Gac Sanit. 2026;40(S4):697

Gaceta Sanitaria

https://www.gacetasanitaria.org

# 491 - ACRYLAMIDE EXPOSURE AND CARDIOVASCULAR RISK: A SYSTEMATIC REVIEW

*P. Guallar-Castillón, D.M. Mérida, J. Rey-García, B. Moreno-Franco*

*Universidad Autónoma de Madrid; IMDEA-Food Institute; New York University; Universidad Complutense de Madrid; Hospital Universitario Rey Juan Carlos; Instituto de Investigación Sanitaria Aragón; Universidad de Zaragoza; CIBERCV.*

## Resumen

Background/Objectives: Acrylamide is a food contaminant formed during high-temperature cooking processes, leading to unintentional human exposure. Diet is the primary source for non-smokers, with potatoes, cereals, and coffee being the main contributors. While animal studies have demonstrated that acrylamide is neurotoxic, genotoxic, mutagenic, and cardiotoxic, its effects on human cardiovascular health remain poorly understood. This study aimed to evaluate the association between acrylamide exposure and cardiovascular risk.

Methods: A comprehensive literature search was conducted across four databases without restrictions on publication year or language (last search: 1 July 2024). The risk of bias was assessed using the Joanna Briggs Institute critical appraisal tools.

Results: In total, 28 studies were included, predominantly from the US NHANES sample and with cross-sectional designs. Higher acrylamide exposure was associated with an increased risk of cardiovascular mortality but was inversely associated with glucose and lipid levels, as well as key cardiovascular risk factors such as diabetes, obesity, and metabolic syndrome. Conversely, glycidamide (acrylamide's most reactive metabolite) was positively associated with elevated glucose and lipid levels, higher systolic blood pressure, and increased obesity prevalence.

Conclusions/Recommendations: These findings suggest that the adverse cardiovascular effects of acrylamide may be mediated by its conversion to glycidamide. Further research is necessary to fully elucidate the impact of acrylamide on cardiovascular health. Meanwhile, public health efforts should continue to focus on mitigation strategies within the food industry and raising public awareness about exposure.

Funding: Health Research Fund FIS PI20-144 and PI23-240 (State Secretary of R + D and FEDER/FSE, Instituto de Salud Carlos III, Spain).