

The ability of environmental contaminants to influence reproduction and development in vertebrates via disruption of the endocrine system is widespread. The mechanisms through which xenobiotics act can be complex and vary greatly among species. Reptiles are particularly good models for studying endocrine affecting compounds due to the fact that different species differ in modes of sex determination (genotypic sex determination or temperature-dependent sex determination) and parity (oviparity or viviparity). The sex of individual is often determined by egg incubation temperature, and exogenous application of steroid hormones and their analogs or steroidogenic enzyme inhibitors can reproduce effects of temperature. The lability of sex determination in some reptile species offers opportunity to use gonadal sex as a marker for effects of endocrine disrupting compounds (EDC), even for the effects of extremely low dosages of EDCs or EDC mixtures. The neonatal offsprings exposed to EDCs during embryogenesis provide yet another way to assess endocrine disruption, i.e., measurement of steroid hormone levels in their blood. In addition, many reptile species are highly aquatic, they use habitats near agricultural areas, where usage of pesticides is the most intense, and they are carnivores or scavengers. Therefore, the number of the potencial sources of exposition is high. Many of reptiles also produce flexible-shelled eggs, which readily exchange moisture with the surrounding soil in the nest during incubation. These eggs have capacity to incorporate larger molecules across the eggshell that can influence phenotype of developing embryos. Furthermore, behavior of neonatal reptile offspring, which is critical for survival during the time of intense predation, can be altered by low doses of pesticides such as atrazine present in their natural habitats.