

## Hormones of Relativity:

### The Pg/E2 (Progesterone/Estradiol) Ratio and Estrogen Dominance

"Patient A" is a slightly overweight, postmenopausal woman in her early 60's, is concerned about daily hot flashes, gradual onset of insomnia, cloudy thinking and mood swings. She intermittently feels frustrated and depressed when discussing her desire to enjoy life and complains of feeling less like herself. This patient has been on unopposed estrogen medications prescribed by her traditional doctor, with increasing doses for the last 12 years after undergoing a complete hysterectomy.

"Patient B" is a delightful woman in her early 30's who has experienced difficulty conceiving over the past year. This patient has somewhat irregular periods, premenstrual bloating and irritability, and occasionally experiences breast tenderness. She is not taking any medications or supplements.

Though very different clinical scenarios, testing will mostly likely reveal both patients are experiencing the same hormone imbalance - estrogen dominance.

Estrogen dominance refers to a **relative deficiency of progesterone levels in relation to estrogen levels**. Symptomatically, estrogen dominance may manifest as irregular periods, water retention, breast tenderness, forgetfulness, cloudy thinking, mood swings and depressed mood. Without progesterone supplementation women will likely experience estrogen dominance at some point in their lifetime, the extent of which will vary based on genetics, nutrition, emotional stressors and exposure to environmental toxins.

A woman's ovarian function begins to decline in her mid-30's causing decreased levels of estrogen and progesterone. Even while women are still menstruating relatively regularly, anovulatory cycles become more common with age and without ovulation, there is no corpus luteum (the follicle which contained an egg during ovulation) and therefore very little progesterone is produced. As a woman reaches menopause and ovulation ceases completely, the production of progesterone will typically have decreased by over 90%. Estrogen however, continues to be produced in the peripheral adipose tissue from the conversion of testosterone resulting in **estrogen dominance**. Unopposed estrogen therapy, as in Patient A's story, perpetuates this picture and exacerbates the symptoms of estrogen dominance. In a younger women, like Patient B, estrogen dominance is likely a result of irregular menstrual cycles or anovulatory cycles. Xenoestrogens in the environment (and many processed and hormone altered foods) also compound the problem as they add to the overall estrogenic influence on tissue.

Monitoring the Pg/E2 ratio yearly to confirm it is in the optimal range will not only address patients' symptom concerns but also help decrease their risk of estrogen dependent cancer, osteoporosis, cardiovascular disease and Alzheimer's disease.

Like women, men also suffer health concerns associated with estrogen dominance such as the increased risk of prostate conditions. Much like uterine and breast tissue, the prostate

is subject to the proliferative effects of estrogen and prolonged states of estrogen dominance can increase a man's risk of prostate cancer. In men the primary source of estradiol is in peripheral conversion of testosterone via the aromatase enzyme. As men age and their body composition shifts, they are prone to climbing estrogen levels and as a result, the incidence of prostate related disease increases with age.

Progesterone has many benefits in the male body beyond prostate protection including defense against cardiovascular disease and many neurodegenerative diseases such as Alzheimer's.