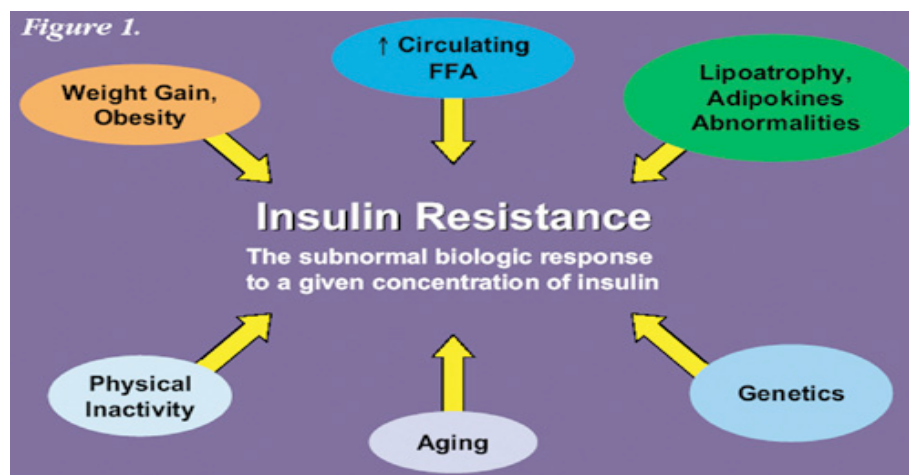


PERQUE Adreno Distress Guard Decreases Insulin Resistance

Insulin resistance means that the cells are not able to use insulin and entry of glucose into the cells is blocked. Usually more insulin is produced, and, eventually, glucose is forced into muscles and adipose tissues where it is converted into fat, contributing to **obesity and weight gain**. The pancreas is overworked just trying to keep up with the body's insulin needs.



Massachusetts College of Pharmacy and Health Sciences, online Continuing Education.

Adrenal Fatigue and Insulin Resistance

There is an intimate relationship between adrenal function, blood sugar levels, and our internal stress level.

The combination of low cortisol and high insulin levels during any stress is well documented. Low cortisol levels lead to a slowing of glucose production and high insulin levels lead to increased demand for glucose. This increased demand and decreased availability of glucose creates a state of reactive hypoglycemia. As a result the body cells do not get the glucose and other nutrients required.

People who are hypoglycemic have a greater tendency to develop adult onset (type 2) diabetes because of their chronic over-consumption of sugar and refined carbohydrates. This creates greater insulin resistance in cells in order to keep too much glucose from flooding in.

PERQUE recently conducted a prospective community based outcome assessment to demonstrate the benefits of **PERQUE Adreno Distress Guard**.

In addition to the remarkable beneficial effect on the cortisol levels of the participants, the product had a substantial trophorestortative rehabilitating effect on those who had insulin resistance along with adrenal issues during the just six weeks during which they took the PERQUE Adreno Distress Guard. The benefits are documented below.

Before we present the data, let's briefly review the meaning of glucose insulin (GI) ratio and HOMA (homeostatic model assessment) so that we can understand the results of our study:

There are two widely recognized methods for measuring insulin resistance.

The hyperinsulinemic-euglycemic clamp technique is the research 'gold standard' technique for measuring insulin sensitivity. The search for uncomplicated and inexpensive quantitative tools to evaluate insulin sensitivity has led to development of the following two validated assessments:

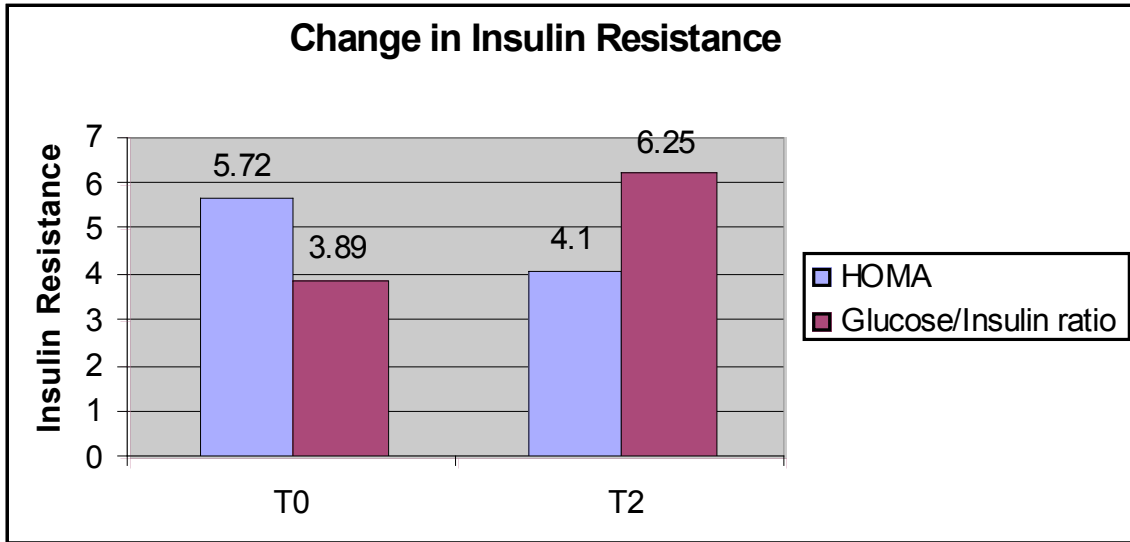
Glucose/insulin ratio (G/I) ratio): The G/I ratio has become popular for the past decade as an accurate index of insulin sensitivity. The ratio of glucose to insulin is easily calculated, with lower values depicting higher degrees of insulin resistance. A G/I ratio of less than 4.5 has been shown to be sensitive (95%) and specific (84%) for insulin resistance in a group of women compared to a control group. There are, however, limitations to this method especially when the fasting blood glucose levels are abnormal.

Homeostatic model assessment (HOMA): HOMA has been widely employed in clinical research to assess insulin sensitivity. Rather than using a G/I ratio, the product of the fasting values of glucose (expressed as mg/dL) and insulin (expressed as μ U/mL) is divided by a constant:
$$\frac{10 \times G0}{405}$$

Unlike G/I ratio, the HOMA calculation compensates for fasting hyperglycemia. A HOMA number of more than 4.0 is taken as sensitive. **HOMA values increase in the insulin-resistant patient while the G/I ratio decreases.** The HOMA value correlates well with clamp techniques and has been frequently used to assess changes in insulin sensitivity after treatment.

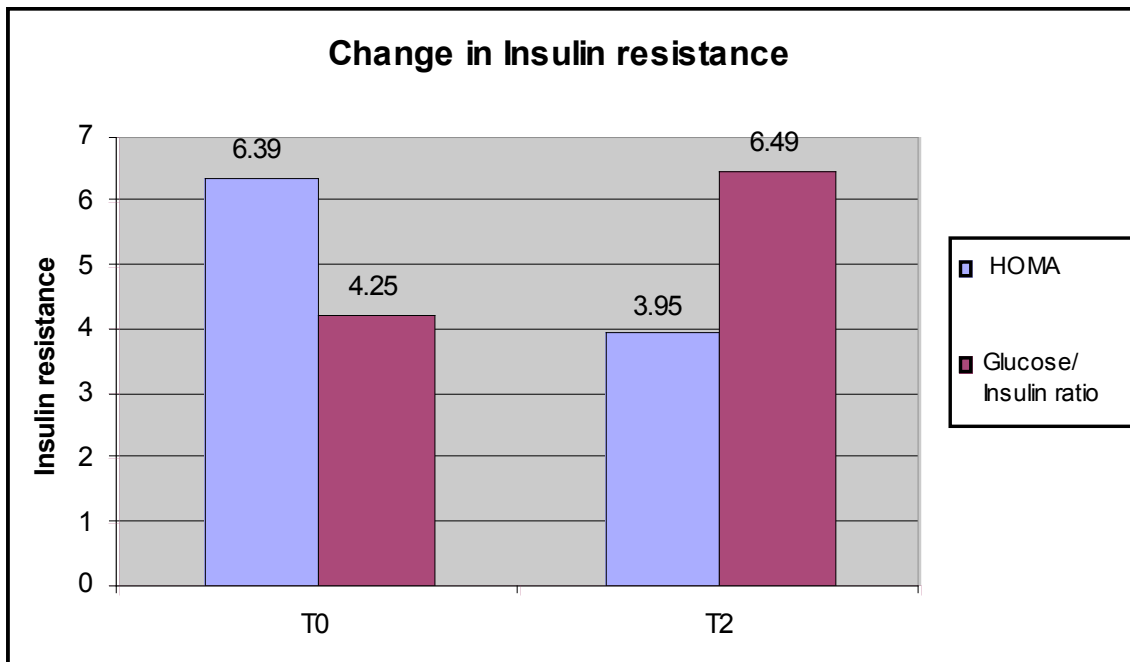
As shown in Fig.1, **DG demonstrated insulin resistance as measured by Glucose Insulin ratio as well as by HOMA. A 28% improvement was seen at the end of the study in the HOMA value and a 38% improvement in the Glucose/insulin ratio after just six weeks on PERQUE Adreno Distress Guard.**

Figure 1 Change in Insulin Resistance in DG after 6 weeks on PERQUE Adreno Distress Guard



HOMA confirmed insulin resistance prior to taking PERQUE Adreno Distress Guard in ED (Fig. 2). However, after 6 weeks of the study, both the HOMA (38% better) and Glucose/Insulin ratio (34% better) improved substantially.

Figure 2 Change in Insulin Resistance in ED after 6 weeks on PERQUE Adreno Distress Guard



Insulin resistance can present itself either before a hyperglycemic state manifests and/or in addition to diabetes. **PERQUE Glucose Regulation Guard** coupled **with PERQUE Adreno Distress Guard** can provide that additional enhanced glucose and insulin balance and support that is needed in this situation.

References:

1. Auley KA, Williams SM, Mann JJ, Walker RJ, Lewis-Barned NJ, Temple LA, Duncan AW (2001) Diagnosing insulin resistance in the general population. *Diabetes Care* 24:460-464.
2. Quon, Michael J, Limitations of the Fasting to Insulin Ratio as an index of Insulin Sensitivity: Editorial, *J End Clin Metab*, 2004; 86(10): 4615-4617.