



# ASTHMA, OBESITY & EXERCISE

## WHAT IS ASTHMA?

- Asthma is a common disease that causes inflammation and bronchoconstriction in the lungs. Asthma causes symptoms such as wheezing, shortness of breath that does not go away with rest, chest tightness and cough which come and go. Asthma exacerbations, or flare-ups, range from mild to severe, and can be life-threatening even in people with mild asthma. Common asthma triggers are colds (viruses) indoor and outdoor allergens and pollution (tobacco smoke, air pollution), exercise and stress. Flare-ups are more common and worse when asthma is not well controlled
- There is a strong connection between obesity and the development of asthma. People with asthma that are obese are also more likely to have more frequent symptoms and poorly controlled asthma. About 38% of adults with asthma are obese, compared to only 26% in adults without asthma. In children, asthma ranks in the top ten of conditions causing limitations of activity, represents the most common chronic illnesses of childhood, and is the third leading cause of hospitalizations among children under the age of 15.

## How does obesity affect asthma?

- Excessive body fat restricts the free movement of air and compresses the lungs reducing total lung volume (how much air can be brought into the lungs).
- Research shows that the reduction in deep breathing associated with obesity and a sedentary lifestyle may also lead to airway narrowing.
- Obesity can affect blood volume to the airways and even affect how well a patient responds to asthma medication.
- Obese children tend to have decreased pulmonary volumes while having more bronchial hyperresponsiveness, making them more susceptible to developing asthma symptoms than children who are not obese.
- Individuals with asthma are far more likely to be obese than people who do not have asthma and obese children with a history of asthma will suffer increased asthma symptoms compared to asthmatics with a healthy body weight.



# OBESITY INCREASES SYMPTOMS OF ASTHMA

Obesity makes the diagnosis, treatment, and course of asthma difficult, and both public health problems put patients at greater risk for future health problems.

Sedentary behaviors and physical activity avoidance contribute to the relationship between asthma and obesity.

Obesity leads to increased asthma symptoms and worsening disease, which itself can be associated with less physical activity.

Less physical activity, in turn, predisposes a patient to obesity and long-term respiratory problems, thereby sustaining the vicious cycle of inactivity, obesity, and worsening asthma.

## How can increasing exercise and weight loss help asthma?

- Life-long exercise increases lung function.
- Because excess weight may make asthma symptoms and control worse, weight management and increasing physical activity for overweight and obese asthmatics is an important part in their care.
- Activities such as running and swimming are associated with improved fitness and decreased severity of asthma symptoms, making them great suggestions to share with patients.
- Negative parental health beliefs, such as external or self-imposed restraints placed on asthmatic child's activity levels, unnecessarily prevent these children from participating in physical activity.

## Disparities: The potential role of air pollution and Vitamin D in asthma and obesity.

- Each of these exposures (asthma, air pollution and vitamin D) has independent adverse effects on asthma control and severity; and each of these exposures interacts with each other. The presence of all three has the greatest effect on loss of asthma control and increased severity.
- Asthma symptoms were worse among children who were obese, had higher PM2.5 exposure, and had lower vitamin D levels
- Both asthma and obesity are complex and disproportionately affect racial/ethnic minorities and those of low socioeconomic status.
- The risk of developing asthma is higher in obese children and may be more pronounced in children exposed to higher levels of outdoor air pollution and, conversely, low vitamin D in obese children is associated with lower lung function

### References

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