Balance Circadian Rhythm
A major foundation of mental health
Mood, sleep, stress, pain, depression

Human rhythmicity
- 24-hr. light/dark cycle/
- Sleep/wake/
- Cortisol cycle

- BiPolar, Depression, Insomnia, Stress, PTSD all reflect disruption of the rhythm
- Ongoing disruption of rhythm-driven behaviors reinforces mental distress
Circadian Rhythm

• Human rhythmicity depends upon internal pacemakers
• Light travels through the retina of the eyes via the retino-hypothalamic tract to Supra chiasmatic nuclei (SCN) in the hypothalamus signal ➔ the pineal gland
• The pineal responds to the pacemaker by secreting melatonin
• Genetics, Lifestyle & Stress influence Circadian rhythm

Circadian Rhythm

• Transmission of light via the eyes to stimulate the brain & hormones
• Disruptions occur with alterations of exposure to light and dark; Jet lag

• Light in AM & dark at night; shift work increases until puberty
• Hence wake up time for teens
• Melatonin decreases with age, related insomnia
• Sleep disruption in dementia (use of light therapy to regulate sundowning)
Stress, Trauma & Circadian Rhythm

* Disrupted circadian rhythm ➔
* Dysregulated cortisol rhythm ➔
  insomnia, depression, glycemic dysregulation, mood disorders, BiPolar, bulimia, PMS, dementia

* Test: 24 hr. diurnal cortisol to confirm current story & history

* The CS rhythm can reflect different stages of stress response. Adaptive/maldaptive

Stress, Trauma & Circadian Rhythm

* Regulate Circadian Rhythm, to regulate mood and health
* Why is circadian rhythm so important to mental health?
* Self regulation is central to mental & physical health

* Stress underlies mental illness symptoms
* Stress and trauma disrupt circadian rhythm ➔
* Disrupted cortisol rhythm ➔ insomnia, depression, blood glucose handling issues, mood disorders, BiPolar ADHD, bulimia, PMS, diabetes 2, diabetes type 3 aka Alzheimers
Applications of Circadian Rhythm Therapies

- Lithium is believed to work by regulating rhythm in Bi-Polar
- 24 hr. awake therapy to break depression cycle
- Light therapy for Seasonal Affective Disorder
- Blue Light blocking glasses for insomnia
- Schools have later starting times for teens
- Light therapy to reduce sundowning in dementia
- Light/Dark & Nutrition to regulate in PTSD and TBI
- ChronoNutrition: the time you eat is as important as what you eat

Pineal Gland as Spirit Center

The “Third” Eye of consciousness practices; Hindu tradition ajna, or brow, chakra

DMT “spirit molecule,” N,N-Dimethyltryptamine
In the brain & in Ayahuasca

Dr. Rick Strassman’s research & theories on mystical experiences; visual & auditory hallucinations, and (DMT), a serotonin/melatonin analogue
Pineal Gland as Vestigial Third Eye

• Descartes believed the pineal gland was the seat of the soul
• Many reptiles, like the lizard, have actual 3rd eyes which function as their compass

Symbol of Medicine Caduceus

• Two intertwined snakes are symbol of the nervous system
• Sympathetic/Parasympathetic
• The snakes join at the "third Eye, the pineal gland, the “seat of consciousness"
Seasonal Affective Disorder
Circadian Rhythm Disruption

- Umbrella term for mood disorders that follow a seasonal pattern of recurrence
  - Recurrent fall and winter depressive episodes with full remissions
  - (Or) switch to hypomania or mania in the spring & summer

- People with SAD exhibit the “atypical” vegetative symptoms of depression, including:
  - Hypersomnia
  - Increased appetite
  - Carbohydrate craving
  - Weight gain
Major influence on Stress, Sleep & Mood

1. Early life trauma can disrupt sleep from childhood
2. Early Life trauma (adverse childhood events; ACE’s) is a risk factor for sleep disruption & mood disorders
3. Chronic stress exacerbates mood at every life stage change ➔ PMS ➔ peri & menopausal depression, anxiety, insomnia
4. Trauma & chronic stress disrupt circadian rhythm
5. Trauma & stress disrupt & later cortisol rhythm of adrenal glands

Stress As Disrupted Rhythm

Physical Symptoms of (Adrenal) Stress
• Premenstrual tension
• Cravings for sweets & carbohydrates
• Headaches
• Sternocleidomastoid/trapezius muscle pain & spasm
• Alcohol intolerance
• Indigestion
• Vertigo
• Poor memory
• Palpitations
• Ligament laxity
• Sensitivity to (sun) light
Adrenal Stress: Many Symptoms

Insomnia
• Irritability, nervousness, frustration
• Poor Concentration
• Excessive fatigue
• Confusion
• Depression
• Weakness
• Lightheadedness

Food allergies, airborne allergies
• Asthma
• Hives
• Dermatitis
• Auto Immune
• Postural hypotension
• Low Basal Body Temp

Adrenal Stress Visual Assessment

• Darkness on the eyelids may denote excess cortisol
• Puffiness under the eyes
• Hyperventilation
• Gritting teeth/ TMJ
Insomnia & Disruption of Circadian Rhythm

• **Initial insomnia**
  • Difficulty falling asleep and/or frequent awakenings with difficulty falling back asleep or subsequent sleep that is restless & unsatisfying
  • Early morning awakening insomnia or maintenance insomnia
  • **Sleep latency:** The average amount of time to fall asleep

Insomnia

• 30% of the population will experience insomnia
• 92% of active duty personnel with PTSD report insomnia

• PTSD: Individuals with insomnia prior to trauma exposure are more likely to develop PTSD following exposure

• 4-6 million people a year receive prescriptions for sedative/hypnotics
  • Benzodiazepines alter REM sleep; some evidence for ↑ dementia risk
  • Ambien (sedative/hypnotic) is excreted at a slower rate in women: am accidents

• Aging does not decrease the total amount of sleep needed however sleep is more restless
Causes of Initial Insomnia

- Anxiety or tension
- Circadian rhythm
- Environmental change
- Emotional arousal
- Fear of insomnia
- Sleep phobia
- Disruptive environment
- Pain or discomfort
- Caffeine or alcohol ingestion

We will explore insomnia treatment in more detail in a future module devoted to insomnia & different circadian rhythm disorders.

Integrative Circadian Rhythm and Sleep

- First Steps: reset the ‘clock”
- Nutritional Therapies
- Reduce stimulants
- Healthy substitutions for stimulants
- Assess & address reactive hypoglycemia
- Small snack before bed
Integrative Treatment Circadian Rhythm & Sleep

- Regulate Circadian Rhythm
- CBT-Insomnia
- Chrono-therapies
  - Blue Light blocking glasses at night
  - Sleep in complete darkness & in a cool room (60-65 degrees)
  - Bright am light (before 10 am)
  - Reduce sunglass use
  - Eliminate night shift work
- Herbal Medicine
- Nutrition
- Relaxing Bodywork
- Parasympathetic Yoga asanas

Nutrients to Help Reset Circadian Rhythm

- Three supplements reset the rhythm of the clock
  - Melatonin .0.5 - .75 mg
  - Methylcobalamin, (vitamin B12) enhances light sensitivity of the “clock” & regulates cortisol “peak”
  - Lithium: 5-20 mg/day
    - (Lithium-rich mineral springs)
Melatonin: Adverse Effects

- Melatonin levels drop as we age
- Melatonin only aids sleep by re-setting Circadian Rhythm
- *Side effects
  - Gastrointestinal disturbances
  - Lethargy
  - “Hung-over” feeling
  - Exacerbation of symptoms in depressed patients is also a concern


Chrono-Therapies

- Sunlight
  - Limit sun glass use
  - 10,000 Lux Light Boxes
  - Full spectrum light bulbs
    - Delivered for 20-30 minutes morning
    - Contraindications: bi-polar?
  - Blue Light Blocking Glasses at night
Nutrients for Initial Insomnia

- **Lactium**: milk biopeptide
  - **De-Stress**: sedative effect; acts on GABA receptors
  - **Dose**: 150-450 mg. BID/TID

- **Decrease cortisol**: stress response at night; cortisol is often high at night in depression

Hydrotherapies & Before Bed Protocol

- **Differentiate type**
  - Assess for low blood sugar
  - Eat a protein & carb snack before bed

- **Magnesium**
  - Epsom salt baths
  - Oral Magnesium to bowel tolerance

- **GABA precursors**
  - Lactium
  - Bioidentical progesterone in (pre) menopausal women
Integrative Circadian Rhythm & Sleep

- **Herbal Medicine**
  - Valerian, Hops, Passionflower (GABA support)
- **Timed Exercise**
  - Aerobic exercise before 3 pm
- **Balance Hormones**
  - Progesterone in peri & post menopausal women; testosterone in men
- **Medical issues**
  - Sleep apnea; prostate issues in men
- **Hydrotherapies**
  - Magnesium sulfate bath
- **Neurofeedback**
- **Cranial Electrical Stimulation**

Herbal Medicine for Insomnia

- **Valerian/ Hops/ Passionflower (VHP)**
- Decreases sleep latency, lengthens sleep duration
- **Licorice Root**
- Regulates Hypothalamic/ Pituitary /Adrenal Axis (HPA)
AM RECIPE

Mocha Matcha Smoothie

Make this smoothie as a natural stimulant for a morning beverage. Remember Coffee is a drug, not a beverage. A little, lifts mood and resets circadian rhythm. The Cocoa supports dopamine and focus and has polyphenols which reduce inflammation. The Matcha has theanine, a natural anxiolytic. This recipe is very forgiving, so feel free to experiment.

Ingredients

- 12 oz. fresh brewed organic coffee, hot
- 1/2 c. full-fat, unsweetened coconut milk
- 1/2 tsp. Organic Matcha powder (or strong tea from 3 matcha tea bags)
- 4 tbsp. unsweetened organic cocoa powder (for drinking)
- 5-10 drops liquid stevia (or to taste)
- Vanilla extract (optional)
- Coconut cream, unsweetened (optional)

Directions

Combine all ingredients in a blender at medium speed for a few minutes until frothy. Pour into a mug and top with coconut cream, if desired. For children I substitute berries and almond milk for the coffee.

This recipe makes four servings.

PM RECIPE

Cherry Chamomile Smoothie

Make this smoothie an hour or two before you want to go to sleep. Cherries and chamomile tea help induce sleep; Cherries stimulate melatonin release. The mangos, seeds, and coconut will support blood sugar and brain function throughout the night so you can rest peacefully. Blueberries or frozen bananas make a good substitute for mangos.

Ingredients

- 1 cup almond or coconut milk
- 1/2 cup Strong, cold chamomile tea
- 1 cup frozen (or fresh) cherries
- 1 cup frozen mangos
- 1 tsp. flax seeds (or flax seed oil or lemon flavored fish oil)
- 1 Tbsp. chia seeds
- 1 Tbsp. coconut cream or coconut oil
- 3 drops liquid stevia
- 1 drop vanilla extract (optional)

Directions

Place all ingredients in the blender and blend until smooth. Keep a quart of strong chamomile tea in the fridge or make "chamomile tea ice cubes" to add to evening smoothies.
**Ultradian Rhythm**

• 90-120 minute cycle
• Contra-lateral association with hemispheric dominance
• Yoga corpse pose, sitting & lotus pose facilitate neutral, natural shift & renewal
• Lying on the right side congests the right nostril & quiets down the left brain
• Pay attention to shift when it occurs
• Siesta/Naps/rest periods/day dream states

**Applications**

• Help clients identify their ultradian cycles to build in self care during the day & reframe beliefs about cognition & focus
  • Signs of shifting: “antsy” yawning, bathroom, spacey etc.
  • Shift dominance based on goal: children & adults with focus activate left brain dominance/creative, sleepy, relaxed side activate right brain
  • OCD activate right brain/Focus activate left

• Culturally Competency:
  • Most traditional cultures adhere to circadian & ultradian-driven schedules
  • Ask clients about their traditional practices
**Ultradian Rhythm Exercise**

- Close off the left nostril placing your finger along the side of your nose. Breathe into the right nostril
- Close off the right nostril, breathe into the left nostril
  - Repeat this several times
- One nostril will be more "open" or free flowing, & the other will be more clogged or congested
- The more free flowing denotes greater dominance on the opposite hemisphere of the brain. So if your left nostril is more open, your right hemisphere is more active

**Automated Morningness-Eveningness Questionnaire (AutoMEQ)**

- This 19-question assessment provides information about sleep habits and your circadian rhythm type

Circadian rhythm is the 24 hour sleep/wake cycle: major psychobiological rhythm
Stress disrupts circadian rhythm and thereby disrupts sleep
PTSD, Complex trauma depression, bi polar, seasonal affective disorder symptoms of circadian rhythm disruption
Light and Dark, Nutrition, Herbal Medicine & Hydrotherapy all provide methods to balance circadian rhythm and improve sleep
Some Nutrients include Vitamin B-12 which should be used as methylcobalamin or hydroxocobalamin (not cyanocobalamin)
Melatonin is a hormone that regulates circadian rhythm it does not help one sleep per se

Thank you!

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