

# Airway Clearance, why do we harp about it?

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# We Are A TEAM

Watching for and discovering new symptoms early and working with the CF health care team on a plan of action are important ways to help keep your child as healthy as possible.

# Three Major Causes of Lung Problems

1. Obstruction- airways become blocked with thick, sticky mucus.
2. Inflammation-airway become irritated and swollen.
3. Infection-germs or pathogens (bacteria, viruses or other microorganisms) grow and injure the airways.

Lung inflammation **triggered**



Inflammatory response

**ACTIVATED**

- Mucus production
- Cellular defenses
- Chemical defenses

Pulmonary defenses  
ineffective: lung infection

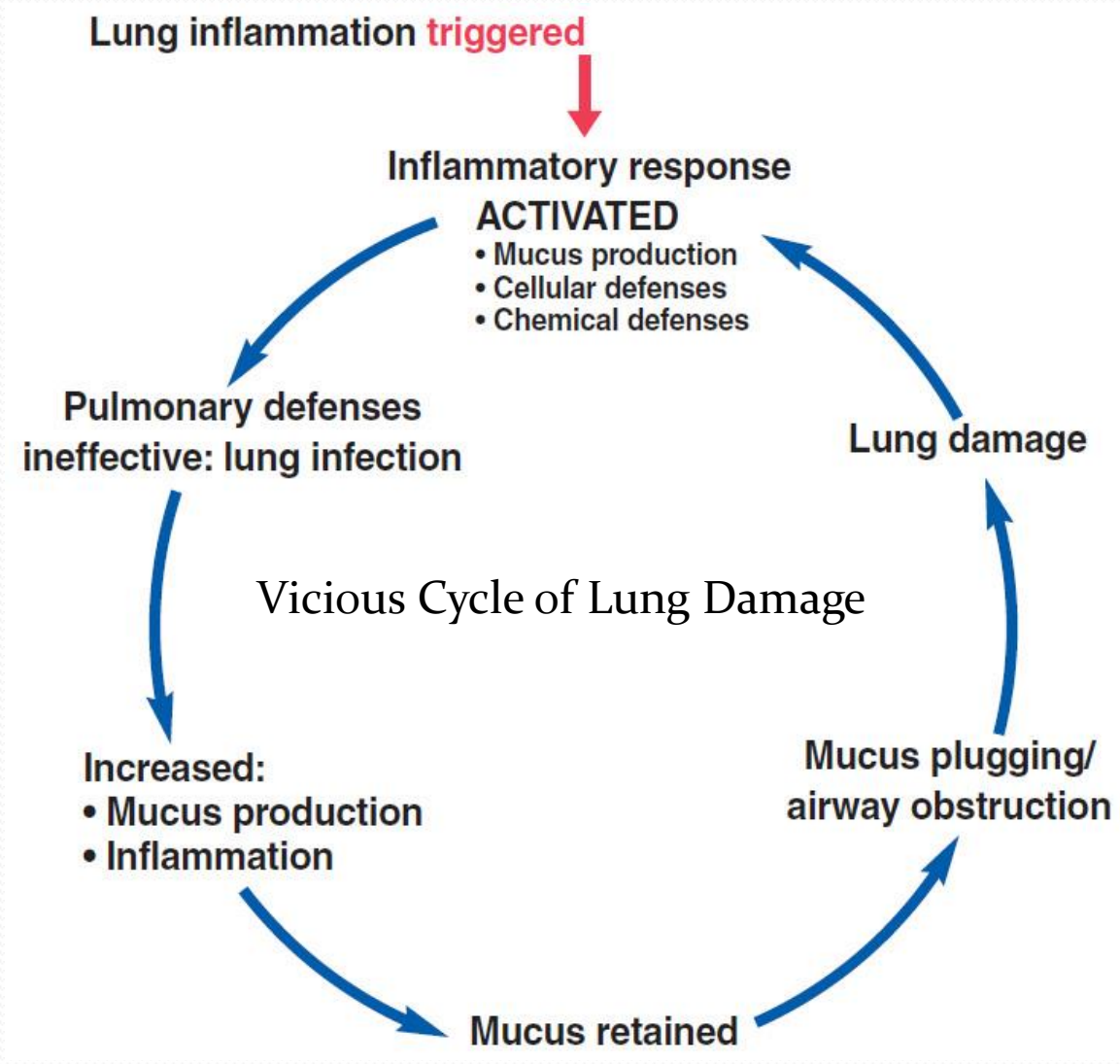
Lung damage

Vicious Cycle of Lung Damage

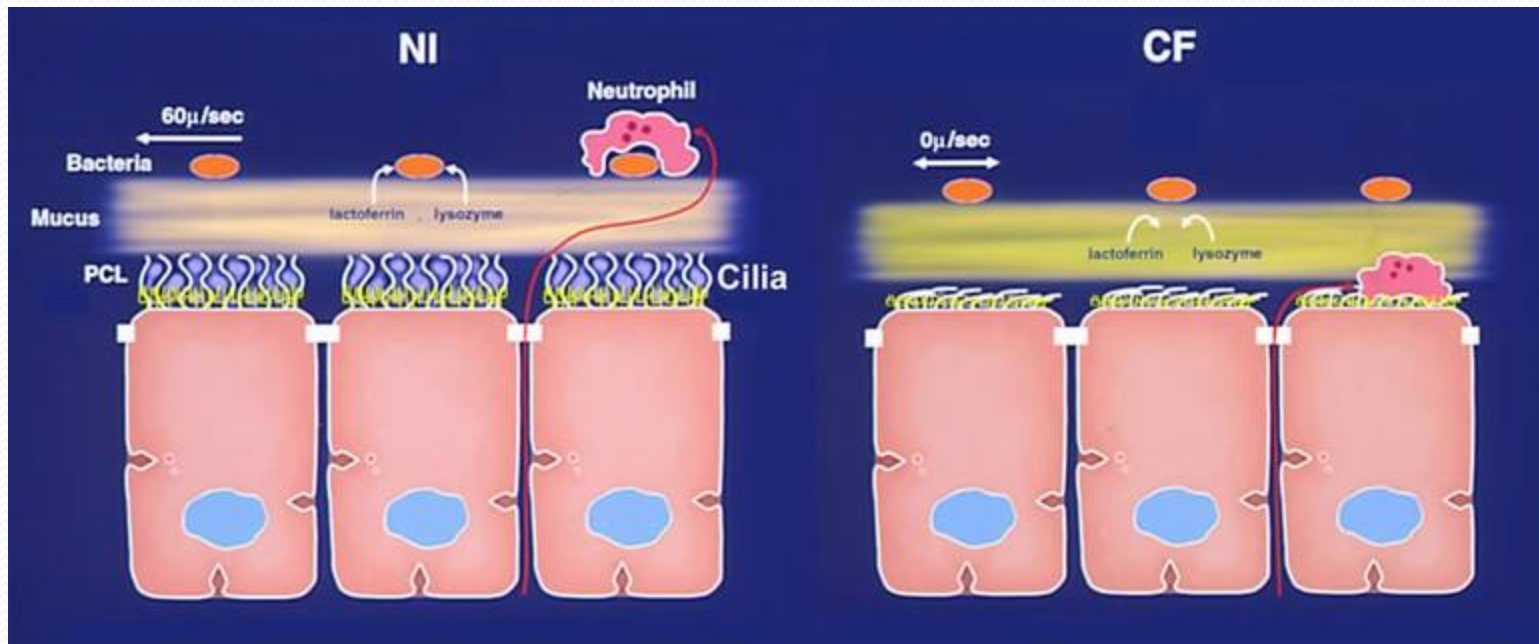
Increased:  
• Mucus production  
• Inflammation

Mucus plugging/  
airway obstruction

Mucus retained



# Mucociliary Clearance



# How Do We Treat and Prevent Lung Damage?

## Common Breathing Treatments

- Bronchodilators (Albuterol, Xopenex)
- Mucomyst
- Hypertonic Saline
- Pulmozyme
- Antibiotics (TOBI, Cayston, Colistin)

## Common Airway Clearance

- Chest Physiotherapy (CPT)
- Vest (HFCWO)
- Vibratory Positive Expiratory Pressure (PEP)
- Positive Expiratory Pressure (PEP)
- Huffing
- Coughing

# When to do Airway Clearance

- After a breathing treatment
- Before eating
- Morning and evening

# When to Increase Airway Clearance

- Increased coughing
- Increased mucus
- Change in the color or thickness of mucus















# Controlled Coughing

- In order for coughing to do its job, it must be effective.
- Explosive, uncontrolled coughs do little for airway clearance.
- In fact, a violent cough can collapse the airways making mucus clearance much more difficult.
- Controlled coughing is not shallow; it comes from deep within your lungs to loosen and mobilize mucus.

# Huff Coughing



- Sit in a chair with both feet on the floor. Take a slow, deep breath through your mouth.
- To exhale, open your mouth and make a “huff” sound in your throat. (This is the same way you might breathe to fog a mirror). Huff 3-4 times as you exhale. Rest and repeat as necessary.



# Exercise to help Airway Clearance

- Exercise helps loosen mucus
- Coughing during or after exercise can get mucus out
- Exercise can help get air around mucus and help push it out
- Regular exercise increases endurance

# Learning How to manage your child's lung problems will help you

- Maintain the best lung function possible in your child
- Reduce the number of respiratory infections your child gets
- Balance CF care with your family's quality of life