



# REMOTE SLEEP SCORING

## Nocturnal Asthma

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Good evening.

Today we will discuss **Nocturnal Asthma**, a condition in which asthma symptoms worsen during sleep and frequently disrupt normal sleep architecture.

Many patients believe their asthma only affects them during the day. However, for millions of people, the most significant symptoms occur at night.

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### What Is Asthma?

Asthma

Asthma is a chronic inflammatory disease of the airways characterized by:

- Airway inflammation
- Bronchoconstriction

- Increased mucus production
- Airway hyperresponsiveness

These changes make breathing more difficult.

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### What Is Nocturnal Asthma?

Nocturnal asthma refers to:

- Asthma symptoms occurring during sleep
- Asthma symptoms worsening at night
- Recurrent nighttime awakenings caused by breathing difficulty

Common symptoms include:

- Wheezing
- Coughing
- Chest tightness

- Shortness of breath
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### **Why Does Asthma Get Worse at Night?**

Several normal physiologic changes occur during sleep.

At night:

- Airway diameter decreases slightly
- Lung function naturally declines
- Cortisol levels fall
- Airway inflammation increases

These changes can worsen asthma symptoms.

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### **Circadian Rhythm and Asthma**

The body follows a 24-hour biological clock called the circadian rhythm.

During the night:

- Cortisol decreases
- Histamine increases
- Airway inflammation increases

As a result:

Asthma symptoms often peak between 2 AM and 6 AM.

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### **Airway Inflammation**

Asthma is fundamentally an inflammatory disorder.

At night:

- Airway swelling increases
- Mucus production increases
- Airflow becomes more restricted

This makes breathing more difficult during sleep.

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### **Sleep Effects on Breathing**

Normal sleep causes:

- Reduced respiratory drive
- Reduced muscle activity
- Slightly decreased lung volumes

Most healthy people tolerate these changes.

Patients with asthma may not.

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### **Common Symptoms of Nocturnal Asthma**

Patients often report:

- Waking up coughing
- Wheezing during sleep
- Chest tightness at night

- Difficulty returning to sleep

Some patients awaken feeling as though they are suffocating.

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### **How Common Is It?**

Many asthma patients experience nocturnal symptoms.

Frequent nighttime symptoms usually indicate:

- Poor asthma control
  - Increased airway inflammation
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### **Sleep Fragmentation**

Repeated asthma symptoms cause:

- Frequent arousals
- Sleep disruption
- Reduced sleep efficiency

Patients often wake feeling unrefreshed.

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### **Impact on Sleep Architecture**

Nocturnal asthma may reduce:

- Deep sleep (N3)
- REM sleep

This contributes to:

- Fatigue
  - Daytime sleepiness
  - Poor concentration
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### **Relationship with Sleep Apnea**

Obstructive Sleep Apnea

Asthma and sleep apnea frequently coexist.

Sleep apnea can worsen:

- Airway inflammation
- Asthma symptoms
- Nocturnal awakenings

Treating sleep apnea may improve asthma control.

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### **GERD and Nocturnal Asthma**

Gastroesophageal Reflux Disease

Acid reflux commonly worsens asthma.

At night:

- Stomach acid may enter the esophagus
- Airway irritation may occur

This can trigger coughing and bronchospasm.

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### **Allergens in the Bedroom**

Common nighttime triggers include:

- Dust mites
- Pet dander
- Mold
- Feather bedding

These exposures may worsen symptoms during sleep.

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### **Environmental Factors**

Additional triggers include:

- Cold air
  - Humidity changes
  - Air pollution
  - Tobacco smoke
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### **Diagnosis**

Diagnosis includes:

- Medical history
- Symptom assessment

- Pulmonary function testing

Important questions include:

- How often do symptoms occur at night?
  - How often does sleep become disrupted?
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### **Polysomnography Findings**

Sleep studies are not typically used to diagnose asthma.

However, PSG may show:

- Frequent arousals
- Oxygen desaturations
- Sleep fragmentation

Especially when asthma coexists with sleep apnea.

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### **Pulmonary Function Testing**

Spirometry often demonstrates:

- Reduced airflow
- Reversible airway obstruction

This is a cornerstone of diagnosis.

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### **Treatment**

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## **Control Airway Inflammation**

The foundation of treatment is:

- Inhaled corticosteroids

These reduce airway inflammation.

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## **Bronchodilator Therapy**

Long-acting bronchodilators may help:

- Improve nighttime airflow
  - Reduce symptoms
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## **Trigger Avoidance**

Identify and reduce:

- Allergens
  - Smoke exposure
  - Environmental irritants
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## **Treat Associated Conditions**

Manage:

- Sleep apnea
- GERD
- Allergic rhinitis

These often contribute to nocturnal symptoms.

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## **Bedroom Recommendations**

Patients should:

- Use allergen-proof mattress covers
  - Wash bedding regularly
  - Reduce dust exposure
  - Maintain clean air quality
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## **When Symptoms Become Dangerous**

Seek immediate medical care for:

- Severe shortness of breath
  - Inability to speak in full sentences
  - Blue lips or fingernails
  - Severe wheezing not responding to medication
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## **Long-Term Consequences**

Untreated nocturnal asthma may lead to:

- Chronic sleep disruption
- Daytime fatigue
- Reduced quality of life

- Increased asthma exacerbations
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### **Prognosis**

With proper treatment:

- Nighttime symptoms often improve significantly
  - Sleep quality improves
  - Daytime functioning improves
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### **Key Clinical Insight**

Nighttime asthma symptoms are not normal.

They usually indicate that asthma is not optimally controlled.

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### **Summary**

Nocturnal asthma is characterized by:

- Worsening asthma symptoms during sleep
- Nighttime coughing and wheezing
- Sleep fragmentation and fatigue

Treatment focuses on:

- Controlling inflammation
- Managing triggers

- Treating associated sleep disorders
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### **Final Message**

Sleep should be a time of recovery for the lungs and body.

When asthma repeatedly disrupts sleep, both respiratory health and sleep quality suffer.

Recognizing and treating nocturnal asthma can dramatically improve both breathing and overall well-being.

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