Sleep matters: Why sleep is important and natural ways to improve sleep

Jennifer Pfleghaar, DO, ABOIM

About Dr. Jen

- Board Certified Integrative Medicine Physician (Fellowship at Arizona College of Integrative Medicine)
- Board Certified Emergency Medicine Physician
- Owner and Medical Director PflegMed: Center for Integrative Medicine and Natural Aesthetics
- Owner and certified yoga teacher at Perrysburg Yoga
- Author: Eat. Sleep. Move. Breathe. A Beginner's Guide to a Healthy Lifestyle

Objectives

- To understand why sleep is important for our health.
- To be able to recognize sleep disturbances.
- To be able to recommend and utilize botanicals and supplements to aid in sleep.

Sleep like a baby...

Sleep facts

- United States, more than 70 million people suffer from a sleep disorder, and modern lifestyles have led to Americans sleeping approximately 2 h less per night than 100 years ago [1]

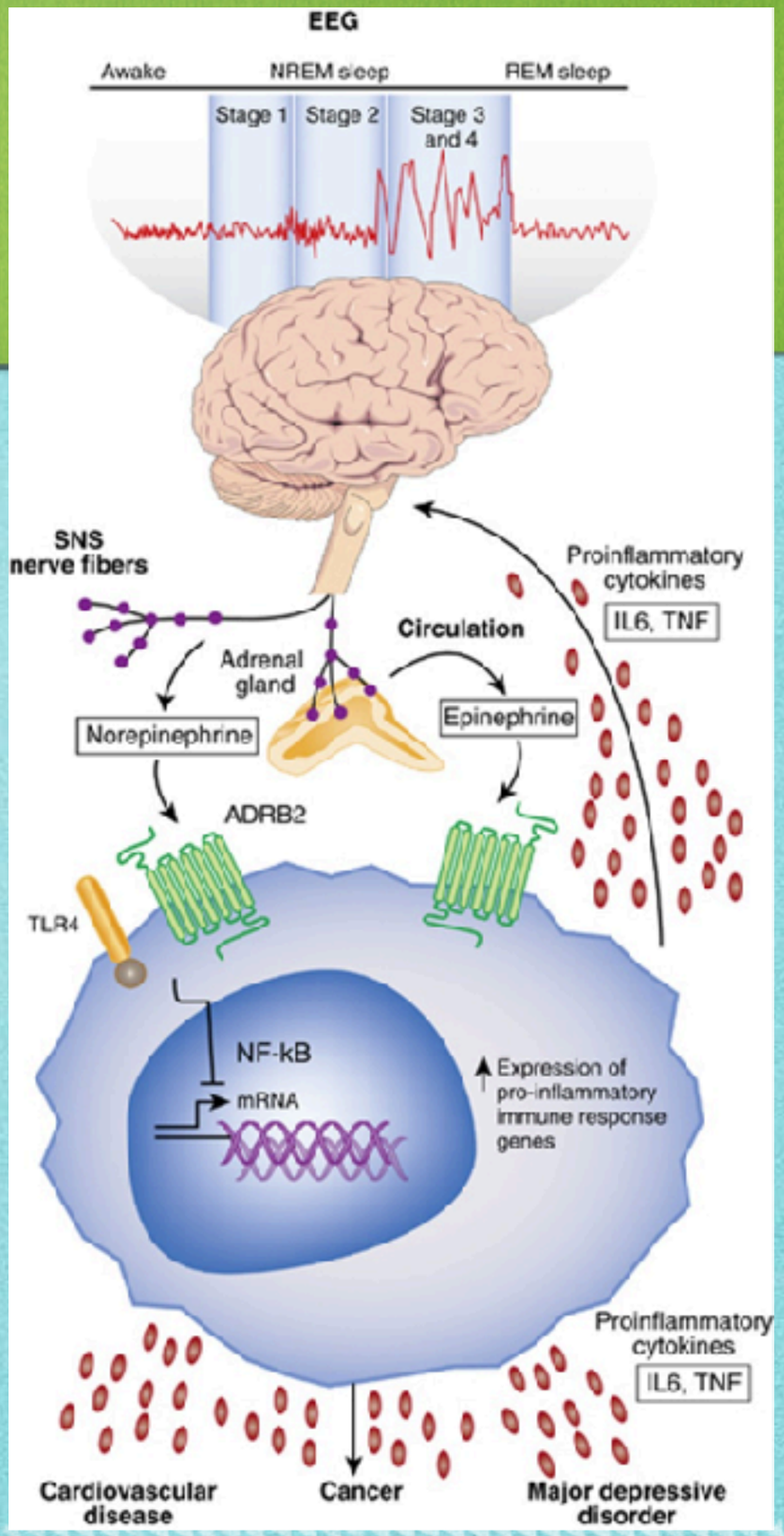
- Studies on total sleep deprivation and REM sleep deprivation suggest that sleep has an important function in memory consolidation, learning, and neuronal plasticity [3]

Sleep and the immune system

- Adequate sleep is perhaps the most effective, convenient, and cost effective way to strength the immune system.

- Decreased sleep has been linked to increased risk of getting a upper respiratory infection [2]

- After one night of sleep loss, changes in the innate immune response.



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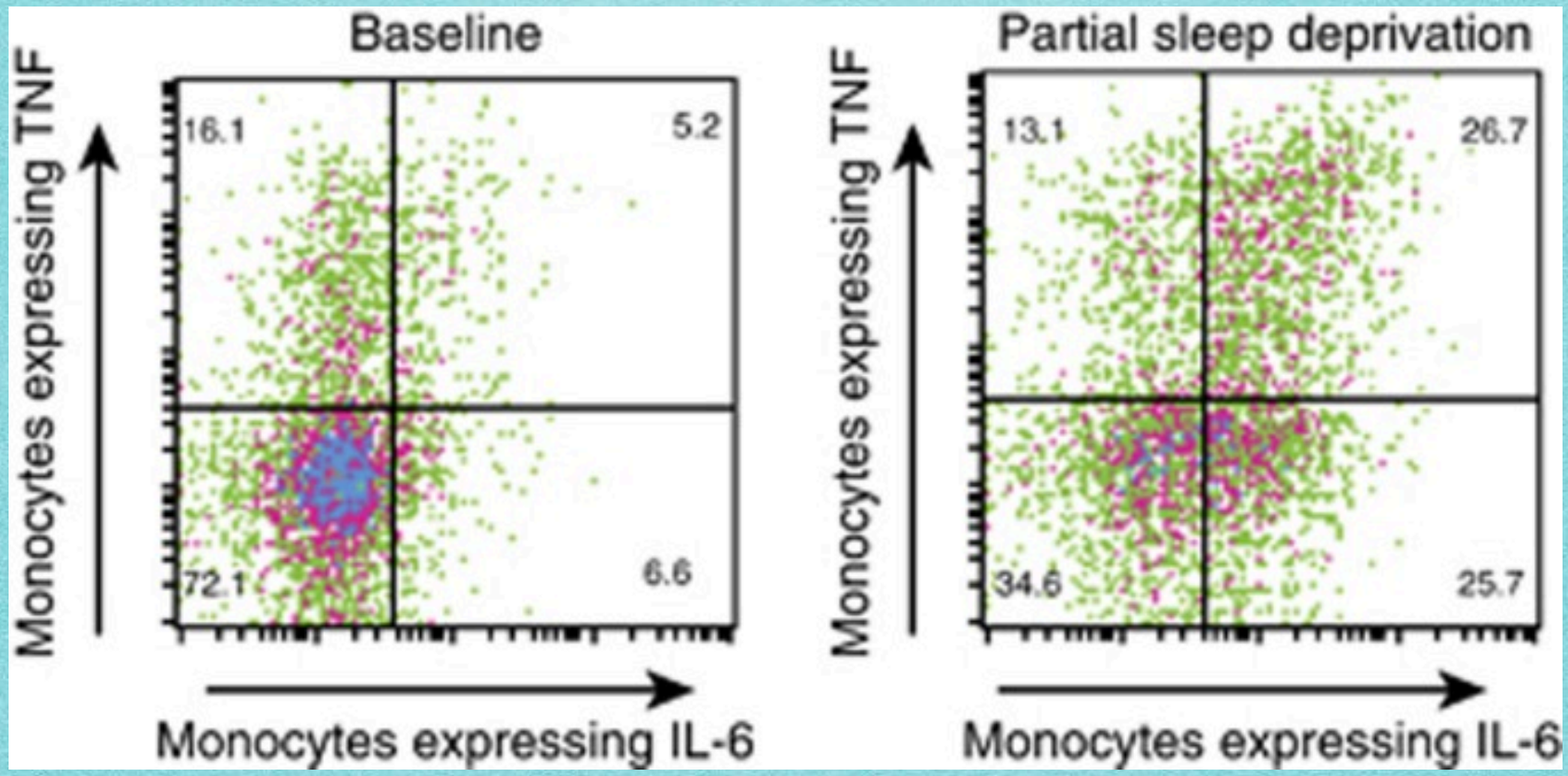
Immune function

- There are several explanations for greater susceptibility to infections after reduced sleep, such as impaired mitogenic proliferation of lymphocytes, decreased HLA-DR expression, the upregulation of CD14+, and variations in CD4+ and CD8+ T lymphocytes, which have been observed during partial sleep deprivation. [3]

- The transiently impaired mitogen proliferation, the decreased HLA-DR, the upregulated CD14, and the variations in CD4 and CD8 that we observed in temporal relationship with partial sleep deprivation could be one possible explanation for the increased susceptibility to respiratory infections reported after reduced sleep duration [4]

Increased IL-6 and TNF expression in monocytes



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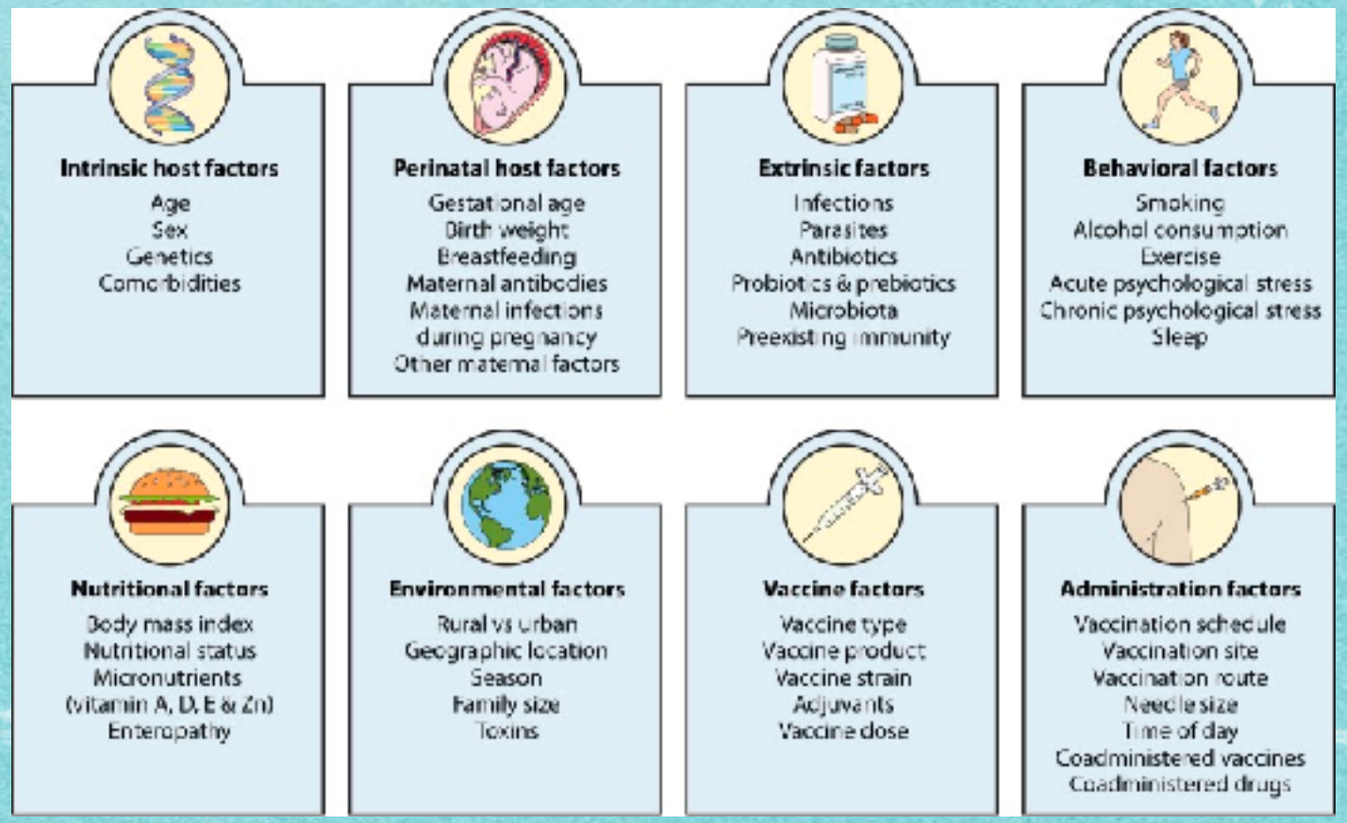
IL-6

- Has been found to be associated with higher mobility with COVID-1 patients [12]
- IL-6 therapy has been looked at as a treatment for COVID
- Tocilizumab, an IL-6 inhibitor, in EUA for treatment and used in some institutions
- (EGCG), an anti-inflammatory compound found in green tea, is also an IL-6 inhibitor [13]

Sleep and vaccine response

- Sleep deprivation has also been shown to have a decreased response antibody response with vaccinations [14]

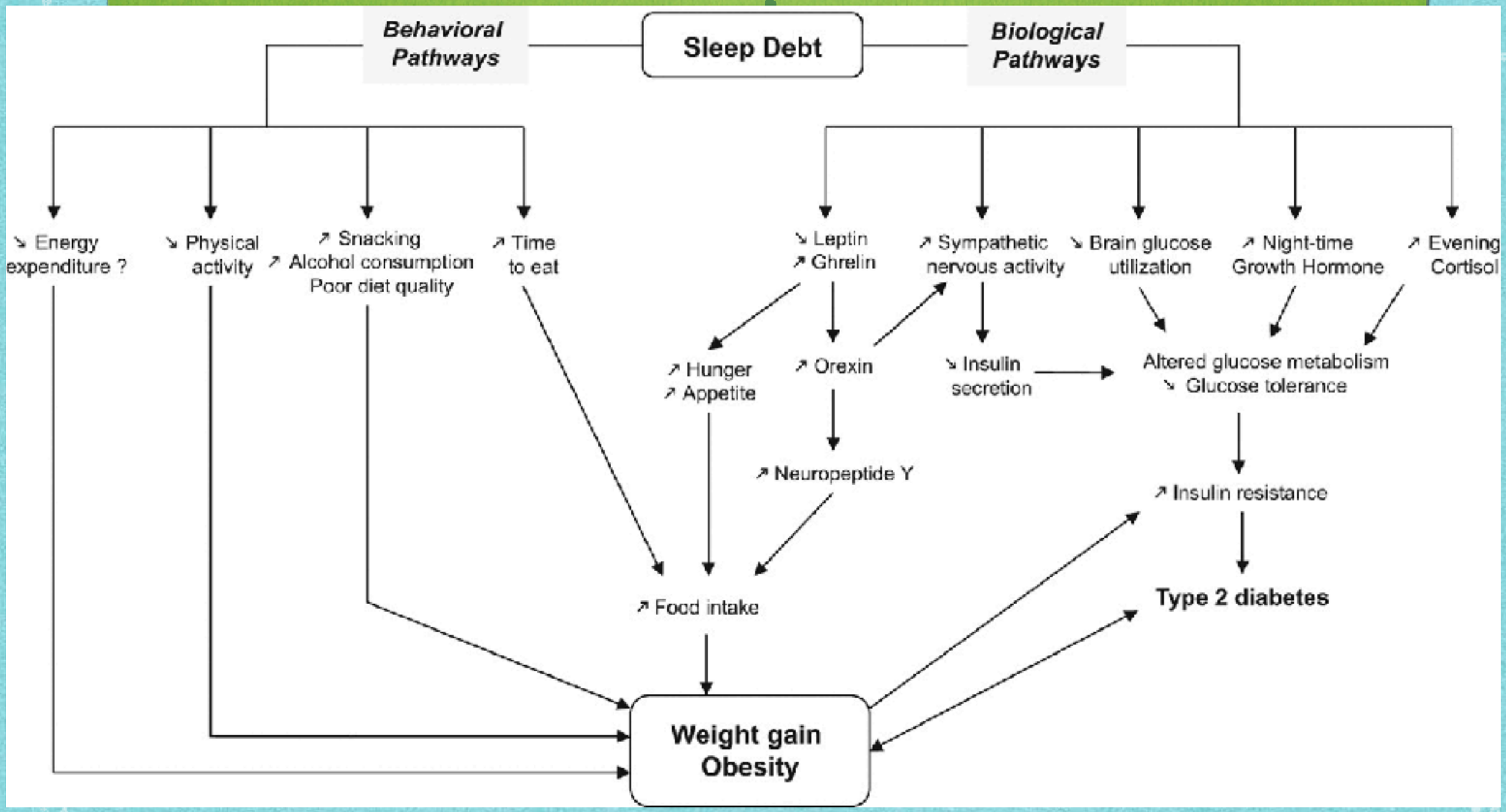


What does the body do while we sleep?

- Cortisol goes down, slowly increases over the night to promote alertness in morning.
- Melatonin rises slowly and peaks while we sleep
- Contributes to a healthy immune system
- Balances our appetites by helping to regulate levels of the hormones ghrelin and leptin (they play a role in our feelings of hunger and fullness). One reason why we eat when we are sleep deprived.

Why do we need sleep?

- Repair and restoring our organ systems
- Plays a crucial role in memory retention
- Immune system (T cells), insulin levels, ghrelin goes up with deficiency, increased risk of obesity with deficiency
- World wide approximately 30 - 40 % of adults have problems imitating or maintaining sleep



Ghrelin (stimulates appetite)
Leptin (inhibits appetite)

[15]

What is good sleep?

- According to the National Sleep Foundation (NSF)
- Sleeping more time while in bed (at least 85 percent of the total time)
- Falling asleep in 30 minutes or less
- Waking up no more than once per night
- Being awake for 20 minutes or less after initially falling asleep.

What role does each state and stage of sleep play?

- NREM (75% of night): As we begin to fall asleep, we enter NREM sleep, which is composed of stages 1-4
- Hormones are released, such as: Growth hormone, essential for growth and development, including muscle development
- REM (25% of night): First occurs about 90 minutes after falling asleep and recurs about every 90 minutes, getting longer later in the night
- Provides energy to brain and body
- Supports daytime performance
- Brain is active and dreams occur
- Eyes dart back and forth
- Body becomes immobile and relaxed, as muscles are turned off

Are you getting enough sleep?

- Sleep recommendations by age
- Newborns (0-3 months): 14-17 hours each day
- Infants (4-11 months): 12-15 hours
- Toddlers (1-2 years): 11-14 hours
- Preschoolers (3-5): 10-13 hours
- School age children (6-13): 9-11 hours
- Teenagers (14-17): 8-10 hours
- Younger adults (18-25): 7-9 hours
- Adults (26-64): 7-9 hours
- Older adults (65+): 7-8 hours

Sleep disorders

- Sleep apnea (obstructive and central)
- Insomnia
- Narcolepsy
- Shift work disorder (big in the medical field)
- Restless leg syndrome

Shift work disorder

- “On the basis of limited human evidence and sufficient evidence in experimental animals, in 2007 the International Agency for Research on Cancer (IARC) classified 'shift work that involves circadian disruption' as a probable human carcinogen, group 2A.”

- The concern is LAN (light at night) when shift workers are exposed to light and altering their circadian rhythm

Other reasons for poor sleep

- Partner snoring
- New baby
- Poor sleep environment
- Nocturnal urination
- Excessive Caffeine
- Alcohol
- Drugs or Medications

10 Mistaken Beliefs About Sleep

Lessons from sleep specialist Rubin Naiman, PhD

1

We should sleep at least 8 hours every night.

Actually, our personal sleep needs can vary.

2

It's ideal to always sleep through the night.

Occasional awakenings are, in fact, normal.

3

I can and must make myself sleep.

We simply can't control the process of falling asleep.

4

I should just stay in bed and rest if I can't sleep.

It is best to get out of bed at these times.

5

I'll have a terrible day if I don't sleep well.

Not necessarily, we are very resilient and can adapt.

6

Good sleepers fall asleep quickly.

It's normal to take up to 20 minutes to fall asleep.

7

Good sleepers don't dream.

Dreaming nightly is an essential part of good sleep.

8

It's best to get up and be productive if I can't sleep.

Being productive at night typically disrupts sleep.

9

It's normal to sleep less as we age.

It's common, but not inevitable or healthy or normal.

10

It's comforting to check the time when sleepless.

Clock watching makes it harder to get back to sleep.

Natural Sleep Solutions

- Behavioral changes
- Environmental changes
- Supplements
- Botanicals

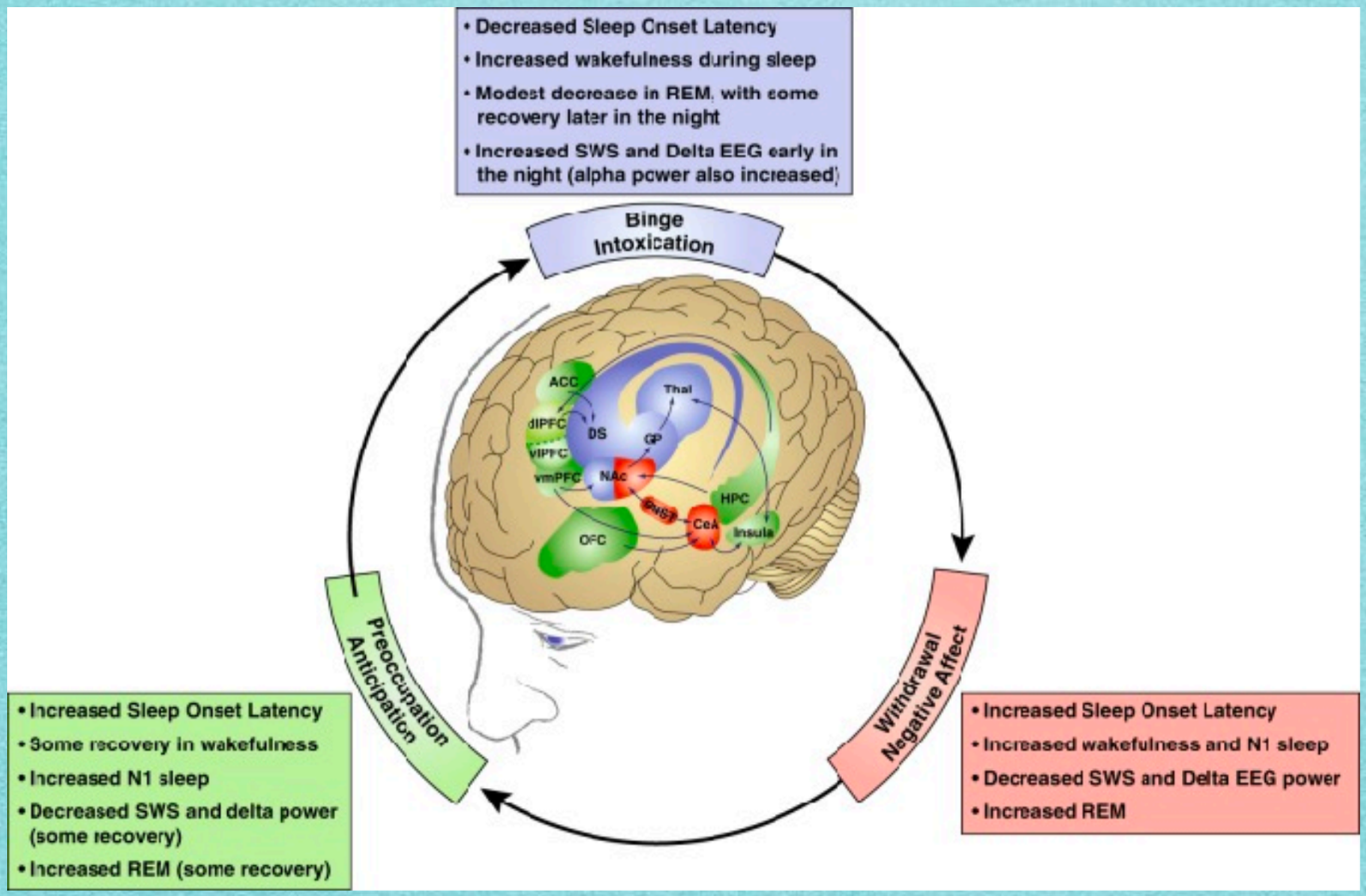
Behavioral changes

- Caffeine- Limit caffeine use to the mornings
- Alcohol- reduces REM sleep
- Medications- ex: Antihistamines (make you drowsy but negative affect on sleep), B-blockers (insomnia), diuretics (increased urination), SSRIs (daytime sleepiness)
- Meditation- before bed, guided imagery

Behavioral changes- alcohol

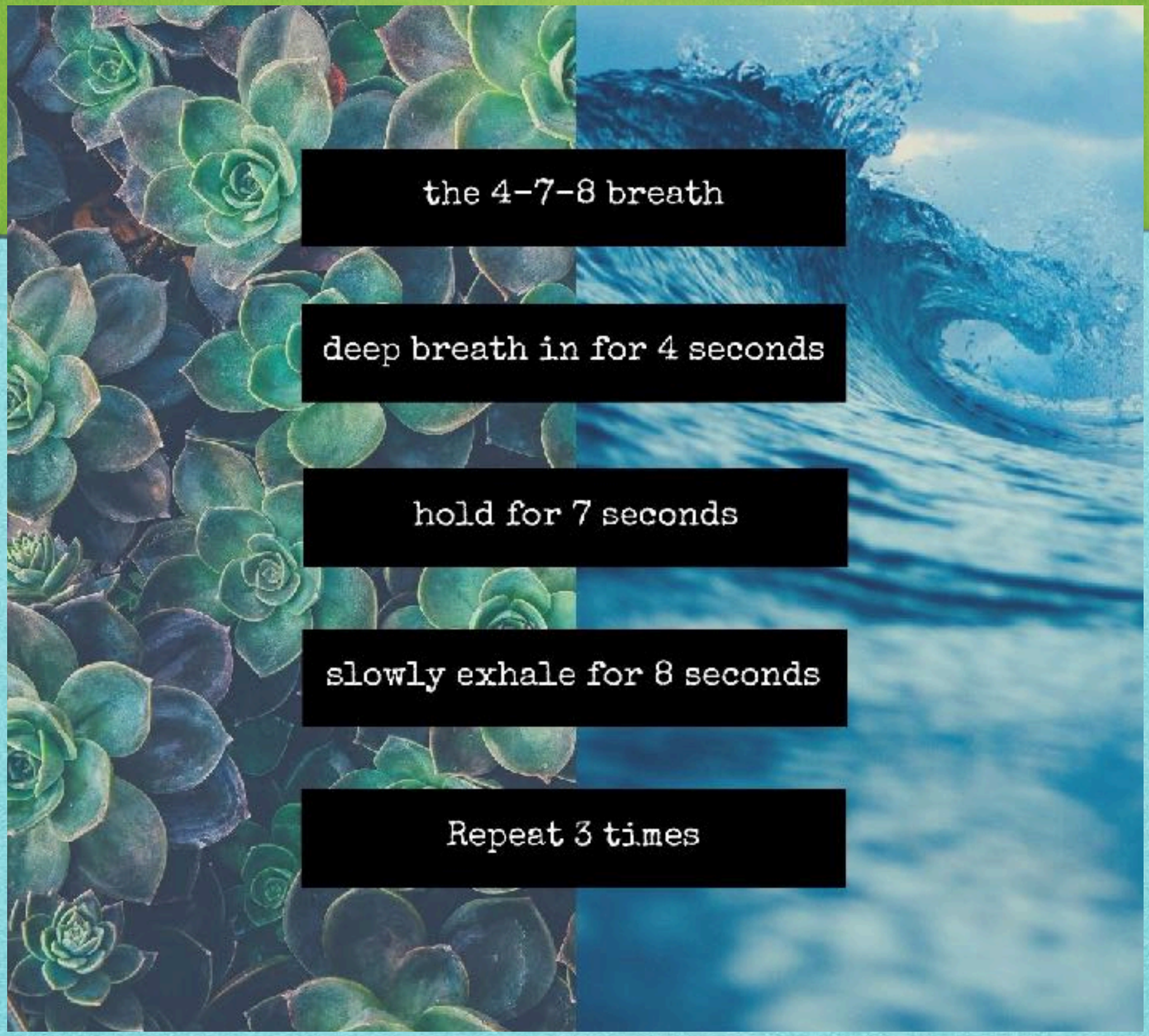
- Night caps- no good!
- “Alcohol intoxication leads to a faster sleep onset, but sleep quality is poor relative to nights when no alcohol is consumed.” (11)

Behavioral changes- alcohol



Meditation/Breath work

- Apps on the phone
  Calm, Insight Timer, Headspace
- https://www.onlinemeditation.org/
- 4-7-8 Breath work


the 4-7-8 breath
deep breath in for 4 seconds
hold for 7 seconds
slowly exhale for 8 seconds
Repeat 3 times

Environmental

- Room- keep dark, comfortable temperature, use bed for sleeping and sex only
- Load noises or traffic- try a sleep machine
- Weighted Blankets: Deep Touch Pressure (DTP) DTP helps the brain to release serotonin, melatonin and dopamine.
- Blue light blocking glasses- blue light suppresses melatonin
- EMFs

EMFs?

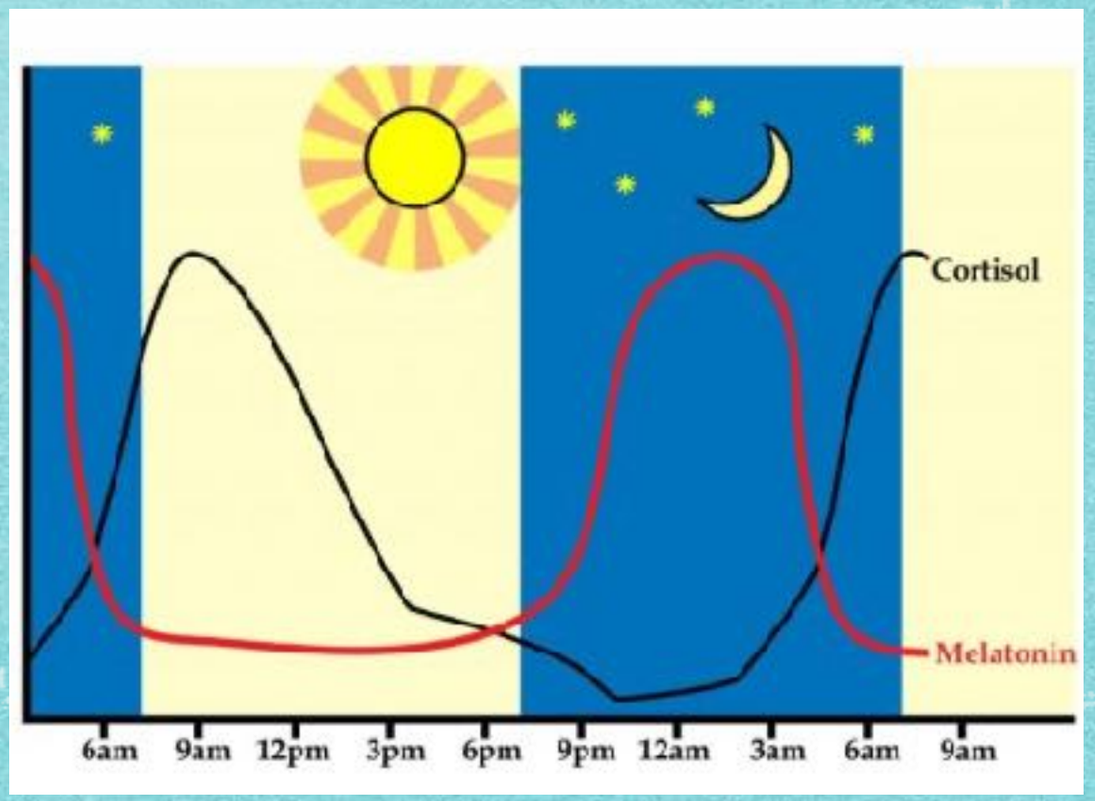
- Electromagnetic fields:
wifi, cellphones, electric blankets,
electric clocks, power lines, ect.

- Studies suggest that long-term occupational exposure to ELF-EMF may lead to depression, stress, anxiety and poor sleep quality. [1]

Supplements

Melatonin

- A hormone made in the pineal gland
- Antioxidant properties
- Correlated with the sleep-wake cycle
- Take 30 minutes prior to bed
- Dosing: 1 - 10 mg



L-theanine

- An amino acid, commonly found in teas
- Has anxiolytic effects via the induction of α brain waves without additive and other side effects associated with conventional sleep inducers [7]
- No day time drowsiness
- Promotes good quality of sleep through anxiolysis, not sedating [7]
- Studied in improving sleep in boys diagnosed with ADHD [8]
- Dosing: 200 mg to 400 mg per day

Hops

- The mechanism of action of the resin of hop consists of increasing the activity of the neurotransmitter γ-aminobutyric (GABA), inhibiting the central nervous system (CNS).
- Dosage 2 mg
- Found in combination with Valerian works synergistically in studies

Lavender

- Essential oil
- Inhalation can help with sleep/anxiety
- Studies: 2 drops placed in a box bedside, lavender cream to the feet

Valerian

- Studies are positive for an improvement in insomnia
- Must use for about 2 weeks for effect
- Tea (1 cup boiling water over 1 tsp dried root, steep 5-10 min), Tincture (1:5) 4- 6 ml, Dry Powdered Extract (250 - 600 mg) 1 -2 hours before bed
- Must use for about 2 weeks for effect
- Not recommended to take while breastfeeding

Passion flower extract

- Used for sleep and anxiety
- Non-sedating, it has been found to activate GABA receptors
- Studies show positive effects on circadian rhythms [5]
- Usually combined with lemon balm and valerian for sleep
- Passion flower is gentle for children

Skullcap

- Sedative, nervine relaxant, antispasmodic, and nervine tonic

- suppresses inflammatory cytokine production, activates GABA-A receptors thus reducing anxiety and providing sedation

- Increase REM sleep in darkness and increases wakefulness in light [6]

Comparing 3 botanicals

- Skullcap: exhausted and run down
- Valerian: insomnia with anxiety, muscle tension and restlessness
- Passion flower: insomnia with accompanying anxiety

Tart Cherry Juice (TCJ)

- Contains anti-inflammatory, phytonutrients
- Montmorency tart cherries- juice contains an enzyme that inhibits tryptophan breakdown
- Study showed an increased sleep time
- Study suggested drinking a glass in the morning and in the evening

Chamomile tea

- Chamomile (Matricaria recutita)
- Has been used to treat insomnia and induce sedation
- Sedative effects may be due to the flavonoid, apigenin that binds to benzodiazepine receptors in the brain
- Study on postpartum women in sleep quality and depression (safe while breastfeeding)
- Also used in anxiety, eczema (topically), sore throats and more.
- Do not use if history of ragweed allergy and not recommended in pregnancy

Lemon Balm

- Lemon balm (Melissa officinalis)
- Used to relieve stress and anxiety
- Some studies for sleep and restlessness (combined with Valerian)
- Dosing: Tea, 1000 mg of lemon balm herb BID

Magnesium

- Can improve sleep quality, may help with restless leg syndrome
- Maintains healthy levels are GABA, also helps with depression and anxiety
- Most people are magnesium deficient
- Dosing: 200 - 400 mg in the evening

Progesterone

- A calming hormone
- Interacts with GABA receptors
- Decreased time awake, increased REM in postmenopausal women [10]
- Progesterone deficit from estrogen dominance or other hormonal problems (OCPs- progestin)

Tips for good sleep!

- 1. Encourage patients to be mindful of the fundamental rhythmic infrastructure of life by establishing a regular bed and rising time, obtaining exposure to early morning light and evening dim light, and maintaining regular times for meals and exercise.

- 2. Manage caffeine, nicotine, alcohol, and other drugs. Given its substantial half-life, standard cautions about caffeine may not be sufficiently conservative for many.

- 3. Although regular and adequate cardiovascular exercise promotes healthy sleep, it should be avoided at least 3–4 hours prior to bed because it raises core body temperature, which can interfere with sleep.

- 4. Avoid high glycemic and harder to digest foods as bedtime snacks. As an alternative, consider complex carbohydrates that may help transport tryptophan, a precursor to melatonin, across the blood-brain barrier.

Tips for good sleep!

- 5.Create a healthy sleep environment by keeping the bedroom cool (about 68 degrees F), completely dark, quiet, psychologically safe, and as green as is fiscally feasible. If possible, use HEPA filtration for clean air and, whenever possible, organic and non-toxic bedding and mattress.

- 6. Limit screen time, especially prior to bedtime as light from computer and phone screens can cause melatonin suppression and disruption of sleep.

- 7.Avoid clock watching at night as this activity stimulates wakefulness. Ideally, position the clock away from the bed or use a non-illuminated battery-operated clock to avoid light and subtle EMF radiation.

- 8. Manage hyperarousal and anxiety with cognitive behavioral therapy (CBT) and body-mind techniques. CBT, which is more effective than hypnotics over the long term, addresses sleep-related dysfunctional thoughts and beliefs that trigger arousal.

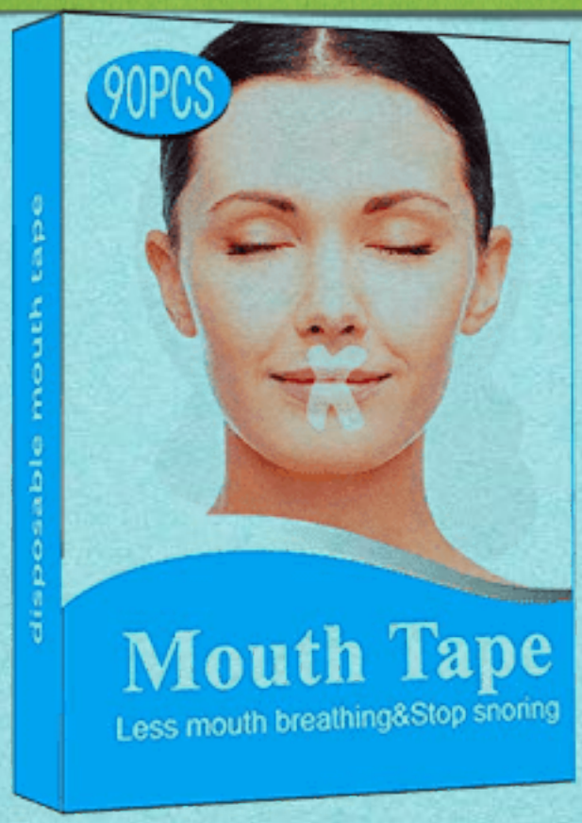
Tips for good sleep!

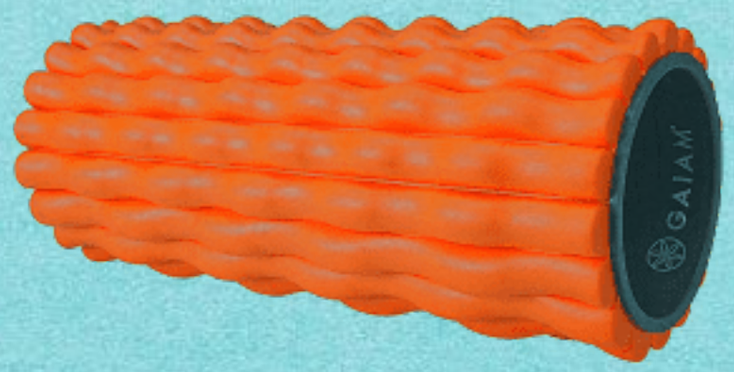
- 9.Manage bed and bedroom stimulation, which can condition these areas for wakefulness, by using the bed only for sleep and sex. Minimize wakeful time spent there by going to bed only when sleepy and getting out of bed if an extended period (15 - 20 minutes or more) of nighttime wakefulness occurs, doing a non-stimulating activity, and then returning to bed once sleepiness occurs again.

- 10.When discontinuing hypnotics or otherwise indicated, consider supplementing sleep for a short term with botanicals.

- 11.Emphasize the key process of letting go or surrender in sleep onset. In the end, we cannot force sleep. We can set the stage and be receptive to it, but we cannot intentionally "go to sleep." Efforts to do so typically backfire. Note that for patients with a significant history of trauma, it can be particularly challenging to "let go," as the autonomic hyperarousal mechanisms can be exceptionally activated.

Example





Supplement Facts

V1

Serving Size 2 Capsules
Servings Per Container 30

2 capsules contain	Amount Per Serving	% Daily Value
Bacopa Extract (Whole Herb) (Bacognize®)(Standardized to contain 12% Bacosides)	300 mg	*
Ashwagandha Root Extract (Standardized to contain 1.5% Withanolides)	250 mg	*
Rhodiola rosea Root Extract (Standardized to contain 3% Rosavins)	200 mg	*
Eleuthero Root Extract (Standardized to contain 0.8% Eleutherosides)	200 mg	*
L-Theanine (Suntheanine®)	100 mg	*
Phosphatidylserine (from Sunflower Seed)	100 mg	*

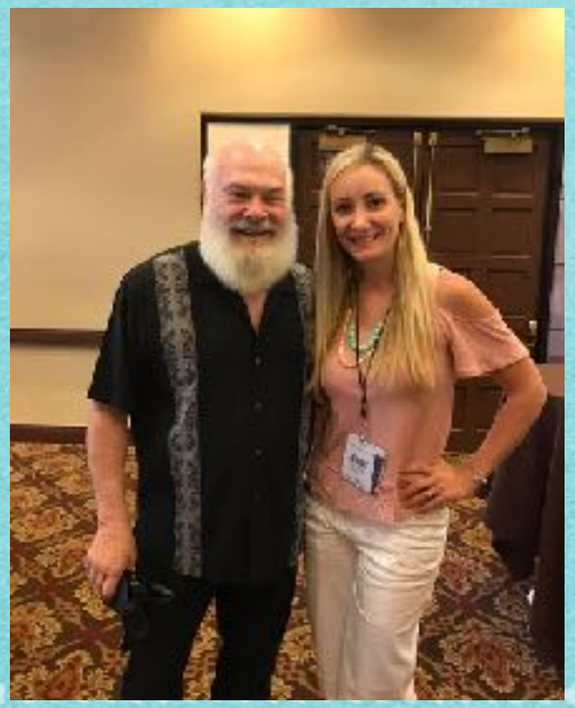
* Daily Value not established

Other Ingredients: Natural Vegetable Capsules, Magnesium Stearate and Silicon Dioxide.

Any questions?

Thank you!

- @integrativedrmom
- www.pflegmed.com
- drjen@pflegmed.com



Dr. Jen with Dr. Weil

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