

# MONITORING (B)HRT WITH LAB TESTING

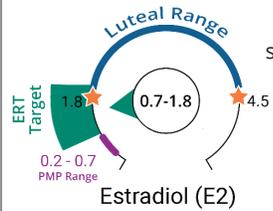


Can serum or DUTCH, as a standalone test, effectively monitor HRT?

✓ Yes

✗ No

? Maybe

Oral Progesterone (OMP)	Estradiol (E2) Patches	E2 Gels & Creams (Skin)	Vaginal E2 & Testosterone (T)	Vaginal Progesterone (Pg)	Transdermal (TD) Testosterone	Testosterone Injections & Pellets
✓ DRIED URINE	✓ DRIED URINE	✓ DRIED URINE	✓ DRIED URINE	✗ DRIED URINE	? DRIED URINE	? DRIED URINE
<p>The DUTCH Test® provides useful feedback when using OMP in women with PMP sleep disturbances. 5a (more active) and 5b metabolites are measured to individualize OMP dosing. OMP's sleep effects are via its 5a metabolites, predominantly allopregnanolone binding to the GABA receptor.</p> <p>No lab test reflects OMP's effect on the endometrium.</p>	<p>Values between the top of the postmenopausal range and the lower limit of the premenopausal range correlate with patient clinical improvement (bone density, hot flash relief, etc.). Doses that push levels to the middle of the premenopausal range and beyond may be excessive. DUTCH is preferred over serum because in addition to metabolites, dried urine averages out the daily up and down E2 patterns. This is particularly helpful with gels and creams that may have serum values that change rapidly over time.</p>  <p>The aggregate clinical data suggests that a serum (LC-MS/MS) E2 level of ~20-40pg/mL improves clinical outcomes (VMS, VVA, BMD). This approximates a DUTCH value of ~0.7-1.8ng/mg.</p>	<p>The DUTCH Test® is unique in that it removes potential contamination, and monitoring is helpful with E2 and T.</p> <p>Very low doses may impact local tissue without increasing lab values. For local (not systemic) E2 therapy, keep urine E2 in PMP range.</p>	<p>Pg is measured indirectly in urine by measuring pregnanediols. These metabolites may be underrepresented when Pg is taken vaginally. Serum Pg seems to increase to a higher degree than urine metabolites with vaginal Pg application.</p>	<p>Levels generally parallel changes in serum and clinical outcomes (increased lean body mass, erythrocytosis, etc. in men). Epi-testosterone (Epi-T) values can be used to assess gonadal suppression due to TRT (Epi-T levels in men decrease as TRT increases and are &lt;10ng/mg with complete suppression).</p>	<p>Injections and pellets increase levels, as expected, but the increase may exceed what is seen in serum testing. DUTCH allows for monitoring both the dosing of hormones as well as metabolic patterns.</p>	
✗ SERUM	✓ SERUM	? SERUM	✓ SERUM	? SERUM	✓ SERUM	✓ SERUM
<p>Results go up and down quickly. If taken at bedtime, levels return to baseline within a few hours. Results can also be inaccurate due to progesterone metabolites cross-reacting with immunoassay tests.</p>	<p>Serum testing is well suited for use with these types of therapies. Results increase with increased dosing in a fairly linear fashion.</p> <p>Most recommendations are to push serum E2 levels to 20-40pg/mL for clinical impact.</p>	<p>The only published data for E2 creams shows serum results move up and down within a few hours, so serum testing can easily underestimate clinical impact. DUTCH results average out the daily up and down pattern and may be a better option.</p>	<p>Serum results rise quite dramatically with what may seem like modest doses due to the high uptake of hormones across the mucosal membrane. However, values may rise and fall quickly, so be careful with the interpretation of both low and high results.</p>	<p>Serum values increase with dosing and likely represent systemic exposure to Pg. However, the uterine first-pass effect loads the uterus with high levels of Pg (which may be desirable) and serum does not reflect uterine hormone levels.</p>	<p>A great deal of published research shows that serum levels reflect clinical changes in both men and women taking TD T. Be aware of potential up and down patterns throughout the day, but serum is the best tool for monitoring doses of TD T in both men and women.</p>	<p>Serum testing is well suited for use with these types of therapies. Results increase with increased dosing in a fairly linear fashion.</p> <p>Test injections halfway between doses or right before a dose.</p>
✗ SALIVA	<p>The literature does not support salivary testing's use for monitoring TD hormone creams. The saliva data is limited and, in fact, there are no saliva testing outcome studies using TD creams, injections, estradiol patches, oral estradiol, or vaginal hormones. While salivary testing is the gold standard for free cortisol measurement, avoiding its use for monitoring HRT is advised. For situations where saliva testing may parallel the clinical impact, DUTCH or serum testing are better options (see above).</p>					
✗ Oral Estradiol, Estradiol Pellets, or Sublingual Hormones	<p>Though not recommended, if you choose to use either oral estradiol or estradiol pellets, serum testing can monitor both, whereas urine should only be used with pellet therapy. Sublingual hormones may be used in some situations but lab monitoring is not helpful in optimizing doses.</p>					
✗ Transdermal Progesterone	<p>In PMP women, the evidence does not support TD Pg's use to protect the endometrium. When prescribed, laboratory monitoring is not helpful for TD Pg dosing.</p>					