



## Lab Testing for Insulin Resistance and Blood Sugar Dysregulation

It's a good idea to get as much testing done at the beginning as your client's budget allows. Follow-up testing shows you how much progress they've made.

Date Tested	Test	Optimal Range	Notes
	<b>Fasting Glucose</b>	75 - 89	Fasting glucose becomes abnormal after a long standing problem with insulin control.
	<b>Fasting Insulin</b>	2 - 5	High fasting insulin is indicative of a serious insulin dysregulation. Rarely done, but much more useful would be insulin after eating. In most cases it parallels blood sugar, but not all the time.
	<b>Triglycerides</b>	50 - 100	These are fats that have been created from excess carbohydrates.
	<b>HDL</b>	> 50	"good cholesterol"
	<b>Triglyceride/HDL ratio</b>	< = 1	This is a good marker for insulin resistance and sugar dysregulation. Ideal is when the HDL is greater than the triglycerides.
	<b>Hemoglobin A1C</b>	4.8 - 5.0	HbA1C is a measure of the percentage of your blood cells that are glycosalated, i.e. sugar-coated! Indicator of glucose control over previous 3 months. The average glucose level can be determined from the A1C as follows: <b>A1C (%) / Mean blood sugar:</b> 4/65; 5/100; 6/135; 7/170; 8/205; 9/240; 10/275; 11/310; 12/345. Available as a home test kit in all major pharmacy chains and online.



Date Tested	Test	Optimal Range	Notes
	<b>Blood Spot Fatty Acid by Metametrix</b>	N/A	Detects imbalances in omega-3 and omega-6 fats that adversely affect insulin sensitivity and can lead to blood sugar imbalances. DHA is particularly important.
	<b>Vitamin D</b>	75 - 100	Improves insulin sensitivity and regulates immune system.
	<b>C-peptide (also known as insulin C-peptide, connecting peptide)</b>	1.1 - 4.4	This test measures residual beta cell function by determining the level of insulin secretion.
	<b>Islet Cell Antibodies (ICA)</b>	< 1	Antibodies that attack the islet cells of the pancreas, the cells that make insulin.
	<b>Glutamic Acid Decarboxylase (GAD) Antibodies</b>	0.0 - 1.5	Glutamic acid decarboxylase (GAD) is an enzyme that is produced primarily by pancreatic islet cells. GAD is an enzyme that makes GABA.
	<b>Insulin Antibodies (IAA)</b>	< 5	Antibodies that attack insulin.
	<b>Adrenal Stress Index</b>	N/A	A panel that measures the adrenal hormones cortisol and DHEA as well as fasting and post meal insulin. Adrenal stress contributes to insulin resistance.

*\*\*If fasting glucose is high and hemoglobin A1C is normal, it may be a vitamin B1 deficiency.*

### Calculate your average glucose from Hemoglobin A1C:



A normal non-diabetic level of HbA1C is considered 3.5 – 5.5%.

The ideal HbA1C is 4.5 – 5%.

**Direct Labs:** Blood tests and many functional tests <http://www.DirectLabs.com/drritamarie>