

ADRB2 GENE VARIANT



ADRB2, also known as **Beta-Adreno-Receptor 2**, refers to a gene found on chromosome 5 and the receptor that the gene creates. A receptor is a place inside or on the surface of a cell that is activated by the molecules it recognizes much like a key entering a lock. Many ADRB2 receptors are found in the liver and fat tissue. Here these receptors play an important role in the rate of release of glucose stored in the liver and muscle, in moving food through the digestive system, and in stimulating the release of insulin from the pancreas. These receptors have a significant influence on metabolism, especially when responding to persistent stress. Individuals with this variation, referred to here as ADRB2 carriers, are more likely to gain weight from eating carbohydrate. Although exercise is important for many body processes and does help regulate weight, research suggests that carriers of the ADRB2 variant will likely see greatest changes to weight from eating a low carbohydrate diet and fewer changes to weight from implementing an exercise regime.

DETAILED DIETARY RECOMMENDATIONS

1. Closely control carbohydrate intake: The ADRB2 variant and weight gain is strongly linked with a high carbohydrate diet. Carbohydrate will be quickly broken down and stored as fat, thus increasing weight. The variant can slow movement of food through the digestive tract so it is important to ensure that any dietary carbohydrate is high fiber, but with low calorie density. Avoid refined carbohydrates and look for carbohydrates with a low glycemic index, but ensure there is enough carbohydrate consumed to create fiber and also energy for exercise.

Top Tips:

Living With The ADRB2 Gene Variant

- *Low carbohydrate diet is vital to support healthy insulin levels in this variant. This is particularly so in response to stress.*
- *Excess carbohydrate intake makes weight gain more likely.*
- *Overeating carbohydrates frequently leads to insulin resistance and elevated triglycerides.*
- *To get the best results from exercise it is important to engage in frequent activity.*
- *As eating habits improve and physical activity level increases it is possible to actually get **better** results than non-ADRB2 carriers.*



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2. **Eat a balanced diet** of protein, fat and carbohydrate. For the best results 25% - 35% of daily calories should be from protein, 30% should come from fat, 35% - 45% of daily calories should come from carbohydrates.

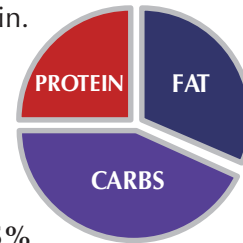
3. **ADRB2 is less sensitive to fat content.**

Fat is more calorically dense than protein and carbohydrates. At 30% of a 1200 calorie diet, fat content only equals 360 calories – or 40 grams of fat. Considering that one tablespoon of olive oil contains

14 grams of fat, it is easy to reach the daily target. So, while fat intake is less restricted than other variants, it is still important to not exceed what is recommended.

Protein 25%

1200 calorie per day diet:
75 grams of protein.



Fat 30%

1200 calorie per day diet:
40 grams of fat.

Carbohydrates 45%

1200 calorie per day diet: 135 grams of carbohydrates.

PHYSICAL ACTIVITY RECOMMENDATIONS

Regular exercise impacts how the body uses carbohydrates. ADRB2 carriers can exercise at a lower intensity such as steady walking. While exercise is less likely to contribute to meeting weight loss goals, it is still vital for other functions such as to maintain a healthy cardio vascular system, good motility in the digestive tract, and maintenance of muscle strength.

Starting a new exercise program may take time. Start at 20 minutes of exercise daily and work your way up to 60 minutes daily most days of the week.

Perceived Level of Exertion: "Feels Like" Low - Moderate

Maximum Heart Rate (MHR): Aim for 50 - 70% intensity to build fitness levels and support weight loss. Heart rate may start out on the lower end (50% MHR) with the goal to increase exercise capacity up to 70% MHR to improve and support weight loss and heart health goals.
