Understanding common complications after Spinal Cord Injury

Chapters 3, 4 & 11 in SCI Reference Manual

Have you had any of the following?

- Dizziness with changes in position
- Difficulty warming up after you get cold
- Difficulty coughing

Objectives

- To understand and learn how to manage some of the early changes following a SCI, including:
  - changes in blood pressure
  - changes in temperature control
  - changes in respiratory function

Who has had dizziness with a change in position?

A sudden change of position may cause dizziness

- This is called orthostatic hypotension
  - Orthostatic = changing position
  - Hypotension = low blood pressure
- A drop in your blood pressure from a change in position
- It can cause dizziness, lightheadedness, nausea and fainting

Why do people with SCI get orthostatic hypotension?

- Why does it happen?
  - If you have a spinal cord injury, your resting blood pressure is usually lower than before your injury
  - When you change position quickly, your blood pressure drops and you feel lightheaded or dizzy
- More common with higher injuries
- More common earlier after injury

How can you prevent orthostatic hypotension?

- Elevate the head of your bed slowly and gradually
- Take short rests in between positions
- Sit keeping legs up on the bed
- Slowly bring the legs over the edge of the bed
- Wear abdominal binders, compression stockings
- Stay well hydrated
- Your doctor might prescribe medications to help with your blood pressure such as midodrine or fludrocortisone

Who has had an episode of autonomic dysreflexia or AD?

What is autonomic dysreflexia?

- A sudden rise in blood pressure due to a noxious stimulus
  - Anything that would cause pain or discomfort, whether you can feel it or not
- It can happen to people with spinal cord injuries at T6 or higher
- It can be a MEDICAL EMERGENCY if not treated immediately, leading to complications, even death

Why does your blood pressure go up in AD?

- Your body experiences an irritating stimulus
- Below the level of your injury, your sympathetic nervous system goes into overdrive
  - Your blood vessels constrict making your blood pressure rise
- Above the level of your injury, your body tries to compensate for the increase in blood pressure
  - Your heart rate drops
- Once you remove the irritant, your blood pressure will return to normal

How will you know if you are having an episode of AD?

Signs and symptoms of autonomic dysreflexia

- Pounding headache
- Change in heart rate
- Flushed skin above level of injury
- Sweating above or below level of injury
- An “aura”
- Anxious feeling
- **Blurred vision**
- **Stuffy nose**
- **Shivering above level of injury**
- **Goose bumps below level of injury**
- **Pale skin below level of injury**

IF YOU HAVE ANY OF THESE SYMPTOMS, HAVE SOMEONE CHECK YOUR BLOOD PRESSURE!

What are some of the causes of AD?

The most common cause of AD is a full bladder

Common causes

- Full bladder
- Bladder infections
- Bladder stones
- Bladder procedures
- Full bowel or constipation
- Menstrual cramps
- Genital stimulation or pressure
- Ejaculation
- Ingrown toenails
- Pressure ulcers
- Tight shoes or clothing

Other causes

- Abdominal causes
  - Gallstones, appendicitis, kidney stones
- Labour and delivery
- Fractured bones

What should you do if you are having an episode of AD?

To treat AD, look for the cause and remove it

- Sit up if lying down
- Loosen any tight clothing, leg bag, shoes
- Check your bladder
- Check your bowel
- Check your skin
- Seek medical attention if unable to find a cause

Try to prevent AD from happening in the first place

- Do regularly scheduled bladder and bowel programs
- Do routine skin checks and nail care
- Avoid extreme temperatures (hot and cold)
- Take prescribed medications

Spread the word about AD

- Educate your health care team about AD
  - Family members
  - Family physicians
  - Health care providers
    - Attendants, home care nurses
  - Emergency technicians
    - Ambulance attendants, etc

Have you ever had difficulty warming up on a cold day?

Have you ever overheated on a hot day?

Temperature changes

- Sonny has just returned to the unit after attending an afternoon baseball game. The game was great. The weather was beautiful. Hot and sunny.
- When he gets back to the unit, the nurses check his temperature and it is 39 degrees
- What do you think has happened?

What changes in temperature control can happen after SCI?

- After a spinal cord injury, the ability to control body temperature may be affected
- It depends on the level of injury and the completeness of injury
- Your body temperature often reflects the outdoor temperature—fevers on hot days and difficulty warming up on cold days
- Cold legs, different temperature legs, swelling/edema can all be caused by changes in circulation

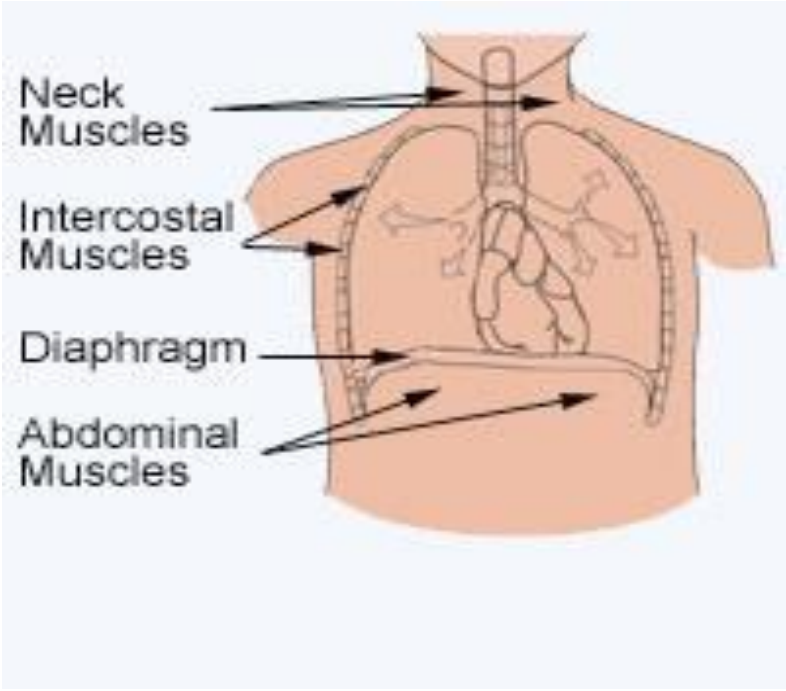
What can you do to help manage your temperature?

- Dress for the season
- Wear layers so you can adjust your clothing
- Make sure you drink enough on hot days
- If you are too hot, consider misting yourself with water—you will cool off as it evaporates
- If you are too cold, don't use heating pads
  - You can put a blanket in a dryer to warm it up
  - Heating pads can cause burns

Who has had difficulty coughing?

How does a spinal cord injury affect your breathing?

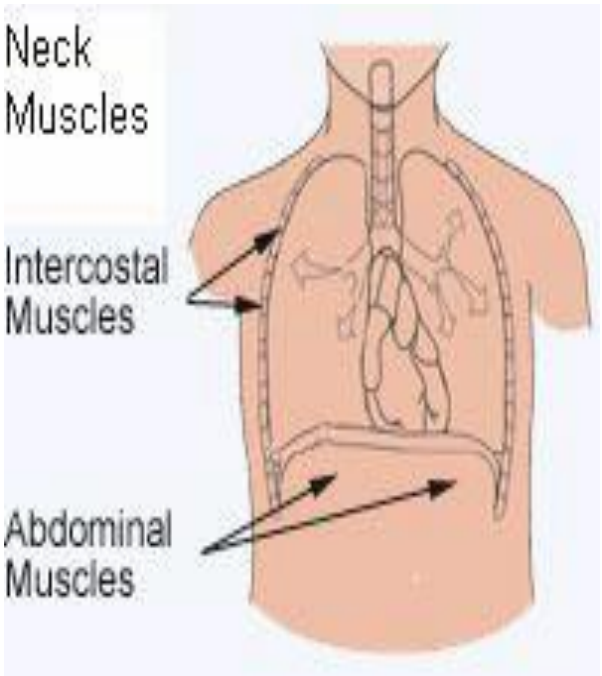
- The muscles you use for breathing can be affected
- The diaphragm is the main muscle used in inspiration (breathing in)
- The abdominal muscles are the main muscles used in expiration (breathing out)
- The neck and intercostal (chest wall) muscles help further with breathing



Remember, after a spinal cord injury, anything below the level of injury may be affected

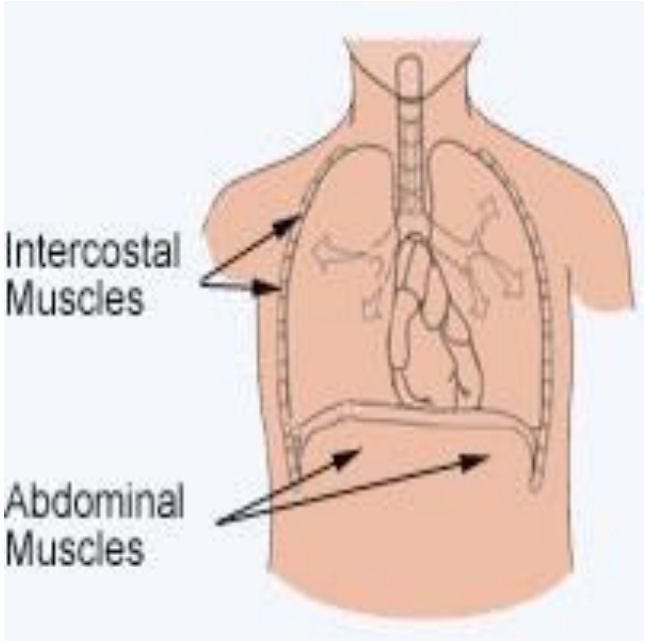
- The higher the injury, the more breathing and coughing are affected
- Individuals with very high spinal cord injuries (above C4) may have a weak diaphragm
- They may need a ventilator to assist with breathing
- They will need help to cough

Patients with tetraplegia



- Individuals with injuries in C5 and below have weak neck muscles, intercostal (chest wall) muscles and abdominal muscles, but a strong diaphragm
- It will still be hard to take deep breaths
- They will need help to cough

Patients with paraplegia



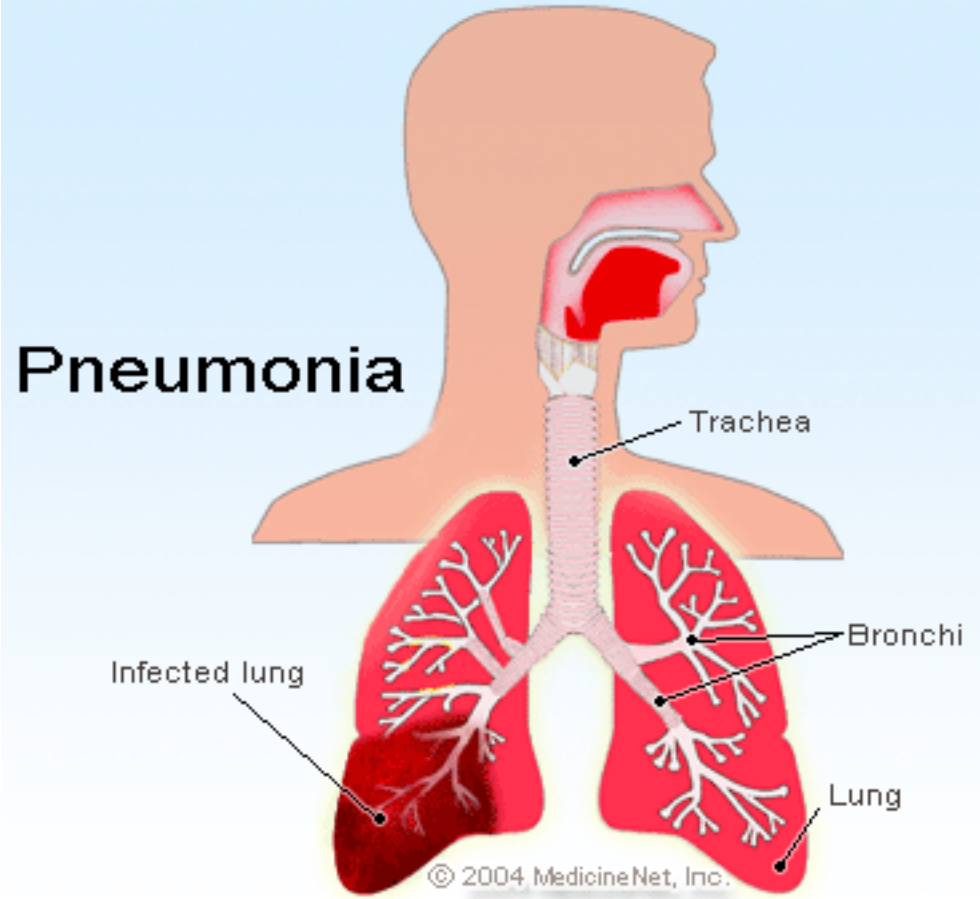
- Individuals with lower injuries between T1 and T12 will have weak intercostal and abdominal muscles.
- If the injury is high, they may still have difficulty with deep breathing.
- They may need help to cough unless their injury is very low (L spine or lower)

How is respiratory function affected after spinal cord injury?

- Decreased vital capacity
  - Cannot take as big a breath
- Decreased coughing ability
- Increased risk of pneumonia
- Increased risk of sleep apnea

What is pneumonia?

- Pneumonia is an infection of the lung tissues
- Can be bacterial or viral
- How will you know if you have pneumonia?



Signs and symptoms of pneumonia

- Shortness of breath
- Fever and chills
- Increased secretions
- Change in sputum colour
- Fatigue

What can you do to improve your respiratory health?

- Don’t smoke (anything!)
- Get your annual flu shot and a one-time pneumovax shot
- Do your breathing exercises
- Learn how to direct assisted coughs
- Drink enough fluids
- Know the signs and symptoms of pneumonia
  - Shortness of breath, cough, fever, increased secretions, change in colour of sputum
- Use your CPAP machine if you have sleep apnea

Other impacts of SCI

- Spinal Cord Injury is an individual experience that affects the body, mind and soul
- Speak to your Social Worker about how your injury is impacting you
- Remember your resources can include psychologist, psychiatrist, peer mentor & spiritual care, peers (SCI-BC) and community resources

What was the most interesting point that you learned or discussed today?

- Changes in blood pressure
  - Orthostatic hypotension (too low)
  - Autonomic dysreflexia (too high)
- Changes in temperature control
- Changes in respiratory function

Is there anything that you are going to change or do differently?

Questions?

Aging with spinal cord injury

- Bone health
  - Osteoporosis
- Cardiovascular/heart health
  - increased risk of diabetes mellitus
  - cholesterol changes
  - metabolic syndrome
  - atypical chest pain
  - weight control

Osteoporosis

- Osteoporosis means “brittle bones”
- Osteoporosis is a condition that causes the density of the bones to decrease making the bones less strong.
- After SCI, osteoporosis occurs in the bones below the level of injury
  - bones need the pull of muscles to keep strong and when the muscles are paralyzed, the pull doesn’t happen.

How can you maintain healthy bones?

- Talk to your physician about calcium and vitamin D
- Avoid caffeine
- Don’t smoke
- There may be other methods to help maintain your bone strength depending on your injury
  - Talk to your doctor

How do you keep a healthy heart?

- Don't smoke
- Maintain a healthy body weight
- Eat a heart healthy diet
- Exercise can be difficult with a spinal cord injury
  - Explore your options for regular cardiovascular exercise
- Know the signs and symptoms of a heart attack or stroke
  - They may be different for you because of your injury
  - Chest pain may not be "typical"

Where can you learn more about aging with a spinal cord injury?

- Talk to your team members
- Read your manual
  - Including some useful websites

What have we learned?

- David is a 23 year old with a C6 spinal cord injury who lives in Yaletown
- After an evening out with his friends, he returns home and realizes he has a bad headache and is sweating
- What do you think it might be?
- What should he do?

- Sarah is a 48 year old woman with a C5 spinal cord injury living in Kamloops
- Over the past few days, she has noticed an increased need for assisted coughs
- Her sputum has changed from clear to yellowish
- What do you think is happening?
- What should she do?

Questions?

- SCI-BC/peer experiences

Autonomic Nervous System