

# Testing Matrix & Video Tutorials

## For Optimal Hormone Monitoring

- Good Effective Options
- Not Ideal, Use with Caution
- ⚠ Not Recommended

T = Testosterone E2 = Estradiol Pg = Progesterone

	Baseline Testing (no HRT)		With Hormone Replacement					Transdermal (skin) Creams/Gels
	Sex Hormone	Adrenal	Oral Pg	Oral Estrogen	Vaginal/Anal	Patches, Pellets Injections	Sublingual	
<b>Serum</b>	Well accepted and reliable FDA-cleared methods, but limited metabolites offered.	Lacking the daily (diurnal) free cortisol pattern as well as metabolites.	Actual Pg values do not increase to premenopausal levels and return to baseline quickly. Metabolites can cause falsely elevated values. Lab values may increase with dosages but are not clinically meaningful. ⚠	The return to baseline is much slower than with Pg. Effective for estrogens and DHEA.	Rise and fall is unpredictable, so timing the testing well is difficult.	Serum is well-suited for testing with these forms of HRT.	Results return close to baseline too fast for reliable testing (<3hrs). ⚠	<p><b>What about transdermal creams?</b></p> <p>There is no highly reliable test for optimizing dosages with transdermal hormones.</p> <p>With modest doses, salivary results show dramatic increases and serum/urine values increase only slightly (at times, not at all).</p> <p>Available data does NOT support the conclusion that salivary measurements are clinically meaningful. Values are wildly variable and often contaminated.</p> <p>A controlled study (by USC) showed that women collecting 24 hours after therapy showed salivary Pg results that differed often by more than a factor of 5 from one collection to the next.</p> <p>Salivary Pg values have been shown to be exceptionally elevated more than 7 months after treatment stopped.</p> <p>Given the salivary elevations, it is likely that serum/urine testing may underestimate tissue levels of hormones.</p> <p>Serum/urine levels may increase much more when using alcoholic gels.</p> <p>Urine testing provides valuable information on metabolism patterns, but no tests reliably help in adjusting HRT dosages.</p>
<b>Saliva</b>	Least accurate lab methods, highly dependent on lab quality. Best used for tracking E2, Pg female cycles.	Lacking cortisol metabolites, the gold-standard for assessing total cortisol production.	Not effective unless testing includes active (alpha) metabolites. ⚠	Effective if estradiol assay accurate. E1/E3 assays are not very reliable.	Rise and fall is unpredictable, so timing is difficult. Saliva not proven for this ROA. ⚠	A reasonable option, but less accurate than serum or urine.	Contamination of the mouth lasts far longer than the systemic hormone increase. ⚠	
<b>24hr Urine</b>	Results highly dependent on lab quality. Quality results are accurate and include metabolites.	Lacking the daily (diurnal) free cortisol pattern.	Offers metabolites, but must skip dose the day of testing to avoid 1st-pass elevations. ⚠	Works for Pg, E2, T are likely contaminated. ⚠	A very good option. Metabolites expand the clinical picture.	Difficult to avoid 1st-pass metabolism from oral intake. Does not work if swallowed.		
<b>dutch</b>	Accurate testing that includes metabolites with an easy collection.	IDEAL OPTION Diurnal Free Cortisol Pattern AND Metabolized Cortisol along with Melatonin	Inactive (beta) and active (alpha) metabolites tested for more useful information.	Offers metabolites, but must skip dose the day of testing to avoid 1st-pass elevations.	IDEAL OPTION Special method removes free hormone contamination.	A very good option. Metabolites expand the clinical picture.	Difficult to avoid 1st-pass metabolism from oral intake. Does not work if swallowed.	

### Best Practices for HRT Monitoring

Oral Pg	Oral Estrogen	Vaginal/Anal	Patch, Pellets Injections	Sublingual
Most lab testing is of marginal value. <b>dutch</b> metabolites can offer insight into dosing.	Serum is best for adjusting dosages. <b>dutch</b> can be used to include metabolites.	Only <b>dutch</b> avoids contamination and offers metabolites.	<b>dutch</b> offers the most information. Any test can be effective.	Use caution when monitoring dosing. Use <b>dutch</b> testing for metabolites.



# The Basics of Hormone Testing

Compare the pros and cons of serum, saliva, 24-hr urine and **dutch** testing with and without HRT.

	Strengths	Weaknesses	Effective HRT Monitoring	Limited HRT Monitoring	Not Recommended
Serum	<p>Serum testing is reliable and well-suited for testing reproductive hormones.</p> <p>While it does not include metabolites, serum testing for “total” and “free” E2, T, and Pg is the gold standard (if not on HRT).</p>	<p>The testing of cortisol does not include the daily free pattern or metabolites.</p> <p>While testing sex hormones is effective, there are limited metabolites available.</p>	<p>Oral estrogens and DHEA as well as hormone patches, pellets and injections are monitored well.</p>	<p>Hormones applied to mucosal membranes (i.e. vaginal) are difficult due to unpredictable peaks and valleys.</p>	<p>Sublingual (especially creams) hormones along with oral Pg can be highly misleading.</p>
Saliva	<p>The benefit of measuring free cortisol throughout the day is well documented.</p> <p>Saliva’s best use is in testing Pg and E2 throughout the menstrual cycle. Even sub-par testing can be useful for identifying ovulatory estrogen and luteal progesterone peaks.</p>	<p>Accuracy for estrogens is not adequate for proper differentiation of pre and postmenopausal women (compared to serum/urine).</p> <p>The benefit of measuring free cortisol is undermined by the lack of cortisol metabolite measurements.</p>	<p>Oral estrogens and DHEA as well as hormone patches and injections are monitored well if the lab quality is of high caliber.</p>	<p>Hormones applied to mucosal membranes (i.e. vaginal) are difficult due to unpredictable peaks and valleys.</p>	<p>Sublingual hormones and oral Pg should not be tested.</p>
24hr Urine	<p>Urine testing, when done well, is an accurate method for assessing reproductive hormones. See note on <b>*Testosterone Testing</b>.</p> <p>The inclusion of metabolites offers additional information that is not available in serum or saliva.</p>	<p>Adrenal testing lacks the daily free cortisol pattern. Many labs test “total” cortisol, not “free.”</p> <p>All urine <b>*Testosterone Testing</b> can show falsely low results if a genetic defect in metabolism exists. It is more prevalent in those of Asian descent. Dutch testing includes extra metabolites to identify when this occurs.</p>	<p>Hormone patches, pellets and injections are monitored well.</p>	<p>When hormones are swallowed results are artificially increased due to 1st-pass metabolism. The timing and manner of collection must be carefully considered. Skip oral estrogens, DHEA the day of testing. If any sublingual hormone is swallowed, results are of limited value.</p>	<p>Oral Pg requires additional metabolites than usually offered.</p> <p>Vaginal hormones OFTEN contaminate samples.</p>
<b>dutch</b>	<p>Uniquely comprehensive testing with the easiest patient collection.</p> <p>Increased clinical utility for cortisol testing by providing the daily free pattern and metabolites.</p> <p>Extensive estrogen and androgen metabolites.</p>	<p>Not appropriate for those with abnormal creatinine excretion (kidney issues).</p> <p>Same as above for urine <b>*Testosterone Testing</b>.</p>	<p>Works uniquely well for oral Pg (additional metabolites) and vaginal hormones (special method to remove contaminating hormone). Works well for hormone patches, pellets and injections.</p>	<p>Same as above for 24hr Urine.</p>	<p>Precision Analytical is proud to offer <b>dutch</b> testing as improved HRT monitoring for most scenarios!</p>



## What about transdermal creams?

See comments on the reverse side for clarity on this controversial issue.