

## **CHAPTER 6**

# **Nutrition For Respiratory Health**

- 1. Eat foods that act as expectorants**
- 2. Eat foods that are natural antihistamines**
- 3. Drink 8-10 cups of fluid a day**
- 4. Eat foods high in Vitamins C & A,  
bioflavonoids & zinc**
- 5. Add lung-supporting herbs & spices to meals**
- 6. Avoid mucus-forming foods such as dairy,  
red meat & gluten**
- 7. Limit sugar (including sugar from fruit)**



# SCI and Respiratory Health

Individuals with spinal cord injury (SCI) are at risk of pneumonia and other respiratory infections. Your level of injury and length of time since injury have significant impact on the function of your respiratory system and its defences.

Micro-organisms can invade your lungs when you breathe in. Your lungs are protected from these micro-organisms by your immune system and mucus secretions. Infection can occur when one of these defences becomes compromised. This is more likely to happen when an individual sustains an SCI, particularly people who have been living with SCI for a long time and those with high thoracic and cervical injuries.

Individuals with cervical injuries experience varying degrees of paralysis of the respiratory muscles, and those with injuries at T-6 or above can have difficulty expanding their lungs and coughing up mucus. These individuals also have a tendency to produce excess mucus, which make them more susceptible to respiratory infections.

**Good nutrition can help you to decrease your risk of respiratory infections, as well as combat infections when they occur.**

**This chapter will identify various nutrients, foods, herbs and spices that help reduce the production of bad mucus.**

**It will also explain ways you can boost your immune system to help prevent and address respiratory infections.**



## Good Mucus vs. Bad Mucus

There is healthy mucus and unhealthy mucus. Healthy mucus lines the respiratory tract. It is clear and slippery, and helps fight invading bacteria.

However, when you get an infection, it can easily develop into thick, sticky and cloudy mucus, which can make breathing difficult. This infected unhealthy mucus can also become a breeding ground for additional bacteria.

# Respiratory Infections

Respiratory infections are usually grouped into 3 categories:

- 1) **Acute upper respiratory tract infections**
- 2) **Influenza & pneumonia**
- 3) **Lower respiratory tract infections**

Your body's approach to fighting respiratory infections, such as bronchitis and pneumonia, includes the normal process of expectorating (removing mucus) and boosting the immune system. Nutrition can help in both of these areas.

While prescription antibiotics have played and continue to play a huge role in fighting bacterial infections, studies indicate that it is extremely important not to overuse them. When these antibiotics are overused, bacteria may develop a resistance to them, leading to an increased risk of infection and/or a less effective treatment of the infection.

**Nutrition can help prevent and manage early symptoms of respiratory infections. However, it is critical that you seek medical attention if you are experiencing any of the following symptoms: fever, chills, abnormally fast breathing, decreased breath sounds, cough, increased mucus production, rapid heart beat or shortness of breath.**

**Pneumonia** is inflammation of the lung tissue and is usually caused by an infection. Pneumonia can be difficult to diagnose in SCI because of lack of sensation.

**Common signs of pneumonia for an individual with SCI include:**

- Fever • Cough • Chills • Increased phlegm production • Rapid heart beat
- Shortness of breath • Abnormally fast breathing • Decreased breath sounds

## Nutrition for Respiratory Health

### 1 Eat foods that act as expectorants

Expectorants are foods and herbs that promote the drainage of mucus from the lungs. They signal the body to increase the amount or hydration of secretions, resulting in more, yet clearer secretions, and as a by-product, lubricate the irritated respiratory tract. Many of these expectorants also have antiviral and antibacterial activity, as well as promoting the coughing reflex.

**Expectorant Herbs:**

Borage, cardamom, elder, ginger, fenugreek, garlic, hyssop, licorice root, marshmallow root, red clover, plaintain & thyme

**Expectorant Vegetables:**

Carrots, chili peppers & leeks



## 2 Eat foods that are natural antihistamines

Garlic is a good example of a natural antihistamine. It not only protects against respiratory infections, but it also destroys unwanted bacteria in the body without harming your good bacteria.

**Other antihistamine herbs include: basil, chamomile, parsley, ginger & thyme.**



## 3 Drink 8-10 cups of fluid a day

The neurotransmitter histamine assists with bronchial muscle contraction to help expel mucus from the lungs. Histamine also plays a role in fighting bacteria and viruses. However, when the body is dehydrated, histamine activity increases and actually constricts the lungs, making it more difficult to expel mucus. This is why it is extremely important to stay well hydrated as a way of managing respiratory infections.

Liquids also help thin lung secretions, making it easier for you to cough up mucus. Chicken soup is very good for thinning the mucus and contains protein needed to help produce antibodies to fight the infection.

**Drink large amounts of fluid including water, diluted vegetable juices, soups, broths & herbal teas.**



## 4 Eat foods high in Vitamins C & A, bioflavonoids & zinc

Studies show that white blood cells stock up on large amounts of Vitamin C in preparing to fight infections. Therefore, supplementing with Vitamin C can help prevent and fight respiratory infections.

**Vitamin C** is a water-soluble vitamin and is quickly lost from the body. If you have an infection, it's best to take 500 mg of Vitamin C every 4 hours.

**Foods high in Vitamin C include: parsley, red & green peppers, leeks, alfalfa sprouts, lemons, tomatoes, broccoli, cabbage, Brussels sprouts & cauliflower.**

**Bioflavonoids**, found in foods high in Vitamin C, are also helpful in fighting respiratory infections.

**Vitamin A** is important for your immune system and necessary for helping to maintain the healthy lining of your respiratory passages. People who have a Vitamin A deficiency are at increased risk of an infection and can increase the severity of infection. This can lead to serious respiratory conditions such as pneumonia.

**Foods high in Vitamin A include: carrots, winter squash, leeks, red pepper & sweet potato.**

**Zinc** boosts your immunity to help prevent and fight viral and bacterial infections.

**Foods high in zinc include: yogurt, oats, pumpkin seeds & sesame seeds.**

## 5 Add lung-supporting herbs & spices to meals

There are numerous herbs and spices that are known to help with respiratory conditions:

- **Cloves** help with asthma and bronchitis
- **Ginkgo biloba** helps to relieve bronchial spasms
- **Thyme** is ideal for deep-seated chest infections, such as chronic coughs and bronchitis
- **Goldenrod** is an antiseptic for mucus membranes, and so can help with bronchitis, coughs and respiratory congestion
- **Turnips** act as a decongestant
- **Oregano** is helpful for lung and chest infections as it has antibacterial properties. **Oil of oregano** has a more potent effect



## 6 Avoid mucus-forming foods such as dairy, red meat & gluten

Healthy mucus, which is clear and slippery, acts as a vital protective barrier to the lining of your lungs. However, when your body detects an invader, such as bacteria, dust particles and even certain foods, it produces a thick, cloudy and sticky mucus.

If you have a lot of this thick sticky mucus, bacteria can become trapped, creating a breeding ground for infection. Furthermore, this unhealthy mucus can be difficult to cough up. This can be particularly problematic for individuals with SCI who have limited ability to cough, delaying recovery and making them more susceptible to getting sick. Therefore it is important to reduce foods that form mucus, such as bread, sugar, red meat and processed foods.

**Milk, cheese and other dairy products** are the highest mucus-producing foods and should be limited. If you are at risk, or currently have a respiratory infection, these foods should be avoided altogether.

**Gluten** is a “glue-like” substance that holds molecules together. It requires the production of extra stomach acid for digestion and this can also lead to increased mucus production.

***Foods containing gluten that should be limited include: breads, pasta, baked goods & cereals. Gluten, in the form of flour, is also found in soups, sauces and even injected into some meats.***

## 7 Limit all sugar to less than 50 grams a day (including sugar from fruit)

**Sugar weakens your immune system.**

Glucose (sugar) and Vitamin C have similar chemical structures, so they compete with each other to enter the cells. If there is more sugar in your system, less Vitamin C will get into your immune cells, reducing the cells' ability to fight respiratory infections.

**Food intolerances can also contribute to respiratory problems and mucus build-up, especially in chronic bronchitis.**

To find out if food intolerances are contributing to your respiratory problems – complete the **Food Elimination Diet** (see Appendix) and monitor your respiratory symptoms.



## Lung-Loving Drink

*This drink packs a powerful antioxidant punch for maintaining healthy lungs.*

**Note:** Parsley should be avoided if pregnant or in cases of kidney inflammation. **Servings: 1**

### Ingredients:

- 6 sprigs of parsley
- 1 kiwi, peeled
- 1/2 cup of blueberries
- 1 cup of spinach
- 1 cup of green tea (steeped and chilled)

### Directions:

1. Place all ingredients in a blender
2. Blend and drink immediately

### NUTRITIONAL CONTENT:

Proteins: 2.4 grams  
Carbohydrates: 23.3 grams  
Fats: 0.7 grams  
Calories: 101

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## Spinach, Lentil and Lemon Soup

*This refreshing soup is packed with immune-boosting Vitamin C and water, and has antihistamine and antimicrobial benefits to help fight off an infection. **Servings: 4***

### Ingredients:

- 1 tablespoon of olive oil
- 1 onion, finely sliced
- 4 cloves of garlic, sliced
- 1 cup of brown or green lentils
- 4 cups of vegetable stock
- 1 bunch of spinach
- 2 bunches of cilantro leaves and stems, roughly chopped
- Juice of 1 lemon
- Salt & pepper

### NUTRITIONAL CONTENT PER SERVING:

Proteins: 14 grams  
Carbohydrates: 51.1 grams  
Fats: 35 grams  
Calories: 546

### Directions:

1. Saute onion in olive oil, add garlic and cook for another few seconds, add lentils and stir
2. Add stock and simmer until lentils are soft (about 30 minutes)
3. Roughly chop spinach, then add to pot with cilantro and lemon juice
4. Stir well, cover pot to let the spinach wilt
5. Puree and serve

## Expectorant Soup

*This meal contains the three vegetables that help promote drainage of mucus from your lungs. It also contains 304% of your daily serving of Vitamin A. Servings: 4*

### Ingredients:

- 1 tablespoon of extra virgin olive oil
- 1 leek (white and pale green parts) thinly sliced
- 6 carrots (peeled and sliced)
- 1 chili pepper, finely chopped
- 2 cloves of garlic, crushed or chopped
- Pinch of sea salt
- 3 cups of low sodium chicken stock
- 1 tablespoon of parsley, chopped finely

### Directions:

1. Heat oil in a large saucepan over medium heat, cook leek until soft, approximately 4 to 5 minutes
2. Stir in carrots, chili pepper and garlic and season with salt
3. Cook until carrots are soft, approximately 8 to 10 minutes
4. Add chicken stock and bring to a simmer
5. Cook 10 to 12 minutes
6. Puree half the soup in a blender until smooth
7. Stir puree into remaining soup
8. Garnish with parsley

### NUTRITIONAL CONTENT PER SERVING:

Proteins: 5 grams

Carbohydrates: 12 grams

Fats: 5 grams

Calories: 102



# Food & Supplement Recommendations

- Consult with your medical or health care professional before starting any dietary changes and/or supplement use.
- If you are pregnant or nursing, do not take any supplements before consulting with your medical health care professional.
- References for this chapter are listed in the back of the book.

NUTRIENT	PURPOSE	FOODS	SUPPLEMENT DOSAGE	CONTRAINDICATIONS/CONSIDERATIONS
<b>ESSENTIAL</b>				
Vitamin C with bioflavonoids	<p>Helps increase circulation of antibodies; increases neutrophil function, reduces the length of chronic illness and protects cell membranes from free radical damage</p> <p>Also has anti-inflammatory, antiviral &amp; antibacterial properties</p>	<p>Brussels sprouts, green/red peppers, parsley, tomatoes, alfalfa sprouts, broccoli, cabbage, cauliflower, lemons, leeks &amp; onions</p> <p>Fruits should be limited due to sugar content</p>	<p>4000-6000 mg a day</p> <p>Bioflavonoids: 1000 mg a day</p>	<p>Sulfa antibiotics increase elimination of Vitamin C</p> <p>High doses of Vitamin C can cause loose stools or gastrointestinal problems, so reduce dosage if needed</p> <p>Take in divided doses throughout the day as Vitamin C is quickly used up in the body</p> <p>Take lower doses if you are prone to kidney stones</p> <p>Consult with your health care professional if you are on blood-thinning medications, as Vitamin C can act as a natural blood thinner</p>
Vitamin A	<p>Helps maintain the integrity of the respiratory tract lining, reduces risk of infection and promotes repair of lung tissue</p> <p>It also boosts natural killer cell activity and has antiviral properties</p>	Sweet potato, kale, carrots, spinach, red peppers, butternut squash & leeks	5000-10,000 IU a day	<p>Women should not take high doses of Vitamin A (over 10,000 IU) if sexually active or of child-bearing age due to risk of birth defects</p> <p>Doses over 10,000 IU should only be taken under the supervision of your health care practitioner</p>
Zinc	<p>Helps to support immune cells and may decrease risk and severity of infections</p> <p>It also helps maintain the integrity of the respiratory tract</p>	Sesame seeds, pumpkin seeds, oats & yogurt	<p>45-60 mg a day</p> <p>Best taken with food</p> <p>Best absorption forms include: zinc picolinate, acetate, citrate, glycerate and monomethionine</p> <p>Poor absorption forms include: zinc oxide and zinc sulfate</p>	<p>Take in divided doses during the day to prevent possible nausea</p> <p>Consult with your health care professional first if you have high cholesterol</p> <p>Higher doses of zinc (greater than 100 to 300 mg a day) can impair the immune system and may lead to a copper deficiency</p>
Expectorant herbs and vegetables	Helps promote drainage of mucus from the lungs	Borage, elder, garlic, ginger, cardamom, fenugreek, licorice root, marshmallow root, hyssop, red clover, plantain, thyme, carrots, chili peppers & leeks	As directed on label (if available in supplement form)	<p>Herbs can be powerful and you should consult with your health care professional if planning to take in supplement form</p> <p>Can be taken as a tea, or put in broths, soups, and stir-frys</p>
Garlic	Antihistamine, antibacterial, antifungal and antiviral	1/2 - 1 clove of garlic a day	2-6 capsules a day in divided doses	Check with your health care professional if you are taking blood-thinning medications or protease inhibitors before taking garlic supplements



NUTRIENT	PURPOSE	FOODS	SUPPLEMENT DOSAGE	CONTRAINDICATIONS/CONSIDERATIONS
<b>ESSENTIAL</b>				
Water	Helps to thin mucus secretions and boost the immune system	8-10 cups of fluid a day	NA	Avoid distilled water, which can leach minerals from the body  Avoid water stored in plastic bottles, which can leach chemicals into water, potentially creating hormone imbalances
<b>IMPORTANT</b>				
Echinacea	Helps address bacterial, viral and fungal infections	NA	Dried root (in tea) 1/2 - 1 teaspoon in one cup of hot water, 3 times a day  OR Tincture 1/2 teaspoon in water 3 times a day	Do not take echinacea for longer than 10 days  Some people have allergic reactions to echinacea. If you suffer from allergies or asthma, you might have a particular susceptibility to this negative effect. An allergy to any plant in the daisy family could indicate an allergy to echinacea  Do not take if you suffer from conditions that result from overactive immune systems such as rheumatoid arthritis or lupus, or if you take any medications meant to suppress the immune system  Also contraindicated in people who have diabetes, connective tissue disorders, liver disease, multiple sclerosis, HIV/AIDS and tuberculosis
Lung-supporting herbs and spices	As stated in chapter	Cloves, ginkgo biloba, thyme, goldenrod, turnips & oregano	As directed on label (if available in supplement form)	Herbs and spices can be powerful and you should consult with your health care professional if planning to take in supplement form  Can be taken as a tea, or put in broths, soups, and stir-frys
<b>HELPFUL</b>				
Antihistamine herbs	Reduce lung irritation/inflammation from infection	Basil, chamomile, parsley, ginger & thyme	NA	Can be taken as a tea, or put in broths, soups, juices and stir-frys
N-acetylcysteine	Helps to thin mucus secretions, making it easier to cough up. It is often used for emphysema, bronchitis, tuberculosis, pneumonia, in tracheotomy care and cystic fibrosis	Chicken, yogurt, eggs, red peppers, garlic & onions	200-500 mg, 3 times a day	There is a concern that N-acetylcysteine might cause bronchospasm in people with asthma if inhaled or taken by mouth or through a tube in the windpipe. If you take N-acetylcysteine and have asthma, you should be monitored by your health care provider  Activated charcoal is sometimes used to prevent poisoning in people who take too much acetaminophen and other medications. Activated charcoal can bind up these medications in the stomach and prevent them from being absorbed by the body. Taking N-acetylcysteine at the same time as activated charcoal might decrease how well it works for preventing poisoning
Thymus extract	Helps protect against viral infections	NA	If you have a viral infection, take 100 mg a day	Thymus extract may increase the effectiveness of antibiotics  Do not use with autoimmune conditions or those taking antirejection, corticosteroids or immune-suppressant medications  Thymus extract may play a role in immunological disorders associated with stress and anxiety. Caution is advised in patients taking anxiolytics due to possible additive effects  Thymus extract in conjunction with bronchodilators may have additive effects  Caution is advised in patients with heart problems

NUTRIENT	PURPOSE	FOODS	SUPPLEMENT DOSAGE	CONTRAINDICATIONS/CONSIDERATIONS
<b>HELPFUL</b>				
Spleen extract	<p>Helps protect against bacterial infections.</p> <p>Also stimulates white blood cell production and enhances natural killer cell activity</p>	NA	If you have a bacterial infection, take as directed on label	<p>Tuftsins, a component of spleen extract, may enhance the perception of pain. People taking analgesics or other pain-reducing medication should consult with a health care professional</p> <p>Tuftsins may increase the risk of bleeding when taken with drugs such as anticoagulants, antiplatelet drugs and non-steroidal anti-inflammatory drugs (NSAIDs)</p> <p>May interact with antifungal drugs, psychotropic drugs, immunomodulators or immunostimulants</p> <p>Spleen extract is cautioned in people taking medication for Hodgkin's disease, systemic lupus erythematosus, cancer or leukemia</p> <p>Spleen extract is possibly unsafe when used in people with immune system disorders</p>

# MEDICAL DISCLAIMER

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*Eat Well, Live Well with Spinal Cord Injury* discusses health care issues associated with spinal cord injuries (SCI). The information provided in this book is not meant to offer medical diagnosis or advice, or substitute for medical or other professional health care treatment.

Many of the recommended vitamin, mineral and other nutrient dosages are higher than traditional recommended daily allowances (RDAs) and dietary reference intakes (DRIs). RDAs are defined as the average daily dietary intake level that is sufficient to meet the nutrient requirements of nearly all healthy individuals. These intake levels, however, fail to address disease prevention, optimal nourishment and individual differences and needs, including those with chronic health conditions such as SCI. Studies also indicate that because adults with chronic SCI tend to have poor dietary patterns and nutrient deficiencies, coupled with their high prevalence of secondary health complications, they can have increased nutrient requirement levels above RDAs and DRIs. Therefore, this book often recommends higher therapeutic supplement dosages to provide necessary nourishment and health.

The nutritional information and recommendations in each chapter are intended to provide you with a foundation of nutritional knowledge and helpful tips and strategies that you can use to complement your existing health care routine.

**We strongly advise that you consult with your medical or health care practitioner before starting the dietary changes and/or supplements which are outlined in this book, as well as discuss any possible drug-nutrient interactions. Never disregard professional medical advice, or delay in seeking it, because of any material you have read in this book.**

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