Your Personal carbohydrates metabolism.

Carbohydrates are one of the main types of nutrients. They are the most important source of energy for your body. Your digestive system changes carbohydrates into glucose (blood sugar). Your body uses this sugar for energy for your cells, tissues and organs. They are found in a wide array of both healthy and unhealthy foods - bread, wheat products, beans, milk, popcorn, potatoes, cookies, spaghetti, soft drinks, corn, etc...

Elevated blood sugar

Elevated blood sugar is a health condition that results from higher than normal levels of the sugar (glucose) in the blood plasma. High blood sugar levels are measured as a reading greater than 140 mg/dl or a fasting plasma glucose level of greater than 100 mg/dl. High blood sugar levels often indicate a condition called insulin resistance and can lead to type 2 diabetes. Your physician can directly measure blood sugar or you can use a blood test at home to check your blood sugar

A genetic result of "High" or "Above Average" does not mean you have elevated blood sugar levels, but tells you that you may have a genetic propensity for elevated blood sugar levels. On the other hand, a result of "Low" or "Below Average," tells you that you have a lower than average genetic likelihood for elevated blood sugar levels. This report is based on genetic variants identified in a study of more than 100,000 individuals.

YOUR RESULTS

Gene	Your results	Effects
MTNR1B (rs10830963)	CG	Above average risk of developing insulin resistance
G6PC2 (rs560887)	CC	Greater risk of developing insulin resistance
GCK (rs4607517)	GG	Lower risk of developing insulin resistance
ADRA2A (rs10885122)	TT	Lower risk of developing insulin resistance
DGKB-TMEM195 (rs2191349)	GG	Lower risk of developing insulin resistance
TCF7L2	CT	Above average risk of developing insulin resistance

(rs7903146)		
SLC30A8 (rs13266634)	TT	Greater risk of developing insulin resistance
CRY2 (rs11605924)	CC	Lower risk of developing insulin resistance
GCKR (rs780094)	CT	Above average risk of developing insulin resistance
GLIS3 (rs7034200)	AC	Above average risk of developing insulin resistance
ADCY5 (rs11708067)	AA	Greater risk of developing insulin resistance
PROX1 (rs340874)	CT	Above average risk of developing insulin resistance
FADS1 (rs174550)	TT	Greater risk of developing insulin resistance
MADD (rs7944584)	AA	Greater risk of developing insulin resistance
PGC1A (rs8192678)	GG	Lower risk of developing insulin resistance

Your insulin resistance (IR) genetic score :

Below average IR

Conclusion : Based on your genetic profile score you have a below average insulin resistance risk.

Recommanded daily dosage of carbohydrates: 50% (pourcentage of calories). Note that this percentage also depends on other factors like your daily physical activity level and your age.
The more physical activity you have, the more carb you can eat.

Insulin sensivity response to training

Insulin sensitivity is a good thing. Insulin in your body helps control your response to glucose, commonly known as sugar. Having an increased insulin sensitivity means that the body has a better ability to process sugar. The opposite of insulin sensitivity is called insulin resistance, which is linked to obesity and type 2 diabetes

Most people have a beneficial response to exercise, resulting in increased insulin sensitivity. According to a study, people with C/C or C/T genotypes, at a marker in the LIPC gene, showed an "Enhanced Benefit," compared to those with a T/T genotype. Although people with T/T genotypes are likely to gain "Less Benefit" in insulin sensitivity from exercise training, exercise remains important in many other aspects of their health.

YOUR RESULTS

Gene	Your results	Effects
LIPC	CC	Enhanced Benefit in insulin sensivity

Conclusion : Your genotype is associated with enhanced insulin sensitivity in response to exercise. Therefore you can consume high-glycemic carbs post-workout in order to replenish faster the muscle glycogen that you burned during your workout and so highly increase your recovery.

Carbohydrate needs post-workout

As you train, your main fuel source is muscle glycogen. Glycogen is the storage form of glucose. The glucose break from the glycogen chain as needed in order to generate ATP, which transports chemical energy and is crucial for muscle contractions. The main reason to consume carbs post-workout is to replenish the muscle glycogen that you burned during your workout. But do you really need carbs as part of your post-workout meal for optimal gains?

ACTN3 genotype has been shown to influence elite and general athletic performance, muscle mass and strength. Several studies have shown that ACTN3 XX genotype leads to an α-actinin-3 deficiency. They also have shown that having the ACTN3 XX genotype and so α-actinin-3 deficiency leads to a significantly reduced capacity to use glycogen as an energy source during training. We have now determined that the absence of α-actinin-3 influences glucose metabolism and alters weight gain on a high fat diet.

YOUR RESULTS

Gene	Your results	Effects
ACTN3	RX	High alpha-actinin-3 production; Higher glycogen use during training.

Conclusion : You have an increased capacity to use glycogen as an energy source during training. When you deplete any amount of muscle glycogen, you should be concerned with replacing it—especially if muscle growth is your main goal. It has been demonstrated that the more glycogen there is in your muscle cells, the more mTOR pathway is activated-mTOR = the master regulator of protein synthesis. Therefore, we highly advise you to place a large amount of carbohydrates during your post-workout meals and snacks.

Response to Chromium Picolinate

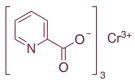
Chromium (Cr) is an essential nutrient involved in the regulation of carbohydrates. Normal dietary intake of chromium in humans is often sub-optimal. Chromium has been reported to increase lean body mass (LBM) and decrease percentage body fat, which may lead to weight loss in humans. It is thaught that this effect is due to a significant increased insulin sensitivity in muscle cells instead of fat cells.

Chromium picolinate (CrP) is a supplemental form of chromium (Cr). Like many minerals, chromium is difficult to absorb. Binding it to an organic compound like picolinate may help the body

absorb chromium more easily.

It has been suggested that if CrP can lower insulin resistance as reported earlier by various studies[1, 2] it can improve body composition, because insulin resistance or deficiency results in impaired entry of glucose and amino acids into muscle cells, increased catabolism of muscle protein and the potential acceleration of fat deposition. In a publication[3], after controlling for differences in caloric intake and expenditure, as compared with the placebo group, subjects in the active treatment group lost significantly more weight and fat mass), and had a greater reduction in percent body fat without any loss of fat-free mass. It was concluded that this study replicated earlier findings that supplementation with CrP can lead to significant improvements in body composition.

But in contrast, the effects of CrP on body composition have also been controversial but are supported by animal studies which increase their validity[4, 5, 6, 7, 8, 9, 10]. Negative reports of the effects of CrP on muscle mass and weight loss have also been published in rats[11]. Moreover in humans, most recently the effects of CrP on weight loss was not achieved in a recent randomized double-blinded study[12]. A subject's response to chromium depends on his or her chromium status, the salt of chromium consumed, amount of supplemental chromium, study duration and possibly an individual's genome.



Because of this controversy regarding the effects of CrP, in 2007 a study[13] decided to test the hypothesis that typing the obese patients by genotyping the dopamine D2 receptor (DRD2) gene prior to treatment with Chromium Picolinate (CrP) would result in a differential treatment outcome. The measures of the change in fat weight, change in body weight, the percent change in weight, and the body weight change in kilograms were all significant for carriers of the DRD2 CC genotype, whereas no significance was found for any parameter for those subjects possessing a DRD2 A allele (AC or AA genotype). It has been suggested that carriers of the DRD2 A allele, because of increased sugar craving behavior, masked the effects of CRP compared to carriers of DRD2 CC genotype. These results suggest that the dopaminergic system, specifically the density of the D2 receptors, confers a significant differential therapeutic effect of CrP in terms of weight loss and change in body fat, thereby strengthening the need for DNA testing.

YOUR RESULTS

Gene	Your results	Effects
DRD2(TaqI)	AC	Associated with high sugar cravings, and **lower response to Chromium Picolinate**

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