

Poster #16

Sexual Characteristics are Altered by 17β -estradiol and 4-tert-octylphenol in the Guppy (*Poecilia reticulata*).

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Despite the potential treat of endocrine disruptors to wildlife, only few studies have accessed the effects of these substances on the reproductive capabilities of animals. Especially long-term studies are needed. In a laboratory flow-through system, we tested the effects on biomarkers with link to reproduction in a short-term exposure of adult males and a long-term exposure of newborn guppies.

The animals were exposed to the xenoestrogen 4-tert-octylphenol (OP) and the natural estrogen 17β -estradiol (E2). We measured effects on biomarkers at different levels of organization ranging from sperm count (cellular level) coloration, gonadosomatic index (organ level) and sexual behavior (individual level) to sex ratio and reproductive rate (population level). The most marked effects of OP and E2 exposure were a reduction in size and intensity of orange spots and higher sperm counts compared to the control group. The results further suggest a reduction in the reproductive rate after exposure to E2 or OP during the fetal and juvenile periods. Causal relationships between this population level effect and the disturbances measured at the organismal and sub-organismal levels still need to be confirmed.