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## Phthalate exposure and different endocrine diseases

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A ccording to US Environmental Protection Agency (US EPA), an endocrine disrupting chemical (EDC) was defined as "an exogenous agent that interferes with synthesis, secretion, transport, metabolism, binding action, or elimination of natural bloodborne hormones that are present in the body and are responsible for homeostasis, reproduction, and developmental process". These chemicals are produced in large volumes and the general population is abundantly exposed to them. Phthalates are plastic softeners and they are classified as EDCs. It is inevitable to prevent the release of plasticizers into the environment because they are not covalently bound to the plastic material. Di (2-ethylhexyl) phthalate (DEHP) is the most widely used phthalate. DEHP is suggested to cause reproductive toxicity in both animals and humans. In our human studies, we have observed that high plasma levels of both DEHP and MEHP are associated with gynecomastia in adolescent boys, may be one of the underlying factors of precocious puberty (PP) in girls. More recently, we have observed that high turn-over rate of DEHP to MEHP is observed in girls with premature thelarche (PT) and urinary % MEHP concentrations are higher in girls with PT. Besides, in obese children high plasma levels of both DEHP and MEHP were observed and children who have Hashimoto's thyroiditis had higher plasma MEHP levels compared to controls. However, we did not observe significant changes in plasma DEHP and MEHP concentrations in children with diabetes. On the other hand, our metabolomics studies showed that the metabolic profile of girls with PP shows alterations compared to controls. All these results showed that exposure to phthalates particularly in the early periods of life may lead to endocrinological problems and more mechanistic studies are needed to prove the association of phthalate exposure to different pathological conditions.

## Biography

Belma Kocer-Gumusel is currently working as an eminent faculty member at Department of Toxicology, Hacettepe University in Turkey. She has published numerous research papers and articles in reputed journals and has various other achievements in the related studies. She has extended her valuable service towards the scientific community with her extensive research work.

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