INSULIN RESISTANCE TESTS

Test	*Result*
Fasting insulin	Lower than 5 mU/L is good; higher than 12 mU/L makes insulin resistance very likely[1]
Fasting blood glucose	Should be less than 85 mg/dL (4.7 mmol/L)[2]
Fasting triglycerides (fat in the blood)	Ideally less than 100 mg/dL (1.13 mmol/L); Over 150 mg/dL (1.7 mmol/L) makes insulin resistance very likely (Note: African-Americans can have very low fasting triglycerides but still have insulin resistance.)[3]
HDL (so-called "good cholesterol")	Higher than 40 mg/dL (1.04 mmol/L) in men is good Higher than 50 mg/dL (1.3 mmol/L) in women is good[4]
Triglycerides/HDL ratio (Divide your triglycerides by your HDL. It doesn't matter whether your test results are in mg/dL or mmol/L, so long as both the triglycerides and the HDL are measured using the same units.	The closer to 1.0 the better, but here are the high risk cutoff values: Non-African-American: below 3.0 is good African-American: below 2.0 is good[5]
Waist index (Divide your waist measurement in centimeters by the number that applies to your ethnicity and gender listed in the box to the right.)	Non-Asian men: waist circumference (cm) ÷ 94 South Asian/Chinese men: waist circumference (cm) ÷ 90 Japanese men: waist circumference (cm) ÷ 85 Non-Japanese women: waist circumference (cm) ÷ 80 (Not a reliable indicator in Japanese women) Below 1.15 is good[6]
HsCRP (highly-sensitive C-reactive protein) (this is a marker of inflammation)	Lower than 1 mg/dL (0.055 mmol/L) is good[7]
Uric acid	Standard cutoffs for insulin resistance are: Lower than 6 mg/dL in men is good Lower than 5 mg/dL in women is good[8] A recent study[9] suggests values may need to be even lower to reduce risk for mental health disorders: Women: < 4 mg/dL is good Men: < 5.35 mg/dL is good[10]

Test	*Result*
HOMA-IR	Fasting insulin (mU/L) X fasting glucose (mg/dL) ÷ 405 OR Fasting insulin (mU/L) X fasting glucose (mmol/L) ÷ 22.5 Cutoff values in scientific studies vary between 1.7 and 3.9 but most experts agree that a HOMA-IR of 1.0 is excellent.[11] Higher is worse, with levels of 3.0 or more indicating significant insulin resistance.
Postprandial glucose test A simple way to get a sense of your client's carbohydrate tolerance/ insulin resistance is to have them test their own blood glucose at home one hour after eating a meal that contains carbohydrates.	If blood glucose rises to 140 mg/dL (7.77 mmol/L) or higher, insulin resistance is likely (and they should avoid foods that cause their glucose to spike into that danger zone).[12]

Kraft Insulin Assay

The most sensitive, accurate and illuminating insulin resistance test available to consumers is the Kraft Insulin Assay. This test is more complicated and harder to access than other tests and is probably not necessary for most people, but it is available in the U.S.[13] You can learn all about the Kraft test in this video[14] by Ivor Cummins, Dr. Jeffry Gerber, and Dr. Kraft himself.

Triglyceride Glucose Index

If triglyceride and glucose values are in mg/dL, multiply fasting blood glucose by fasting triglycerides and divide the result by 2. Then take the natural log* of this number.

$$\ln\left(\frac{\text{Fasting Blood Glucose (mg/dL)} \times \text{Fasting Triglycerides (mg/dL)}}{2}\right)$$

If triglyceride and glucose values are in mmol/L, multiply fasting blood glucose by fasting triglycerides and then multiply the result by 162. Then take the natural log of this number.

$$\ln\left(\text{Fasting Blood Glucose (mmol/L)} \times \text{Fasting Triglycerides (mmol/L)} \times 162\right)$$

Men with values over 8.82 and women with values over 8.73 are most likely to be insulin resistant and have double the chance of developing type 2 diabetes in the future.[15]

*Note: the natural log function (ln) is found on a standard scientific calculator. Most smartphone calculators include this function in landscape view.

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9 For my summary of this test, see my Psychology Today article: "New blood test helps predict (and prevent?) bipolar disorder." https://www.psychologytoday.com/us/blog/diagnosis-diet/201812/new-blood-test-helps-predict-and-prevent-bipolar-disorder

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For more information see my Psychology Today post: "The number one tool for improving your health this year." https://www.psychologytoday.com/us/blog/diagnosis-diet/201812/the-number-one-tool-improving-your-health-year

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