

## PROVIDER HANDOUT

# Insulin Resistance

## *Fasting Insulin Testing In Blood Spot*



### The Problem

Insulin resistance occurs when there is a lack of cellular response to the presence of insulin and a failure of the tissues to take up glucose for energy production. This results in chronically high insulin levels as the body attempts to normalize blood sugar levels. Linked with lifestyle excesses of stress and carbohydrate consumption in the absence of exercise, insulin resistance is associated with obesity, and increased risks for type 2 diabetes mellitus and cardiovascular disease.

### The Epidemic

Over half of the US Population is overweight or obese according to the latest national health statistics and a recent study finds that approximately half of these individuals have clinically significant insulin resistance. (ref:1) At the same time diabetes rates are shooting up and researchers at the Centers for Disease Control (JAMA 2002) estimate that as many as 47 million Americans may exhibit "a metabolic syndrome" characterized by the presence of :

- insulin resistance
- obesity
- high levels of blood sugar, blood fats and blood pressure

*"Given the current epidemic of obesity and the fact that lifestyle interventions can decrease insulin resistance having a relatively simple way to identify overweight or obese persons who are insulin resistant would be clinically beneficial."* - Dr. Tracey McLaughlin in Ann Intern Med 2003.

### Look No Further!

Blood spot testing as employed by ZRT Laboratory is the relatively simple means for identifying insulin resistance in overweight, obese (or other) individuals. A minimally invasive finger prick and a few drops of blood are all that's needed to quantify fasting insulin levels. The test offers particular insight into imbalances in those with symptoms despite a normal blood glucose test, or, in conditions requiring regular monitoring.

### Candidates for Fasting Insulin

- Individuals with known/suspected hypoglycemia, insulin resistance, diabetes, pre-diabetes, family history of diabetes; overweight or obesity.
- Women with irregular menses, scalp hair loss, increased facial/body hair, polycystic ovary syndrome.
- Individuals with symptoms of: Anxiety, Palpitations, Diaphoresis, Fatigue, Irritability, Weakness/shakiness/dizziness, Food/sugar cravings, central obesity and rising blood sugar levels.

### Advantages

- Home kit facilitates collection of fasting insulin levels
- Fingersticks more acceptable for children
- Ideal in remote or rural locations
- Collection ease allows routine monitoring

*In the identification of insulin resistance, the use of the fasting plasma triglyceride concentration, the plasma triglyceride-HDL cholesterol ratio, or fasting plasma insulin concentration offer a reasonable degree of clinical utility. Of these, the plasma insulin concentration is the metabolic marker most closely related to insulin resistance.* (Annals of Medicine, November 2003)

### Benefit

Early detection of insulin resistance is the key to prevention of harmful changes in the body caused by high levels of insulin and blood sugar. Blood spot screening of fasting insulin levels can help providers and their patients monitor and target necessary lifestyle interventions to reverse disease risk factors. *It has been established that fasting insulin, particularly in populations with normal glucose tolerance, is a very good predictor of insulin sensitivity.* (Refs: 4-6)



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