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[Testosterone Insensitivity Turns Men Into Women](#)

Women that genetically are ... men

The classic knowledge states that men have an XY pair of sex chromosomes, while women an XX one. Recent studies showed that many genes can bypass this arrangement and turn XX individuals into men. Now, a German-American team has discovered that the body's reactivity to testosterone is even more important than the presence of the Y chromosome in deciding the sex of the future baby. The scientists compared individuals with complete androgen insensitivity syndrome (CAIS) to people lacking this. "Androgens have long lasting effects during certain sensitive stages of our genital development and this is probably true for other organs. It is currently increasingly accepted that the brain shows sex-specific development in response to presence or absence of testosterone. This affects sex specific behavior and probably modulates gender identity (and sexuality too, like straight or gay).", said lead researcher, Professor Paul-Martin Holterhus, of University-Hospital Schleswig-Holstein, Kiel, Germany. Androgens (testosterone being the most important) are known for long to model the male sexual development, starting with the embryo throughout life, with the peak during puberty. But how the various sex chromosome genes controlled the long-term effects of androgens was not known. CAIS has a rate of 1 in 20,000 people, and even if individuals look like normal females, genetically they are males, having a pair of XY sex chromosomes, not XX like women normally do. The new research found that this was due to mutations in the gene coding for the androgen receptor; thus these individuals were insensitive to androgens, remaining immune to the effect of testosterone. The gene expression of normal males and CAIS females were studied in skin biopsies of external genitalia. Between men and women, 440 genes varied in their activity level, delivering a 'signature' employed to assess partial androgen insensitivity syndrome (AIS), useful in better understanding AIS condition. "Since we compared XY females with the XY males, the difference can only be explained by differences in androgen action and not by differences in sex chromosomes. Another intriguing observation is that the one normal female (with a XX genotype) in our study did not differ a lot with respect to the identified genes from the XY females. This is an important reassurance for XY females because it limits the role of the sex chromosomes in gender assignment.", said Holterhus.