



# Flu Season 101

Part 1

- Handouts -

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# Reducing risk of respiratory viral infections

**Follow BCCDC guidelines to reduce risk of exposure -**

**[www.bccdc.ca](http://www.bccdc.ca)**

- Hand washing
- Physical distancing
- Masks
- Food safety (grocery shopping, restaurants)
- Cleaning and disinfecting
- Quit smoking and vaping ([www.quitnow.ca](http://www.quitnow.ca))
- Testing - contact tracing
- Self-isolation
- BC COVID 19 Self-Assessment Tool - BC Thrive Health or call 811

# Shifting your risk zone



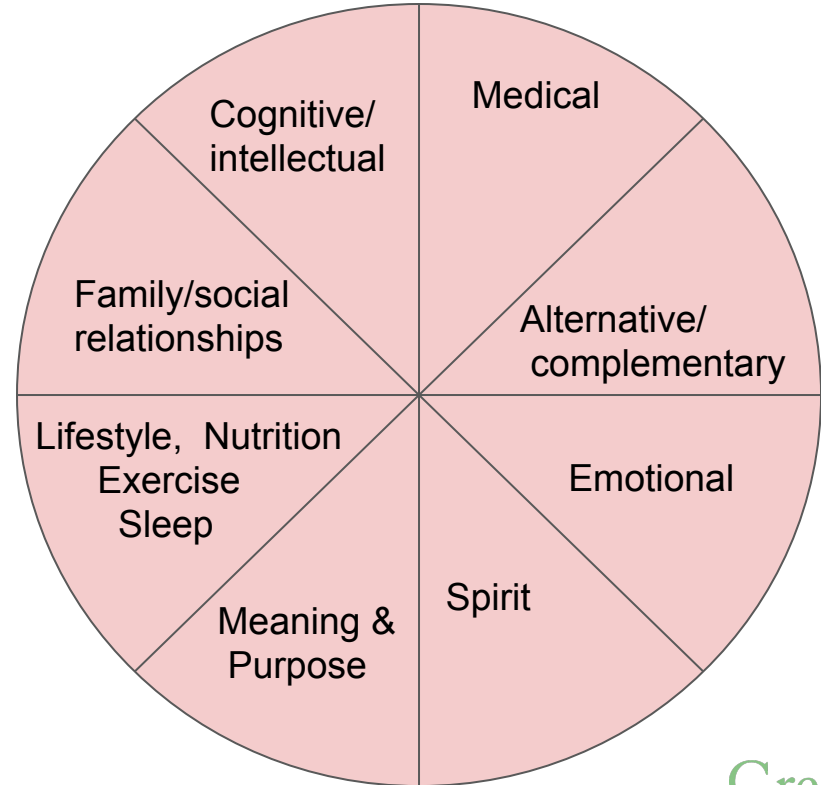
Risk factors:

Age, diabetes, cardiovascular disease, high blood pressure, asthma/respiratory illness, obesity, immune compromised

# Optimizing immunity

Augment public health measures  
with integrative/holistic approaches

Integrative approaches also improve  
severity of chronic illnesses





# Inflammation

Many chronic illnesses involve inflammation  
eg, asthma, coronary artery disease, auto-immune  
conditions

Inflammation affects severity of symptoms in respiratory  
infections

# Inflammation plays a role in virulence and symptoms

Examples of lifestyle factors that increase inflammation:

- Sleep deprivation
- Psychological stress
- Loneliness
- Poor diet
- Lack of exercise

# Exercise and immunity

- Enhance immune system by raising white blood cells and antibodies
- Also increases circulation, decreases stress hormones, improves cognitive and physical resilience

Nieman DC, Nehlsen-Cannarella SL, Markoff, PA, et al. The effects of moderate exercise training on natural killer cells and acute upper respiratory tract infections. *Int J Sports Med* 1990; 11: 467-73

- Moderate and regular exercise - almost daily brisk walk
- Enhances immunosurveillance and host protection from upper respiratory tract infection

Nieman DC, Pedersen BK, Exercise and Immune Function, *Sports Med* 1999 Feb; 27 (2): 73-80

# Sleep and immunity

**Less than 5 hours sleep increased risk of developing rhinovirus associated cold by 350% when compared to people who slept at least 7 hours per night**

Prather AA, et al. Behaviourally Assessed Sleep and Susceptibility to the Common Cold. *Sleep*. 2015;;38(9):1353-9

Besedovsky L, et al. Sleep and Immune Function. *Pflugers Arch*. 2011;463(1):121-137

# Sleep and cardiovascular health

Sleep deprivation increases heart rate, blood pressure and vascular inflammation - a risk factor for susceptibility to serious viral infection

Daylight savings time switch causing 1 hour of sleep opportunity lost results in spike in heart attacks the following day. 1.5 billion people globally affected by daylight savings.

“Why We Sleep” Matthew Walker, PhD, professor of neuroscience



# Melatonin

Melatonin reduces lung injury and inflammatory process during viral infections

Silvestri M and Rossi GA. Melatonin: its possible role in the management of viral infections - a brief review. *Ital J Pediatr.* 2013;39:61

- Adequate sleep ensures melatonin secretion in the brain
- Melatonin production declines with age

# Circadian rhythms

- Live with the rhythms of nature
- Dim our lights in the evening
- Avoid blue light on screens at night
- Use blackout shades or eye mask
- Watch more sunsets



Matthew Walker - 12 Tips for Good Sleep

# Emotional balance and Immunity

- Psychological stress disrupts immune regulation and increases inflammation.
- Mindfulness practises improve immune health and reduce inflammation markers

Godbout JP, Glaser R. Stress-induced Immune Dysregulation: Implications for Wound Healing, Infectious Disease and Cancer. *J Neuroimmune Pharmacol.* 2006;1(4):421

Black D and Slavich GM. Mindfulness meditation and the immune system: a systematic review of randomized controlled trials. *Ann NY Acad Sci.* 2016;1373(1):13

# Relationships

## Loneliness affects health

Studies show robust association with chronic illnesses including heart disease, dementia, depression, anxiety and even affects longevity.



Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015).

**Loneliness and social isolation as risk factors for mortality: A meta-analytic review.** Perspectives on Psychological Science, 10, 227-237.

# Laughter and immunity

## Japanese study

- Laughter influences many genes involved with immune response.
- Diabetic patients watching an hour-long comedy program upregulated a total of 39 genes, 14 of which were related to natural killer cell activity
- Blood glucose levels were better controlled than after listening to a diabetes health lecture on a different day



T. Hayashi et al., “Laughter Up-regulates the Genes Related to NK Cell Activity in Diabetes,” *Biomedical Research (Tokyo, Japan)*, vol.28, no.6: pp, 281-285 (2007)



# Common sense wisdom

Get good sleep - fresh air exercise - sunshine - eat more vegetables



1866-1940

Photo circa 1933

- 14 children by the time of WW1 and the Spanish flu, all survived
- matriarch of a family with 23 grandchildren through the Great Depression

# Sunshine

Vitamin D - the sunshine vitamin

Photobiomodulation (660-810 nm)



# Improve your external and internal environment

- Clean air and water
- Avoid exposure to mycotoxins from mold
- Avoid using garden sprays eg. glyphosate (Round-up)
- Choose organic food, avoid “dirty dozen” - [www.ewg.org](http://www.ewg.org)  
(if price conscious, a non-organic apple is better than no apple)
- “Clean fifteen” is OK

Corsini E, et al. Pesticide induced immunotoxicity in humans: A comprehensive review of the existing evidence. *Toxicology*. 2013;10(307):123-35

# Environmental Working Group 2020 recommendations

## “Dirty Dozen”

1. Strawberries
2. Spinach
3. Kale
4. Nectarines
5. Apples
6. Grapes
7. Peaches
8. Cherries
9. Pears
10. Tomatoes
11. Celery
12. Potatoes

## “Clean Fifteen”

1. Avocados
2. Sweet corn
3. Pineapple
4. Onions
5. Papaya
6. Sweet peas (frozen)
7. Eggplants
8. Asparagus
9. Cauliflower
10. Cantaloupes
11. Broccoli
12. Mushrooms
13. Cabbage
14. Honeydew melon
15. Kiwi

# Other integrative approaches

- Acupuncture
- Massage
- Nature
- Meditation



# Acupuncture and Immunity

## “Acupuncture Modifies Immune Cells”

Review of immunomodulation benefits of acupuncture on the immune system: activities of macrophages, neutrophils, natural killer cells, lymphocytes, immunoglobulin production and complement systems.



Takahashi T et al. “Acupuncture Modifies Immune Cells”. Journal of Experimental and Clinical Medicine. Vol.1, Dec.2009, pg 17-22

# Massage and immunity

- Increase in lymphocytes
- Reduction in stress hormone cortisol
- Reduction in cytokines



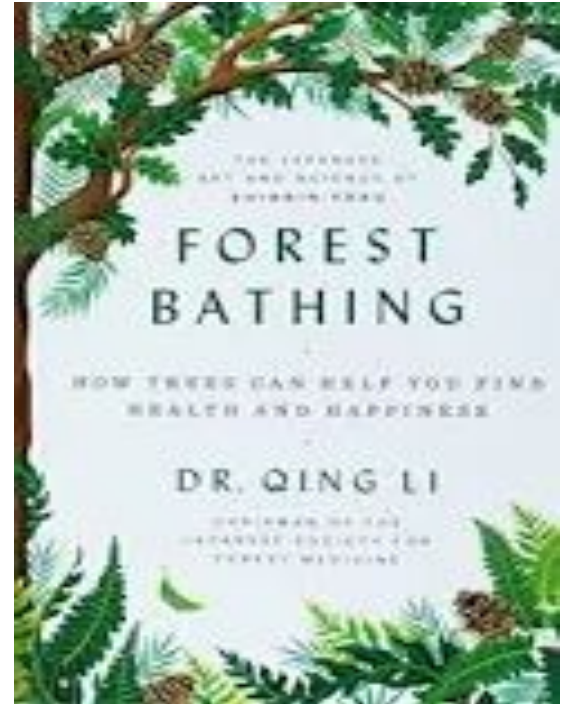
Rapaport et al. **A Preliminary Study of the Effects of a Single Session of Swedish Massage on Hypothalamic–Pituitary–Adrenal and Immune Function in Normal Individuals.** *The Journal of Alternative and Complementary Medicine*, 2010; 100901121319046 DOI: [10.1089/acm.2009.0634](https://doi.org/10.1089/acm.2009.0634)

# Nature therapy

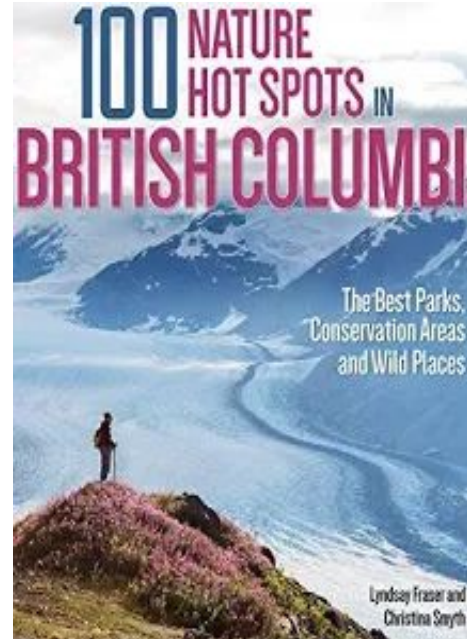
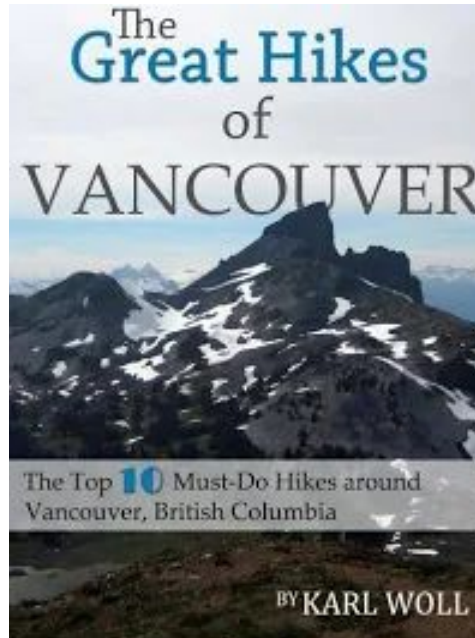
Forest bathing benefits:

- Reduces stress hormones: cortisol, adrenaline
- Reduces blood pressure and heart rate
- Decreases anxiety, depression
- Increases energy
- Strengthens immune system

M. Hansen, R. Jones, K. Tocchini, “Shinrin-Yoku (Forest Bathing) and Nature Therapy: A State-of-the-Art Review”, *Int J Environ Res Public Health*.2017 Aug; 14(8): 851



# Discover nature near you



# Quiet time

- Mindfulness
- Meditation/prayer
- Tai chi, yoga, chi gong
- Music



Black D and Slavich GM. Mindfulness meditation and the Immune System: a systematic review of randomised controlled trials. Ann NY Acad Sci. 2016;1373(1):13



# Words of Wisdom

**Louis Pasteur 1822 - 1895**

- Father of microbiology
- renowned for his discoveries of pasteurization and principles of vaccination

**“It is not the germs we need worry about. It is our inner terrain”.**



# How is your terrain?



# If You Have Any Questions or Concerns, Please Contact us!



For immediate assistance  
use the live chat support  
on our website.

**Orange** box in the bottom right corner of: [greenleafmc.ca](https://greenleafmc.ca)

[patients@greenleafmc.ca](mailto:patients@greenleafmc.ca)

toll free: 1-877-513-4769

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- Ask the Expert Cannabis Series
- Flu Season 101 \*NEW
- Emotional Health Through a Different Lens
- Mind & Body Approaches to Persistent Pain
- Acupressure for Chronic Illnesses
- Osteopathy & Chronic Conditions
- Nutrition: Supplements & Dietary Interventions \*NEW

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