

PROVIDER HANDOUT

About Blood Spot Testing



The Technology

ZRT Laboratory has introduced Phase II of their minimally-invasive hormone testing in the form of Blood Spot testing. Clinical laboratories have used dried blood spot analysis extensively since the 1960s in large-scale population screening programs. The technology grew from a need for blood testing in infants where conventional blood draws were not feasible. Today blood spot testing for PKU and thyroid deficiencies is routine procedure. Blood spot testing results have been shown over time to correlate extremely well with serum test results (see scientific literature at www.bloodspottest.com). The literature clearly shows that any analyte that can be measured in serum can be measured in bloodspot.

Advantages

- No Phlebotomist or centrifuging required.
- Collection times can be optimized which is very important for early morning baseline hormone testing, testing of hormones multiple times during the day, and assessment of HRT dosing.
- Nearly painless finger prick, simple and safe (stress of conventional blood draw can alter test results).
- Private (home collection) convenient for both patient and doctor.
- Hormones are stable in dried bloodspot at room temperature for weeks allowing for worldwide shipment.
- Less expensive than conventional blood draws (no phlebotomist, centrifuge, or expensive shipment).
- Ease of collection allows for routine monitoring and adjustment of hormone supplementation as needed.

A comprehensive test report and evaluation, which relates symptoms and hormone usage with hormone lab levels, is mailed, faxed or emailed to the provider within 5-7 business days of laboratory receipt of sample. Interpretation of test results may be discussed with ZRT staff toll-free at 1-866-600-1636 or instate toll-free at 1-503-531-5327.

Clinical Utility

Blood Spot Testing can help providers:

- Identify hidden hormonal deficiencies associated with aging and disease, thyroid dysfunction and symptoms of menopause and andropause in their patients.
- Maintain optimal health and prevent disease through early detection of hormonal imbalance.
- Link clinical symptoms to specific hormone imbalances flagged in testing.
- Restore hormonal balance and patient quality of life using test results as a rational basis for treatment.
- Monitor patient hormone levels for individualized, physiologic dosing of hormone replacement; and
- Track patient progress: comparative history reports provided with follow-up testing.

Method

Bloodspot is collected in the morning before eating or drinking. The process involves a finger prick with lancet and a few drops of blood dried on filter paper. Kit is self-contained with step-by-step instructions, filter paper, 2 lancets, antiseptic wipes and band-aid. Blood spot sample is returned to lab for analysis via pre-paid UPS mailer bag. No biohazard labeling required.



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Hormones We Test In Blood Spot

TSH Thyroid Stimulating Hormone
Free T3 Triiodothyronine
Free T4 Thyroxine
TPO Thyroid Peroxidase Antibodies
IGF-1 Insulin-like growth factor
T Testosterone

PSA Prostate Specific Antigen
SHBG Sex Hormone Binding Globulin
FSH Follicle Stimulating Hormone
LH Luteinizing hormone
Insulin Resistance Fasting Insulin

THYROID: Blood Spot collection is a foolproof means for measuring free levels of T4 and T3 along with TSH and TPO antibodies. In a person with normal thyroid function, TSH instructs the thyroid how much T4 (Thyroxine) to produce. T4 is then converted to T3, the active form of thyroid hormone. In some individuals with Hashimoto's Autoimmune Thyroiditis, the body's immune system attacks the thyroid gland releasing excessive T4 into the bloodstream. This condition is associated with high levels of antibodies against the enzyme TPO in 90% of patients. Note: women with polycystic ovaries have 4-5 times greater occurrence of TPO antibodies. Blood Spot TPO testing is a useful tool for identifying subclinical hypothyroidism.

IGF-1 (Insulin-like growth factor) testing is the most reliable indicator of Growth Hormone (GH) levels, in that IGF-1 is produced in direct response to GH release from the brain. GH levels increase during adolescence, then stabilize until mid-adulthood at which time they begin to tail off at about 14% per decade. GH levels should plateau around 60, but in some individuals declining GH leads to a marked deficiency associated with premature illness and aging. Symptoms range from reduced endurance, memory, sexual function, bone and muscle mass, to impaired cardiac function, blood sugar control and immune function. Because GH fluctuates radically, random serum measurements are unreliable as diagnostic and therapeutic markers.

MALE HORMONE PROFILES I & II are a simple way to detect and monitor male hormone imbalances linked with premature aging and illness, prostate health risks and poor quality of life. Around the fourth decade of life, declining androgens (male hormones) and imbalances bring on the male equivalent of menopause, or, *andropause*. Blood spot testing can inform treatment to restore hormone balance and improve quality of life.

Male Profile I: Testosterone, SHBG and PSA

Male Profile II tests all the above **plus IGF-1**

FOLLICLE STIMULATING (FSH)/LUTEINIZING HORMONE (LH) the "gonadotropins," are hormones that exert an influence on the sex glands. In women they stimulate estrogen production, the development of a dominant follicle (egg), and production of progesterone upon ovulation. In men, FSH and LH stimulate the Leydig cells in the testicles to manufacture testosterone. High levels of FSH and LH are classic markers of menopause and mid-life decline in hormone production.

FASTING INSULIN can be easily collected at the optimal time (in the morning prior to food or drink) with a home Blood Spot collection kit. It is a tool to detect and quantify fasting insulin levels in patients with suspected **insulin resistance**, hypoglycemia, diabetes, and/or family history of diabetes. Common indicators of a need for testing include fatigue, food/sugar cravings, obesity (adults and children) and high triglycerides. **Insulin resistance** is an impaired metabolic response to the body's own insulin inhibiting uptake and utilization of glucose for energy. Associated disorders include obesity, hypertension, abnormal blood fat levels, glucose intolerance and Type 2 diabetes. In this situation, blood insulin levels are chronically high and easily detected in a blood spot test.
