Levels of seven urinary phthalate metabolites in a human reference population.

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Abstract
Using a novel and highly selective technique, we measured monoester metabolites of seven commonly used phthalates in urine samples from a reference population of 289 adult humans. This analytical approach allowed us to directly measure the individual phthalate metabolites responsible for the animal reproductive and developmental toxicity while avoiding contamination from the ubiquitous parent compounds. The monoesters with the highest urinary levels found were monoethyl phthalate (95th percentile, 3,750 ppb, 2,610 microg/g creatinine), monobutyl phthalate (95th percentile, 294 ppb, 162 microg/g creatinine), and monobenzyl phthalate (95th percentile, 137 ppb, 92 microg/g creatinine), reflecting exposure to diethyl phthalate, dibutyl phthalate, and benzyl butyl phthalate. Women of reproductive age (20-40 years) were found to have significantly higher levels of monobutyl phthalate, a reproductive and developmental toxicant in rodents, than other age/gender groups (p < 0.005). Current scientific and regulatory attention on phthalates has focused almost exclusively on health risks from exposure to only two phthalates, di-(2-ethylhexyl) phthalate and di-isononyl phthalate. Our findings strongly suggest that health-risk assessments for phthalate exposure in humans should include diethyl, dibutyl, and benzyl butyl phthalates.

Comment in
Human exposure estimates for phthalates. [Environ Health Perspect. 2000]
Exposure to phthalate esters. [Environ Health Perspect. 2000]