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REUMATOLOGIA
**CIÊNCIA NA
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2018**

**Dietas e Suplementos Alimentares
em Doenças Reumáticas**



Dietas

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ORIGINAL ARTICLE

Impact of Obesity and Adiposity on Inflammatory Markers in Patients With Rheumatoid Arthritis

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TED R. MIKULS,⁵ KALEB MICHAUD,⁶ ALEXIS R. OGDIE-BEATTY,⁷ SAID IBRAHIM,⁸
GRANT W. CANNON,⁷ LIRON CAPLAN,⁹ BRIAN C. SAUER,⁹ AND JOSHUA F. BAKER⁹

Significance & Innovations

- Severely obese women both with and without rheumatoid arthritis (RA) have high C-reactive protein levels and erythrocyte sedimentation rates.
- Obesity-related elevations in inflammatory markers in women with RA are not related to greater RA disease activity and should be interpreted cautiously.
- Low body mass index is associated with higher levels of inflammatory markers among men with RA, a phenomenon not observed in the general population.

Ann Rheum Dis. 2014 November; 73(11): 1914–1922. doi:10.1136/annrheumdis-2014-205459.

Being overweight or obese and risk of developing rheumatoid arthritis among women: a prospective cohort study

Bing Lu¹, Linda Hiraki^{1,2}, Jeffrey A. Sparks¹, Susan Malspeis¹, Chia-Yen Chen^{1,2}, J. Adebukola Awosogba¹, Elizabeth V. Arkema², Karen H. Costenbader¹, and Elizabeth W. Karlson¹

In conclusion, we observed that being obese increased the risk of RA in women by 40 to 70% depending on age and serologic status. The highest risk for RA was among women who were overweight or obese at age 18 years, emphasizing the public health importance of combating the obesity epidemic at all ages. Our study implicates being overweight or obese throughout adult life as a risk factor in the development of both seropositive and seronegative RA for women diagnosed with RA at age 55 years or younger. The attenuated association between BMI and RA diagnosed at older ages may reflect differences in the pathophysiology of RA diagnosed at earlier ages compared with that diagnosed at older ages, or may be a result of the limitations of BMI as a measure of total fat mass as women age.

Long-term dietary quality and risk of developing rheumatoid arthritis in women

Yang Hu,¹ Jeffrey A Sparks,² Susan Malspeis,² Karen H Costenbader,² Frank B Hu,^{3,4} Elizabeth W Karlson,² Bing Lu²

Hu Y, et al. *Ann Rheum Dis* 2017;**76**:1357–1364. doi:10.1136/annrheumdis-2016-210431

CONCLUSIONS

In summary, the results from this study indicate that greater long-term adherence to a healthy dietary pattern may reduce RA risk in women, particularly seropositive RA diagnosis at age 55 years or younger. Further studies are warranted to replicate our findings.

Sugar-sweetened soda consumption and risk of developing rheumatoid arthritis in women¹⁻⁴

Yang Hu, Karen H Costenbader, Xiang Gao, May Al-Daabil, Jeffrey A Sparks, Daniel H Solomon, Frank B Hu, Elizabeth W Karlson, and Bing Lu

Am J Clin Nutr 2014;100:959–67.

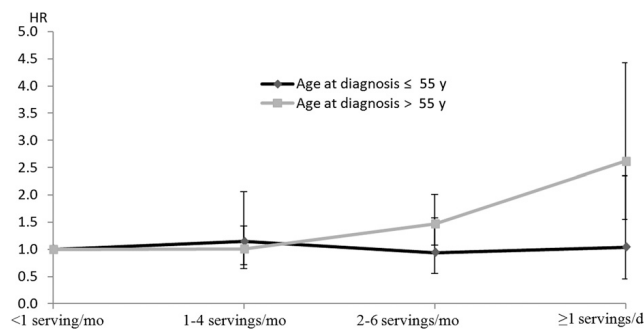


FIGURE 1. HRs for incident seropositive rheumatoid arthritis according to sugar-sweetened soda consumption in the Nurses' Health Study (1980–2008) stratified by age at diagnosis of rheumatoid arthritis. HRs were calculated by using time-varying Cox proportional hazards models. Results were adjusted for age, census tract median family income (quartiles), cigarette smoking status (never; past; current, 1–14 cigarettes/d; or current, ≥ 15 cigarettes/d), alcohol consumption (<5.0 , 5.0–15.0, or ≥ 15 g/d), age at menarche (<12 , 12, or >12 y), parity and breastfeeding (nulliparous, parous/no breastfeeding, parous/1–12 mo breastfeeding, or parous/ >12 mo breastfeeding), hormone use (premenopausal, postmenopausal with never use, current use, or past use), physical activity (0–2.9, 3–8.9, 9–17.9, 18–26.9, or ≥ 27 metabolic equivalent task hours/wk), BMI (in kg/m^2 : <20 , 20–22.9, 23–24.9, 25–29.9, or ≥ 30), multivitamin use, Alternate Healthy Eating Index (quintiles), diabetes history, and total energy (kcal, quintiles). Reference category, <1 serving/mo.

Sugar-sweetened soda consumption and risk of developing rheumatoid arthritis in women¹⁻⁴

Yang Hu, Karen H Costenbader, Xiang Gao, May Al-Daabil, Jeffrey A Sparks, Daniel H Solomon, Frank B Hu, Elizabeth W Karlson, and Bing Lu

Am J Clin Nutr 2014;100:959–67.

In conclusion, our findings suggest that frequent intake of sugar-sweetened soda may be associated with increased risk of later-onset seropositive RA. More epidemiologic studies are required to confirm the association and to elucidate the potential biological mechanism.

ORIGINAL ARTICLE

Prevalence of knee osteoarthritis, risk factors, and quality of life: The Fifth Korean National Health And Nutrition Examination Survey

Sunggun LEE¹ and Seon-Jeong KIM²

In conclusion, in South Korean people aged 50 years or older, the prevalences of RKOA and SRKOA were 33.3% and 12.4%, respectively. The prevalence of KOA, especially symptomatic RKOA in women, was higher in regions with high prevalence of obesity. Following studies on projected prevalence and disease burden of KOA is expected in the future.

Association between Dietary Glycemic Index and Knee Osteoarthritis: The Korean National Health and Nutrition Examination Survey 2010-2012

Min Wook So, MD, PhD; Sunggun Lee, MD, PhD; Seong-Ho Kim, MD, PhD
J Acad Nutr Diet. 2018;■:■-■.**CONCLUSIONS**

A positive association was found between dietary GI and symptomatic KOA in women. This study provides the foundation for clinical research that addresses the causality of the relationship and the effects of dietary modification on KOA, as well as the associated comorbidities.

The relationship between the dietary inflammatory index and prevalence of radiographic symptomatic osteoarthritis: data from the Osteoarthritis Initiative

Nicola Veronese^{1,2}, Nitin Shivappa^{3,4,5}, Brendon Stubbs^{6,7,8}, Toby Smith⁹, James R. Hébert^{3,4,5}, Cyrus Cooper^{10,11,12}, Giuseppe Guglielmi^{13,14}, Jean-Yves Reginster¹⁵, René Rizzoli¹⁶, Stefania Maggi¹

European Journal of Nutrition
https://doi.org/10.1007/s00394-017-1589-6

In conclusion, results from our work show that higher dietary inflammatory index values are associated with a higher prevalence of radiographic symptomatic knee OA, even after considering several important confounders. Our findings suggest an important role of inflammation and unhealthy diet in the pathogenesis of knee OA. However, further longitudinal research from cohorts derived from other countries and dietary patterns is required to re-examine our findings before trials are justified to examine whether changing dietary habits to lower pro-inflammatory foods reduces the development or progression of knee OA.

A New Dietary Inflammatory Index Predicts Interval Changes in Serum High-Sensitivity C-Reactive Protein¹⁻³

Philip P. Cavicchia,^{4,15} Susan E. Steck,^{4,5} Thomas G. Hurley,⁴ James R. Hussey,⁵ Yunsheng Ma,⁶ Ira S. Ockene,⁷ and James R. Hébert^{4,5}

J. Nutr. 139: 2365–2372, 2009.

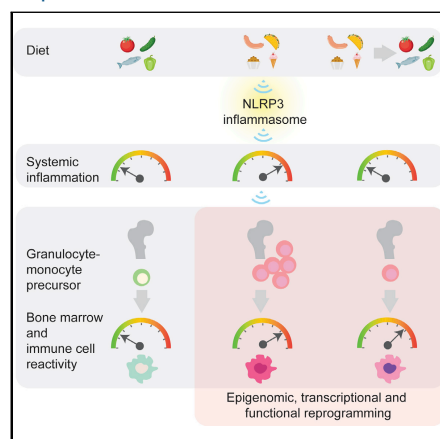
TABLE 2 Foods and constituents included in the Inflammatory Index

Constituent	Adjusted score	Measure
Energy	−0.0549	kJ/d
Energy*	−0.23	kcal/d
Garlic	0.27	g/d
Ginger	0.18	g/d
Saffron	0.18	g/d
Turmeric	0.774	g/d
Tea	0.552	g/d
Caffeine	0.035	g/d
Wine	0.48	g/d
Beer	0.2	g/d
Liquor	0.1	g/d
Alcohol	0.534	g/d
Carbohydrate	−0.346	g/d
Fiber	0.52	g/d
Fat	−0.323	g/d
(n-3) Fatty acids	0.384	g/d x 10
(n-6) Fatty acids	−0.016	g/d x 10
MUFA	−0.05	g/d
Saturated fat	−0.25	g/d
Protein	0.05	g/d
Cholesterol	−0.21	mg/d
Vitamin A	0.58	μg/d ÷ 100
Thiamin	0.05	mg/d
Riboflavin	0.16	mg/d
Niacin	0.26	mg/d
Vitamin B-6	0.286	mg/d
Folic Acid	0.214	μg/d
Vitamin B-12	−0.09	μg/d
Vitamin C	0.367	mg/d
Vitamin D	0.342	μg/d
Vitamin E	0.401	mg/d
β-carotene	0.725	μg/d ÷ 100
Magnesium	0.905	mg/d
Zinc	0.316	mg/d
Iron	0.029	mg/d
Selenium	0.021	mg/d
Quercetin	0.49	mg/d
Luteolin	0.43	mg/d
Genistein	0.68	mg/d
Daidzein	0.17	mg/d
Cyanidin	0.13	mg/d
Epicatechin	0.12	mg/d

Cell

Western Diet Triggers NLRP3-Dependent Innate Immune Reprogramming

Graphical Abstract



Authors

Anette Christ, Patrick Günther, Mario A.R. Lauterbach, ..., Mihai G. Netea, Joachim L. Schultze, Eicke Latz

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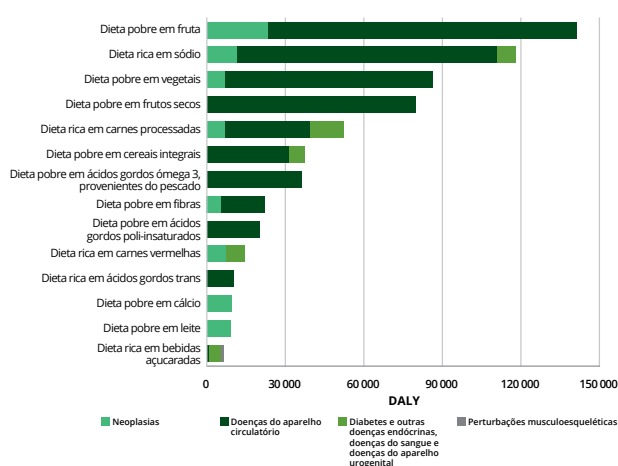
In Brief

Systemic inflammation induced by a Western diet is largely blunted by dietary changes, but myeloid cell-induced innate immune responses remain augmented and could potentially contribute to inflammatory disease.

Christ et al., 2018, Cell 172, 162–175
January 11, 2018 © 2017 Elsevier Inc.
<https://doi.org/10.1016/j.cell.2017.12.013>

No que se refere aos fatores de risco que mais contribuem para o total de anos de vida saudável perdidos pela população portuguesa, são relevantes os hábitos alimentares inadequados (19%), a hipertensão arterial (17%), o índice de massa corporal elevado (13%) e o tabagismo (11%).

Figura 11. Estimativas da carga global de doença atribuível a hábitos alimentares inadequados, expressa em DALY, Portugal, 2010



Fonte: Elaborado pela DGS com base nos dados de *Global Burden of Disease Study 2010*. Dados para Portugal disponíveis em: <http://ghdx.healthdata.org/record/portugal-global-burden-disease-study-2010-gbd-2010-results-1990-2010> (acedido em 06/04/2015)

ANEXO 4. AVALIAÇÃO ANTROPOMÉTRICA

Tabela 4.1 Prevalências de categorias de índice de massa corporal ^a, para o total nacional, por sexo e grupo etário (IAN-AF 2015-2016), ponderadas para a distribuição da população Portuguesa.

	Nacional	Feminino	Masculino	Crianças (<10 anos)	Adolescentes (10-17 anos)	Adultos (18-64 anos)	Idosos (65-84 anos)
Obesidade							
n ponderado	2.244.500	1.232.890	1.011.610	59.282	74.406	1.488.445	622.367
prevalência ponderada	22,3%	24,3%	20,1%	7,7%	8,7%	21,6%	39,2%
IC 95%	[20,5-24,0]	[21,9-26,7]	[17,5-22,7]	[4,6-10,9]	[5,5-12]	[19,5-23,8]	[34,2-44,2]
Pré-obesidade							
n ponderado	3.506.169	1.553.537	1.952.632	132.074	200.559	2.509.942	663.594
prevalência ponderada	34,8%	30,7%	38,9%	17,3%	23,6%	36,5%	41,8%
IC 95%	[32,9-36,7]	[28,1-33,2]	[36-41,7]	[13,7-20,8]	[19,6-27,5]	[34,2-38,8]	[36,5-47]
Eutrofia/Magreza							
n ponderado	4.334.756	2.277.584	2.057.173	573.687	576.374	2.882.384	302.312
prevalência ponderada	43,0%	45,0%	41,0%	75,0%	67,7%	41,9%	19,0%
IC 95%	[40,7-45,2]	[42,0-48,0]	[37,9-44,1]	[70,8-79,1]	[63,3-72,1]	[39,2-44,5]	[14,1-24]
valor-p*		p=0,024			p<0,001		

^a Peso e estatura medidos e categorizados de acordo com o critério da Organização Mundial de Saúde.

* Valor-p comparativo das prevalências de obesidade vs. as restantes categorias.

IC: intervalo de confiança a 95%



Tabela A2.9 - Percentagem de indivíduos que não atingem ou excedem os valores diários de referência por grupo etário

	VDR ^(a)	Crianças (<10 anos)	Adolescentes (10-17 anos)	Adultos (18-64 anos)	Idosos (65-84 anos)
Fibra	< AI ^(b)	40,7	72,7	83,9	88,6
Açúcares ^(c)	> 10% VET ^(d)	84,1	73,7	87	95,5
Gordura	Baixo	67,7	0,5	0,4	2,5
Gordura	Adequado	28,2	78,6	75,5	89,7
Gordura	Alto	4,1	20,9	24,1	7,8
Hidratos de carbono	Baixo	7,9	16,6	36,1	22,5
Hidratos de carbono	Adequado	75,6	75,7	61,8	72,1
Hidratos de carbono	Alto	16,5	7,7	2,1	5,4
Sódio	> UL ^(e)	66,3	74,4	81,6	58
Cálcio	< AR ^(f)	11,2	53,8	44,6	54,6
Potássio	< AI ^(b)	0,9	37,9	46,2	65
Vitamina D	< AI	92	97,5	96	95
Folatos	AR	8,6	42,5	43,9	58,6

^(a) VDR - Valor diário de referência, preconizado pela Autoridade Europeia de Segurança dos Alimentos. *EFSA Journal* 2010; 8: 1458^(b) AI - Adequate Intake^(c) Contributo dos alimentos dos grupos Doces, Refrigerantes (não incluindo néctares), Bolos (incluindo pastelaria), Bolachas e Biscoitos, Cereais de Pequeno-almoço e Cereais Infantis.^(d) VET - Valor Energético Total^(e) UL - Tolerable Upper Intake Level, definido pelas *Dietary Reference Intakes*. USA, 2005^(f) AR - Average Requirement



Tabela A2.10 - Percentagem de indivíduos que não atingem ou excedem os valores diários de referência por sexo

VDR ^(a)		Mulheres				Homens			
		Crianças (<10 anos)	Adolescentes (10-17 anos)	Adultos (18-64 anos)	Idosos (65-84 anos)	Crianças (<10 anos)	Adolescentes (10-17 anos)	Adultos (18-64 anos)	Idosos (65-84 anos)
Água	< AI ^(b)	44,2	72,7	56,1	67,6	43,8	71,9	62,6	81,7
Proteína	< AR	0	0,5	3,1	15,1	0	0	0,1	0,8
Fibra	< AI	38,6	75,2	89,6	86,2	35,5	69,4	79,9	85,8
Açúcares ^(c)	> 10% VET ^(d)	80,7	80,4	88,6	93,8	83,7	69,5	85,1	96,3
Álcool	> Máximo	0	0,2	0,8	1,3	0	0	3,7	15,4
Gordura	Baixo	65,4	0,9	0,5	2,2	70	0,2	0,3	3,1
Gordura	Adequado	30,4	79,8	74,3	86,1	26	77,1	76,7	92,4
Gordura	Alto	4,2	19,3	25,2	11,7	4	22,7	23	4,5
Hidratos de Carbono	Baixo	7,6	14,9	28,2	13,9	8,4	16,3	44,4	33,7
Hidratos de Carbono	Adequado	75,1	76,2	68,2	75,6	78,3	77,3	54,5	64,2
Hidratos de Carbono	Alto	17,3	8,9	3,6	10,5	13,3	6,4	1,1	2,1
Sódio	> UL ^(e)	62,4	69,1	70,8	37,6	72	82,8	90,6	82
Cálcio	< AR ^(f)	16,9	57,5	50,6	59,2	6,3	49,4	37	48,9
Potássio	< AI	1,9	45	60,1	75,2	0,2	30,4	29,1	52
Ferro	< AR	13,6	18,5	13,6	19,7	3,2	11,4	0,6	0,3
Magnésio	< AI	45,9	48,2	58,2	76,1	31,5	69,3	53	74,4
Vitamina A	< AR	7	32,9	33,4	29,6	2,3	27	39,6	40,9
Vitamina D	< AI	94,4	94,4	94,4	94,4	99,2	99	98,1	96,8
Tocoferol	< AI	33,9	66,9	67,2	67,4	32,3	76,7	67,1	83,1
Folatos	< AR	12,2	46,2	49,3	61,2	5,4	37,3	36,9	54,2
Vitamina B6	< AR	1,5	13,7	16,8	16,3	0,3	6,9	7,7	13,5
Vitamina C	< AR	2,1	21,7	29,2	25,1	1,1	19,7	29,7	42,8

(a) VDR - Valor diário de referência, preconizado pela Autoridade Europeia de Segurança dos Alimentos. *EFSA Journal* 2010; 8: 1458

(b) AI - Adequate Intake

(c) Contributo dos alimentos dos grupos Doces, Refrigerantes (não incluindo néctares), Bolos (incluindo pastelaria), Bolachas e Biscoitos, Cereais de Pequeno-almoço e Cereais Infantis.

(d) VET - Valor Energético Total

(e) UL - Tolerable Upper Intake Level, definido pelas *Dietary Reference Intakes*. USA, 2005

(f) AR - Average Requirement

JAMA | Original Investigation

Effect of Low-Fat vs Low-Carbohydrate Diet on 12-Month Weight Loss in Overweight Adults and the Association With Genotype Pattern or Insulin Secretion

The DIETFITS Randomized Clinical Trial

Christopher D. Gardner, PhD; John F. Trepanowski, PhD; Liana C. Del Gobbo, PhD; Michelle E. Hauser, MD; Joseph Rigdon, PhD; John P. A. Ioannidis, MD, DSc; Manisha Desai, PhD; Abby C. King, PhD

JAMA. 2018;319(7):667-679. doi:10.1001/jama.2018.0245

CONCLUSIONS AND RELEVANCE In this 12-month weight loss diet study, there was no significant difference in weight change between a healthy low-fat diet vs a healthy low-carbohydrate diet, and neither genotype pattern nor baseline insulin secretion was associated with the dietary effects on weight loss. In the context of these 2 common weight loss diet approaches, neither of the 2 hypothesized predisposing factors was helpful in identifying which diet was better for whom.

Intermittent fasting interventions for treatment of overweight and obesity in adults: a systematic review and meta-analysis

Leanne Harris¹, Sharon Hamilton^{2,3}, Liane B. Azevedo^{2,3}, Joan Olajide^{2,3}, Caroline De Brún^{2,3}, Gillian Waller^{2,3}, Vicki Whittaker^{2,3}, Tracey Sharp⁴, Mike Lean¹, Catherine Hankey^{5,6}, Louisa Ellis^{1,3}
JBI Database System Rev Implement Rep 2018; 16(2):507–547.

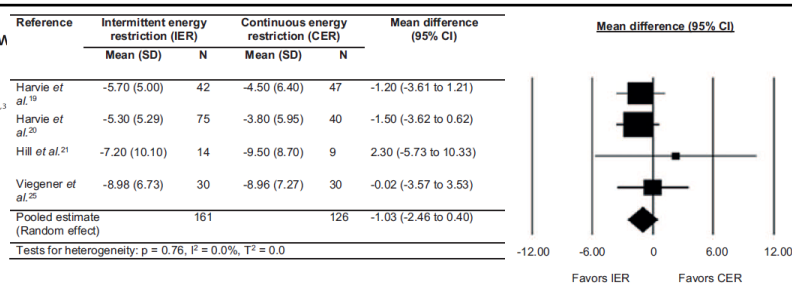


Figure 2: Weighted mean difference in body weight (kg) between the intermittent energy restriction interventions and continuous energy restriction interventions (SD: standard deviation; CI: confidence interval)

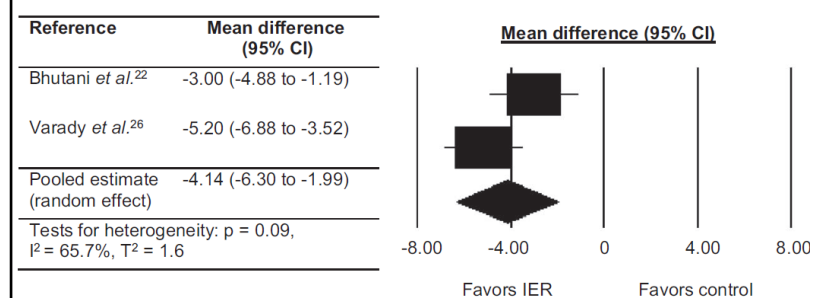


Figure 3: Weighted mean difference in body weight (kg) between the intermittent energy restriction (IER) interventions and control interventions (CI: confidence interval)





Key Recommendations



Consume a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level.

A healthy eating pattern includes:⁽²⁾

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole grains
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products
- Oils

A healthy eating pattern limits:

- Saturated fats and *trans* fats, added sugars, and sodium



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Dietas

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