

Critical Analysis of the Relationship between Bisphenol A (BPA) and Puberty The first data on BPA and puberty was obtained from studies conducted on animals. Another advantage of BPA urinary determination is the easy detection (more than 90% of the general population, according to some studies). Zawatski and Lee have advanced another hypothesis for the conflicting results: EDCs show non-monotonic dose-response relationships instead of the fluctuation of hormone levels during pubertal transition; thus, measurements cannot be considered representative of the hormonal condition. In fact, even if an indirect action of BPA on puberty through interference with the GnRH axis is possible, some studies have ruled out any correlation between blood levels of BPA, FSH, LH, and oestradiol. The association between BPA and early puberty could reflect changes in personal habits, such as familiar and socio-economic conditions or variable pharmacokinetics and metabolism that are difficult to quantify. Regarding BPA metabolism, it has a short half-life (5–6 h) in our bodies and is almost completely eliminated after 24 h. Regarding urinary BPA determinations, several studies have demonstrated that single spot samples of urine give an average value of prolonged exposure to such EDCs. Surveys that evaluated female patients with central precocious puberty and isolated premature breast development aged 2 months to 4 years have confirmed that early exposure to EDCs may lead to risk of developing signs of early puberty. The underlying molecular mechanism is not clear: only 2 studies evaluated serum levels of kisspeptin, and both found no association with BPA levels. However, the possibility of identifying elevated levels of BPA in obese or overweight girls is accepted as is the possible obesogenic effect of exposure to BPA and the close relationship between urinary BPA, body weight, and early puberty. Furthermore, different pathological expressions resulting from exposure to EDC can be suspected in various human ethnic groups [351].