

# Heart Failure

## Are You at Risk?

Heart failure is a progressive disease in which the heart muscle is unable to pump enough blood through the heart to meet the body's needs for blood and oxygen. It is estimated that 5.7 million Americans are living with heart failure, and 670,000 new cases are diagnosed annually.<sup>1</sup> The body compensates for the deficient circulation by enlarging the heart chambers, increasing the muscle mass of the heart, pumping blood faster, narrowing the vessels to keep the blood pressure up, and diverting blood away from some organs to meet the needs of the most vital organs. There are numerous lifestyle factors that play a role in the development of heart failure such as physical inactivity, being overweight, eating foods high in fat and cholesterol, smoking and nutrient deficiencies such as vitamin B1, CoQ10, carnitine and other energy factors essential for cardiac muscle cells.

Physical inactivity is a controllable lifestyle factor that can lead to becoming overweight and the accumulation of abdominal fat. According to the Centers for Disease Control and Prevention (CDC), over one-third of American adults are obese, totaling over 72 million people.<sup>2</sup> Obesity is defined as a body mass index (BMI) of 30 or greater, which is calculated from a person's weight and height. Abdominal obesity, also known as central obesity, is the accumulation of visceral fat resulting in increased waist circumference.

Visceral fat, also known as intra-abdominal fat or belly fat, is adipose tissue that surrounds the abdominal organs and is highly physiologically active, releasing various inflammatory mediators and hormones. Unlike the fat found under the skin known as subcutaneous fat, visceral fat accumulation is independently associated with an increased risk for cardiovascular disease.<sup>3</sup> Abdominal obesity, defined as waist circumference greater than 40 inches in men and 35 inches in women, is also associated with increased risk of diabetes and metabolic syndrome.

For many individuals who are faced with a protruding stomach, the motivation to lose weight is often more about appearance than about the health consequences of those few extra pounds around the middle. However, research is beginning to unveil that a big belly is destructive to more than just our self-esteem. It can also be associated with a greater risk of heart failure, providing even greater incentive to take steps to shed this type of fat. This article will address the ways that belly fat increases the risk of heart failure and will provide natural strategies that can be used to reduce belly fat, simultaneously improving heart health.

## Abdominal Fat and the Heart

Obesity is associated with the incidence of heart failure. In particular, researchers have shown that accumulation of visceral fat plays a role in the development of this disease. One study examined the correlation between BMI, waist circumference, and heart failure risk. The subjects included women aged 48-83 and men aged 45-79. Height, weight, and waist circumference were recorded. The subjects were followed for 6 years to monitor heart failure incidence. The results showed that a 10-cm enlargement of waist

circumference increased heart failure risk in women by 15 percent in those with a BMI of 25 and by 18 percent in women with a BMI of 30 kg/m<sup>2</sup>. In men, a 10-cm higher waist circumference increased heart failure risk by 16 percent in those with a BMI of 25 and by 18 percent in those with a BMI of 30 kg/m<sup>2</sup>.

The authors concluded that higher waist circumference was associated with heart failure at all levels of BMI in women and both BMI and waist circumference were predictors among men.<sup>4</sup>

Another study examined the correlation between total body fat and abdominal fat and the risk of developing chronic heart failure. In this study, 3,075 men and women aged 70-79 years old were evaluated for body composition and were followed for approximately 6 years to evaluate heart failure risk. The results showed that all adiposity variables including BMI, waist circumference, adipose tissue mass, percentage body fat, waist-to-thigh ratio, and visceral and subcutaneous abdominal adipose tissue were significant predictors of the development of chronic heart failure. Further analysis of the data showed that when evaluating waist circumference and BMI together, waist circumference was associated with increased chronic heart failure risk but BMI was not. When waist circumference and percentage of body fat were included together, both variables were significant predictors of chronic heart failure. The researchers stated that abdominal body fat distribution may be a stronger risk factor for chronic heart failure than overall obesity.

5

### **Exercise and Visceral Fat Reduction**

Exercise has been shown to decrease the accumulation of visceral fat. One study examined the effect of physical activity in sedentary, overweight postmenopausal women. The women were prescribed an exercise program in the experimental group or a stretching program for the control group. They evaluated body weight, waist and hip circumferences, total body fat, intra-abdominal fat, and subcutaneous abdominal fat. At the 12-month follow-up, the exercise group showed a greater reduction in body weight, total body fat, intra-abdominal fat, and subcutaneous abdominal fat. The study authors concluded that regular exercise such as brisk walking results in reduced body weight and body fat among overweight and obese postmenopausal women.<sup>6</sup>

In an analysis of published studies, researchers examined the effect of exercise on visceral fat reduction. The data indicated that when subjects with metabolic-related disorders were excluded, aerobic exercise expenditure had a significant relationship with percentage of visceral fat change per week. Also, the researchers noted that although visceral fat reduction is significantly related to weight reduction during aerobic exercise intervention, significant visceral fat reduction may also occur without significant weight loss.<sup>7</sup>

Exercise also reduces complications of heart failure. In a large clinical trial, subjects with heart failure were prescribed usual care alone or usual care plus aerobic exercise training over 30 months. The results showed that after adjusting for confounding factors, exercise training was associated with significant reductions for both all-cause mortality or

hospitalization and cardiovascular mortality or heart failure hospitalization.<sup>8</sup> Also, this group was given health questionnaires over 4 years. After 3 months, the usual care plus exercise training group showed a statistically significant improvement in self-reported health status compared with usual care alone.<sup>9</sup>

Regular aerobic exercise is an important factor to overall health, yet even modest increases in physical activity can provide significant cardiovascular and weight loss benefits. Some research suggests that the equivalent of 11 miles of exercise per week, less than 1.6 miles per day, regardless of intensity, can prevent significant accumulation of visceral fat.<sup>10</sup> This can be accomplished in approximately 30-40 minutes per day. In addition, small changes such as parking the car further away from the shopping center or taking the stairs instead of the elevator can contribute to exercise goals. Additional research indicates that even a modest loss of 5 percent of initial body weight can reduce, eliminate or prevent numerous diseases including cardiovascular disorders in a large proportion of overweight patients. Researchers state that a large number of obese patients may be sensitive to a modest weight loss even without the achievement of ideal body weight.<sup>11</sup> Data shows that a 12-week exercise regimen can significantly reduce visceral fat even without reduction in body weight, BMI, and percent fat in overweight subjects.<sup>12</sup>

### **LipoGin™ for Reducing Abdominal Fat**

LipoGin is a *Glycyrrhiza glabra* root extract standardized for the flavonoid glabridin that when used in combination with exercise can have a dramatic effect on abdominal fat. Both animal and human studies indicate that LipoGin inhibits the formation of body fat—particularly visceral fat. Glabridin acts by down-regulating the synthesis of fat as well as increasing the activity of the enzymes responsible for the breakdown of fat tissue. Animal studies have shown that obese rats fed a high-fat diet as well as *Glycyrrhiza glabra* showed decreased body weight gain, weight of abdominal adipose tissues, smaller adipose cells, and lower blood glucose levels compared to the control groups.<sup>13-15</sup>

Human studies have also confirmed these findings. Clinical trials with *Glycyrrhiza glabra* have demonstrated significant decrease in body weight, BMI, and visceral fat mass.<sup>16-17</sup> In one randomized, double-blind, placebo-controlled study, overweight subjects were supplemented with 300 mg per day of *Glycyrrhiza glabra* for 12 weeks. The study demonstrated a significant difference in the changes in body weight and BMI between the *Glycyrrhiza glabra* group and the placebo group. The researchers also found that the weight-reducing effect of the glabridin was specifically due to a reduction in body fat. Research indicates that glabridin also exhibits anti-inflammatory<sup>18</sup> and antioxidant activity,<sup>19-20</sup> as well as neurological<sup>21</sup> and cardiovascular<sup>22</sup> protective properties.

### **Conclusion**

Reduction of visceral fat decreased the risk of several diseases, including heart failure. Modest exercise has been shown to decrease both abdominal fat as well as the risk of developing cardiovascular disease. LipoGin can provide additional benefits to reduce weight and the accumulation of visceral fat to assist in reaching goals for optimal health.

## References

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