

# How is Losing Weight Interrelated to Atrial Fibrillation?

There are epidemics of [atrial fibrillation \(AFib\)](#) and obesity in the United States. AFib is the most common clinically significant arrhythmia (abnormal heart rhythm). It is estimated to affect over 5.2 million people in the United States and is predicted to affect 12.1 million by 2030. In 2013, 38% of adult Americans were obese (defined as a body mass index of 30 kg/m<sup>2</sup> or greater). Only 4 years later that number had increased to over 42%.

Although there are numerous factors contributing to the AFib epidemic, obesity, which has multiple negative effects on the heart, markedly increases the risk of developing atrial fibrillation. Epidemiologic studies have found that people with obesity are twice as likely to have AFib as non-obese individuals. Given this relationship, it is expected that as rates of obesity increase so will atrial fibrillation prevalence.

Luckily, there is a connection between weight loss and AFib and heart palpitations. An atrial fibrillation diet can lead to weight loss and heart palpitation improvement. If you are obese, losing just 10% of your body weight can have a significant impact on AFib. If you have AFib and obesity and have been referred for an ablation, weight loss prior to your procedure can improve AFib ablation success.

## **Does Obesity Cause Heart Palpitations?**

Obesity is an independent risk factor for the development of atrial fibrillation. The risk is incremental and increases as weight increases. For example, it has been shown that people who are overweight are 39% more likely to develop AFib compared to people who have normal weight. The risk of AFib for those who are obese increases to 87% compared to their normal weight counterparts.

A large meta-analysis of 51 studies which included 600,000 people analyzed the impacts of obesity on AFib. It found that every 5-point increase in BMI conferred a 20-30% increased risk of developing atrial fibrillation. In terms of BMI, a 5-point increase usually means moving from one weight category to another (i.e. going from overweight to obese).

The link between excess weight and heart palpitations is complex. One mechanism by which obesity increases the risk of atrial fibrillation is by increasing the prevalence of other chronic conditions which also contribute to AFib like diabetes, high blood pressure, heart disease and obstructive sleep apnea.

However, studies have also found that obesity has direct effects on the heart which can increase the risk of atrial fibrillation. These relationships are complex and not completely understood but may include:

- **Changes in blood flow and blood volume.** Obesity causes an increase in blood volume which contributes to increased blood pressure in the arteries and lungs. Pumping a higher volume of blood through the heart puts additional strain on the heart muscle essentially requiring that it works overtime in order to handle the increased volume.
- **Structural changes of the heart.** Overtime, as the heart has to work harder, the heart muscle becomes thicker and the heart chambers may enlarge.
- **Changes in heart function.** The long term effect of overwork can cause heart failure.
- **Neurohormonal changes that promote AFib.** Obesity causes a variety of complex neurohormonal changes to occur, including over-activation of the sympathetic nervous system. Sympathetic nervous system over-activation is associated with AFib.

- **Increased systemic inflammation.** Chronically elevated levels of inflammation cause many problems within the heart, especially in the heart's electrical system which can contribute to atrial fibrillation.
- **Cellular changes.** Obesity can even cause changes in the heart at the cellular level. These changes cause the left atrium (upper left heart chamber) to develop fibrosis and become stiff. Atrial fibrillation originates in the left atrium and as it becomes increasingly fibrotic AFib becomes more prevalent. Fixing AFib in the setting of a stiff left atrium becomes more difficult and treatments like AFib ablation become less effective.

The direct and indirect effects of obesity work together to create an environment in which atrial fibrillation is more likely to occur. In addition to promoting the development and maintenance of atrial fibrillation, obesity also effects atrial fibrillation in the following ways::

- **Decreased medication effectiveness.** Obesity can affect how well certain medications for heart rhythm disorders, like AFib, work. For example, higher doses of medication to control heart rate may be needed for people with tachycardia and obesity. People with atrial fibrillation have a 5 times increased risk of stroke and blood thinning medications (anticoagulants) are often recommended to reduce this risk. Warfarin is a common anticoagulant used to reduce AFib related stroke risk. People who are obese often need higher doses of warfarin for the medication to be effective. It also takes longer for warfarin to start being effective for people who are obese. Obesity is also known to impact some of the newer anticoagulants like Xarelto and Eliquis. Currently there is little guidance on if, or how, dosages of these medications need to be adjusted for obese individuals.
- **Obesity and AFib progression.** Obesity increases the risk of atrial fibrillation progressing from intermittent (paroxysmal) to persistent or permanent AFib. As atrial fibrillation progresses it becomes more difficult to treat. Of note, studies looking at persistent AFib and weight loss have shown that losing weight contributes to decreased AFib symptoms and improved quality of life.
- **Impact of obesity on ablation outcomes.** A person's BMI prior to ablation impacts AFib ablation success. Researchers have found that as baseline BMI increased so did the rates of AFib recurrence at 12-months after ablation. Studies have shown that weight fluctuations and weight gain have a negative effect on atrial fibrillation. Therefore, it stands to reason that weight gain after ablation would also compromise the long-term effectiveness of the ablation.

## Can AFib Be Reversed with Weight Loss?

There are certain atrial fibrillation risk factors like age, ethnicity and gender which cannot be changed. However, atrial fibrillation risk factors like obesity, diabetes, high blood pressure and obstructive sleep apnea can all be improved or reversed with lifestyle changes like weight loss and improved fitness. Therefore, risk factor modification is an important treatment goal of patients with atrial fibrillation.

In 2018, the REVERSE-AF study was published. This was the first study that tracked the effects of sustained weight loss and weight fluctuations on atrial fibrillation over a prolonged period of time. Their findings showed that sustained weight loss can help reverse AFib.

The study was conducted over the course of 4 years. When the study began, all study participants had atrial fibrillation and were obese. Participants were enrolled in a weight loss clinic that used a motivational, goal-directed weight loss approach which included frequent clinic visits, specific dietary guidance, low intensity exercise, maintenance of a daily diet and exercise diary and support counseling.

At the end of the 4 year study period, researchers found that participants who lost at least 10% of their body weight were 6 times more likely to experience long-term freedom from atrial fibrillation without the use of AFib medications or surgery. Less weight loss was associated with smaller gains. Twenty two percent of

participants who lost 3 to 9% of their body weight and only 13% of people who lost less than 3% of their weight were AFib free without [AFib treatments](#) at the end of the study period.

Amongst study participants who did require atrial fibrillation medications or surgery, greater weight loss and risk of AFib recurrence continued to be inversely related and participants who lost the most weight were the most likely to be AFib free after AFib medications or surgery. In addition to helping decrease AFib, sustained weight loss helped improve other cardiovascular risk factors like high blood pressure, diabetes and obstructive sleep apnea amongst study participants.

This study also demonstrated the negative effects of weight fluctuations. Participants who maintained weight loss and lost weight in a linear fashion had greater freedom from atrial fibrillation. People who lost and then regained weight that resulted in a 5% annual weight fluctuation were twice as likely to have AFib recurrence as their study cohorts who did not experience significant fluctuations in weight.

The exact mechanisms by which sustained weight loss improves atrial fibrillation are not completely understood. Some of the effect is likely from successful AFib risk factor modification. Although fewer AFib risk factors does not completely explain the effect because a number of studies have shown that obesity independently increases Afib risk.

Improvements in heart chamber size and function, especially within the left atrium, are seen with weight management and sustained weight loss. In addition, neurohormonal changes resolve and systemic inflammation improves as a person moves toward an ideal body weight. These changes, combined with the presence of fewer AFib risk factors, likely contribute to the positive effects of weight loss on atrial fibrillation.

## **Can Atrial Fibrillation Cause Weight Loss?**

Atrial fibrillation does not cause weight loss. However, if a person develops symptoms of losing weight and heart palpitations it is important to get checked for thyroid problems. Having an overactive thyroid can trigger atrial fibrillation. Hyperthyroidism (overactive thyroid) also increases the body's metabolism and can cause weight loss. If hyperthyroidism is triggering atrial fibrillation, treating the thyroid can reverse AFib.

Beta blockers are a common medication that is used to help control the fast heart rate that can be associated with atrial fibrillation. Weight gain has been observed as an occasional side effect of some beta blockers. The weight gain is usually only 2-3 pounds and is seen in the first few weeks after starting the medication. If you experience this weight gain, you will likely have a similar amount of weight loss after stopping beta blockers. This minimal amount of weight gain would not be an indication to stop a beta blocker that was otherwise helping your atrial fibrillation or other heart conditions. However, if the weight gain is problematic for you, it does not occur with all beta blockers so you could talk to your doctor about trying a beta blocker that is not associated with weight gain.

## **Best Weight Loss Diet for Afib**

Americans are bombarded with weight loss recommendations and information about the latest fad diets. This has over-complicated nutrition and left many people confused and unsure of what to eat if they want to lose weight. Clinicians commonly get asked about weight loss aids and diets like phentermine and Keto diet.

Weight loss aids, like phentermine, can be helpful for weight loss for people who are obese who have not achieved or maintained weight loss with lifestyle modifications alone. Weight loss medications have risks and side effects and should not be used in lieu of diet and exercise. Phentermine is an appetite suppressant and is a common component of weight loss medications. It is a stimulant and can cause heart problems like

palpitations, arrhythmias, high blood pressure and heart failure. It is generally not recommended for people with atrial fibrillation.

Amongst people with obesity and AFib, weight loss and improved fitness are associated with a lower AFib burden. Even minimal improvements in cardiorespiratory fitness are associated with a 13% lower risk of atrial fibrillation occurrence. While moderate levels of exercise can have a positive effect on AFib, the impact of weight loss is even more significant.

Exercise alone is not usually enough to cause meaningful weight loss. This is because it is hard for the average person to exercise enough to burn the excess calories associated with an unhealthy diet. Conventional dieting wisdom promotes the idea that to lose weight, you need to consume fewer calories than you burn. While technically it is true that if you want to lose weight your calorie output has to be greater than your calorie input this advice needs to be taken with a grain of salt. Starvation diets are very effective at making a person lose weight quickly but they are not sustainable and are often associated with serious health risks, as seen with low calorie diets and heart palpitations.

Most Western diets are high in foods rich in sugar, fat, salt and processed carbohydrates. While tasty, these foods are nutrient poor and do nothing to contribute to vitality and health. Losing weight is a long-term process.

Try not to think of losing weight as going on a diet but rather that you are adopting a different lifestyle. There is a large body of evidence that shows that most people do not stick to diets and people who diet often experience significant weight fluctuations and ultimately many end up weighing more than they did when they started the dieting process.

Improving your health and decreasing AFib is not about calorie deprivation and fad diets. It is about making a number of choices that all together add up to a healthy lifestyle. It can be hard to know where to start so we created a weight loss/healthy lifestyle checklist:

1. **Avoid fad diets and weight loss 'quick fixes'.** The best diet is one that you can stick with. Studies have consistently ranked the Mediterranean diet as one of the healthiest. Partly this is because the Mediterranean diet is a well-rounded, sustainable way of eating. It includes a variety of flavorful food as you would expect of a food-loving culture.
2. **Eat a rainbow of color.** Eat mostly fruits, vegetables, complex carbohydrates, and lean protein. Steer clear of processed food and trans fats. Limit red meat, sugar, salt and saturated fat. Cut back on salt by using more spices and fresh herbs.
3. **Control portions.** Even though ultra-low calorie diets are not recommended, it is important to eat fewer calories than you burn if you want to lose weight.
4. **Avoid alcohol.** Alcohol is full of empty calories. For example, a 6 oz. glass of wine has around 150 calories. A 12 oz. can of beer ranges from 150-200 calories. Mixed drinks can range from 150 calories for a martini to 500-900 calories for a blended drink like a piña colada. Another reason to avoid alcohol is that excess alcohol is a known trigger for atrial fibrillation.
5. **Cut out sugar sweetened beverages.** Soda, juice, and your morning latte with a double shot of vanilla syrup are all high in sugar, which is full of empty calories. In addition, high sugar drinks like these cause your blood sugar to spike. Ultimately they can contribute to insulin resistance and diabetes.
6. **Manage your stress.** Stress hormones, like cortisol, increase insulin resistance and contribute to weight gain. In addition, it is difficult to make healthy food choices when you are stressed. If you know you have a stressful week ahead of you, spend some time on the weekend doing meal planning and meal prep so you can set yourself up for success during the week.
7. **Get active.** Exercise for 150 min/week. Studies have shown that moderate-intensity exercise is the best for atrial fibrillation. As your fitness improves, increase the duration of activity up to 250 minutes

per week.

8. **Get your beauty rest.** Getting at least 7-8 hours of sleep per night is important to help regulate hormones, stress, appetite and weight. Talk to your doctor if you snore, wake up gasping or choking or have excessive daytime tiredness. These are all signs of sleep apnea. Untreated sleep apnea increases the risk of atrial fibrillation and obesity, in addition to a number of other health problems.
9. **Strive for moderation.** Moderation leads to consistency and avoids the most common dieting pitfall: yo-yo dieting with recurrent weight fluctuations. We all have our diet weaknesses. To swear off ever having that favorite thing (i.e. homemade chocolate chip cookies, donuts, ice cream, chips, etc) is setting yourself up for failure. Living a healthy lifestyle does not mean that you will never again get to have the food you love most, just that you will only have it occasionally or rarely. The upside of this is that when you do finally sink your teeth into that cookie/donut/chip/ice cream you will really appreciate it!

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