

Cardiovascular disease markers responses in male receiving improved-fat meat-products vary by initial ldl-cholesterol levels

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Paloma Celada¹, Francisco José Sánchez-Muniz^{1,*}, Gonzalo Delgado-Pando², Sara Bastida¹, Manuel Espárrago-Rodilla³, Francisco Jiménez-Colmenero², Begoña Olmedilla-Alonso².

¹ Departamento de Nutrición y Bromatología I (Nutrición). Facultad de Farmacia. Universidad Complutense. Madrid. España.

² Instituto de Ciencia y Tecnología de los Alimentos y Nutrición (ICTAN), CSIC. 28040-Madrid. España.

³ Servicio de Análisis. Hospital de Mérida. Badajoz. España.

* Corresponding authors: frasan@ucm.es

Abstract

Objectives: Cardiovascular disease (CVD) is prevalent in people at high meat-product consumption. To study the effect of consuming different Pâté and Frankfurter formulations on clinical/emergent CVD biomarkers in male volunteers with different initial LDL-cholesterol levels (< and ≥ 3.36 mmol/L).

Method: Eighteen male volunteers with at least two CVD risk factors were enrolled in a sequentially controlled study. Pork-products were consumed during 4wk: reduced-fat (RF), omega-3-enriched-RF (n-3RF), and normal-fat (NF). Pork-products were separated by 4wk washout. Lipids, lipoproteins, oxidized LDL (oxLDL), apolipoproteins (apo) and their ratios, homocysteine (tHcys), arylesterase (AE), C-reactive protein (CRP), tumor necrotic factor (TNF α) were tested.

Results: The rate of change for AE, oxLDL, Lp(a), AE/HDL-cholesterol, LDL/apo B and AE/oxLDL ratios varied ($p < 0.05$) among periods only in volunteers with LDL-cholesterol ≥ 3.36 mmol/L. TNF α decreased ($p < 0.05$) among volunteers with low-normal LDL-cholesterol values while AE increased ($p < 0.01$) in high LDL-cholesterol volunteers during the RF-period. AE increased while CRP decreased (both $p < 0.01$) in low-normal LDL-cholesterol volunteers while AE ($p < 0.001$) and apo B ($p < 0.01$) increased in the high LDL-cholesterol group during the n-3RF-period. Total cholesterol ($p < 0.05$) increased in the low/normal LDL-cholesterol group while tHcys decreased ($p < 0.05$) in the high LDL-cholesterol group during the NF-period. Differences in response in volunteers with low-normal vs. high initial LDL-cholesterol levels to the n-3RF but not to the RF meat-products seem evident.

Conclusions: Subjects with high LDL-cholesterol seem target for n-3RF products while subjects with LDL-cholesterol < 3.36 mmol/L were more negatively affected by NF-products. Any generalization about functional meat product or consumption should be avoided.