

The Importance of All Meals

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e've all heard the importance of providing our bodies with proper nutrients in order to take on the tasks of the day. Despite this knowledge, skipping meals for dieting reasons or lack of time is commonly practiced (6). These practices have undesirable health consequences and do not always result in weight loss.

How Your Body Reacts to Skipping Meals

Any time you skip a meal, your body goes into "fasting mode". During this fasting, carbohydrates, proteins, and fats are all used for energy. Carbohydrates are the number one source of fuel, followed by protein and then fat. As the fasting continues, the following steps will occur:

- The glycogen storage deposits found in the liver and muscle become depleted.
- As the glucose levels drop, the body looks for other sources of fuel. Since the brain and nerves prefer energy from glucose, protein tissues (muscle and liver) are broken down.
- In efforts to preserve the remaining protein, the body starts to metabolize fat for energy in the form of ketone bodies (acetoacetic acid).

The process of using ketone bodies as fuel is called ketosis. This process can cause the following negative effects on the body (4,9,10):

- Nausea
- Fatigue
- Constipation
- Lowered blood pressure
- Elevated uric acid (kidney disease)
- Stale taste in mouth
- Fetal harm/stillbirth in pregnant women

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As the body switches to the use of ketone bodies, it begins to reduce energy output in an effort to protect both fat and lean tissue. In addition, as the lean tissues begin to shrink, they become weaker and perform less metabolic work, reducing energy expenditure even more (4,6,10). Hormones also slow down the metabolism to conserve lean body tissue (10).

This is also known as "starvation mode". This mechanism is thought to have evolved as a defense against starvation (5). The body uses its calories efficiently in order to protect its fat stores, using lean tissue and muscle instead (10). A lowered metabolic rate is a direct result of muscle loss. Accordingly, fewer calories are needed and weight loss slows down (3,7,8).

Undesirable Health Issues

Skipping meals and restricting calories will create cravings. Rapid high blood sugar occurs when you give into these cravings. As a result, your body creates a high amount of triglycerides, which convert to fat-storage. In addition, the depleted glycogen causes low energy levels because blood sugar is not being replaced. Unfortunately, the weight that is lost is mostly water (glycogen is made up of mostly water) and muscle (6).

The slowed metabolism will also have a tough time digesting your food, if you cram in all your meals at one time. This is also commonly seen in people who skip meals. They get so hungry they eat more than one meal worth at one sitting. The already slowed metabolism is going to take a lot longer to work the oversized meal throughout your body. Once again, resulting in weight gain.

Lastly, the success rate of losing weight from skipping meals is relatively poor. A significant amount of weight may be lost at first, but once again this is water and muscle weight, and the chances of gaining the weight back, plus more is quite good (1,3,8). The effects of skipping meals are listed in table 1.

Summary

Dietary restriction by skipping meals should be avoided. The insufficient energy imbalance has undesirable effects, such as increased fat storage and weakened performance. The depressed metabolism will conserve its energy, making dieting less effective and more difficult (2). Using this method in hopes to lose weight may become frustrating and result in even more unhealthy ways of dieting (7).

It has been proven that consuming sufficient calories is better than not getting enough. In addition, getting them on time, thus preventing energy deficit state during the day, is better than getting them late (3). Combining exercise and healthier eating (reducing fat in diet, etc.) is highly suggested (1). Be sure to eat all meals throughout the day. They do not have to be huge meals, but enough to get your metabolism going,

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Table 1. Effects of Skipping Meals (2,3,6,8,10)

- Decreased energy expenditure
- Decreased metabolic rate
- Weight gain
- Increased preference of fat in the diet
- Decrease strength
- Increased injury rates
- Decreased bone density
- Decreased body temperature
- Decreased performance
- Decreased resistance to disease
- Renal regulation and Electrolyte imbalance
- Impaired Thermal regulation
- Decreased Testosterone level
- Mood swings
- Menstrual dysfunction

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About the Author

Lara Engler is a student at Drexel University in Philadelphia, PA. She has worked as an intern at the NSCA's Human Performance Center in addition to interning with Sports Alliance. In the past, she served as an educator for the Nutrition Education Program in Philadelphia as well as a Research Diet Technician for the Children's Hospital of Philadelphia. Currently she is finishing her last year at Drexel, while training to become a yoga instructor. ▲