



# Synthetically Manufactured Endocrine-Disrupting Chemicals Mimic Hormones such as Estrogen

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## INTRODUCTION

Endocrine Disruptors Chemicals (EDCs) are ubiquitous substances that can disrupt the endocrine system, but definitions of EDCs have not yet been standardized. Like hormones, EDCs may already have effects at very low concentrations that are considered harmless from a toxicological point of view. Studies over the past few years have shown that EDCs, even at low doses, can have relevant effects on human health and the environment. The increased burden of disease and disability caused by EDCs poses significant costs to society. Thus, in addition to their impact on individual and global health, EDCs also have economic impacts and pose a universal threat to society and the environment. This review provides a brief overview of previous efforts to classify EDCs and provides a brief overview of the current state of knowledge. Endocrine disrupting chemicals (EDCs) are chemicals that impair the function of the endocrine system. EDCs exert their hormonal effects through multiple mechanisms. Modulation of hormone receptors or alteration of metabolism of various hormones. EDCs, while affecting the endocrine system, also affect multiple signaling pathways and have complex dose-response curves. EDCs alter bone modeling and remodeling, alter bone paracrine hormone synthesis, alter the release of systemic hormones, cytokines, chemokines and growth factors, and alter stem cell fate and mesenchymal stem cell differentiation. Bone marrow, which affects bone, can have a detrimental effect on bone tissue. Evidence is accumulating about the bone-destructive effects of various groups of EDCs. Perfluoroalkyls, phthalates, biphenyl organotins, alkyl phenols, dioxins and dioxin-like compounds. This review focuses on recent findings on the effects of common environmental chemicals on bone, from basic molecular insights to clinical implications.

## DESCRIPTION

Endocrine diseases and disorders are on the rise worldwide.

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Synthetically manufactured environmental chemicals (Endocrine-Disrupting Chemicals (EDCs)) mimic hormones such as estrogen and alter signaling pathways. Endometriosis is an estrogen-dependent disease that affects 10%-15% of women of childbearing age and has a significant impact on quality of life. The etiology of endometriosis is believed to be multifactorial, ranging from genetic causes to immune dysfunction due to exposure to environmental EDCs. We therefore performed a systematic review to examine the epidemiological evidence for an association between EDC and the development of endometriosis. We also aimed to review studies on the relationship between body concentrations of EDCs and the severity of endometriosis.

Prevalence of organochlorine environmental pollutants (dioxins, dioxin-like compounds, organochlorine pesticides, polychlorinated biphenyls) and endometriosis. Only one study demonstrated a positive association between copper, chromium and the prevalence of endometriosis. Cadmium, lead, and mercury were not associated with the prevalence of endometriosis. There were conflicting results about the relationship between nickel and endometriosis. Studies have not established an association between EDC and the severity of endometriosis.

## CONCLUSION

We found some evidence of a link between phthalates, bisphenol A, and organochlorine contaminants and the prevalence of endometriosis. Distinguishing these burdens from the various other factors that influence endometriosis is a complex but important topic for further research. Its association with the prevalence of endometriosis has been analyzed. EDC types, associations and outcomes, participant characteristics, and confounding variables were extracted and analyzed. Quality assessment was performed using standard criteria.