

# COULD ENDOCRINE DISRUPTING CHEMICALS ALTER PARTNER PREFERENCE IN HUMAN? A DEBATE FOR BISPHENOL A

**Banu Sarer Yurekli**, *Ege University Faculty of Medicine, Department of Endocrinology and Metabolism, Turkey*  
**Raika Durusoy**, *Ege University Faculty of Medicine, Department of Public Health, Turkey*

**Background and Aims:** The higher and increasing rate of men who sex with men in industrialized countries might be due to industrialization per se, in parallel to the increase in the production volume of endocrine-disrupting plastics. We hypothesize that endocrine disruptors like bisphenol A (BPA) might alter partner preference of men.

**Methods:** We searched the literature related to the effects of BPA as endocrine disruptors.

**Results:** There is a critical period in development during which testosterone or its metabolites organize both the brain and behavior of male rats. Testosterone can have its effects by acting directly on the androgen receptor, or by being metabolized into dihydrotestosterone by 5 $\alpha$ -reductase and into estradiol by aromatase. Sexually dimorphic nucleus (SDN), is believed to be related to sexual behavior in animals. It is a cluster of cells located in the preoptic area of hypothalamus of the brain. The volume of SDN in medial preoptic area is modified by hormones, among which testosterone is proved to be of much importance. The larger volume of male SDN is correlated to the higher concentration of fetal testosterone level in males than in females. Also, there is evidence that testosterone acts during specific prenatal period to organize the development of aromatase-expressing neurons into the male-typical SDN. There is extensive evidence that BPA is an estrogen-mimicking chemical, although recent findings have revealed that BPA is a selective estrogen receptor modulator (SERM), since BPA and the potent endogenous estrogen 17 beta-estradiol (E2) do not always show identical effects, and in some studies BPA has been shown to antagonize the activity of E2.

**Conclusions:** Considering the wide and increasing use of plastics in our daily lives, we hypothesize that endocrine disruptors like BPA might alter partner preference of men by acting on the preoptic area in hypothalamus in men and by acting as SERM.