DUTCH helps identify hormone imbalances that may contribute to certain health conditions. Measuring hormone metabolites in urine can show how a hormone family works together in a way that standard serum or saliva tests cannot. Ordering a DUTCH may help identify hormone imbalances that contribute to the following conditions:

**Weight Gain**
Over time, the stress hormone cortisol can stimulate appetite. As a result, people under prolonged stress often gain weight. However, research shows that high levels of cortisol parent hormone are not associated with obesity and overweight whereas cortisol metabolites are. Thus, measuring levels of cortisol metabolites may be key to gaining a full understanding of weight gain related to over-production of cortisol.

**Fatigue**
Many studies have shown that diminished production of cortisol can lead to symptoms of fatigue. However, low cortisol levels in serum or saliva are not necessarily an indication that overall cortisol production is low. Measuring cortisol metabolites in urine provides valuable information on overall cortisol production that cannot be obtained through serum or saliva, because it reports both the parent hormone and metabolite levels.

**Depression or Irritability**
Hormone imbalances have been linked to mood disturbances in both men and women. In men, low testosterone and/or abnormal cortisol may contribute to depression and irritability. In women, excess estrogen relative to progesterone may result in irritability or anxiety, while an excess of progesterone may contribute to depression. Testing with DUTCH shows how the whole hormone family functions for a day, and it also allows healthcare professionals to more accurately assess whether hormone imbalance is affecting moods.

**Androgen**
Testosterone, androstenedione, DHT, and DHEA are essential for male characteristics and are also important for bone, muscle, energy and libido in both men and women.

**Estrogens**
Estrone (E1), estradiol (E2) and estriol (E3) are essential for female characteristics and important to bone, brain and heart health.

**Cortisol**
Cortisol is released from the adrenal glands. The cortisol family is important in helping manage inflammation, immune function, blood glucose, energy and metabolism.

**Progesterone**
Progesterone is important in the menstrual cycle as a balance to estradiol and is also essential to maintaining pregnancy. Progesterone also has effects on brain, bone and heart.

**Melatonin**
Melatonin is a hormone secreted by the pineal gland of the brain that helps regulate the sleep-wake cycle.
Test Results

The DUTCH® provides useful information on how your body breaks down parent hormones into metabolites that are excreted in urine.

**Progesterone Metabolism:** Progesterone helps balance the effects of estrogens. Since very little parent progesterone hormone is present in urine, measurement of its metabolites is used to estimate progesterone present in circulation.

**Estrogen Metabolism:** Specific estrogen metabolites have been associated with breast cancer risk while others are considered protective. Progesterone and certain nutritional supplements may be used to adjust the pattern of estrogen metabolites.

**Androgen Metabolites:** Testosterone and DHEA are the most common androgen hormones, and the way they are broken down greatly influences symptoms. It is possible to have normal levels of testosterone and have symptoms of androgen excess if elimination pathways favour the more potent androgen metabolites.

Lifestyle Changes

Lifestyle modifications may be recommended to improve your hormone metabolism.

- increased consumption of fibre improves estrogen elimination.
- regular exercise is important for hormone metabolism.
- eating cruciferous vegetables (e.g. broccoli, kale) may improve hormone metabolism.
- adequate sleep is essential for all hormone related issues.

Your healthcare professional can guide you in making the right modifications for your hormone needs.

Supplements

Nutritional supplements are often recommended as a means to restore hormone balance and aid hormone metabolism. Possible supplements include:

- plant-based estrogens, also called phytoestrogens
- boron, which helps increase estrogens and testosterone in women.
- estrogen metabolism modifiers (e.g. DIM to promote 2-hydroxyestrone pathway over the 4-hydroxyestrone pathway for estrogen metabolism).
- 5-alpha reductase inhibitors (e.g. gamma-linolenic acid, zinc, saw palmetto).
- adaptogenic herbs to support glucocorticoid production by the adrenal glands.

Your healthcare professional will recommend a program that suits your hormone needs and health goals.

This material is provided for information purposes only. It is not meant as medical advice. Please discuss any health issues with your healthcare provider. Any treatment decisions should be made with the knowledge and consent of your healthcare provider.

Good health has a lot to do with maintaining balance: the right balance of work and play, the right balance of hormones and the right kinds of foods.

DUTCH® may help uncover hormone imbalances that contribute to symptoms.

Rocky Mountain Analytical is committed to offering tests that identify hormone imbalances and other conditions - so they may be corrected before disease develops!