

# Testosterone → Estradiol

*Aromatase (enzyme)*

## **Increase aromatase**

- Genetics
- Obesity, belly fat
- Insulin resistance
- Processed foods/carbs
- Aging
- Medications\*\*
- Alcohol

## **Excess estrogen**

- Fluid retention, edema
- Weight gain (*also diet related*)
- Belly fat
- Breast pain, 'fibrocystic' disease
- Uterine bleeding, fibroids, endometriosis
- Anxiety, irritability, PMS, aggression
- Erectile dysfunction, prostate problems
- Lack of effect from T pellets

## **Decrease aromatase**

- Exercise
- Whole foods
- Aromatase inhibitors\*
  - 'Anastrozole'
  - 'Letrozole'

## **Low estrogen**

- Hot flashes, night sweats
- Insomnia
- Vaginal dryness
- Hair thinning
- Erectile dysfunction

Estrogen is made from testosterone (T) in both sexes in every organ system in the body and may not be measurable in blood. Extra estrogen is not needed in most women on T implants. Estrogen stimulates breast tissue and long-term estrogen **excess** can increase the risk of breast and uterine cancer. Research shows that prostate cancer may be associated with low T and high estrogen. Increased estrogen can also interfere with the beneficial effects of T. Excess estrogen causes aggression, not T.

\* Anastrozole, an aromatase inhibitor, may be combined in the pellet implant to block the conversion of testosterone to estradiol. Testosterone is FDA approved in men. Anastrozole is FDA approved in women. The combination, delivered in a pellet implant, is considered 'off label' use. Please see consent for definition of 'off label'. Similar to other medications, long term use of anastrozole can contribute to hair loss in some patients.

\*\*Many medications can cause erectile dysfunction and breast enlargement (gynecomastia) either directly by inhibiting T production, or indirectly by increasing aromatization (conversion) of T to estradiol. Some of the most common medications that cause problems with erections include statins, blood pressure medications, cardiovascular drugs, antiulcer drugs, antidepressants, anti-anxiety drugs, pseudoephedrine, antihistamines, alcohol, and marijuana.

Do not stop any prescription medications without consulting your physician.