



PRESENTS...

## Beating Winter Blues

*Dr. Michael Long ND BSc & Dr. Katie McKeown ND BSc*





Section I

## **SEASONAL AFFECTIVE DISORDER**



# What is SAD?

- Seasonal Affective Disorder (SAD) is the development of depressive symptoms in a seasonally predictable manner
- True SAD involves major depressive episodes
- Many people experience minor depression and lack of energy in the winter months
  - This is *not* true SAD, but instead **subsyndromal** SAD
  - True SAD is often **incorrectly applied** in popular culture, causing people to believe they have SAD when they do not

# True vs. Subsyndromal SAD

## True

- Major Depression
  - Ranges in severity, but can involve social withdrawal and/or suicidal ideation
- Less common, incorrectly applied
- People with true SAD should seek **professional help**

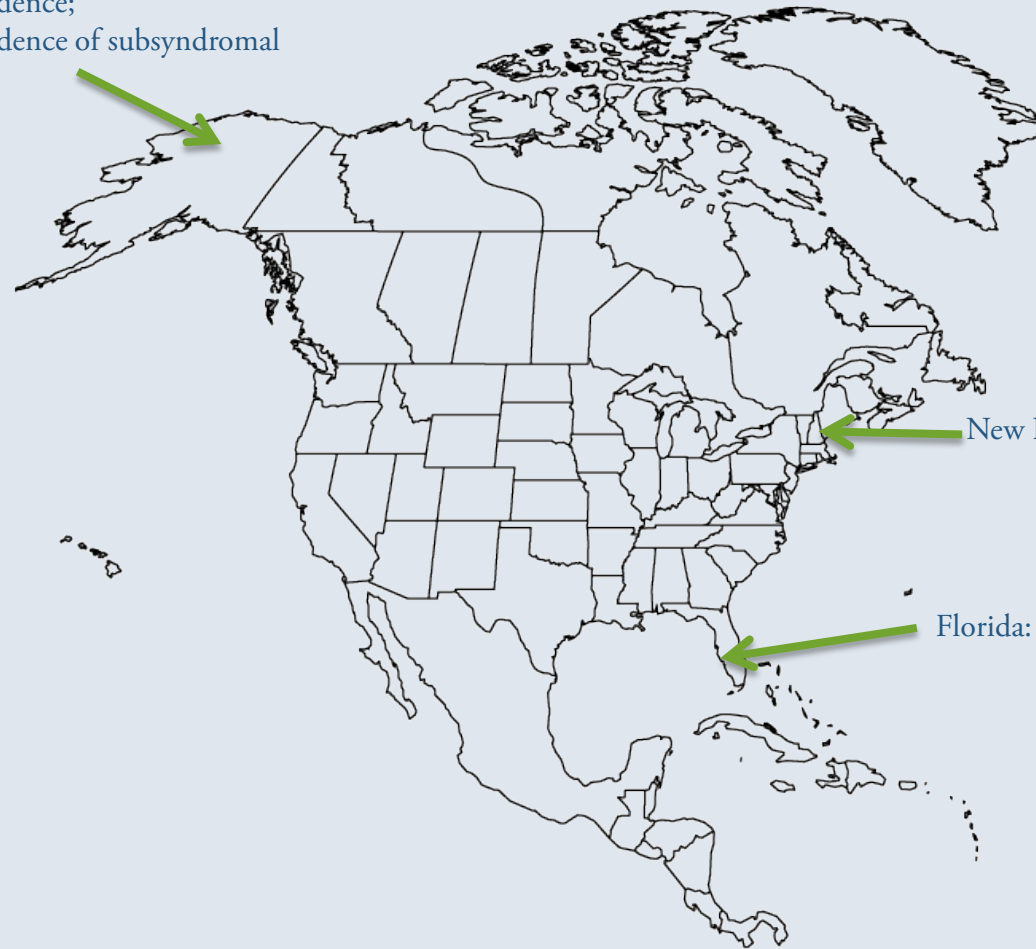
## Subsyndromal

- No major depression
  - Mainly ‘not quite right’ during winter months
  - Frequently tired, lack motivation
- Common, becoming more prevalent
- Most can be effectively treated with lifestyle changes



# SAD Prevalence

Alaska: 10% incidence;  
25% incidence of subsyndromal



New Hampshire: 10% incidence

Florida: 1% incidence

*Prevalence of seasonal affective disorder at four latitudes. Rosent, L, Targum, S and Terman, M. 2, 1990, Psychiatry Research, Vol. 31, pp. 131-144.*



# Why so SAD?

- Believed to be caused by low light exposure in winter months
- What happens when we traverse north from the equator?
  1. Winter days are shorter = less sun exposure
  2. Temperatures colder on average = more time spend indoors
  3. Angle of UVB rays insufficient to produce vitamin D at latitudes above 40° north (all of Canada) from Nov-March = less benefit from sunshine
- *Interesting fact:* if your shadow is longer than your height, your skin is not manufacturing vitamin D!



## SAD: Leftover Protective Mechanism?

- What do animals do when there is not enough food in the environment to sustain them for winter?
  - They hibernate!
- Human hormones respond to low light levels in winter by making us tired
  - Historically: conserved calories, and made us more apt to survive
  - In today's world: Fatigue + necessary daily tasks = depressive symptoms

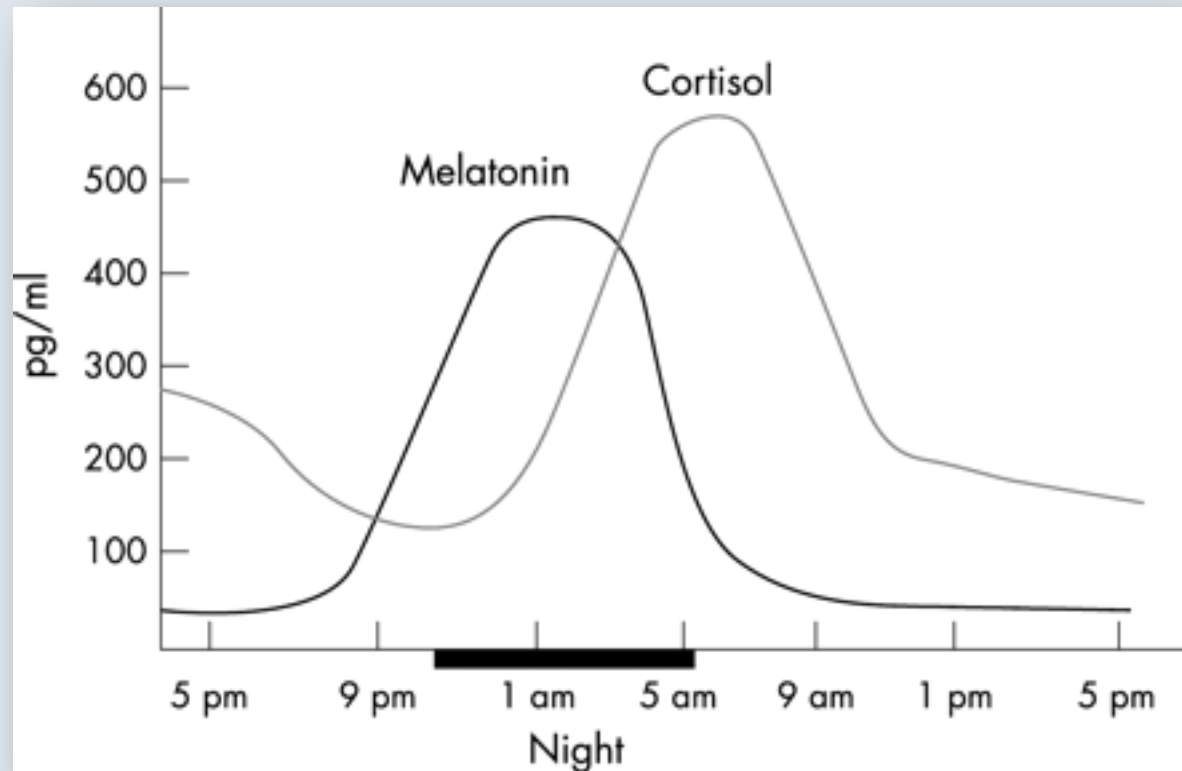


# Sun/Body Connection

- **Circadian Rhythm:** changes in biologic function occurring in predictable 24 hour cycles
- The body uses sunlight to gauge what is happening on the outside
  - Hormonal changes occur based on **light levels**



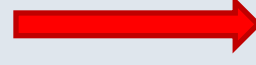
# Circadian Rhythm of Hormones



## Ideal Hormonal Function

### Melatonin

- Associated with sleepiness
- Peaks in the night at 1am
- Lowest between 9am and 6pm
- Increases in **low** light (darkness)

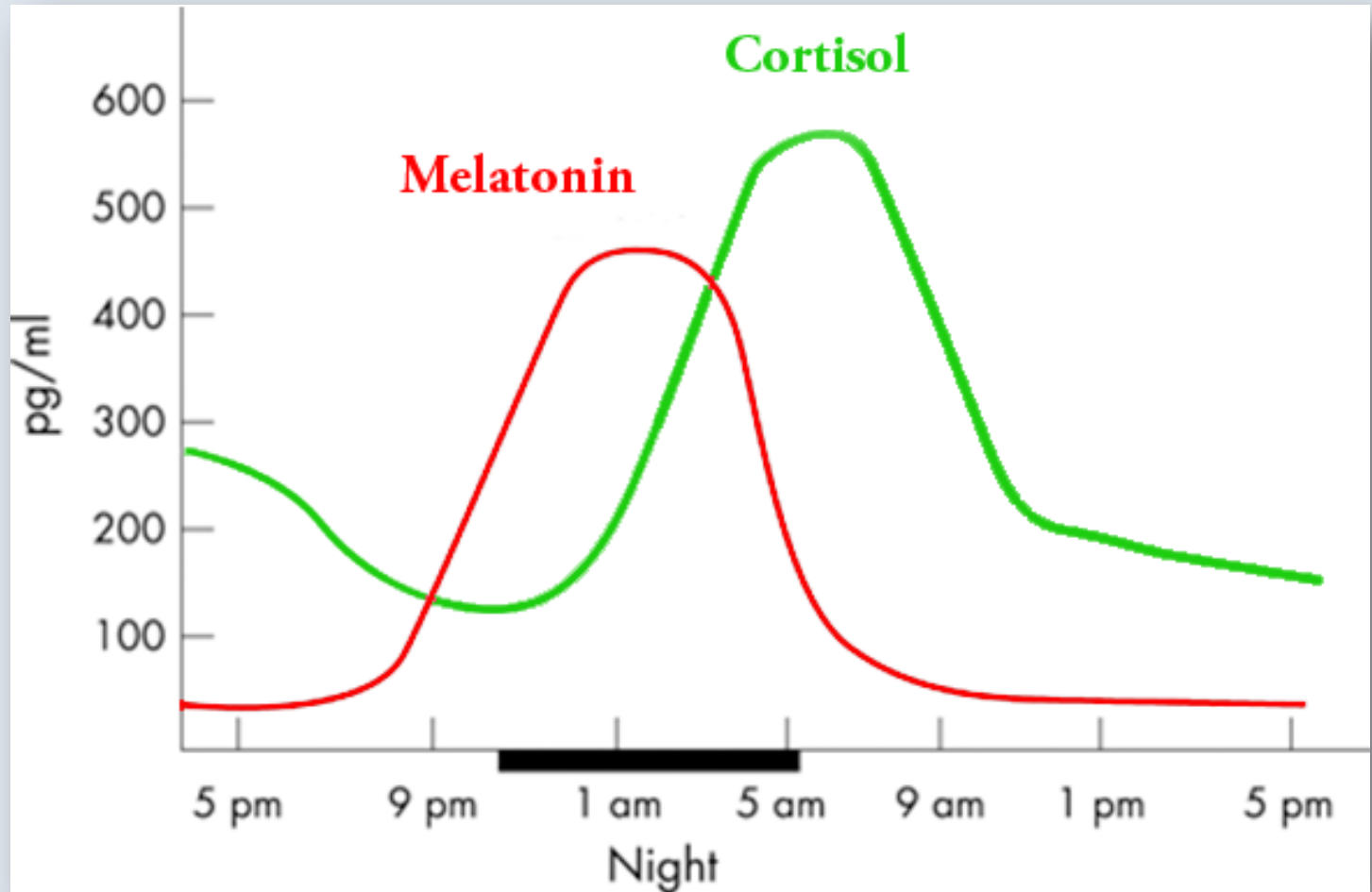


### Cortisol

- Associated with wakefulness
- Peaks in the morning at 8am
- Lowest between 12-4am
- Increases in **bright** light

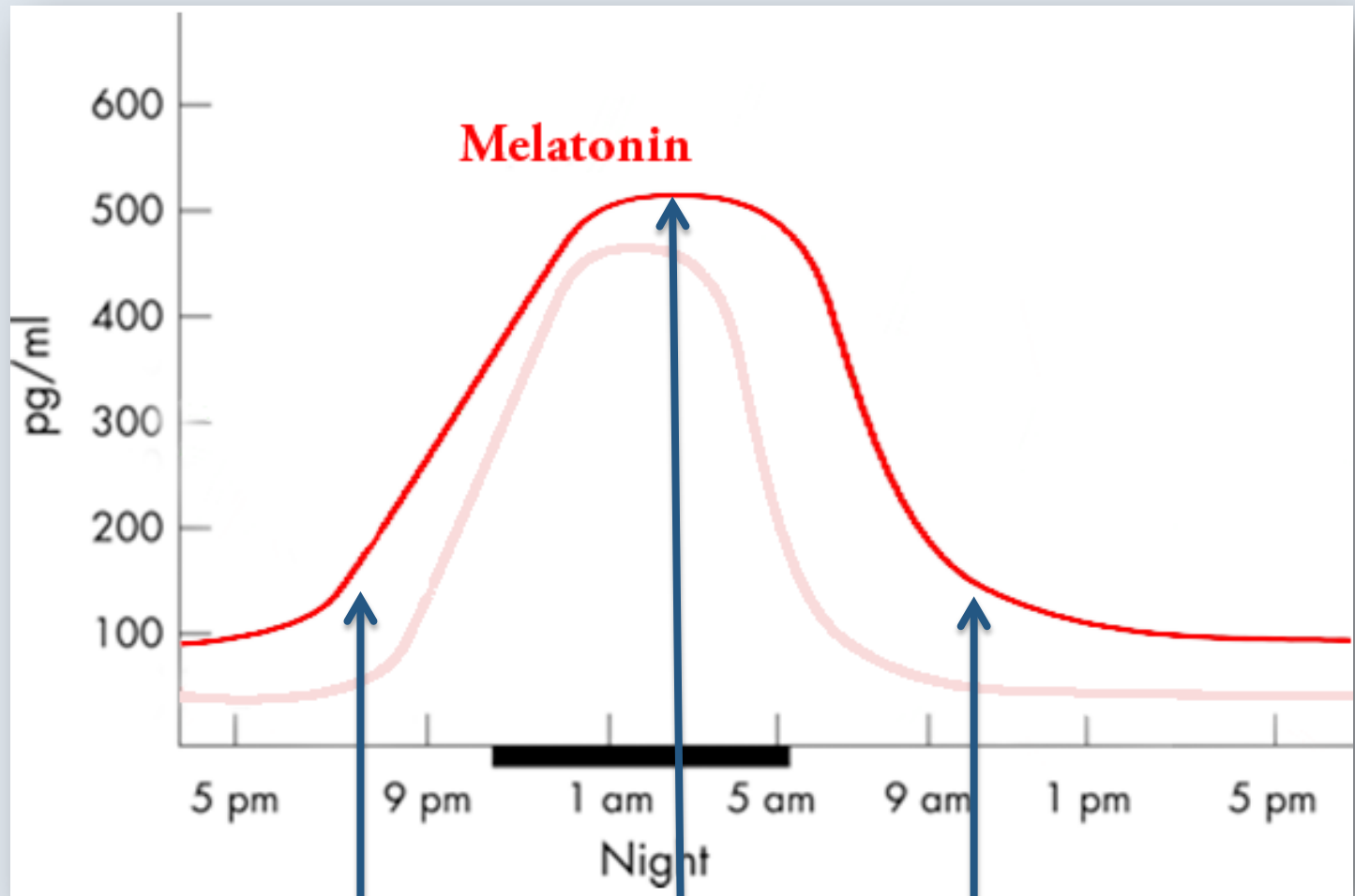
# Hormones Shift in Winter

## Ideal Fluctuation



# Hormones Shift in Winter

## Melatonin



1. Rising early d/t earlier sunset

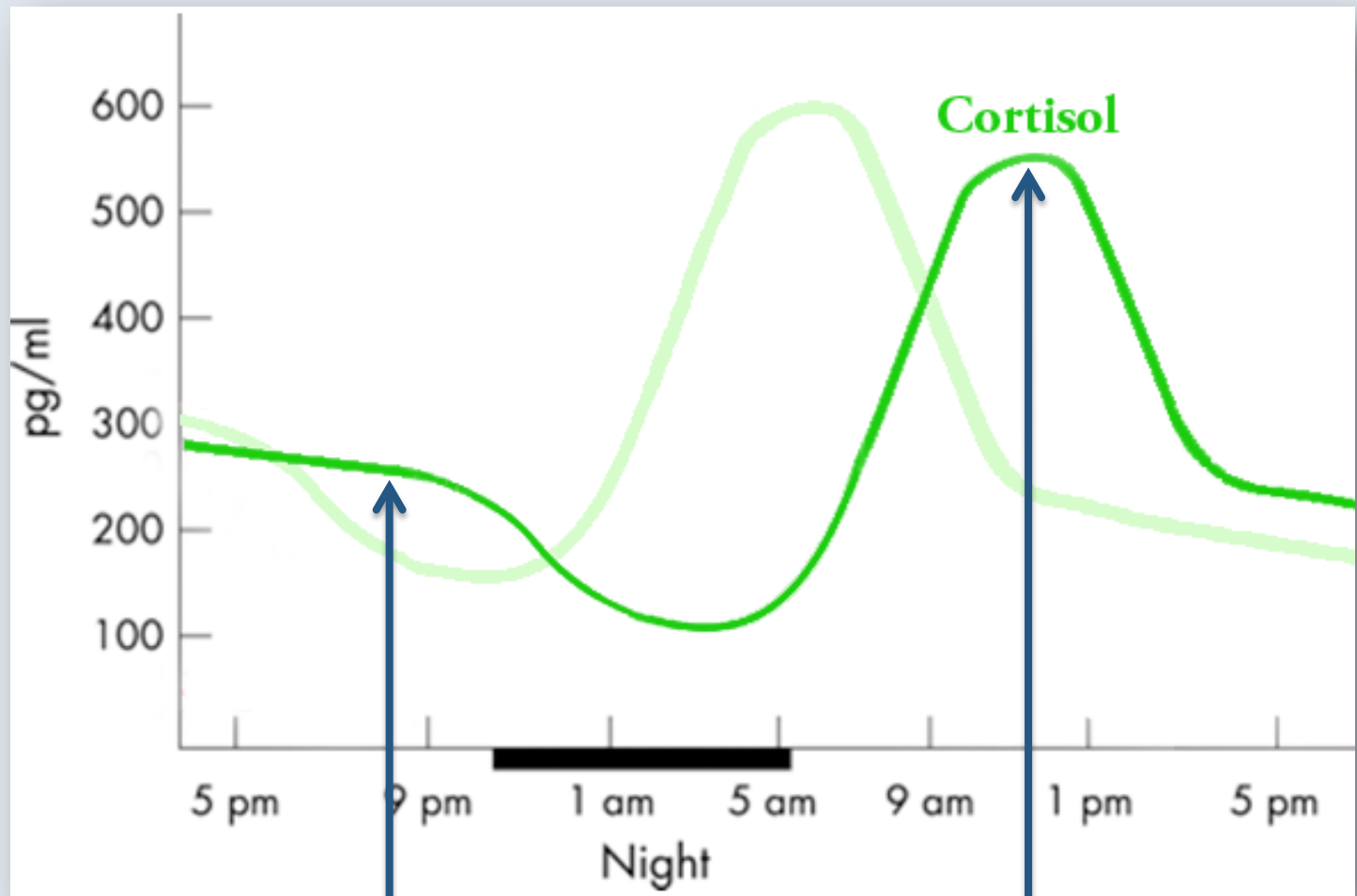
2. Peaking later in night and staying elevated longer

3. Returns to baseline later, remains higher throughout the day



# Hormones Shift in Winter

## Cortisol



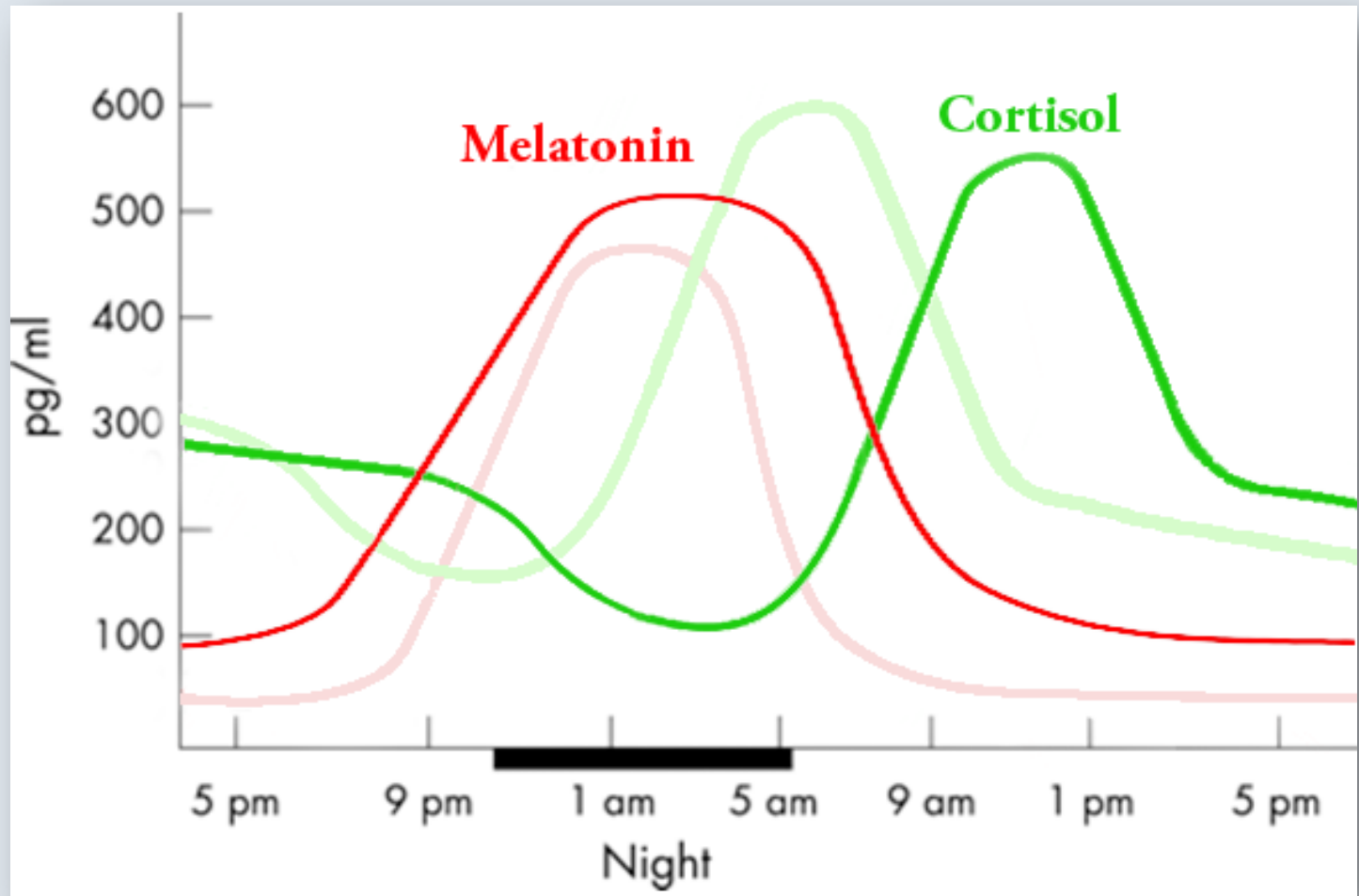
1. Remains relatively high in to the evening

2. Peaking much later in the day



# Hormones Shift in Winter

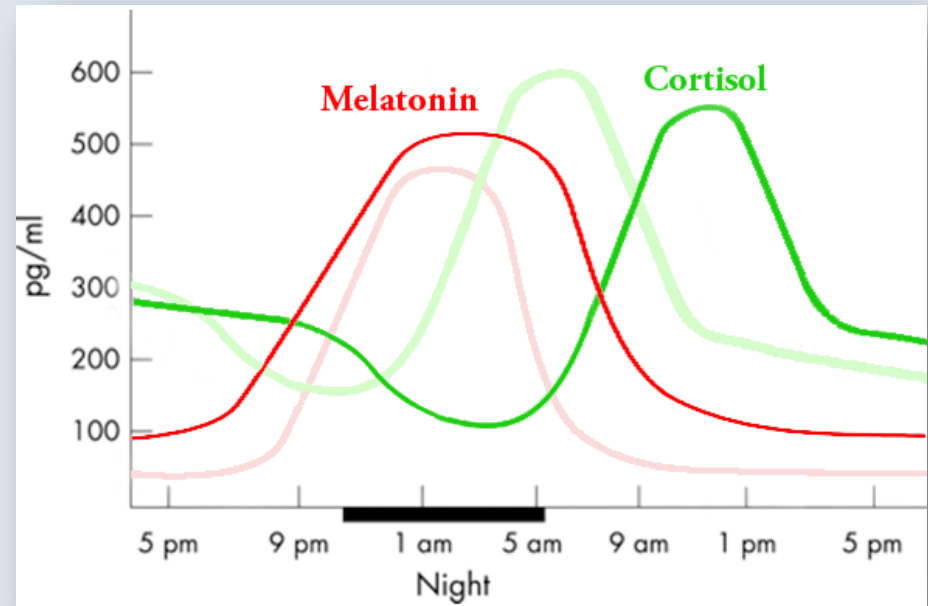
## All Together





# Net Result

- Elevated daytime melatonin causes fatigue and depressive symptoms
- Cortisol remains high in to evening hours, causing sleep disturbance
- Serotonin is converted to melatonin
  - As long as melatonin is high, serotonin is low
  - Why SSRI anti-depressants are often necessary





Section II

## **BECOMING LESS SAD**





# Regulating the Body Rhythm

- SAD is caused by environmental light producing hormones **incongruent** with our daily lives
  - Though, it would be nice to just hibernate!
- Treatment Goal:
  1. Regulate the circadian rhythm
  2. Minimize depressive symptoms

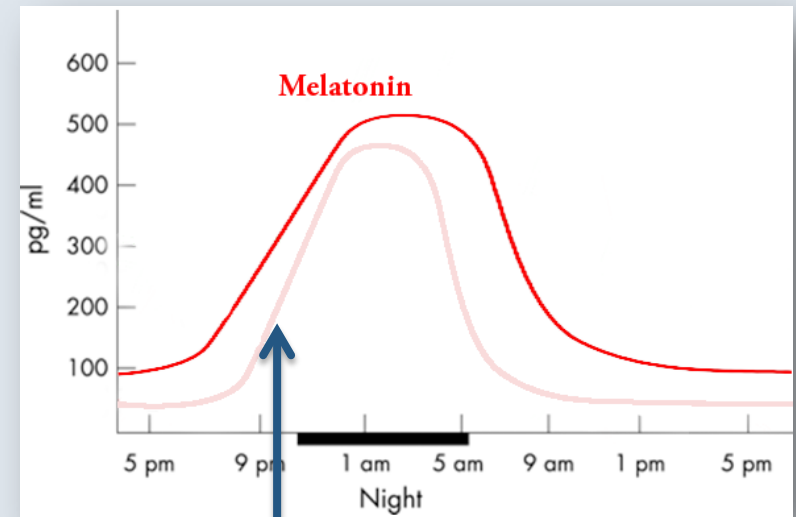


# Light Therapy

- If environmental light does not permit stable biorhythms, make an artificial one that does
- Use **full spectrum bulbs** to simulate daylight from waking until 6pm
  - Dim lights towards complete darkness at 10pm
  - Replace bulbs in your living & work spaces
  - Closer light mimics your daily life, the better

# Well Timed Melatonin

- In SAD, melatonin secretion is out of sync
- Taking melatonin 30 minutes before bed will help regulate your body clock



Take melatonin here



## 5-HTP

- 5-hydroxytryptophan is a precursor to melatonin and serotonin
  - Useful for more severe depression
- Provides the backbone for your body to produce adequate levels of hormone
- Use in conjunction with light therapy

# Vitamin D

- With few exceptions, all Canadians are Vitamin D deficient in winter
  - UVB rays inadequate to produce vitamin D in skin at our latitude Nov-March
- Thought to be related to high prevalence of latitude specific diseases
  - E.g. SAD, heart disease, multiple sclerosis
- Recommend supplementing vitamin D in winter





## Exercise

- One of the most important factors in regulating the circadian rhythm
- 30 minutes per day **minimum!**



**Unit 3  
855 St David St N  
Fergus, ON  
N1M 2W3**

**T: 519-787-4100  
F: 519-787-4105**

**[info@ontariohealth.org](mailto:info@ontariohealth.org)  
[www.ontariohealth.org](http://www.ontariohealth.org)**

**Upcoming  
Lectures/Appearances:**

*March 4 – Nutrition Checkup*

*Today's lecture is available for download on our website.*

**Thank You!**