



SCI: MOVING FORWARD  
A RESPONSE TO COVID-19



North American  
Spinal Cord Injury  
— Consortium —

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SCI: Moving Forward is made possible by:



# About NASCIC

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North American  
Spinal Cord Injury  
— Consortium —

The North American Spinal Cord Injury Consortium (NASCIC) has the mission to bring about unified achievements in research, care, cure, and policy by supporting collaborative efforts across the spinal cord injury community.

[www.nasciconsortium.org](http://www.nasciconsortium.org)

# About SCl: Moving Forward

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- Webinar series in response to the COVID-19 pandemic and how it is affecting the SCl population
- Website to house archived webinars and additional resources

<http://www.nasciconsortium.org/scimovingforward.com/>

# SCI Moving Forward

## Upcoming Webinar Topics

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SCI Adapted Exercise – Presented by Walk-it-Off (June 30, 2020)

Self Advocacy, Resiliency, and System Change (July 7, 2020)

with guests: Matthew Rodreick - Executive Director, Unite 2 Fight Paralysis / Peter Athanasopoulos – Director of Public Policy, Spinal Cord Injury Ontario

SCI Moving Forward – Our New Normal (July 14, 2020)

SCI Moving Forward – Our New Normal (Latinx Community) July 21, 2020

# Joanne Smith

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Joanne Smith is a Certified Nutrition Practitioner who graduated with first class honours from the Institute of Holistic Nutrition in Toronto, holds a degree in psychology from York University, as well as a diploma in radio & television broadcasting from Seneca College.

Joanne's nutrition services focus on individuals who have sustained traumatic injury with specialization in neurological conditions such as spinal cord and brain injuries, as well as multiple sclerosis and cerebral palsy. She also teaches nutrition classes to individuals who are deaf/blind at The Canadian Helen Keller Centre.





# **NASCIC SCI & Covid-19: Essential Nutrients to Support Your Immune System**



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# Medical Disclaimer

The information provided in this presentation 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 (RDA's) and dietary reference intakes (DRI's). RDA's 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 due to the tendency for poor dietary patterns and nutrient deficiencies in adults with chronic SCI, coupled with their high prevalence of secondary health complications, this population has increased nutrient requirement levels above DRI's. Therefore, this presentation often recommends higher, therapeutic supplement dosages to provide necessary nourishment and health.

Eating a balanced diet will not stop you from getting an infection but it will help support your immune system.

The nutritional information and recommendations here are intended to provide you with a foundation of nutritional knowledge and helpful nutritional 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 presentation, 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 been provided with here.

The author disclaims all responsibility for any liability, injury, loss, or risk, personal or otherwise, which is incurred as a consequence, directly or indirectly, of the use or application at any of the contents of this presentation.



# Agenda

- Covid -19 Facts
- SCI & Increased Risk of infection
- Important foods & supplements to support your immune health
- Budget-wise food staples
- Kitchen & food safety tips
- Health tips





**Covid-19**



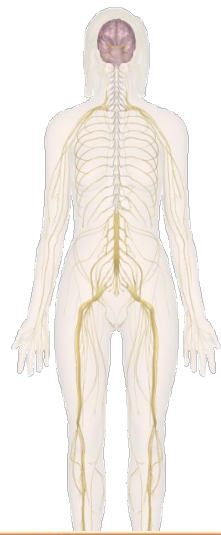
# Covid-19 Facts

- Lives on surfaces for several hours to days (New England Journal of Medicine 2020)
- Can enter human cells in 30 seconds (Dr. Rajesh Gover Immunologist)
- Exterior of virus is made of lipids (fats) so best to use soap to kill it (also cheaper than anti-viral wipes)
- Causes **Cytokine Storm** – over reaction of immune system in response to the viral invasion. There is an uncontrolled release of pro-inflammatory cytokines, which in turn causes tissue inflammation & damage
- We are ALL at risk of infection, but people at higher risk if:
  - Elderly (tend to be less active & decreased immune function)
  - Cardiovascular disease
  - Diabetes
  - Lung disease
  - Smoker
  - Poor circulation
  - Anyone with underlying health condition

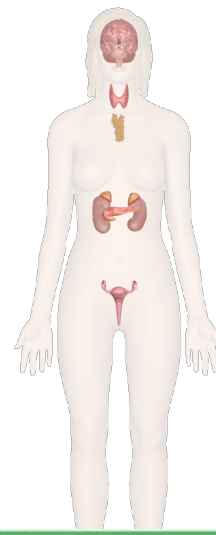


# **Spinal Cord Injury & Increased Risk**

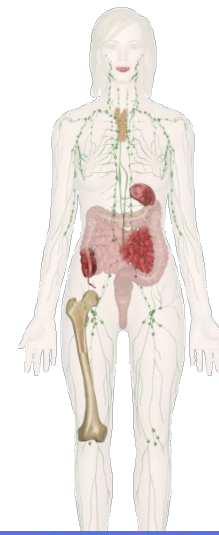
# Body Systems Communicate, Interact



Nervous  
System



Endocrine  
System



Immune  
System



# Immuno-suppression

- As a direct result of SCI, our body's do not initiate or respond to bacteria and viruses as strongly as they did pre-injury.



# Paralyzed/Weakened Abdominal Muscles

- Decreases our ability to effectively cough and clear the lungs of debris.







# Decreased Mobility/Activity

- Most people with SCI have decreased mobility, which also means decreased activation of the lymphatic system.
- The lymphatic system is part of the circulatory system that helps rid the body of toxins, waste and unwanted material. It plays an important role in immune function. This network of vessels and nodes is where your immune system lives - transports and filters lymph fluid that contains antibodies and lymphocytes (good bacteria)
- Unlike the cardiovascular system, lymphatic system does not have a pump (heart) to move the fluid. Body movement (motions of muscles & joints) is what moves the lymphatic system.



# Increased Exposure

- Hand contact via mobility aids/ difficulty keeping hands clean.
- We all know the 6 foot distance rule by now, but if you use a wheelchair – your head is lower and may be more vulnerable to respiratory droplets.
- Many also have increased exposure with necessity of using care givers to assist with personal care and/or food prep. Care givers may also be seeing other clients who may be immunosuppressed, therefore have increased risk of being exposed to and carrying the virus.







# Poor Diets/ Nutrient Deficiencies

- Vitamin A
- B2 (riboflavin)
- B9 (folic acid)
- B12
- Vitamin D
- Vitamin E
- Calcium
- Chromium
- Magnesium
- Zinc
- Fiber
- EFA's



# Multiple Secondary Health Complications

- Constipation/  
bowel obstruction
- Diarrhea
- UTI's
- Obesity
- Pressure sores
- Osteoporosis
- Arthritis
- Type 2 diabetes
- Heart disease
- Pain
- Sleep disorders
- Digestive dysfunction



# Stress

- People living with long term health conditions/disabilities often experience increased issues with worry, stress, fear, frustration and/or pain - all of these factors decrease immune function.
- Stress can also lead to poor dietary choices and over-eating / weight gain, both of which in turn decrease immune function.





# **Nutrients to Support Immune Function**

# 1. Vitamin C

- Powerful antioxidant to help reduce oxidative damage to tissues – including the lungs
- Helps activate neutrophils, powerful white blood cells that work on our frontline defense. It also increases the production of lymphocytes, the white blood cells that play important roles in antibody production and coordinating immune system functions.
- Helps slow viral reproduction

## Sources

- Berries
- Green/red peppers
- Green leafy vegetables
- Smoothies – packing lots of fruits & vegetables into one meal!



## 2. Vitamin A

- Natural antiviral and helps enhance activity of white blood cells.
- Helps with proper maturation of immune cells.

### Healthy Sources

- Carrots
- Sweet potato
- Squash
- Kale
- Liver
- Butter



### 3. Vitamin D

- Studies show vitamin D may reduce susceptibility to Covid-19 associated lung injury.
- It is a vitamin, but also acts as a hormone (chemical messenger)
- One of the best immunomodulators
- Protective against respiratory infections – studies shows that supplementing with vitamin D can reduce the rate of respiratory infections by more than 50%
- Many people are vitamin D deficient

#### Healthy Sources

- Sun
- Eggs (yolks)
- Cod liver oil





# 4. Selenium

- Mineral
- Anti-oxidant
- Anti-inflammatory properties
- Stimulates white blood cells, such as natural killer cells

## Sources

- Brazil nuts – just two a day is all you need!
- Eggs
- Fish
- Yogurt





# 5. Zinc

- Mineral
- Enhances immune function and the activity of white blood cells.

## Healthy Sources

- Pumpkin seeds
- Beef
- Yogurt
- Clams
- Oysters
- Mussels



## 6. Omega 3

- Natural anti-inflammatory

### Healthy Sources

- Fish/Fish oils
- Salmon
- Sardines
- Mackerel
- Walnuts
- Flax seeds/ oil



# 7. Probiotics

- Probiotics are healthy bacteria
- Trillions of healthy bacteria live in the intestines; intestines hold largest mass of lymphatic tissue in body.
- Help decrease intestinal inflammation
- Facilitate nutrient absorption
- They are immunomodulators

## Healthy Sources

- Plain unsweetened yogurt
- Sauerkraut
- Kombucha (fermented drink)
- Miso
- Kefir



# 8. Herbs & Spices

- Natural anti-inflammatory
- 6 grams of spice (between 1 tsp-1 tbsp. depending on the spice) can reduce inflammatory cytokines (Journal of Nutrition 2020)

## Healthy Sources

- Garlic
- Ginger
- Basil
- Cinnamon
- Coriander
- Oregano
- Parsley



# ...Herbs & Spices con't.

## Turmeric

- Spice
- Contains compound called curcumin, which is a natural anti-inflammatory – studies demonstrate that curcumin blocks cytokine release and helps manage cytokine storms.
- Add to favourite dishes
- Drink as tea



# 9. Mushrooms

- Immune boosters – over 500 000 different types
- High in antioxidants
- Contain Vitamin D
- Contain beta – glucans, which are found in the cell wall of mushrooms and stimulate natural killer cells

## Healthy Sources

- Reishi
- Chaga
- Mushroom infused tea & coffee



# 10. Drink Green Tea

- High in antioxidants
- Contains compound call EGCG;
  - anti-viral properties
  - anti-inflammatory properties





# Avoid/Reduce = Inflammation!

- Refined sugar

- Cookies
- Cakes
- Candy
- Pop
- Donuts

- Refined grains

- White bread
- White pasta
- White rice
- Pastries
- Processed muffins
- Pizza

- Cow's milk

- Salt

- No more than 5 grams a day = 1 level tsp (WHO)





# Nutrient Dense, Cost-effective Shopping List

- Berries (fresh or frozen) \*Smoothies
- Vegetables (fresh or frozen)
- Canned legumes (eg. chickpeas)
- Canned/jarred lentil or vegetable soups
- Onions
- Garlic
- Mushrooms
- Whole grain bread/pasta
- Lemons
- Almonds
- Pumpkin seeds
- Protein powder
- Frozen chicken
- Frozen/canned salmon
- Butter
- Olive oil





# **Supplement Recommendations**



# Dosages per Day

- **Vitamin C**

2 (1000 mg buffered with bioflavonoids) in divided doses

- **Vitamin D**

2-4 (1000 IU) \*Needs to be taken with food for best absorption

- **Omega 3 Fatty Acids**

2 (1000 mg)

- **Probiotics**

1 (minimum 15-30 billion microorganisms )

- **Curcumin**

2-4 (400 mg) in divided doses

- **Zinc**

1 (30-50 mg) \*maximum 4-8 weeks

**\*Consult with physician before taking any supplements**



# Food Safety Tips



# Tips

- When grocery shopping and bringing food into house – do not touch face or eyes
- Wash down outside of all food containers, boxes, cans etc. with soap & water
- Same goes for food deliveries
- After food is put away, wash down all counters, fridge/freezer door handles with soap & water
- Wipe inside and outside of reusable grocery bags with soap and water or throw in washing machine



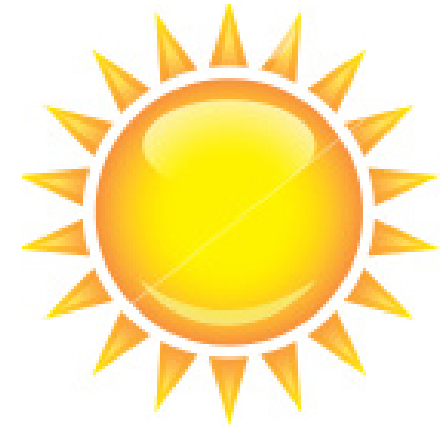


# Health Tips

# Get outside!

- **Sunshine**

- best source Vitamin D
- 20 minutes of sun on exposed skin



- **Movement & Exercise**

- Activate your lymph system (active or passive movement)

- **Joyful, fun activities**

- Help manage stress

# Get Sleep!

- Recent study showed 77% of people are losing sleep over Covid-19 pandemic
- Sleep is essential to overall health
- Repairs & Restores our body
- Decreased sleep causes increased inflammation
- **Melatonin**
  - Hormone that helps us fall asleep
  - Antioxidant
  - Link between melatonin and immune function
  - Increased levels decreases risk of getting infection
  - Helps down regulate activation of inflammatory molecules
  - Getting outside in sunshine helps with melatonin production – sun hits eyes and stimulates production







# Q & A



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# Today's Takeaways

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- People living with SCI are at a higher risk of developing more severe symptoms if they contract COVID-19 due to immuno-suppression, paralyzed/weakened abdominal muscles, decreased mobility and increased exposure
- Nutrients help to support immune function so it is important to maintain a healthy diet
- Getting outside and exercising help to alleviate stress and activate the lymph system
- Decreased sleep increases inflammation so getting a good nights rest is essential to our overall health

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