

# 2022 GWCO Congress



## To Sleep, Perchance To Dream

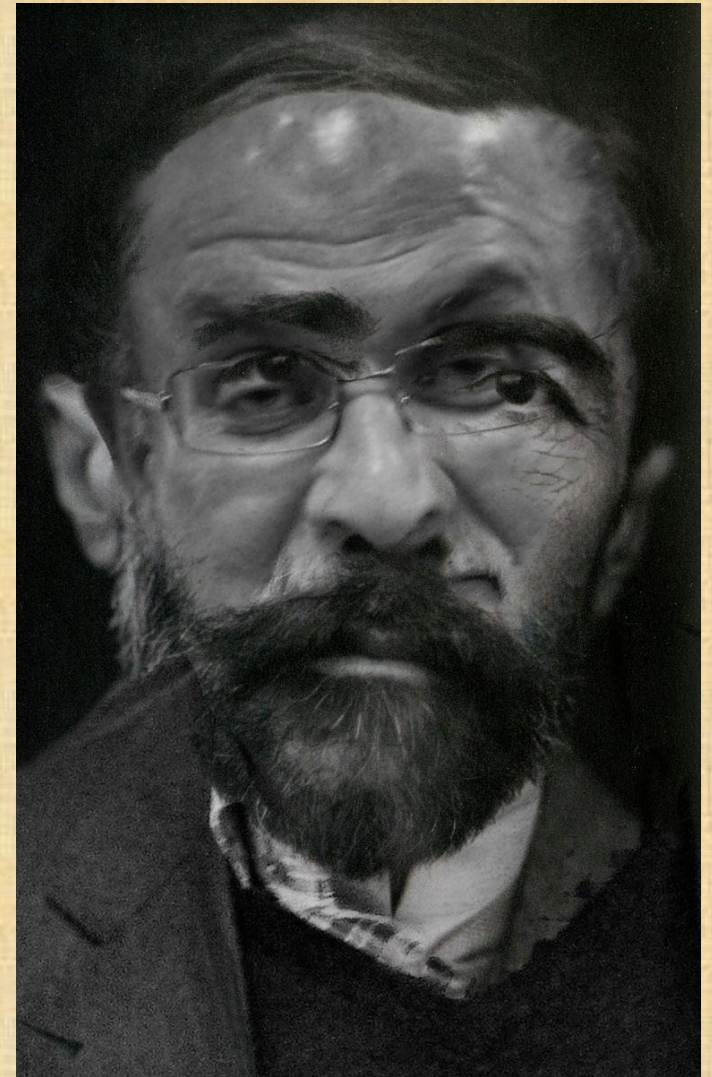
Robert Reed Jr OD

# To Sleep, Perchance To Dream

**Dr Robert Reed Jr OD**

**GWCO Congress**

**October 8, 2022**



**Joseph Anton – Salman Rushdie**



# **Financial disclosure**

**I have no financial backing with any company**

**I am an independent distributor of NEWYOU CBD products**

**The opinions expressed in this talk are my own, based on 40 years of practicing Optometry, & being chronically sleep deprived.**

# Learning Objectives

**After attending, participant will be able to:**

- 1. Identify multiple reasons & functions of the sleep cycle.**
- 2. Differentiate various test methods used to evaluate sleep**
- 3. Assess various things that interfere & disrupt good sleep**
- 4. Recommend & use methods to enhance quality sleep**



# Course description

**Shakespeare's Hamlet - Act 3: Scene 1**

**Hamlet lamenting his situation, & wishing to relieve his anguish, in sleep, & perhaps a dream. What is sleep? How is it related to vision? Why do we spend 1/3<sup>rd</sup> of our life doing it? This class explores sleep, sleep disorders, tests to evaluate it, sleep apnea, & things that disrupt sleep. An extensive list of things will be covered to promote better quality of this critical life function to guide you to better zzzzzzz's.**

# How do YOU sleep?

Who got 8 hrs of sleep last night?

How many hours sleep/night is usual for you?

Do you dream?

How do you feel if you don't sleep well?

Do you have a sleep disorder?

Have you been tested for sleep apnea?

Does poor sleep contribute to health problems?

Do you sleep with your phone next to you?

Do you use anything to help you sleep?

Is sleep just a waste of time?



# **10 sleep myths**

- 1. Sleep is lost time, body & brain are shut down**
- 2. 1hr extra/less sleep doesn't matter tomorrow**
- 3. Body adjusts easy to different sleep schedules**
- 4. Older people need less sleep**
- 5. Extra sleep 1 night fixes fatigue**
- 6. You can catch up with more weekend sleep**
- 7. Naps are a waste of time**
- 8. Snoring isn't dangerous**
- 9. Kids will be tired if sleep deprived**
- 10. The main cause of insomnia is worry**

# Reasons we sleep

- Shut down consciousness
- Processing daytime experiences
- Improves ability to learn & perform tasks
- Short term data to long term memory
- Delete thousands of impressions
- Cleansing & purging of all body systems
- Building muscle, bone, hormones
- Rebuild immune system



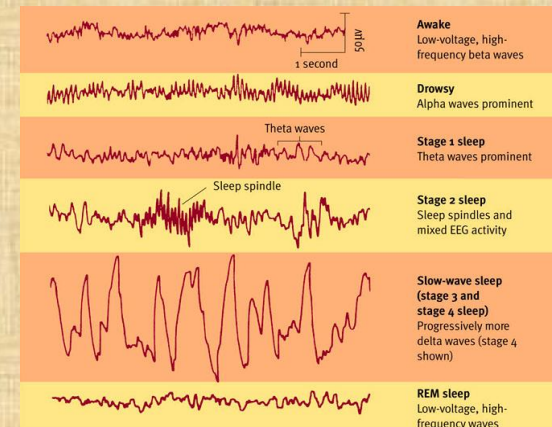
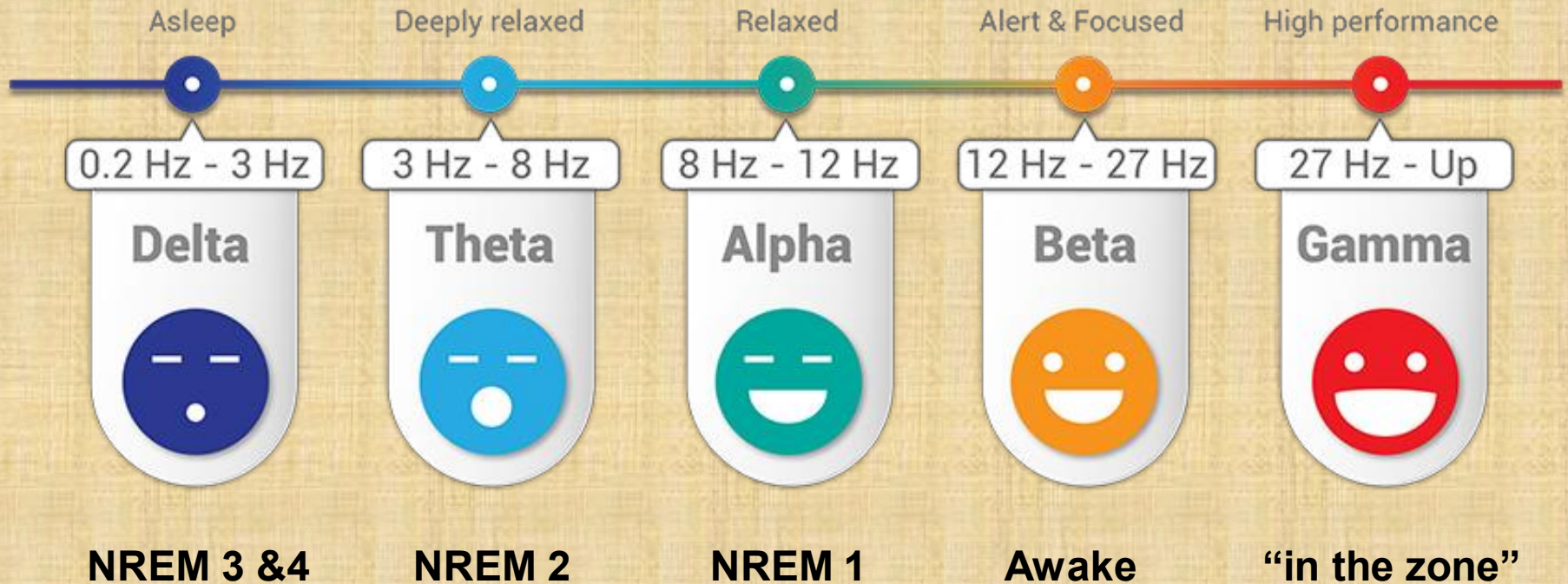
# Sleep cycle

- **Awake** – Beta waves, normal muscle/breathing/heart activity
- **Stage 1 – dozing NREM (1-5m)**
  - EEG slows, Alpha waves, breathing/heart regular
- **Stage 2 – In between (10-25m)**
  - EEG saw-tooths, Theta waves, muscles relax, breathing/heart slows
- **Stage 3 – deep sleep 1(5-10m) early ½ of night**
  - EEG drops, 'transition', body shutdown, immune/body recover/grow
- **Stage 4 – deep sleep 2 (15-30m) less AM sleep**
  - (SWS) Delta wave, hardest to awaken, residual groggy if awaken
- **REM sleep – dreams (10 – 60m)**
  - EEG = awake, muscles atonic, breathing erratic, heart rate normal
  - EOM rapid (needs 20% of sleep time)

\* >50% 2, ~ 40% REM/3+4, ↑REM = ↓3 + 4, 3 + 4 earlier in night



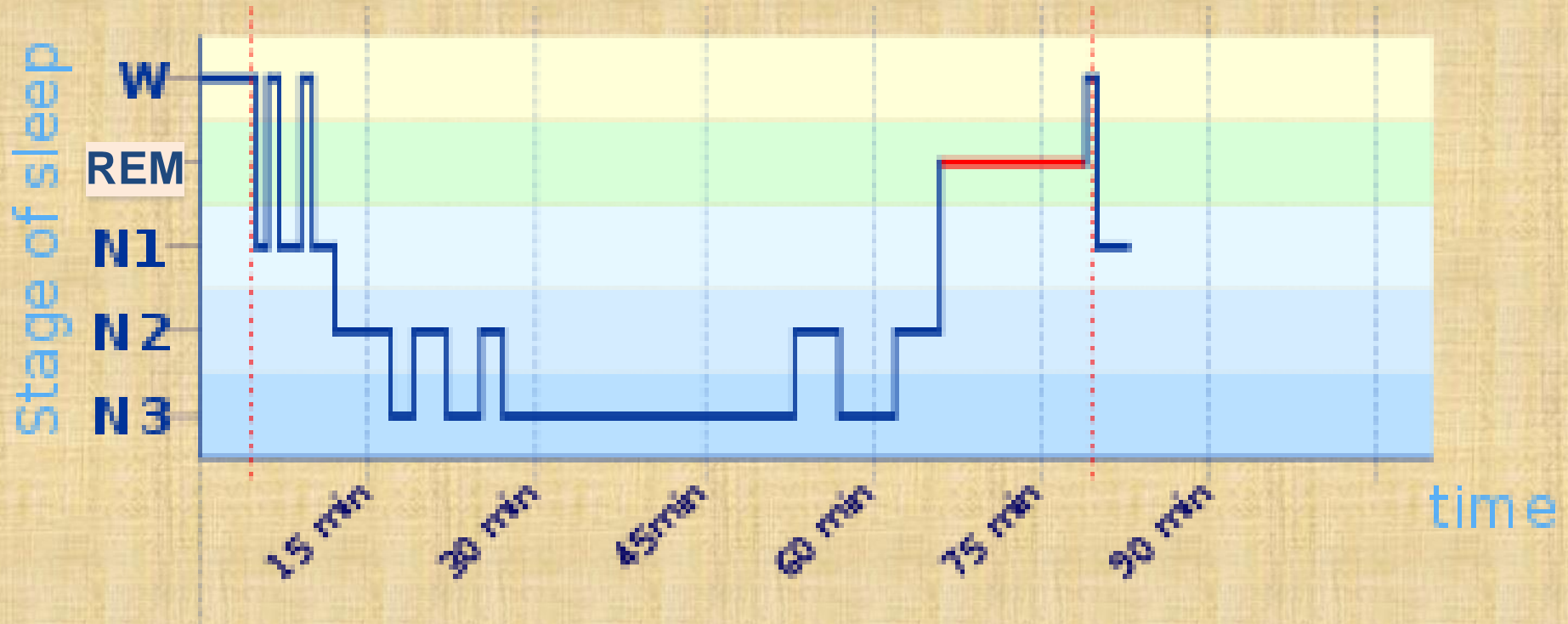
# Brain waves





# Sleep cycle

Hypnogram one sleep cycle



# What do we need?

- **CDC - 7-9h/night consistently**  
**1/3<sup>rd</sup> of US adults get <7h/n**
- **National Sleep Foundation 2020**  
**>55% of US adults report not enough sleep**
- **NIH Sleep Science & Sleep Disorders**  
**50-70M US adults have sleep disorders**
- **Need 4-6 REM/n**
- **Need 2-3 Stage 4/n**
- **1hr difference**  
**Happier & healthier**





# Measurements of sleep

Quality & quantity

Reduced length & brainwave activity by age

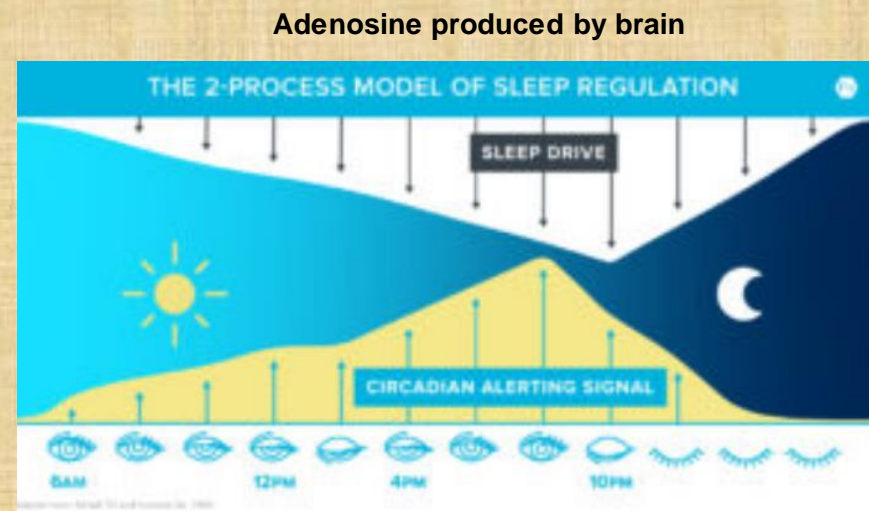
Sleep efficiency

Time awake/sleep session

Disrupted timing of sleep

Circadian rhythm shift

Early sleep/nap/  
awaken/early rise



ipRGC photoreceptors perceive light

# Lack of sleep effects

- Lose creative/problem solving
- Can't concentrate
- Mentally unstable
- Accident prone
- Forgetful
- Depression
- Confusion
- Irritable
- Dozing off





# Sleep chemicals

Adenosine brain produces when awake

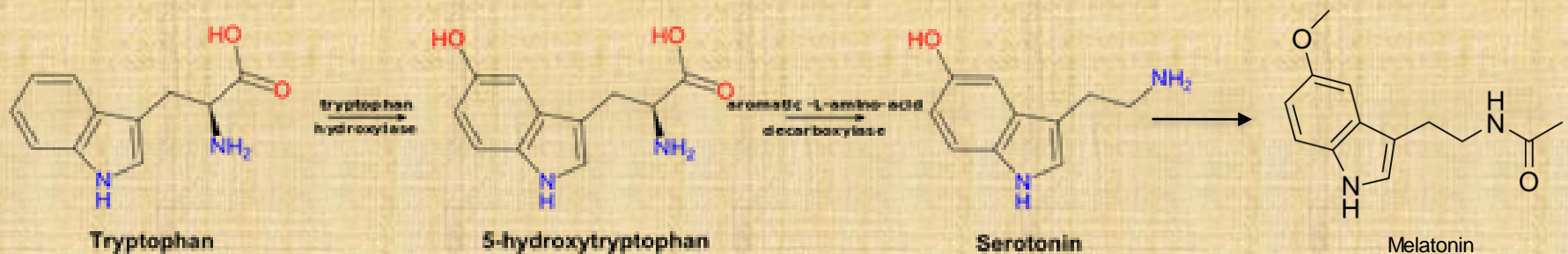
Melatonin part of circadian rhythm (sleep)

Cortisol part of circadian rhythm (awake)

Human growth hormone ( in sleep)

Leptin – appetite suppression ( in sleep)

Ghrelin – appetite stimulant ( in sleep)



# Sleep disorders

- **Insomnia**
- **Sleep apnea**
- **Narcolepsy**
- **Restless leg syndrome**
- **REM-sleep behavior disorder**



**\$16B/y - medical costs**

**\$411B/y-lost productivity & accidents**



# Snoring

**Occurs when soft palate, throat, neck, and tongue muscles relax in stage 2 sleep. – NOT disorder - NORMAL**

**Due to overweight, alcohol, sedatives, pregnancy**

**50% of adults snore, 1/2 of those loudly**

**Increases with age, men or women**

**Disrupts sleep causing next day fatigue**

**Increase incidence of car accidents**

**↑ risk of DM, Heart attack, Stroke, BP,**

**Sleep head elevated, or on side, use dental aid**

**Significant risk factor for Sleep Apnea**





# Insomnia

> 30m to go to sleep

Awaken multiple times/night

Can't get back to sleep >30m 3x/w >1m

'Sleep' 7-8h, but feel tired & doze off

Snore & partner says says stop breathing

Muscle weakness when laugh, angry, afraid

Need stimulants during day to stay awake

Treated by reconditioning or relaxation





# Sleep apnea



**Sleep interrupted breathing**

**May stop breathing 10-120 seconds 10 – 30x/hr**

**>25M US adults, another 100M undiagnosed**

**↓ Oxygen causes choking/gasping & wakes sleeper**

**Not all snoring is sleep apnea**

**Don't get deep restorative sleep**

**Frequent HA awakening, excessive tired, spontaneously fall asleep**

**40% fall asleep, 20% admit while driving at least 1/m.**

**3x likely in car or work accident**

**20% of car accidents are sleeping drivers**

**Triggers depression & behavior changes**

**Trouble concentrating, thinking, learning, & remembering**

**Triggers stress hormones, BP, heart attack, stroke, obesity, DM**

**3 mile Island & Chernobyl nuclear accidents & Exxon Valdez oil spill**



# Sleep Apnea

- 1) does your partner say you snore loudly?
- 2) do you need a nap during the day?
- 3) do you wake up with a headache?

**“Yes” to 2 of 3 = >90% sleep apnea**

**>50 yo male, neck > 16”, waist >40**

**(BMI>30) or HBP = 98% sleep apnea**

**25% of men, 10% of women**

**Dx - Sleep study**

**TX - C-pap**





# Narcolepsy

**Lack of hypocretin in brain (stimulates wakefulness)**

- A. Extreme overwhelming day sleepiness**
  - B. “Sleep attacks”- seconds-30m, without warning**
  - C. Hallucinations**
  - D. 3 other common symptoms**
    - cataplexy – muscle paralysis (secs – mins)**
    - sleep paralysis – can’t talk or move when wake up**
    - vivid dreams – immediate on sleep, reality confusion**
- 1% of US, but likely 75% undiagnosed**
- 60% misdiagnosed with sleep apnea or depression**
- Tx – 3 naps/day, 30m outdoors/d ,CNS stimulants, anti-depressants, driving & work restrictions**





# **Restless Leg Syndrome(RLS)**

**5-15% of US, female>male, more with age**

**Prickly, tingling calves/legs**

**Creepy, crawly skin wake a person**

**PLMS periodic limb movement sleep**

**5-90s of spontaneous abrupt limb spasms**

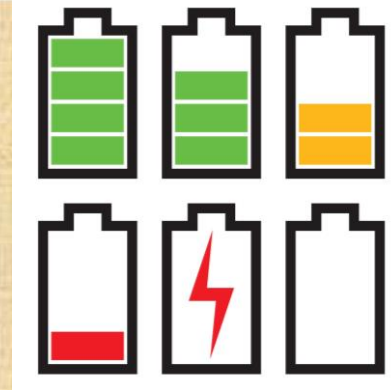
**Dopamine drugs, iron, B-12 shots,  
magnesium(bananas), sedatives, behavior  
modification**



# REM parasomnias

- **Mixed sleep & awake states**
  - Dream activity in NREM stages
  - Dreams seem real ✓
  - Sleep walking
  - Talking in sleep ✓
  - Sleep paralysis or after waking
  - Acting out dreams ✓
  - Night terrors ✓
- **More elderly**

# Adrenal Fatigue



**1998 James Wilson PhD naturopath named Endocrine Society (gland docs) say it isn't a disease**

**Proposed mechanism:**

**chronic extreme stress loads or chronic infections  
immune system revved up producing cortisol  
adrenal glands "burn out" from overproduction,  
so can't regulate cortisol production properly  
buildup & inability to burn gut fat**

**Confused with: depression, sleep apnea, fibromyalgia**

**Treatment: B-complex, CoQ10, magnesium, Vit C,  
lifestyle modification, better sleep, CBD oil, better diet**

**Difficulty: cause/effect catch 22, medical denial**



# Adrenal fatigue

## 7 key Symptoms:

1. **Wake up struggle in AM, even after “long sleep”**  
(cortisol is “awake” chemical)
2. **High fatigue daily** (cortisol causes energy burn)
3. **Feels constant stress** (cortisol is “fight/flight” chemical)
4. **Crave salty foods** (Na+, K+, Mg+ deficiency)
5. **Higher energy in evening** (cortisol spike)
6. **Over use sugar & caffeine** (lack daytime cortisol)
7. **Weak immune system**( cortisol ↑ inflammation)





# **Sleep deprivation Tests**

- 1. Polysomnography – sleep study**
  - 3 questions – in office**
    - Does partner say ‘you snore horribly’**
    - Do you need nap or fall asleep during day**
    - Do you wake up with a headache**
  - Spoon test**
  - Sleep cycle phone app**
  - Sleep diary**



# Spoon sleep test



**Take a spoon & cookie pan to bedroom**

**Set pan on floor next to bed**

**Turn off lights, lay on edge of bed**

**Hold spoon in hand over edge of bed above pan**

**Close eyes, take 5 deep breaths, & relax**

**\*If sleep deprived, you'll wake by the sound of the spoon hitting the cookie sheet <5min**

**\*If severely sleep deprived, WON'T wake when the spoon hits the pan.**

# Sleep diary

## Sample Sleep Diary

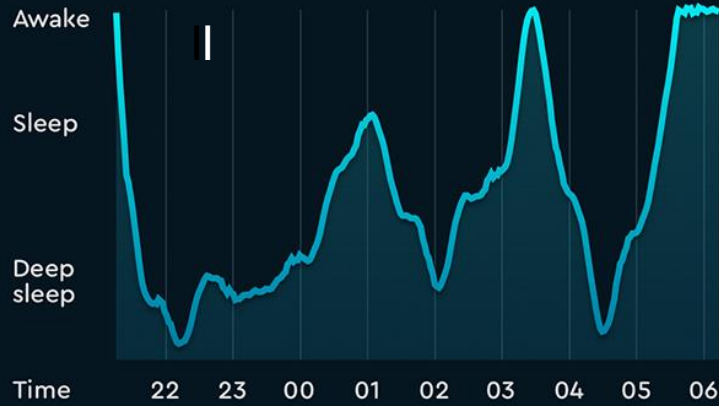
Name:

<b>Complete in the Morning</b>	Today's date (include month/day/year):	Monday*								
	Time I went to bed last night:	11 p.m.								
	Time I woke up this morning:	7 a.m.								
	No. of hours slept last night:	8								
	Number of awakenings and total time awake last night:	5 times 2 hours								
	How long I took to fall asleep last night:	30 mins.								
	Medications taken last night:	None								
<b>Complete in the Evening</b>	How awake did I feel when I got up this morning? 1—Wide awake 2—Awake but a little tired 3—Sleepy	2								
	Number of caffeinated drinks (coffee, tea, cola) and time when I had them today:	1 drink at 8 p.m.								
	Number of alcoholic drinks (beer, wine, liquor) and time when I had them today:	2 drinks 9 p.m.								
	Nap times and lengths today:	3:30 p.m. 45 mins.								
	Exercise times and lengths today:	None								
How sleepy did I feel during the day today? 1—So sleepy had to struggle to stay awake during much of the day 2—Somewhat tired 3—Fairly alert 4—Wide awake	1									

\* This column shows example diary entries—use as a model for your own diary notes.



# Sleep cycle app



**Wake up easy tomorrow.**

Let your phone analyze your sleep and wake you up with a gentle alarm in the lightest sleep phase – the natural way to wake up feeling rested.



# Ocular complications

- **Myopia progression**
- **Glaucoma**
- **Macular degeneration**
- **Cystoid macular edema**
- **Central serous retinopathy**
- **Diabetic retinopathy**
- **Ischemic optic neuropathy**



# Classic emergency phone call

- **1<sup>st</sup> thing of the morning...ring... ring...**
- **“I went to bed seeing fine, this morning I woke up & ½ of my vision is gone.”**
- **Acute ischemic optic neuropathy**
- **Most likely Obstructive Sleep Apnea**
- **Central Serous Retinopathy, retinal hemorrhages, Diabetic Retinopathy all blow-up during disrupted sleep cycles**

# Medical complications

**Hypertension**

**Heart disease**

**Heart attack**

**Seizures**

**Stroke**

**Asthma**

**COPD**

**Inflammation**

**Chronic pain**

**Diabetes**

**Cancer**

**Anxiety**

**Depression**

**Weak immunity**

**Alzheimer's**

**Dementia**

**Death**



# Recent study results

Journal of Sleep Research June 8, 2021

500,000 adults in UK >9yo

Diabetes --- with/without

Sleep issues --- “never/sometimes/usually”

11% ↑ risk of death if sleep issues

67% ↑ r/o/d for diabetic

95% ↑ r/o/d for diabetic  $\propto$  sleep disturbance

Conclusion: sleep issues need addressed by  
physicians especially in diabetics



# Sleep disruptors

- Caffeine/power drinks/late or heavy meals
- Decongestants
- Nicotine
- Anxiety
- Overweight
- Alcohol
- Blue light (HEV)
- Electro-magnetic fields & ELFs
- No naps after 3pm





# Sleep aids

Bedtime routine

Pillows/mattresses

<65° room temp

Warm bath

Hot de-caf tea

Avoid alcohol

Nasal strips

Complete dark

NO tech prior 2 hrs

Soothing music

Breathing/Meditate

CBD oil

EMF/ELF protection

OTC sleep meds

C-PAP

Sleep Rx

## DID YOU KNOW?

Eating just 2 Pistachios before bed...



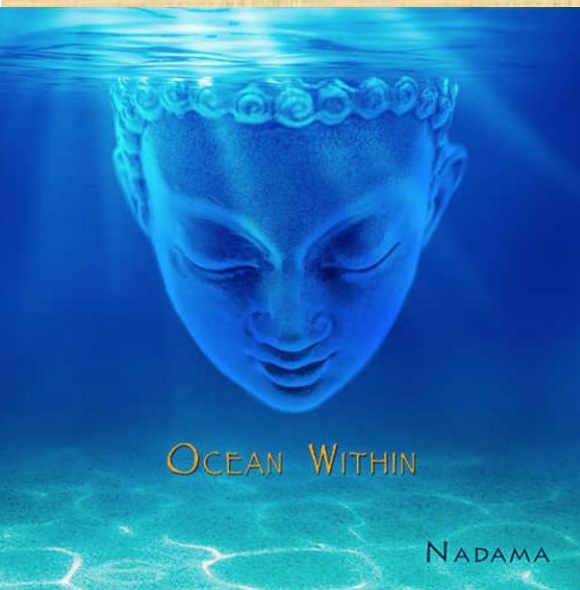
Helps with sleep as they are the most melatonin rich food ever recorded. Eating a whole handful of pistachios is like a high-dose melatonin supplement!





# Music frequencies

- **Wholetones.com**
  - Life, Love, & Lullabies



frequency  
instrumental

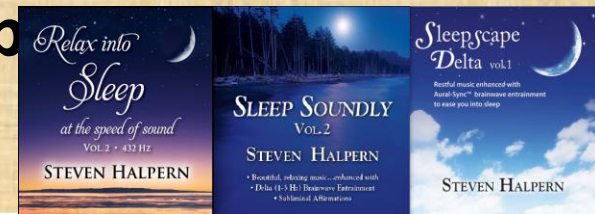
music.com

piano albums



- [StevenHalpern@innerpeacemusic.com](mailto:StevenHalpern@innerpeacemusic.com)

– 83 frequency CDs with various purposes





# CBD Oil

- ECS balancing
- **NEWYOU – Sleep**
  - Melatonin
  - L-Theanine
  - Valerian root
  - GABA
  - Nanoamplified CBD (10x)
  - Hemp Canna-Actives™ phytocannabinoids
  - Passionflower
- **Immune system support**
  - Decreases inflammation



# OTC sleep supplements

- Avinol PM (#1 2020 online)
- Somnafil (#1 2021 online)
- Resurge (sleep & weight loss)





# Resurge

## Ingredients:

Ashwagandha - ↓ stress/cortisol

L-Theanine – brain entrainment  
(moves to alpha waves)

Melatonin - master sleep hormone  
promotes faster, deeper sleep

5-HTP – increases serotonin

L-arginine - ↑ deep sleep, fat ↓ ↑ HGH

L-Lysine - ↑ L-argine effect, 8x HGH

Magnesium - ↓ anxiety

Zinc - ↑ immune, ↑ muscle growth, fat ↓



Contact info: [www.resurgestore.com](http://www.resurgestore.com)



# C-Pap machine

Constant positive air pressure

Fits on face, but pain in the butt

Restored oxygen helps sleep apnea, insomnia, snoring

Many types: Market is \$4.3B, growing 10%/y

Uniform pressure

Auto-adjust – variable preset levels overnight

Bi-pap different pressures for inhaling/exhaling

Travel machines



Need cleaning system

Various headgear of mixed

“usability” – find one that you can

**LIVE** with!

1 year of C-Pap REVERSES brain damage



# Rx Sleep medicines

- Xanax, Paxil, Zoloft, Valium
- Prozac
- Lunesta
- Restoril
- Halcion
- Sonata
- Ambien



**9M American's use Rx sleep meds**

**\*\*\*Have you read the toxic & side effects?**



# Question # 1

Which is NOT a reason we sleep

- a) Process daytime experiences
- b) Convert data from short to long term memory
- c) Cleansing systems
- d) Replenish adenosine**
- e) Build bones, muscles, & hormones



# Question # 2

**Which sleep statistic ISN'T supported by sleep research organizations**

- a) Adults need 7-9 hrs of sleep/night
- b) Adults need 4-5 REM sessions/night
- c) Older adults need less sleep**
- d) 1/3<sup>rd</sup> of US adults get <7 hrs sleep/n
- e) 75% of US adults report they're tired



# Question # 3

Which of the following is **NOT** part of the **SLEEP CYCLE**

- a) Awake
- b) REM
- c) NREM 1
- d) NREM 2
- e) NREM 4





# Question # 4

Which of the following is **NOT** classified as a sleep disorder

- a) Insomnia
- b) Snoring**
- c) Sleep apnea
- d) Narcolepsy
- e) Restless Leg Syndrome



# Question # 5

**Which sleep apnea statement is FALSE?**

- a) Interrupted breathing decreases brain O<sub>2</sub>
- b) Creates excessive tiredness, morning headaches, & daytime falling asleep
- c) Affects concentrating, thinking, learning, & memory
- d) Triggers HT, heart attack, stroke, diabetes, & death
- e) Is personal problem, not global concern



# Question # 6

Which of the following is NOT a test for sleep deprivation

- a) Polysomnography
- b) Sleep cycle phone app
- c) Sleep diary
- d) 3 questions (snore/nap/headache)
- e) Fork test

# Question # 7

Which ocular condition is **NOT** associated with sleep deprivation

- a) Macular degeneration
- b) Cataracts**
- c) Diabetic retinopathy
- d) Myopia progression
- e) Glaucoma





# Question # 8

Which systemic condition is NOT associated with sleep deprivation

- a) Fungus nails
- b) Stroke
- c) Hypertension
- d) Depression
- e) Death



# Question # 9

Which item is NOT considered a sleep 'disruptor'

- a) Power drinks
- b) Blue light (HEV) from smart phones & digital devices
- c) Being overweight
- d) Instrumental music**
- e) Alcohol



# Question #10

Which item is NOT a sleep enhancer

- a) CBD oil
- b) Warm bath
- c) Room temperature over 70°**
- d) Hot decaf tea
- e) Completely dark room



WE ONLY  
LIVE  
ONCE.

WRONG!  
WE ONLY  
DIE ONCE.  
WE LIVE  
EVERY DAY!



# **To be or not to be**

**'To sleep' isn't the most famous phrase of  
Shakespeare's Hamlet**

**The fundamental question of our existence**

**Optometry is a unique AMAZING profession**

**Paraoptometrics (YOU!) are critical to the  
profession & patients lives**

**What do YOU want to do, to be, to achieve?**

**SLEEP ON IT !!!**

# Housekeeping

**Thanks for attending**

**Be sure to get your CE credit**

**Next up:**

**Concussion: Don't Just 'Shake It  
Off'**