

# Obesity and Asthma

by Nancy Kushner, MSN, RN, and Robert Kushner, MD



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**W**eight gain and obesity have been associated with many chronic conditions like diabetes, hypertension and sleep apnea. Asthma can now be added to this list of chronic conditions affected by obesity. An increase in asthma has been seen in both children and adults with obesity, particularly among women.

Asthma is a condition whereby one's airways can narrow and produce extra mucus causing symptoms of coughing, wheezing and shortness of breath. Symptoms can be minor or severe and can affect both children and adults.

Obesity itself is now listed as a risk factor for the development of asthma. A person who is affected by obesity has a higher chance of developing asthma and of having a more severe condition that responds less well to medications. A clear-cut relationship has also been described whereby the higher one's weight, the higher one's chances of developing asthma. Obesity has specifically been associated with an increase in daily asthma symptoms, missed workdays, an increased use of bronchodilator medications and an increased risk of hospitalization.

## How can obesity cause someone to develop asthma?

The association between obesity and asthma is complex and still being studied. Different mechanisms have been described that may possibly influence this relationship:

### Genetics

Asthma and obesity may both partly share genetic origin. A common gene set may increase the chances of developing both conditions. Some studies on twins show a strong association between the twins' asthma and their body size. And the latest research shows that genes linked to chronic inflammation in asthma may be more active in people who are affected by obesity. Prenatal and early-year nutrition may also play a role.

### Mechanical

Obesity can cause many changes in both lung mechanics and function. Obesity is thought to limit the expansion of the lungs which can impair lung function. Studies reveal that subjects with obesity demonstrate altered breathing patterns and reduced lung volumes, even when exercising. The chest wall of these subjects have been found to be less elastic which can increase the work of breathing and cause people to experience exercise-induced shortness of breath.

### Inflammation

Though obesity is known to create chronic inflammation in the body, its role in causing airway inflammation commonly seen in asthma has not been confirmed. This area needs further study.

### Associated medical conditions

It is thought that obesity can cause asthma through its effects on other diseases associated with obesity like gastroesophageal reflux disease (GERD), sleep disordered breathing (SDB), hypertension, lipid disorders or type 2 diabetes.

However, the relationship between asthma and these co-morbid conditions is complex. Though these conditions may be increased in patients with asthma, it is unclear whether their influence on asthma is independent of obesity. These relationships need further exploration.

## Will losing weight improve asthma control?

A decrease in asthma flare-ups, day and nighttime symptoms, use of rescue medications, and daily activity restrictions are some of the ways to tell if asthma is controlled. The effect of weight reduction on asthma control is an area of continued study.

Published studies thus far all point to improved asthma control in those with asthma and obesity who are losing weight. And when patients lose weight through bariatric surgery, the improvements seen are even more dramatic; these include significant improvements in asthma severity, decreased use of asthma medications, less shortness of breath, improved ability to exercise and fewer hospitalizations due to asthma flare-ups. These improvements in asthma are mostly due to better symptom control versus documented improvements in actual airway inflammation so commonly seen in asthma.

Whether through diet and exercise or surgery, weight-loss is now the recommended therapeutic goal in patients affected by obesity wanting better asthma control.

## What else can be done to prevent and treat asthma flare-ups?

Work with your healthcare provider to get an asthma action plan that outlines how to prevent asthma attacks and how to treat asthma flare-ups through medication therapy and other lifestyle modifications.

### Know your asthma triggers and how to avoid them.

#### Common triggers may be:

- Cigarette smoke
- Airborne pollen
- Grass and weeds
- Pet dander
- House dust
- Mold spores from damp areas in the house
- Exercising in the cold

#### Avoid triggers by:

- Not smoking and staying away from others who smoke
- Using air conditioning and keeping windows closed during pollen season
- Minimizing dust especially at nighttime by encasing mattress and pillows in dust-proof covers
- Using flooring instead of carpeting
- Using window treatments that are washable
- Keeping damp areas in bath and kitchen clean and free of mold spores
- Avoiding pets with fur or feathers and having pets regularly bathed
- Cleaning home regularly, wearing mask if affected by dust
- Covering mouth or wearing face mask if exposure to cold is a problem

## What are some healthy lifestyle behaviors that are prudent to follow?

- Get regular exercise which can strengthen your heart, lungs and immune system
- Control your weight and don't gain weight
- Choose low-energy dense fruits and vegetables which are packed with antioxidants
- Talk to your healthcare provider about controlling heartburn symptoms, which can worsen asthma symptoms
- Reduce stress through deep breathing relaxation techniques, meditation or yoga
- Practice good hand washing techniques to decrease chances of catching colds or respiratory infections that can cause asthma flare-ups
- Follow your healthcare provider's advice regarding getting flu shots

## Conclusion

It has been established that weight gain and obesity make asthma control more difficult while losing weight universally improves asthma symptoms. Still, further research is needed to clarify the complex, multifactorial relationship between obesity and asthma.

#### About the Authors:

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# ABOUT THE OBESITY ACTION COALITION (OAC)

The Obesity Action Coalition (OAC) is a National non-profit organization dedicated to giving a voice to individuals affected by obesity and helping them along their journey toward better health. Our core focuses are to elevate the conversation of weight and its impact on health, improve access to obesity care, provide science-based education on obesity and its treatments, and fight to eliminate weight bias and discrimination.



VIBRANT COMMUNITY



NATIONAL AWARENESS CAMPAIGNS



ANNUAL CONVENTION



ADVOCACY



PUBLIC EDUCATION

## LEARN, CONNECT, ENGAGE

The OAC knows that the journey with weight can be challenging but we also know that great things happen when we learn, connect and engage. That is why the OAC Community exists. Our Community is designed to provide quality education, ongoing support programs, an opportunity to connect, and a place to take action on important issues.

### Through the OAC Community, you can get access to:

- Weight & Health Education • Community Blogs
  - Community Discussion Forum
  - Ongoing Support • Meaningful Connections
- AND MUCH MORE**



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