

Levonorgestrel exposure impacts the spermatogenesis in adult male frogs (*Xenopus tropicalis*)

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Several pharmaceuticals are today regarded as environmental pollutants. They are found in aquatic environments all around the world, and are bioavailable and persistent enough to bring about a specific effect. Focus has recently turned to the synthetic progesterone (a steroidal hormone) Levonorgestrel (LNG), which is commonly used in contraceptives. LNG is found at low concentrations in sewage effluent and surface waters. It has been found to inhibit reproduction in aquatic vertebrates e.g. frogs exposed as tadpoles and fish. Developmental exposure to LNG resulted in sterile female frogs whereas no effects on male fertility were noted. The aim of this study was to investigate effects of LNG on the male reproductive system including spermatogenesis (sperm development) and sperm quality. The frogs were exposed to LNG for 28 days at the concentrations 0, 0.1 or 1 nM.

Histomorphometrical assessments of the testes of LNG exposed frogs revealed an increase in the proportion of spermatogonia (immature germ cells), and a decrease in the number of seminiferous tubules/ testis. The results showed that 31.6 ng/ L (0.1 nM) of the progestin LNG induced an increase of the spermatogonia, immature germ cells, indicating that spermatogenesis seems to be a sensitive target for progestins in adult males. The LNG exposed males showed a lower sperm concentration compared with the controls. Even though this difference was not statistically ascertained, the finding is interesting and will be followed up. Effects on spermatogenesis in frogs seem to be a sensitive endpoint for progestins.

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