

Fetal Growth Indicators and Perfluorinated Chemicals: A Study in the Danish National Birth Cohort

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Abstrak

Perfluorooctanoate (PFOA) and perfluorooctanesulfonate (PFOS) are widespread persistent organic pollutants that have been associated with reduced birth weight at doses expected in many pregnant populations. The authors randomly selected 1,400 pregnant women and their newborns from the Danish National Birth Cohort (1996-2002) to investigate whether these compounds reduce organ growth. PFOS and PFOA were measured in maternal blood samples taken early in pregnancy. Placental weight, birth length, and head and abdominal circumferences were measured shortly after birth by trained midwives or nurses. Maternal PFOA levels in early pregnancy were associated with smaller abdominal circumference and birth length. For each ng/ml increase in PFOA, birth length decreased by 0.069 cm (95% confidence interval: 0.024, 0.113) and abdominal circumference decreased by 0.059 cm (95% confidence interval: 0.012, 0.106). An inverse association was also observed between PFOA and placental weight and head circumference, and a positive association was observed with newborn ponderal index, but none of these associations was statistically significant. Maternal PFOS levels were not associated with any of the five fetal growth indicators. These findings suggest that fetal exposure to PFOA but not PFOS during organ development may affect the growth of organs and the skeleton.