

Comprehensive Urinary Hormone Assessments

Recognized as a pioneer and leader in laboratory functional testing, Genova Diagnostics proudly adds Urinary Hormone testing to its extensive endocrine line.

Hormone testing is a critical diagnostic tool for safe and effective prevention and treatment of hormone-related symptoms and conditions.

With this diagnostic focus in mind, Genova Diagnostics has developed an unequaled endocrine line, establishing itself as the only laboratory to offer comprehensive hormone testing in all three matrices: blood, saliva, and now, urine.

Employing state-of-the-art laboratory equipment and world-class medical education, Genova Diagnostics strives to lead the field of endocrine diagnostics. Genova Diagnostics offers expertise in blood, saliva and urine hormone testing, and related genomic evaluations, to provide the most accurate and comprehensive diagnostics for the prevention and treatment of hormone-related symptoms and conditions.

First-Morning-Void (8 hour) OR 24-hour urine collection

These simple, at-home collection options offer the advantage of a time average, effectively integrating spikes that may occur in these hormones over time.

Measures metabolites of important steroid hormones

These metabolites contribute to provide a robust analysis of hormonal excess or deficiency, and help to assess the adequacy and safety of hormone replacement therapy (HRT).

Measures the free, bio-available fraction of:

- Progesterone metabolites (Pregnanediol & Pregnanetriol)
- Androgens and their metabolites
- Adrenal hormones and their metabolites
- Estrogens and their metabolites

Anabolic/Catabolic Balance (ACB)

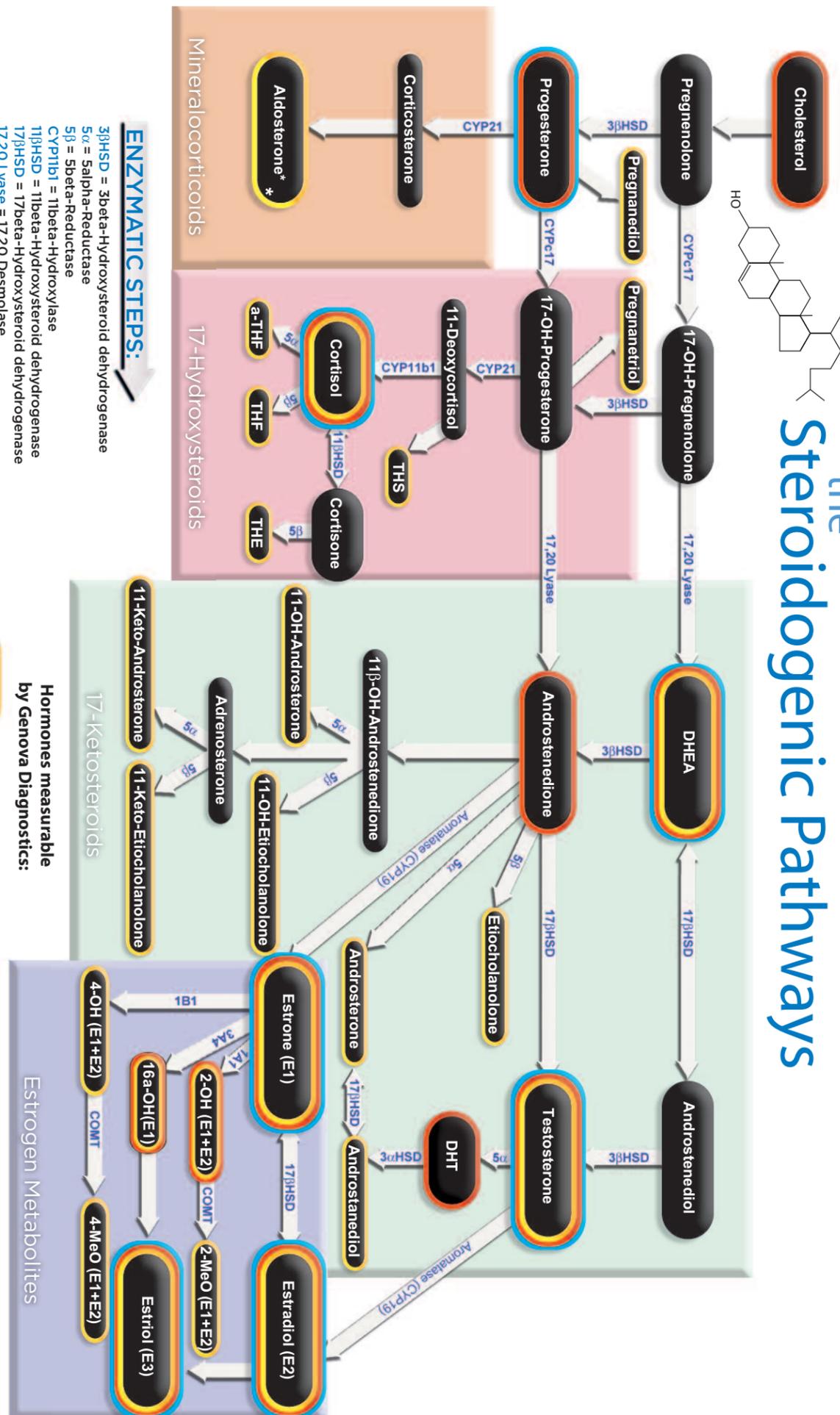
The Anabolic/Catabolic balance evaluates the ability for growth and healing (anabolic) versus the state of wear and tear (catabolic); this ratio decreases with unhealthy aging and chronic stress, and is associated with increased risk of cardiovascular disease, impaired immune function, diabetes, depression, and cognitive disturbances.

Provides reference ranges for:

- Premenopausal Women
- Menopausal Women
- Men

The Comprehensive Urinary Hormone Assessments provide several benefits:

the Steroidogenic Pathways



ENZYMATIC STEPS:

- 3βHSD = 3beta-Hydroxysteroid dehydrogenase
- 5α = 5alpha-Reductase
- 5β = 5beta-Reductase
- CYP11b1 = 11beta-Hydroxylase
- 11βHSD = 11beta-Hydroxysteroid dehydrogenase
- 17βHSD = 17beta-Hydroxysteroid dehydrogenase
- 17,20 Lyase = 17,20 Desmolase
- CYPc17 = 17alpha-Hydroxylase
- CYP19 = Aromatase
- CYP21 = 21-Hydroxylase

Hormones measurable by Genova Diagnostics:

- Measurable in Urine
- Measurable in Blood
- Measurable in Saliva

ESTROGEN METABOLISM:

- 1A1 = Cytochrome p450 1A1 (CYP1A1)
- 3A4 = Cytochrome p450 3A4 (CYP3A4)
- 1β1 = Cytochrome p450 1β1 (CYP1β1)
- COMT = Catechol-O-Methyl-transferase

Urinary Hormones

Anabolic

Catabolic

Urinary Androgens

- Testosterone
- Dehydroepiandrosterone (DHEA)
- Total 17-Ketosteroids
 - Androsterone
 - Etiocholanolone
 - 11-Hydroxy-androsterone
 - 11-Hydroxy-etiocholanolone
 - 11-Keto-androsterone
 - 11-Keto-etiocholanolone
 - DHEA

Androgens are important hormones in the health of both men and women. Testosterone and DHEA are metabolized into what is collectively known as the 17-ketosteroids (DHEA is formally included as a 17-ketosteroid).

Together, these markers provide a comprehensive assessment of androgen sufficiency, as well as evaluating the need for, and monitoring of, androgen hormone therapy.

Total 17-ketosteroids (Anabolic) are used to calculate the Anabolic/Catabolic Balance (ACB).

Androgen deficiency

- Fatigue
- Muscle Weakness and Atrophy
- Anxiety
- Depression
- Loss of Libido

Androgen excess

- Metabolic Syndrome ("Syndrome X")
- Acne
- Polycystic Ovarian Syndrome
- Prostatism (nocturia, dysuria)
- Male Pattern Balding

Anabolic/Catabolic Balance (ACB)

Anabolic/Catabolic Balance (ACB) is a simple yet powerful tool that assists in the prevention of disease and the promotion of healthy aging by balancing the processes that direct growth and healing (anabolic process) versus wear and tear (catabolic process).

Anabolic/Catabolic Balance and Healthy Aging

Excessive catabolic or anabolic activity has been linked with disease process. More commonly seen, catabolic dominance, or "catabolic shift," increases with age and is associated with the whole-body effects of aging.

Catabolic shift is associated with:

- Aging
- Insomnia
- Hypoxia
- Chronic Stress
- Chronic Illness
- Hyperandrenalism
- Hypoandrogenism
- Hyperglycemia and Diabetes

Catabolic shift causes:

- Poor Healing
- Cognitive Decline
- Muscle and Tissue Degeneration
- Cardiovascular Disease
- Proinflammatory Immune Dysregulation
- Anxiety and Depression

ACB is the ratio of the total androgen metabolites (Total 17-Ketosteroids) and the total catabolic metabolites (Total 17-Hydroxy-corticosteroids).

Urinary Estrogens

- Estrone
- Estradiol
- Estriol
- 2-Hydroxy-estrone
- 2-Methoxy-estrone
- 4-Hydroxy-estrone
- 4-Methoxy-estrone
- 16 α -Hydroxy-estrone
- 2-Hydroxy-estrone:16 α -Hydroxy-estrone ratio
- 2-Methoxy-estrone:2-Hydroxy-estrone ratio
- 4-Methoxy-estrone:4-Hydroxy-estrone ratio

Estrogens and their metabolites are important in the health of both men and women.

Urinary estrogens and estrogen metabolites provide a robust analysis for evaluating hormone replacement therapy and the risk of estrogen-related disease, including breast cancer and prostate cancer. Additionally, the results assist the clinician in choosing therapies that modulate estrogen metabolism, if necessary.

Estrogen deficiency

- Osteoporosis
- Amenorrhea
- Menopausal symptoms

Estrogen excess

- Menorrhagia
- Uterine Fibroids
- Anxiety/Irritability

Estrogen Metabolite imbalance increases risk of

- Breast Cancer
- Osteoporosis
- Prostate Cancer

Urinary Progesterones

- Pregnanediol
- Pregnanetriol

Progesterone is an active hormone and a prohormone in both men and women. It is completely metabolized into two primary molecules: **Pregnanediol** and **Pregnanetriol**.

These metabolites are easily measured in the urine and together provide a robust analysis of progesterone status, which may be used to evaluate the need for, and monitoring of, progesterone hormone therapy.

Progesterone deficiency

- PMS
- Headaches/Migraines
- Anxiety
- Insomnia
- Breast, uterine and ovarian cancer risk
- Polycystic ovarian syndrome
- Benign prostatic hypertrophy
- Male pattern balding

Progesterone excess

- Sedation
- Depression
- Amenorrhea

Progesterone is rarely able to be measured directly in urine.

Urinary Adrenal Steroids

- Cortisol
- Total 17-Hydroxy-corticosteroids
 - Allo-Tetra-hydrocortisol (a-THF)
 - Tetra-hydrocortisol (THF)
 - Tetra-hydrocortisone (THE)
 - Tetra-hydrodeoxycortisol (THS)
 - Pregnanetriol

These hormones and metabolites provide critical information regarding the health of the adrenal gland, and the activity of its hormones, in both men and women.

17-Hydroxy-corticosteroids (cortisol-related metabolites) assist in providing a robust analysis of cortisol status, and assessing cortisol's availability at target tissues (low levels = poor stress tolerance; high levels = wear and tear). Urinary Cortisol reflects the adrenal gland's Total Output of this hormone, averaging fluctuations that occur during its circadian rhythm.

Together, these markers provide a robust analysis for evaluating adrenal therapies.

Total 17-Hydroxy-corticosteroids (Catabolic) are used to calculate the Anabolic/Catabolic Balance (ACB).

Cortisol deficiency

- Fatigue
- Hypoglycemia
- Poor stress tolerance
- Allergies
- Inflammation (arthritis, pain, etc.)

Cortisol excess

- Anxiety
- Depression
- Wear and Tear (tissue degeneration)
- Obesity
- Metabolic Syndrome