

001, RACE SEASON

Fat or Carbs? Which is best?

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Fats, carbohydrates and proteins are considered macronutrients because they are consumed in large quantities to provide the body with energy.

The typical American diet may contain 30-40% fat, 10-20% protein, and 40-60% carbohydrate while an athletic diet may contain less fat and protein and more carbohydrate, up to 60-75% carbohydrate.

Many of you may have heard of "The Zone" diet by Dr. Barry Sears. This diet promotes health and physical performance gains through a balance of 30% fat, 30% protein, and 40% carbohydrate.

This diet drastically reduces the percentage of carbohydrate that has been proposed for athletes and has started a whirlwind of research regarding the topic.

To understand what happens to performance when we alter the composition of our diet, we must first understand something about the production of energy in our bodies from macronutrients.

Carbohydrate can be metabolized anaerobically (without oxygen) to produce energy. The byproduct of this process can then be converted to energy aerobically if conditions are favorable.

The anaerobic portion of carbohydrate metabolism occurs rapidly and therefore can supply energy when it is at high demand.

Fat can only be broken down by aerobic processes, which are somewhat slower and require oxygen.

Protein contributes a very small amount to energy production and it is therefore not often mentioned when discussing energy supply.

However, protein is essential in the maintenance of protein-based structures in the body, most important to the athlete, muscle.

The total potential energy from the breakdown of fat is substantially greater than that from the breakdown of carbohydrate. During exercise, you will never be limited by fat stores.

Your body stores carbohydrate in the form of muscle glycogen. During high intensity activity, you can deplete your muscle carbohydrate stores in as little as an hour. During moderate intensity activity, it may take 2-3 hours. When you run out of carbohydrate, your body runs out of gas. You may be familiar with the word “bonk” or the term “hitting the wall”, well this is it.

During light exercise, your body favors the use of fat for energy but as exercise intensity increases, it requires more and more carbohydrate. At maximal exercise, your body is burning pure carbohydrate for energy.

So what happens when you eat a large percentage of carbohydrates or fats on a regular basis?

Studies have conclusively demonstrated that a diet high in fat increases the enzymes responsible for the breakdown and utilization of fat. This simply means that your body is geared towards the use of fat for energy.

Similarly, a diet high in carbohydrate produces changes that favor its use.

How does this relate to performance? Some studies indicate that a diet high in fat may improve endurance performance by limiting carbohydrate usage.

This means you can exercise longer before running out of muscle glycogen and bonking.

Research has confirmed that a person who consumes a high fat diet will use more fat for a given exercise than someone who consumes large amounts of carbohydrate and vice versa.

It would make sense therefore that the high fat diet could enhance endurance performance by limiting the loss of carbohydrate, thus delaying bonking.

This is true given one stipulation: The exercise intensity must be low to moderate.

If you remember that the body burns pure carbohydrate at maximal exercise, a diet that promotes the utilization of fat (slow process) for energy production may actually limit performance.

At maximal exercise, a body geared towards the production of energy from fat may not be able to supply the energy needed for muscle contraction at a high enough rate.

So it appears that the intensity of the event may actually determine which macronutrient composition is best for performance.

For events lasting 2 hours or less I would suggest a diet that is high in carbohydrates (55-70%) and those participating in events longer than 2 hours may want to increase the consumption of fat and protein slightly, eating 45-60% carbohydrate.

These are just suggestions and I recommend that you experiment and find out what works best for you.

Which is better for weight loss? By increasing the ability to use fat as a fuel will I lose body fat?

The equation for fat loss is simple. You must expend more calories than you take in.

Your body really doesn't care whether the calories you burn or the calories you consume come from fat or carbohydrate.

You can manipulate the energy balance equations from either end, by decreasing calorie intake or increasing caloric expenditure.

Research suggests that the best road to weight loss is to combine an increase in physical activity with a concurrent reduction in caloric intake.

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