By Stefan A. Science Editor
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Mixes of Drugs and Pesticides Can Lead to Malformed Penises

The endocrine disrupters

You think that dumping endless amounts of pesticides around and taking drugs indiscriminately will affect only the sex of fish, frogs and other species in the wild fauna? You're wrong: even the penis of your boy may be affected. Hormone mimicking chemicals, which can be relatively harmless alone when present in small doses, can turn into very nasty cocktails. A new research published in the International Journal of Andrology shows that concurrent exposure to several hormone mimicking chemicals can provoke the development of malformed sexual organs. The potential cocktail effects should be considered.The Danish researchers signal that in their country 4 - 5 % of boys are born with hypospadias (the urethral opening is located on the underside of the penis). "Several animal tests have shown that endocrine-disrupting chemicals, which have an effect on the male sex hormone testosterone, can result in such malformations in young male rats. In vitro testing and short-term animal testing have also suggested that concurrent exposure to several chemical substances can result in endocrine-disrupting effects even if exposure to each individual substance does not show any effect. We are now able to document that this is actually the case," said co-author Ulla Hass, senior scientist at the National Food Institute, Technical University of Denmark.Pregnant rats were exposed to a mix of three chemicals known to inhibit the effect of the activity of the testosterone: the drug flutamide and the pesticides vinclozolin and procymidone. The delivered doses have no effect when taken alone. But the cocktail does. The male rat offspring displayed female traits, like retained nipples and severely malformed genitalia: 60 % were born with hypospadias."Our studies show that concurrent exposure to several endocrine-disrupting substances in small doses can increase the frequency of malformations such as hypospadias even though the doses are harmless individually. It is therefore not sufficient to establish reference values only by looking at one substance at a time," said co-author Sofie Christiansen, PhD student at the National Food Institute, Technical University of Denmark."In order not to underestimate the risk of chemicals to humans, it is important to include the possible concurrent exposure of two or more chemicals in the risk assessment. To establish an adequate protection level for consumers, potential cocktail effects should be taken into account, and thus the way a chemical may interact with other chemicals," said Hass.