

# How does fasting effect people's body health and longevity

**Yuxin Wang**

International Class of Xi'an Tieyi Middle School No. 120, Youyi East Road, Beilin District, Xi'an City, China

wangyuxin2024@163.com

**Abstract.** Many people are losing weight, but many are doing it incorrectly. Based on some adverse effects of body image, many people have started to lose weight. Now that weight loss is widespread, it is also vital to research ways to lose weight. This paper talks about how fasting affects the mice's longevity and how fasting enables us to lose weight. The study shows that increasing fasting frequency can improve the health and survival of male mice. This research has found that increased fasting frequency can enhance the health and survival of male mice. Consequently, fasting may affect human longevity to a certain extent and won't hurt people's bodies if people use it correctly. In the future, researchers can do more research on how fasting affects human longevity. Although, nowadays, people can find that fasting may have some effect on human longevity, it is not mature, and people should research more deeply and know how the fasting results.

**Keywords:** Fasting, losing weight, longevity

## 1. Introduction

In people's daily lives, some people usually choose a variety of ways to help them lose the extra weight because they feel that they are overweight or the doctor says that they should control their weight to avoid being too ill in the future. Firstly, the common ways that cause people to be overweight are several factors. These factors include diet, lack of exercise, and some environmental factors. Firstly, the reason for diet and activities is that when people consume more calories than they burn through exercise, they will probably gain weight. This imbalance is the most common cause of gaining weight. Secondly, people's environment will also affect them to gain weight. For example, there are no public parks around the people's living place, or there is no gym that people can afford, which means it will cause people to exercise. Lastly, Genetic studies have shown that genes play an important role in obesity, which means that people whose parent is overweight are likely to be heavy, too. Genes will cause the Prader-Willi syndrome directly, and so on, other illnesses. Some scientists believe that genes will increase the possibility of overweight [1]. For example, compared with people with an average weight, people who are overweight are more likely to be ill than average-weight people, such as Type 2 diabetes mellitus, breathing problems, high blood pressure, high cholesterol, heart disease, and so on [2].

Therefore, to be healthy, people usually choose various ways to lose weight, which means that people want to make their bodies fit to lose weight. For example, some people will restrict their calorie intake strictly and skip meals, which is an unhealthy way to lose weight. It is essential to consistently give your body the fuel it needs to maintain its energy levels and function at peak performance. Eating when you

feel hungry can prevent you from consuming more food later in the day than you planned, Schaeffler explains. “Instead, have regular meals and snacks throughout the day,” she advises. “This will help you stay energized and prevent you from getting too hungry.”; Eat lots of low-calorie or “diet” foods, but when you eat too many low-calorie or “diet” foods, you can also overeat. The body uses carbohydrates as its main source of energy. If you cut these things out of your diet, you may feel irritable and tired, along with headaches and feeling like you don’t have the energy to complete your workout. “Low-carb and weight-loss foods seem like a good choice, but many times they don’t satisfy people and leave them looking for other foods to feel full,” Goodson explains. Not to mention, low carb doesn’t mean it’s good for you. Many of them replace carbohydrates with saturated fat and reduce fiber.”

In fact, whether people do not eat every day or eat a lot of low-calorie food will cause people to feel pucky, which is a kind of malnutrition and usually the substitute for fasting, but starvation is a kind of Chronic Malnutrition. This fasting is extreme and will cause people degradation and even death. Therefore, people may have some questions about whether fasting is useful for us to lose weight and whether fasting prolongs people’s lives, which has been a heated topic that spurred discussion in people’s lives [3].

Fasting is defined as a kind of behavior in which an individual stops eating food consciously. Fasting also includes stopping eating some different kinds of food, for instance, meats, vegetables, and even drinks. In addition, fasting is commonly used before the operation and religious even lose weight.

The classification of fasting: fasting is not even one, but it can be divided into two more meticulous types of fasting. The first one is Intermittent Fasting. Just like the name, fasting is discontinued, which is a period of fasting and then a period of normal food consumption abbreviated as IF. In a general way, IF, usually for 12 to 48 hours and every 1 to 7 days, will repeat again. The second one is periodic fasting, which takes a period as a cycle and is abbreviated as PF. In a regular way, PF is used for about 2 to 7 days and repeated once a month [4].

The physical effect of fasting is that the different types and degrees will have an additional impact on fasting. Some of them are healthy for people, but some of them will have harmful effects. Generally, healthy fasting individuals will drink enough water or vegetables and fruit juice, which can be used for cleaning people’s stomachs and intestines. When people stop eating something, their bodies will survive in other ways, which means the body may rely on the substance that they have stored in the past. Firstly, the body gradually converts the hepatic sugar stored in people’s bodies to glucose by the liver. Additionally, the body will also extract the Fatty acids from the human body’s fat.

## **2. The Molecular Effects of Fasting**

These pathogens are present in the cells of people’s bodies. The main mechanism of killing pathogens is a process called Autophagy or self-feeding. The lysosome that specializes in recycling intracellular ‘waste’ is an organelle present in a wash tank. ‘Waste’ is referring to damaged proteins, organelles, pathogens, bacteria, and viruses. Lysosomes break down this ‘waste’ into a variety of different components, such as amino acids, glucose, and fatty acids. Cells will reuse the components to make useful proteins and organelles. These cells will stop killing the bacteria in people’s daily lives. In other words, cells recycle bacteria and other “waste” after fasting for a period of time to create useful things. This mechanism suggests that fasting, in part, protects against intracellular infection. Postprandial autophagy is limited in the presence of sufficient ingredients to maintain fatty acid, amino acid, and glucose levels. However, autophagy is activated when components are insufficient, as in fasting. In this way, autophagy will also play a certain protective role in our body. As a complex immune defense mechanism, autophagy can recognize, capture, and eliminate intracellular pathogens and also provide the body with the corresponding microbial components so that the body can produce antibodies. Autophagy is a mechanism by which cells kill pathogens and prime the immune system to prevent infections.

### **3. The Reasons for Losing Weight by Fasting is Counterproductive**

Usually, people lose weight by eating less food, which will enable them to go into starvation mode. Therefore, in order to maintain normal operation, the body will save energy automatically. People's metabolism slows down, and the body adjusts by supporting the people's control over the desire for food, which means people are likely to feel fairly starved at the beginning of fasting. As time goes on, they may not feel starved. However, when people stop fasting, which means they will return to the desire for food and feel more starved. To be more specific, cross-day fasting is without eating for one day and eating for one day. It can help people achieve the goal of losing weight, but it is likely to rebound and not continue in the long term. In the research, it was shown that the people who tried cross-day fasting lost weight but did not lose weight in the long term, although they could eat anything during the non-fasting day [5]. Short-term fasting may not cause some harmful effects on healthy people as long as the body is not dehydrated and has normal access to vitamins, minerals, and other nutrients because the body needs these nutrients to maintain its health. However, fasting or starving in the long term may cause some risks, and when you cannot get enough nutrients, you may feel tired, dizzy, constipated, and so on [5].

### **4. Fasting Effect, the Longevity**

The researchers used mice to experiment. They divided almost 300 mice into two big groups and used different kinds of diets. The first group uses healthy, natural, and low-sugar food. The second group uses more processed and high-sugar food. Then, they divided each big group into three small groups with three different feeding patterns. The first one is called AL, and the mice in this group can eat the food at any time and in any amount they want. The second one is called CR, which consumes 30% less food than the AL group and is placed in the cage at the same time each day as the AL group. The third group is MF, and the average food volume is the same as the AL group but controlled for feeding frequency throughout the day; the MF group's mice can eat once daily.

Consequently, the MF group's mice realized they could not eat the food whenever they wanted, like the AL group's mice, so they ate fast. The CR group's mice also eat less food more quickly. By contrast, the mice in the regular AL group did not live as long as those in the MF and CR groups. Mice in the MF group lived approximately 11% longer; Mice in the CR group lived about 28% longer. In addition, the MF and CR groups also had a later onset of disease than the AL group. This research has found that increasing fasting frequency can improve male mice's health and survival. Consequently, fasting may affect human longevity to a certain extent.

### **5. Conclusion**

The paper can conclude that fasting won't hurt people's bodies if people use it correctly. Fasting for a few days may not hurt some healthy people as long as they do not dehydrate and lose nutrients. In the process of losing weight, people should also use the correct ways to help them and pay attention to how and what to eat to enable the body to be healthier and more balanced so that our body's nutrition can keep up. While focusing on weight gain, please don't overlook the negative mindset that often makes us overweight. Fasting has good and bad effects. People should be more careful to choose healthy fasting methods to help their body become healthier, rather than lose weight to affect body health, thus endangering people's lives.

Additionally, people can do more research about how fasting affects human longevity in the future. Although, nowadays, people can find that fasting may have some effect on human longevity, it is not mature, and people should research more deeply and know how fasting affects them. It can also be used to test whether it impacts sick people.

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