Menopause Profile

Great Smokies Diagnostic Laboratory℠
63 Zillicoa Street
Asheville, NC 28801-1074

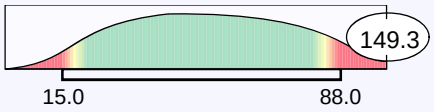
Patient: **SAMPLE PATIENT**
Age: 53
Sex: F
MRN:

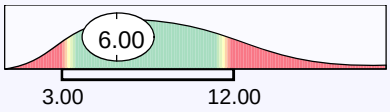
Order Number:
Completed:
Received:
Collected:

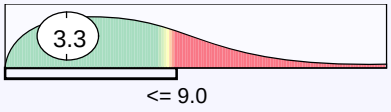
SAMPLE REPORT

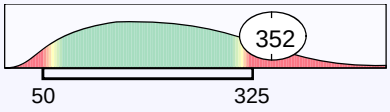
Salivary Hormone Results

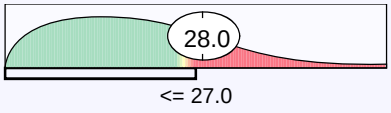
Sample #	Estrone (E1) (pmol/L)	Estradiol (E2) (pmol/L)	Estriol (E3) (pmol/L)	Progesterone (pmol/L)
1	3.0	6.16	22.5	273
2	2.2	5.61	18.5	525
3	4.7	6.24	42.9	257
Reference Range	0.0-9.0	3.00-12.00	0.0-27.0	50-325

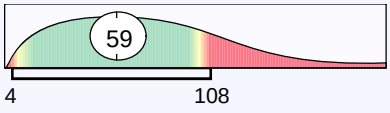
Testosterone
Ref Range pmol/L


Average Estradiol
Ref Range pmol/L


Average Estrone
Ref Range pmol/L


Average Progesterone
Ref Range pmol/L


Average Estriol
Ref Range pmol/L


P/E2 Ratio
Ref Range Ratio


Histograms on this report are not based on data from reference populations and should be used for illustrative purposes only.

This test has been developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

Commentary

Introduction This profile measures the levels of progesterone, testosterone, and the three forms of estrogen in your body, estradiol, estrone, and estriol. All of these measurements reflect the amount of hormone directly available to the body, that is the fraction of hormone not bound to binding globulin.

Commentary

Estrogen, in general, is vital for healthy reproductive and menstrual cycle function. It is also responsible for maintaining secondary sexual characteristics, is required for endometrial (uterine) gland development, and the production of cervical and vaginal mucus. In addition, estrogen positively influences cardiovascular health, bone density, brain function and mood, and libido. Estrogen also reduces bowel motility and stimulates the synthesis of many enzymes in the body. Because of estrogen's stimulatory effect upon the endometrium, levels should be balanced by progesterone.

Estradiol is the most potent estrogen, with a potency 12 times that of estrone and 80 times that of estriol. The bulk of estradiol pre-menopausally derives from the ovary, so it is the predominant estrogen during the pre-menopausal years. Although it remains the most potent estrogen among the three, its levels typically decline in menopause, as ovarian function declines.

Estrone becomes the primary estrogen as the ovary loses its ovulatory function in menopause. Most of estrone's biosynthesis is dependent upon the production of androstenedione (an androgen) in the adrenal glands and the conversion of androstenedione to estrone (aromatization) in various peripheral tissues, particularly adipose, or fat tissue.

Estriol is the least potent estrogen in the body, and is considered to be a mild and brief-acting hormone. Estriol is thought to primarily originate from estrone, via 16-alpha-hydroxyestrone, although some estriol may come directly from androstenedione. Estriol has a much lower affinity for sex-hormone binding globulin (SHBG), so a greater percent is typically available for biological activity. It is thought that estriol may protect against estrogen-associated cancers, although further research is needed to confirm this.

Progesterone is also important for normal reproductive and menstrual function, and influences the health of bone, blood vessels, heart, brain, skin, and many other tissues and organs. As a precursor, progesterone is used by the body to make other steroid hormones, including DHEA, cortisol, estrogen, and testosterone. In addition, progesterone plays an important role in mood, blood sugar balance, libido, and thyroid function, as well as adrenal gland health.

Testosterone is an important hormone for women, helping to maintain lean body mass, bone density, skin elasticity, blood cell production, and libido.

All three forms of estrogen, progesterone and testosterone must be in proper balance with each other for optimal health.

Laboratory Results The averages for estradiol and estrone are both within the reference range, suggesting ample estrogen protection in the body. Any individual estradiol or estrone measurement above or below the reference range is still considered clinically significant.

The average estriol is above the reference range. Estriol is metabolized irreversibly from estradiol as well as from estrone via 16 alpha-hydroxyestrone, thus elevated estriol may be a result of enhanced metabolism or be consistent with elevated levels of estradiol and/or estrone. In contrast to these two estrogens, estriol metabolism does not appear to result in the formation of potentially carcinogenic substances. Speculation has also been made that higher circulating levels of estriol correlate with a lower incidence of breast cancer, although other researchers have disputed any cancer-protective properties. The clinical significance of elevated estriol remains to be elucidated.

The average progesterone level is elevated. Any individual progesterone measurement above or below the reference range is still considered clinically significant.

Excessive progesterone has a mild thermogenic effect, may cause breast tenderness by causing an increased aldosterone secretion, and may possibly increase cortisol levels in chronic stress. Because of its anxiolytic effects, excessive progesterone influence can cause sedation or depression, especially when estrogen is low. Elevated progesterone may be a result of adrenal hyperfunction, exogenous steroids, blood contamination of saliva

Commentary

(testosterone and DHEA should both be high), or exogenous progesterone (transdermal progesterone can result in significantly elevated salivary levels which may not correlate with high circulating levels of the hormone).

Testosterone is above the reference range. Elevated levels have been linked to masculinization, hirsutism, and acne. Although testosterone in men is cardioprotective, androgen excess in women can be detrimental, increasing the risk of insulin resistance and dyslipidemia. Elevated levels have also been noted in polycystic ovary disease and, rarely, adrenal hyperplasia. Elevated free testosterone may be a result of increased production in the ovary or adrenal glands, reduced conversion to estradiol, or reduced amounts of sex-hormone binding globulin.