

Hormone Testing



Cheat sheet

Key Points:

- Test results always need to be interpreted in the context of symptoms, health history and in relation to other hormone levels.
- Symptoms are generally caused by fluctuations in hormone levels falling or rising - especially estrogen and progesterone. Testing can't capture this well since it represents a single snapshot in time.

Hormones that are best measured via BLOOD :		
<p>Thyroid Panel:</p> <p><i>(TSH, fT3, fT4, anti-TPO)</i></p>	<ul style="list-style-type: none"> -Weight gain/Resistant Weight Loss -Tired/Exhaustion -Low Mood -Fluid Retention -Hair Thinning/loss -Skin Dryness & Cracking -Nail Changes ex. brittle -Heavy Menstruation or cycle changes -Fluid Retention -Muscle cramping 	<p>TSH optimal range is between 1-2.5. Targets vary depending on medication status and goals.</p> <p>Family doctors will likely only run TSH and/or fT4 for screening.</p> <p>If on thyroid medication, be consistent with WHEN you go to the lab relative to timing of your medication.</p>
<p>Blood Sugar</p> <p><i>(HbA1c, Fasting Insulin + Glucose)</i></p>	<ul style="list-style-type: none"> -Weight Gain/Resistant Weight Loss -Sugar Cravings -Tired after eating -Irregular cycles -Acne -Facial hair growth -Nipple and lower abdominal hair growth -Skin tags and skin darkening -Female pattern hair loss/hair thinning 	<p>HOMA-IR score can be calculated from fasting insulin and glucose and is a validated measure of early insulin resistance.</p> <p>Alternatively, can run a 2hr insulin glucose test where glucose for more real-time insight into blood sugar control.</p>
<p>Estradiol</p> <p><i>(Estrogen)</i></p>	<ul style="list-style-type: none"> -Irregular or absent menstrual cycles -Infertility -Atypical bleeding -Premature ovarian failure -Low estrogen symptoms: vaginal dryness, mood changes, night sweats, etc. 	<p>Cycle timing is very important, typically day 3</p> <p>Limitation: serum estradiol combines free and bound hormones - no idea how much is acting at level of cell</p>

Progesterone	<ul style="list-style-type: none"> -To determine ovulation -Infertility -PCOS -Atypical bleeding -Irregular or absent menstrual cycles -Low progesterone symptoms: luteal anxiety, sleep disruption, spotting -Migraines 	<p>Cycle timing is very important, typically day 19-21</p> <p>Can use LH test strip or BBT to guide timing: 7 days after a surge or temperature shift</p>
LH & FSH	<ul style="list-style-type: none"> -Diminished ovarian reserve -Hypothalamic Amenorrhea -Symptoms listed above for estradiol and progesterone 	<p>Cycle timing is important: Day 3</p> <p>Usually run alongside other hormones like estradiol and progesterone</p> <p>These are 'brain' hormones that tell our ovaries to produce hormones.</p>
Prolactin	<ul style="list-style-type: none"> -Nipple discharge -Migraines -Menstrual cycle abnormalities - absent, irregular -Bleeding irregularities -Luteal phase defects 	<p>Can be measured at any time of the menstrual cycle</p> <p>Highest levels earliest in the morning.</p> <p>Exercise and anxiety can artificially increase levels.</p>
DHEA-S	<ul style="list-style-type: none"> -Irregular cycles -Acne -Facial hair growth -Chronic stress -Suspected PCOS adrenal subtype 	<p>Can be measured at any time of the menstrual cycle</p> <p>"Androgen excess" presentation.</p> <p>Reflects chronic adrenal androgen output</p>
Testosterone <i>(Total & SHBG to calculate free testosterone)</i>	<ul style="list-style-type: none"> -Irregular cycles or menstrual irregularities -Acne -Facial hair growth -Female pattern hair loss -Suspected PCOS -Obesity/weight gain 	<p>Can be measured at any time of the menstrual cycle, but typically around Day 3.</p>

URINE TESTING

Generally not recommended as a standard of care.

- **24-Hour Cortisol:** Used to screen for Cushing's Syndrome (excessively high cortisol)

- **DUTCH Testing:** Shows hormone "break-down products" (metabolites), which can still bind to receptors and exhibit a hormonal effect in the body. Certain metabolites are suggested to be associated with increased health risks like breast cancer but this is not widely accepted.
 - *Note:* These are not recommended by endocrine societies.

Hormones that are best measured via SALIVA :		
<p>Cortisol & DHEA-S</p> <p>Diurnal collection at specific time points in the day</p>	<ul style="list-style-type: none"> -Acute/recent stress -Fatigue/exhaustion -Autoimmunity -Dizziness -Orthostatic Hypotension -Post-viral fatigue -Depression & Anxiety -Weight loss resistance -Weight Gain -Sleep issues -Skin rashes: eczema, infections, psoriasis -Circadian rhythm disorders 	<p>Samples collected at home during a 'typical' workday.</p> <p>Should avoid weekend collections, during illness or unexpected stressors.</p> <p>Cortisol awakening response (CAR) = waking, 30min, and 60min on its own can give insight</p> <p>Cortisol: DHEA ratio can reflect long-term stress/burnout</p> <div data-bbox="1325 721 1705 1047" style="text-align: center;"> <p>Cortisol Graph</p> <p>nmol/L</p> <p>Waking AM30 AM60 Noon Evening Night</p> <p>Adrenal Phase: 2</p> </div> <p>*This sample report shows a very low waking cortisol (=hard to get out of bed, feeling unrefreshed from sleep) and a very steep rise in the first hour of waking (stressed out) followed by major decline by noon (energy dip.)</p>
<p>Sex Hormones</p> <p>(Estrogen, Testosterone & Progesterone)</p>	<ul style="list-style-type: none"> -Monitoring bio-identical hormone therapy for dose adjustments 	<p>Saliva = free hormone levels that are making it to the tissue</p> <p>Saliva is a measurement of tissue saturation</p>

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