

FABP2 GENE VARIANT



FABP2, also known as **fatty acid binding protein 2**, refers to a gene found on chromosome 4 and the protein that the gene creates. This kind of protein is a type of molecule that helps support a specific function in the body. The function of the FABP2 protein is to move dietary fat from the intestines into small delivery vessels that travel to fat deposit sites around the body. Once at their location they release the fat into fat cells for storage. Fat molecules can also be sent from the intestines to the liver, but too much fat deposited in the liver can lead to inflammation, which may progress to scarring and irreversible damage. The variation in the FABP2 gene causes more fat to be transported to the belly, hips, thighs and other body areas for storage. The key to successful weight loss and health management in FABP2 variant carriers is to control how much and what types of fat are consumed.

DETAILED DIETARY RECOMMENDATIONS

- 1. Limit fat intake.** FABP2 delivers a higher amount of fat to the fat cells, so taking in less through the diet is important. Eat a maximum of 20% of calories from fat.
- 2. Eat mainly monounsaturated fats (MUFAs):** By eating mainly monounsaturated fat instead of saturated fat (SF) and polyunsaturated fat (PUFAs) the body receives signals to send the fat to the fat cells instead of to the liver. Excess fat in the liver leads to inflammation and high levels of insulin and glucose in the bloodstream which can then lead to weight gain, insulin resistance, metabolic syndrome, and eventually diabetes. Examples: olive oil, nuts – particularly almonds and cashews, and avocados.
- 3. Eat lean cuts of protein** to reduce saturated fat intake. Choose lean poultry, fish, and vegetable based protein. These sources have the lowest amount of saturated fat. Avoid beef and pork which have more saturated fat.
- 4. Control carbohydrate intake:** FABP2 carriers have a tendency towards higher insulin levels. By controlling fat and carbohydrate intake it is possible to reduce this trend. Choose complex carbohydrates that will digest slowly and also absorb fat.
- 5. Aim for 25 grams or more of fiber each day.** Choose foods with a high amount of soluble fiber which is able to enter the

Top Tips:

Living With The FABP2 Gene Variant

- *FABP2 variant results in greater absorption and storage of fat in fat cells.*
- *The type of fat consumed matters: choose monounsaturated over polyunsaturated and saturated fat.*
- *FABP2 variant carriers may have reduced insulin activity so limiting carbohydrates is important.*
- *Choose complex carbohydrates and eat at least 25 grams of fiber daily with 50% of that fiber from soluble sources to reduce high levels of fat in the blood stream after meals.*
- *FABP2 carriers have a lower resting/ basal metabolic rate so reduce usual daily intake by 100 calories for better weight loss.*
- *Try to exercise before the largest meal of the day to burn more fat.*



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bloodstream. Soluble fiber will have a positive effect on blood sugar, insulin, and fat levels. Examples of soluble fiber include beans, oatmeal, apples, plums, lettuce, kale, broccoli, cabbage, Brussel sprouts, carrots, rutabagas, and berries.

6. Choose complex carbohydrates. Complex carbohydrates like whole grains, vegetables and fruits, have a higher amount of fiber.

7. FABP2 carriers need to reduce their daily calorie intake by 100 calories less than the usual food plan.

FABP2 carriers have a tendency to have a lower basal metabolic rate, burning on average 100 calories less per day than other individuals. Over time, without changes to diet or implementing an exercise plan, this difference can lead to approximately one pound of weight gain in just over a month.

8. How to calculate calorie needs: Net calorie intake is the total calories eaten minus any calories burned through activity.

(Dietary Calories – Calories Burned During Activity = Net Calorie intake)

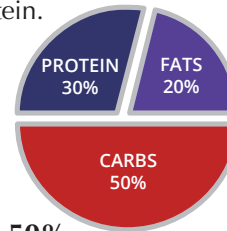
First – calculate the activity level using one of the following equations:

- A) For sedentary individuals multiply body weight in pounds x 10. OR
- B) For moderately active (3 aerobic sessions per week) multiply body weight in pounds x 13. OR
- C) For active individuals (5-7 aerobic sessions per week) multiply body weight x 15.

To maintain a healthy metabolism *never eat less than 1200 calories daily*. If the 100 calorie deduction puts the total below 1200 it is important that the difference be made up through physical activity. However, at every size the greater the exercise the greater amount of calories can be eaten as long as it remains in the preferred ratio.

Protein 30%

1200 calorie per day diet:
90 grams of protein.



Fat 20%

1200 calorie per day diet:
26 grams of fat.
10 - 20% monounsaturated fat (MUFAs), <5% saturated fat (SF). <5% polyunsaturated fat

Carbohydrates 50%

1200 calorie per day diet: 150 grams of carbohydrates.

FABP2 CARRIERS DAILY CALORIE CALCULATIONS BY BODY WEIGHT - SEDENTARY

Body Weight (pounds)	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Basal Metabolic Rate (Sedentary)	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800	2900	3000
Minus 100 Calories	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2600	2900
Daily Calories	1200	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600
Minimum Daily Calories Burned Through Exercise	300 to 500 calories daily, can spread this over the week but aim for a minimum of 5 exercise days a week. 500 calories x 7 days of exercise = 3500 calories in a week (the same number of calories in a pound of fat).															

PHYSICAL ACTIVITY RECOMMENDATIONS

Exercise at 50-70% Maximum Heart Rate (MHR) for best fat utilization. Exercising at a lower intensity helps the body to preferentially burn fat over carbohydrates for better weight loss. Because the FABP2 variant has a higher tendency towards fat absorption and storage it is important to tap into these stores and to burn them for energy. Adding resistance training such as weight training can also utilize more fat stores.

Perceived Level of Exertion: “Feels like” very light to light effort

Maximum Heart Rate: Exercise at a moderate intensity (50-70% of MHR) for the majority of the workout.

Exercise before the biggest meal of the day. This will improve fat utilization both during and after the meal causing less fat to be deposited in the fat stores and more to be used for energy.