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528 - PHTHALATE EXPOSURE IS ASSOCIATED WITH INSULIN RESISTANCE IN ADULTS

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Resumen

Background/Objectives: Phthalates are ubiquitous endocrine-disrupting chemicals that are associated with metabolic alterations. Insulin resistance (IR) is an early indicator of type 2 diabetes. The objective of this study was to evaluate the association between urinary phthalate metabolites and IR, as measured by HOMA-IR, in healthy adult male workers in Spain.

Methods: A cross-sectional analysis was conducted among 997 participants from the Aragon Workers' Health Study. Fasting plasma glucose and insulin levels were measured, and HOMA-IR was calculated. Urinary concentrations of 11 phthalate metabolites and the molar sum of DEHP metabolites (?DEHP) were assessed using LC-MS/MS. We analyzed associations between phthalates and HOMA-IR were analyzed using linear and logistic regression models, adjusting for age, type of work, BMI, physical activity, alcohol intake, smoking, dyslipidemia, and hypertension. Dose-response relationships were evaluated using restricted cubic spline models.

Results: High-molecular-weight phthalates, particularly OH-MiNP and OH-MiDP, were positively associated with HOMA-IR. A 100% increase in OH-MiNP was associated with a 6.8% increase in HOMA-IR, indicating a positive trend. Low molecular weight phthalates showed no significant association.

Conclusions/Recommendations: Exposure to high-molecular-weight phthalates is associated with increased insulin resistance in healthy men, highlighting the need to reduce environmental exposure to prevent early metabolic alterations.

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