.edu.

Abstract

This study was conducted to determine the effects of phosphatidylcholine (PC) from different sources on intestinal absorption of cholesterol. Male Sprague-Dawley rats were fed an AIN-93G diet containing soybean oil for 4 wk. Each rat with lymph cannula was infused via a duodenal catheter at 3.0 mL/h for 8 h with a lipid emulsion [in μmol: 451.8 triolein, 27.8 kBq ^{14}C-cholesterol (CH), 20.7 CH, 3.6 α-tocopherol, and 100 PC in 24 mL PBS, pH 6.6]. The PC in the lipid emulsion was egg PC (EPC), hydrogenated egg PC (HPC), or soy PC (SPC). The EPC in the lipid emulsion markedly lowered the lymphatic absorption of ^{14}C-CH (24.7 ± 2.5% dose) compared with SPC (34.9 ± 1.2%) and a lipid emulsion containing no PC (NPC) (30.8 ± 2.0%). The HPC further lowered the absorption of ^{14}C-CH to 21.1 ± 1.4% dose. The outputs of phospolipid were unaffected by the source of PC infused (EPC, 32.2 ± 1.7; HPC, 31.8 ± 1.6; and SPC, 32.9 ± 1.8 μmol/8 h). Compared with NPC (595.0 ± 59.5 μmol), the total output of fatty acids over 8 h was increased significantly by SPC (685.4 ± 55.8 μmol), but decreased by HPC (467.7 ± 28.4 μmol). The total lymphatic output of oleic acid (18:1), the major fatty acid infused in the form of triolein, did not differ among the NPC (448.0 ± 58.2 μmol/8 h), SPC (457.9 ± 52.3 μmol/8 h) and EPC (412.9 ± 20.8 μmol/8 h) groups, but was significantly lower in the HPC group (262.0 ± 24.1 μmol/8 h). The findings provide the first evidence that EPC markedly lowers the lymphatic absorption of cholesterol under in vivo conditions. The inhibitory effect of EPC appears to be due to the higher degree of saturation of its acyl groups relative to SPC, suggesting that the intestinal absorption of egg cholesterol may be reduced by the presence of PC in egg yolk.

Fuente: J Nutr. 2001 Sep;131(9):2358-63.

Digestión y Absorción del Colesterol



Fuente: J Nutr. 2001 Sep;131(9):2358-63.

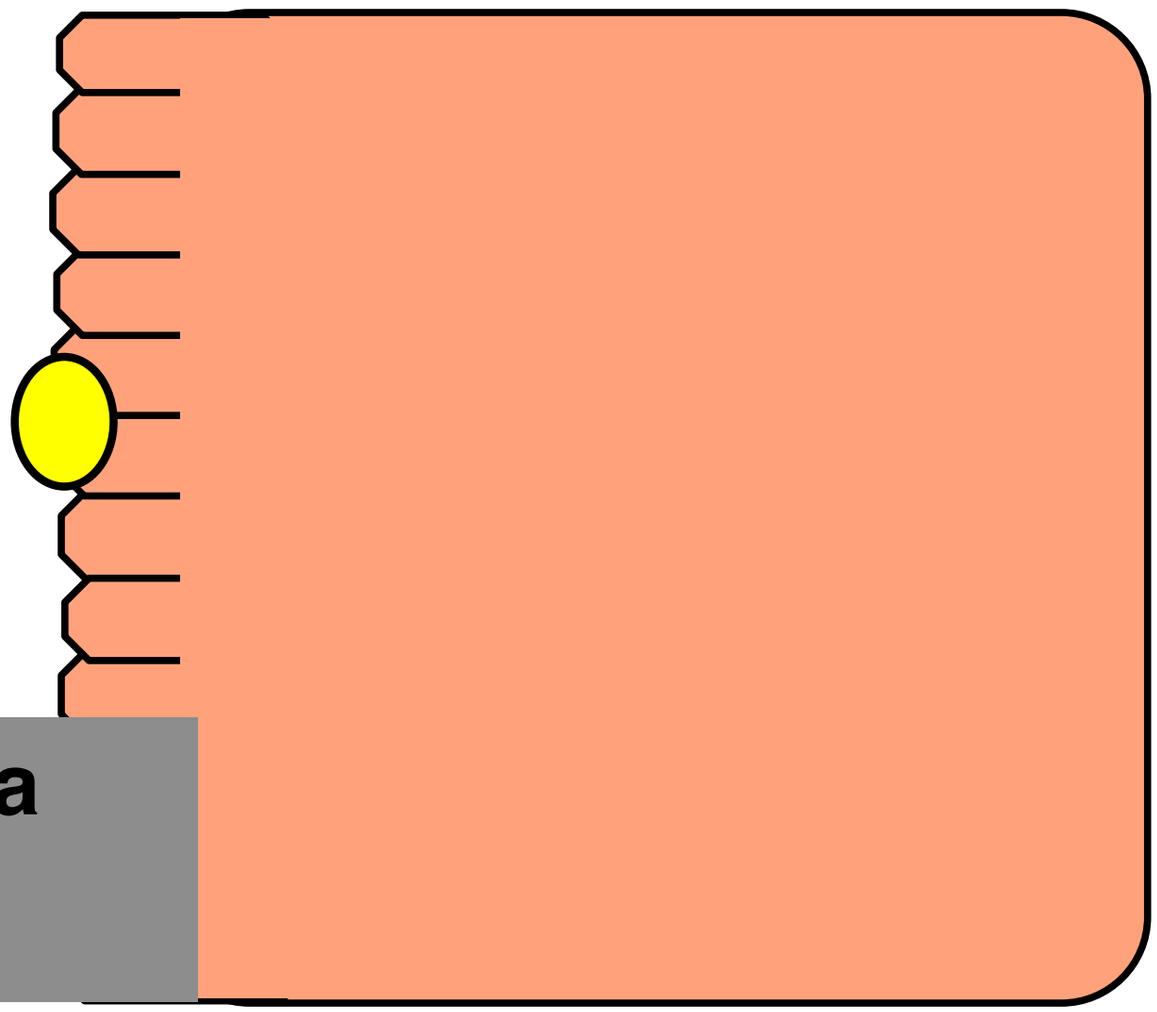
Digestión y Absorción del Colesterol del Huevo

DIETA
Ésteres de colesterol

BILIS

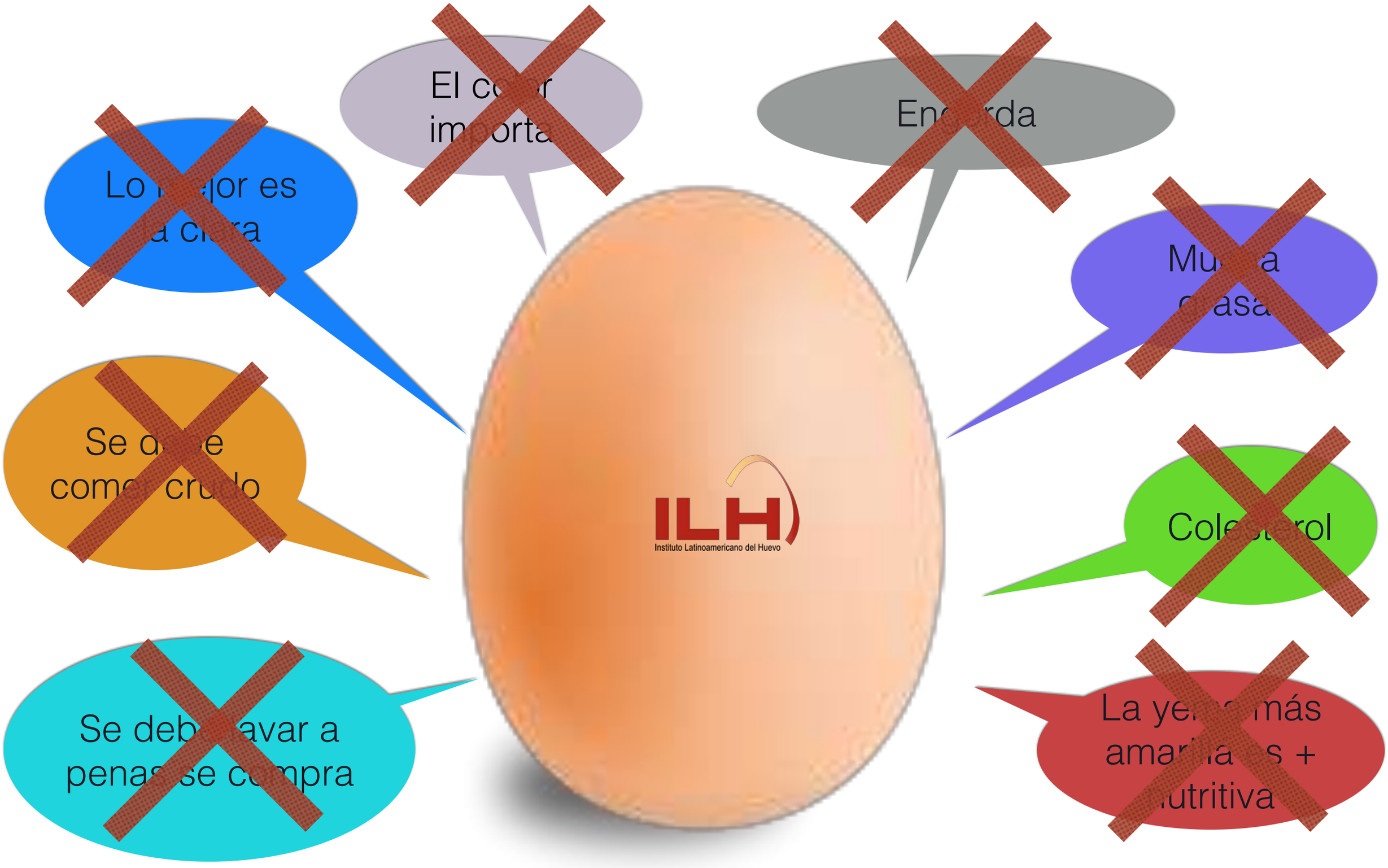
ENTEROCITO

Fosfatidilcolina



Fuente: J Nutr. 2001 Sep;131(9):2358-63.

Falsas Acusaciones al Huevo



Colesterol

- 1 yema (17g) contiene 184 mg de Colestrol

Fuente: USDA Natinal Nutrient Databse for Standard Reference (2012)

Colesterol

Instituto Latinoamericano del Huevo

The Impact of Egg Limitations on Coronary Heart Disease Risk: Do the Numbers Add Up?

Donald J. McNamara, Ph.D.

Egg Nutrition Center, Washington, DC

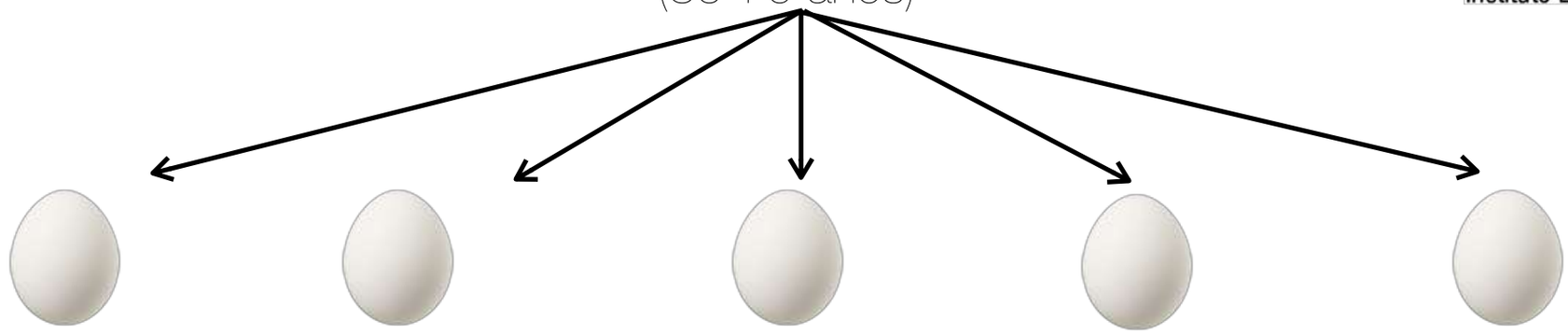
Key words: eggs, dietary cholesterol, plasma cholesterol, LDL, HDL, coronary heart disease

- Más de 50 años de estudios con dietas con modificaciones en la concentración de colesterol demuestran que el colesterol alimentario tiene muy bajo impacto sobre el colesterol sérico
- 167 estudios
- + de 3,500 sujetos
- 100 g/día cambio en el colesterol dietético ⇒ 2.2 mg/dL

JACN, Vol. 19, No. 5, 540S–548S (2000)

Estudio

+ de 460 mil adultos chinos
(30-79 años)



Seguimiento 8.9 años (promedio)

Resultados

- El consumo de 1 🥚 diario:
  - redujo en 26% las probabilidades de sufrir un accidente cerebro vascular hemorrágico y en 28% las probabilidades de morir a causa del mismo.
  - redujo 18% el riesgo de muerte a causa de enfermedades cardiovasculares.

Conclusión

Se encontró una asociación entre un consumo moderado de 🥚 y un menor riesgo cardiovascular.

DIABEGG FOLLOW UP

128 Adultos con sobrepeso u obesidad + diabetes o pre-Diabetes

64 personas

64 personas

3 meses Dieta de mantenimiento de peso	< 2 huevos por semana (Reemplazo 10g de pollo, carne o pescado)	> 12 huevos por semana
3 meses Dieta para pérdida de peso	< 2 huevos por semana (Reemplazo 10g de pollo, carne o pescado)	> 12 huevos por semana
6 meses Seguimiento	< 2 huevos por semana	> 12 huevos por semana

Conclusión: El consumo de más de 12 huevos a la semana no aumenta los factores de riesgo cardiovascular en personas diabéticas o pre-diabéticas que sufren de sobrepeso u obesidad

Fuente: Nicholas R Fuller, Amanda Sainsbury, Ian D Caterson, Gareth Denyer, Mackenzie Fong, James Gerofi, Chloris Leung, Namson S Lau, Kathryn H Williams, Andrzej S Januszewski, Alicia J Jenkins, Tania P Markovic; Effect of a high-egg diet on cardiometabolic risk factors in people with type 2 diabetes: the Diabetes and Egg (DIABEGG) Study—randomized weight-loss and follow-up phase, *The American Journal of Clinical Nutrition*, Volume 107, Issue 6, 1 June 2018, Pages 921–931, https://doi.org/10.1093/ajcn/nqy048

¿Qué Dice Canadá sobre el Colesterol?

Instituto Latinoamericano del Huevo

Additional Macronutrient Recommendations

Saturated fatty acids Trans fatty acids Dietary cholesterol	As low as possible while consuming a nutritionally adequate diet
Added sugars [g]	Limit to no more than 25% of total energy

A UL was not set for saturated fatty acids, trans fatty acids, dietary cholesterol, or added sugars.

[g] Added sugars are defined as sugars and syrups that are added to foods during processing or preparation. Although there were insufficient data to set a UL for added sugars, this maximal intake level is suggested to prevent the displacement of foods that are major sources of essential micronutrients.

Fuente: Dietary Guidelines for Canadians. Health Canada.

Scientific Report of the 2015 Dietary Guidelines Advisory Committee

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

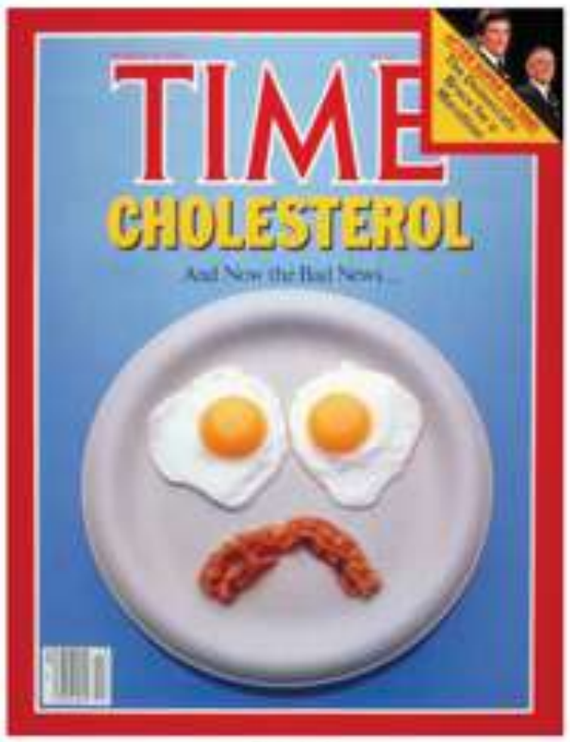
First Print
February 2015

Se encuentra en: http://health.gov/dietaryguidelines/2015-scientific-report/pdfs/scientific-report-of-the-2015-dietary-guidelines-advisory-committee.pdf

Instituto Latinoamericano del Huevo

¡El huevo es inocente!

Estudios comprobaron que huevo no eleva colesterol sérico



1984

1999

Dieta 2000 kcal

Desayuno:

- 1 huevo
- 1 taza de avena con manzana o 1 pan integral con palta
- 1 taza de te o café sin azúcar

Dieta 2000 kcal

Media mañana:

- 1 taza de fruta fresca o 1/3 taza de fruta deshidratada
- 30 g de almendras
- Agua

Dieta 2000 kcal

Almuerzo:

- 1 taza de polenta cocida
- 1 rodaja de asado o 2 huevos
- 3 tazas de ensalada de verduras crudas
- 1 vaso de limonada

Dieta 2000 kcal

Media tarde:

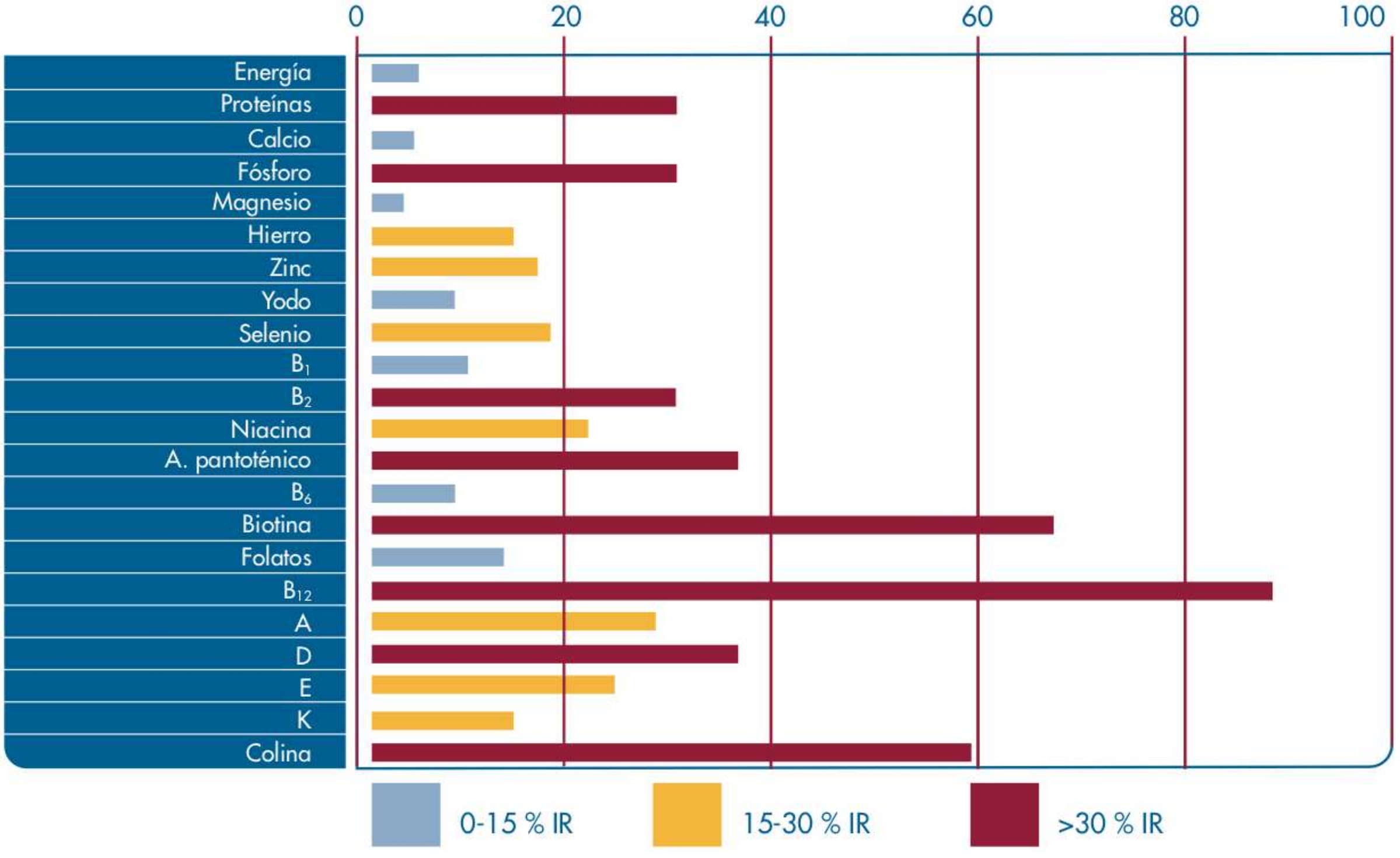
- 2 mandarinas
- 1 taza de pop corn hecho en casa
- Agua

Dieta 2000 kcal

Cena:

- Omellet de 2 huevos con 1/2 taza de champiñones
- 1/2 choclo
- Agua

Figura 2.- Porcentaje de las IR para mujeres adultas (de 20 a 50 años) que se cubren por el consumo de una ración de 2 huevos




Yoplait
Original
SugarStacks.com


Snack Pack
Pudding
Chocolate
Snack Pack
Fat Free
CHOCOLATE
80 Calories

Valor Nutricional del Huevo

Instituto Latinoamericano del Huevo

Instituto Latinoamericano del Huevo

www.ilhala.org