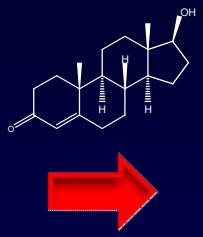
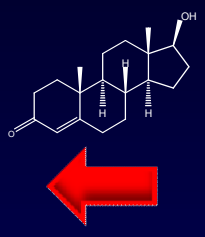
Fate of Steroid Sex Hormones in the Environment





Thomas Borch

Assistant Professor, Environmental Chemistry

Depts. Chemistry and Soil & Crop Sciences

Email: borch@colostate.edu

Colorado State University

Acknowledgements

- Robert Young (Ph.D. student; river/photolysis)
- Yun-Ya Yang (Ph.D. student; biosolids/biodegradation)
- Dr. Jessica G. Davis (CSU)
- Dr. Lawrence D. Goodridge (CSU)
- Dr. Shawn L. Archibeque (CSU)
- Dr. Tracy Yager (USGS)
- Dr. James Gray (USGS)
- Dr. Bill Foreman (USGS)
- Dr. Ed Furlong (USGS)
- Dr. Dana Kolpin (USGS)

Colorado State University
Knowledge to Go Places

USGS
science for a changing world

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

Colorado Water Resources Research Institute

DEVER POST 09/11/2008

Testing prompted by an Associated Press story that revealed trace amounts of pharmaceuticals in **drinking water supplies** has shown that more Americans are affected by the problem than previously thought — at least 46 million, among them Colorado Springs residents.

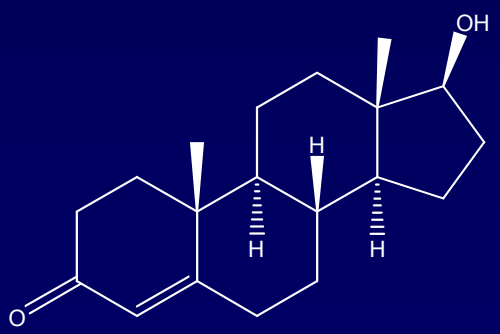
Colorado's chemicals

Colorado Springs tested its water after AP's March reports and found five pharmaceuticals: carbamazepine, diazepam, methadone, meprobamate and **testosterone**.

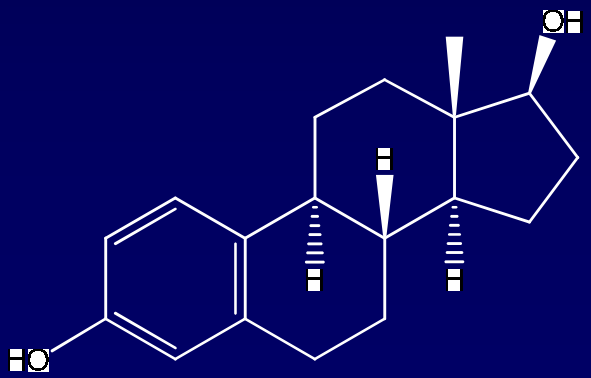
Our Focus is Reproductive Hormones

- Testosterone, progesterone and 17β-estradiol influence sexual development, reproduction, bone structure, and neuron function (among other things)
  - Common among all vertebrates

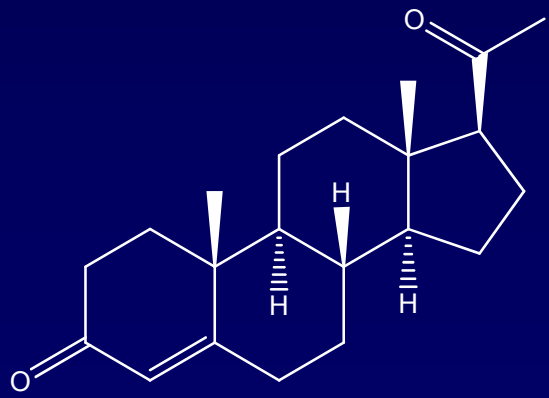
- Reproductive hormones from *external* sources have the potential to disrupt normal hormone functions in humans and wildlife at very low concentrations



Testosterone



17β-Estradiol



Progesterone